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Values of Football Referees

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Abstract

Almost every team that has been defeated in recent years has indicated football referees as the first guilty, and the public pressure on the referees managing the competitions is increasing. Despite these adverse conditions, it is considered important to determine what values the football referees have to manage the competitions. The aim of this research is to determine the value orientation of football referees. The research group consisted of 35 male football referees actively refereeing in the 2019-2020 Football Season in Turkey. Research data was obtained through semi-structured interview method. The data were evaluated by content analysis method. As a result of the research, various values were reached in social, personal, morals, belief, culture, extraversion, sensing, thinking, feeling, judging categories.

Keywords: Values, Football, Referee

INTRODUCTION

Values are beliefs shared by society. Every culture has certain values and these values distinguish it from other cultures. Values reveal what people should or don't accept, how they should think, feel and act (11). Values are important dynamics that make people happy and form their cultural substructure. It is not possible for people to adopt values by force, values are taught with voluntary obedience. The best way to teach values is to love the concepts that values represent (37). The concept of value expresses the desired, the interest and the need and what should be. Values are act and ideal, as well as having a practical character. Therefore, values are people's conditions of existence. People create their values as a result of the relationships they establish with assets (7). Values are standards or principles that make judgments about objects, people, beliefs, thoughts and behaviors such as good, bad, desired, undesirable (22).

Nowadays, the dominance of globalizing values harms social values and changes some values; changing values cause people to change their understanding and character. Morality is defined as the habits and tempers that people obtain by making them according to the value judgments they place on the phenomenons. Then, with the change of people's value judgments, their morals, their characters change. From these perspectives, values are essential to protect individual and social identity (30). Because historically, moral values are as old as civilization, law and states and existed through certain universal rules (29).

Sports determines which behaviors are prohibited, fair, necessary, permitted and encouraged in terms of values. Sports is a very important tool of moral education, sports competitions are the best way to understand the values accepted by the society. Sports provides learning of universal values during the competition (35). It is a fact that sports teaches individuals such as moral character, self-esteem, teammate, competitor, game rules, ethics and fair play (31). However, as sports become increasingly professionalized, commercialized, and pressure to win, the resulting conflict situation leads to a dilemma between playing honestly in sports and cheating to win (40). World states or policy makers, the values that sports bring to athletes; health,

renewal, social participation, social control, employment, love for the homeland and nation, rivalry, winning and losing. In terms of societies, the values gained by sports are; observed as money, fame, celebratedness, medal, weight loss or appearance. Hence, the values gained by athletes through the sports experiences are complex and contradictory (16).

Football is an important phenomenon that trails people around the world with its footballers, coaches, managers, referees, fans and media, both economically and culturally (44). Football referees who play a very important role in the management of football matches also have a very important career and a great ethical responsibility in protecting the rules of the game and the morality of the game (8). Almost every team that has been defeated in recent years has indicated football referees as the first guilty, and the public pressure on the referees managing the competitions is increasing. Despite these adverse conditions, it is considered important to determine what values the football referees have to manage the competitions. The aim of this research is to determine the value orientation of football referees.

MATERIAL & METHOD

Research Model

The research has been evaluated with the phenomenology approach pattern which is one of the qualitative research models. Qualitative research aims to analyze the opinions of individuals or groups through assumptions and to analyze the data obtained in natural environments by creating themes through induction and deduction (9). The phenomenology approach focuses on how individuals perceive, make sense, judge and how they feel about the phenomenon (32). Research data was obtained through semi-structured interview method. This method has the flexibility to adapt to different research situations (33). In other words, it allows the people who make the semi-structured interview to go out of the specified questions and mention special topics (5). In addition, through the interview, it is tried to be determined the participants emotions and thoughts that cannot be observed and how they attribute meaning to the events they experience (32).

Research Group

The research group consisted of 35 male football referees actively refereeing in the 2019-2020 Football Season in Turkey. The research group was selected according to the maximum diversity sampling, which is one of the purposeful sampling methods used in qualitative research (41). Codes (such as FR1, FR2, FR3,…) were given to the football referees participating in the interview.

Table 1. Results of the football referees regarding age, referee level, educational status, referee year and interview date

Codes	Age	Referee Level	Education Status	Referee Year	Interview Date
FR1	32	Regional Referee	University	13	12.09.2019
FR2	41	Classification Assistant Referee	University	17	12.09.2019
FR3	43	Upper Classification Assistant Referee	University	22	13.09.2019
FR4	29	Province Referee	University	7	13.09.2019
FR5	28	Province Referee	University	7	14.09.2019
FR6	29	Province Referee	University	8	14.09.2019
FR7	25	Province Referee	University	6	14.09.2019
FR8	32	Classification Referee	University	11	15.09.2019
FR9	36	Classification Referee	University	11	15.09.2019
FR10	28	Classification Assistant Referee	Master's Degree	8	16.09.2019
FR11	26	Province Referee	University	7	17.09.2019
FR12	33	Classification Assistant Referee	University	12	18.09.2019
FR13	32	Regional Referee	University	11	18.09.2019
FR14	44	Classification Referee	High School	21	19.09.2019
FR15	40	Classification Referee	University	21	19.09.2019
FR16	47	Upper Classification Referee	University	25	20.09.2019
FR17	26	Classification Referee	University	8	21.09.2019
FR18	26	Classification Referee	University	7	22.09.2019
FR19	25	Regional Referee	University	7	23.09.2019
FR20	35	Regional Referee	University	14	23.09.2019
FR21	33	Classification Referee	University	13	24.09.2019
FR22	39	Classification Referee	University	17	24.09.2019
FR23	37	Classification Assistant Referee	University	19	24.09.2019
FR24	27	Province Referee	University	7	25.09.2019
FR25	31	Classification Assistant Referee	University	11	25.09.2019
FR26	30	Regional Referee	University	9	26.09.2019
FR27	26	Regional Referee	University	8	27.09.2019
FR28	27	Regional Referee	University	8	27.09.2019
FR29	38	Province Referee	High School	10	28.09.2019
FR30	35	Regional Referee	University	17	28.09.2019
FR31	39	Classification Assistant Referee	University	18	28.09.2019
FR32	36	Classification Referee	University	13	29.09.2019
FR33	34	Classification Assistant Referee	Doctoral Degree	13	29.09.2019
FR34	40	Province Referee	Master's Degree	17	30.09.2019
FR35	33	Classification Referee	University	11	30.09.2019

Data Collection Tools

The data were accessed through the Personal Information Form and the Semi-Structured Interview Form prepared by the researchers. The Personal Information Form consists of 4 questions including the referees' age, educational status, level of referee and year of referee.

In the Interview Form, there are 3 questions, consisting of semi-structured open-ended questions, which cover the opinions of football referees about what values sports gain in their lives, spiritual values that guide them before the competition and the character structure that a good football referee should have.

Qualitative research focuses more on internal validity. For this reason, in order to increase the internal validity of the interview form, the opinions of three lecturers from the sports sciences were consulted, and 3 football referees selected from the target group were piloted on the sample and the questions were finalized (36). The validity and reliability of the research was provided by using credibility, interaction, depth-oriented data collection and participant confirmation strategies (28). The ethical dimensions of the research processes are the voluntary participation of referees in the research, risks of the interview and keeping participants' names confidential, data protection, the findings are objectively and carefully reflected (5).

Research data was attained through phone calls. In qualitative research, it is stated that phone calls are an effective tool for collecting data and in some cases the most suitable method due to geographical position (5). Research different add those in Turkey, it has been included football referee working in different classifications, regions and provinces. For this reason, it was thought that a larger group of referees would be reached by phone call. Interviews were held between 12-30 September 2019 with permission and appointment from football referees. Interviews took between 12-20 minutes on average.

Data Analysis

The data of the research were evaluated by content analysis method. In the content analysis method is paid attention to the processes of what data to include in the analysis, what to analyze, how to effectively use the analysis steps and coding tables (5).

Qualitative data, which were made into written documents, were read by a researcher and two experts, and themes were created, and themes were determined with agreement and disagreement. Data reliability calculation of Miles and Huberman (1994): Agreement theme / Agreement + Disagreement theme X 100 calculated through the formula. According to the formula result, the compatibility between the themes should be 70% and above (38). According to this formula, the harmony between the themes determined by the researcher and experts was determined as 86 / 95 x 100 = 90.5. Nine disagreement codes are associated with other appropriate codes.

RESULTS

In Table 2, the results of the thoughts of the football referees about what values the sport brings in their lives are given.

Table 2. Results regarding the opinions of football referees about what values sport brings in their lives

Category	Themes	f
Social	Social Environment	19
	Character Development	7
	Self-confidence	3
	Prestige	3
	Responsibility	2
	Communication Skill	2
	Leadership	2
	Connecting to Life	2
	Establishing Authority	1
Personal	Healthy Life	13
	Reasoning	5
	Quick Decision-Making	3
	Look from Different Perspectives	3
	Discipline	3
	Happiness	1
	Self Knowledge	1
Morals	Patience	8
	Respect	5
	Love	4
	Empathy	3
	Fairness	3
	Calm	3
	Equal Treatment	2
	Tolerance	2
	Objectivity	1
	Honesty	1
	Don't Lying	1
	Conscience	1
	Friendship	1

The most frequently expressed theme under the "Social" category was "Social Environment" in the thoughts of football referees about what values sports bring in their lives. FR13 of football referees expressed this theme as follows: "… I had a very wide social circle thanks to football referee. I wouldn't have met a doctor, a super league referee, a Fifa referee if I wasn't a referee, I'm not in the sport. So wherever we go, he's familiar…"

Football referees also expressed the themes of "Character Development, Self-confidence, Prestige, Responsibility, Communication Skill, Leadership, Connecting to Life and Establishing Authority" under the "Social" category.

The most frequently expressed theme under the "Personal" category was "Healthy Life" in the thoughts of football referees about what values sports bring in their lives. FR15 of football referees expressed this theme as follows: "… you protect

your health by doing sports, by training 3-4 days a week, you have a quality lifestyle in your health…"

Football referees also expressed the themes of "Reasoning, Quick Decision-Making, Look from Different Perspectives, Discipline, Happiness, Self Knowledge" under the "Personal" category.

FR16's view on the theme of "Look from Different Perspectives" was remarkable during the interview: "… I directed the game of many star footballers at the international level. I met many people, I knew the world, I learned to look at life from a wide perspective. My horizon has expanded…"

The most frequently expressed theme under the "Morals" category was "Patience" in the thoughts of football referees about what values sports bring in their lives. FR14 of football referees expressed this theme as follows: "…first of all, sports taught me to be more patient… footballers can react very hard sometimes because they put a lot of effort and focus on winning… Sports taught me not to react immediately to the behaviors and reactions I saw… made me a patient person…"

Football referees also expressed the themes of "Respect, Love, Empathy, Fairness, Calm, Equal Treatment, Tolerance, Objectivity, Honesty, Don't Lying, Conscience, Friendship" under the "Morals" category.

Table 3 presents the results of the football referees' thoughts about the spiritual values that guide them before the competition.

Table 3. Results regarding the opinions of football referees about the spiritual values that guide them before the competition

Category	Themes	f
Belief	Pray to God	13
	Equality and Justice	7
	Mother's Prayer	5
	Wish the Referee Chance	4
	Concentration	3
	Conscience	2
	Reading Surah Fatiha	2
	Performing Ablution	1
Culture	Family	8
	Authority to Manage a Match Within the Rules	2
	Right-Footed Football Pitch	2
	Thinking of Your Daughter and Asking for Prayer	2
	Ethical Character	2
	Musn't Include Spiritual Values	2
	Sports Love	1
	Society	1
	Positive Communication with Other Referee	1
	Listening to Music in the Referee Room	1

The most frequently expressed theme under the "Belief" category was "Pray to God" in the thoughts of football referees about spiritual values that guide them before the competition. FR10 of football referees expressed this theme as follows: "… Every time I go to the match, I pray to God before the match and wish him good luck…"

FR32 on the theme of "Equality and Justice", which is mentioned in the second frequency, "… It is my greatest spiritual value to manage the match with a sense of equality and justice without taking the right of any team and not to take the match from one team to another team." He stated that.

Football referees also expressed the themes of "Mother's Prayer, Wish to Referee Chance, Concentration, Conscience, Reading Surah Fatiha, Performing Ablution" under the "Belief" category.

The most frequently expressed theme under the "Culture" category was "Family" in the thoughts of football referees about spiritual values that guide them before the competition. FR23 of football referees expressed this theme as follows: "… before the match, I am motivated by thinking of my

mother, father, wife and children and I go out for a match."

Football referees also expressed the themes of "Authority to Manage a Match Within the Rules, Right-Footed Football Pitch, Thinking of Your Daughter and Asking for Prayer, Ethical Character, Musn't Include Spiritual Values, Sports Love, Society, Positive Communication with Other Referee, Listening to Music in the Referee Room" under the "Culture" category.

Table 4 presents the results of the football referees' thoughts about the character structure that a good football referee should have.

Table 4. Results regarding the opinions of football referees about the character structure that a good football referee should have

Category	Themes	f
Extraversion	Diplomat	6
	Debonair	3
	Model	3
	Can Use Body Language Well	2
	Self Expressive	1
Sensing	Farsighted	3
	Confidential	2
	Awake	1
	Experienced	1
	Self-confident	1
Thinking	Honest	12
	Fair	6
	Fast and Accurate Decision Maker	5
	Unimpressionable	4
	Intellectual	2
	Open to Criticism	2
	Open for Improvement	2
	Conscientious	1
Feeling	Respectful	5
	Who Loves Your Job	4
	Empathetic	2
	Tolerant	2
	Devoted	2
	Business Ethic	2
	Nerveless	2
	Sincere	1
	Non-egoistic	1
	Not Gossiping	1
	Helpful	1
	Humanist	1
Judging	Courageous	6
	Coldblooded	5
	Disciplined	3
	Hardworking	3
	Authoritarian	3
	Who can Set a Target	1
	Steady	1
	Ambitious	1
	Unprejudiced	1

The most frequently expressed theme under the "Extraversion" category was "Diplomat" in the thoughts of football referees about the character structure that a good football referee should have. FR20 of football referees expressed this theme as follows: "… must have a high level of human relationship and communication. The more positive relationships are established outside and inside the field, these relationships help the referee management."

Football referees also expressed the themes of "Debonair, Model, Can Use Body Language Well, Self Expressive" under the "Extraversion" category.

The most frequently expressed theme under the "Sensing" category was "Farsighted" in the thoughts of football referees regarding the character structure that a good football referee should have. FR30 of football referees expressed this theme as follows: "… should be farsighted who can read the game well…"

Football referees also expressed the themes of "Confidential, Awake, Experienced, Self-confident" under the "Sensing" category.

The most frequently expressed theme under the "Thinking" category was "Honest" in the thoughts of football referees regarding the character structure that a good football referee should have. FR1 of football referees expressed this theme as follows: "… you have to be an honest person who can stand upright… you will make you believe that you are honest athletes, technical team, fans …"

Football referees also expressed the themes of "Fair, Fast and Accurate Decision Maker, Unimpressionable, Intellectual, Open to Criticism, Open for Improvement, Conscientious" under the "Thinking" category.

The most frequently expressed theme under the "Feeling" category was "Respectful" in the thoughts of football referees regarding the character structure that a good football referee should have. FR18 of football referees expressed this theme as follows: "… first of all, he must be respectful, he must not lose respect for his elders…"

Football referees also expressed the themes of "Who Loves Your Job, Empathetic, Tolerant, Devoted, Business Ethic, Nerveless, Sincere, Non-egoistic, Not Gossiping, Helpful, Humanist" under the "Feeling" category.

The most frequently expressed theme under the "Judging" category was "Courageous" in the thoughts of football referees regarding the character structure that a good football referee should have. FR3 of football referees expressed this theme as follows: "First of all, courage. Foreign educators have always taught us this, courage. You give position information to a referee who has no courage, how to show the foul, how to show the offside, but you cannot give the heart. You give everything you can't give heart. The heart is in the referee. If it doesn't happen, there's nothing to do. The referee will not be afraid on the field. This is the most important factor."

Football referees also expressed the themes of "Coldblooded, Disciplined, Hardworking, Authoritarian, Who can Set a Target, Steady, Ambitious, Unprejudiced" under the "Judging" category.

DISCUSSION & CONCLUSION

In Table 2, the results in the category of social values regarding the opinions of football referees about what values sports gain in their lives can be interpreted as they can meet their basic needs in the society and provide a social environment and character development that through sports and provide a social environment and character development that positively affects their psychology. It can also be explained that they are in a position that is in a reputable position with the status of football referee in the society with a sense of trust in them, they are people who have a strong sense of communication and who can direct their environment. Jones and Lavallee (24) found that self-confidence and communication values are important in young athletes. Yıldız (42) determined the values that national wrestlers gained through sports as self-confidence, adaptation to society, maturation and responsibility. Karakullukcu and Yildiz (25) stated that national boxers gained values such as self-confidence, responsibility, leadership, socialization and protection from bad habits through sports. Gorbenko and Gradusov (18) found that the most important Olympic values are dignity, excellence and friendship. Yıldız and Karakullukçu (44) determined that sport develops values such as social relations, self-confidence, responsibility, and prestige in people. Baştuğ et al. (4) stated that football referees' decision-making skills increased as their self-esteem increased. Aksoy (1) found that there is a positive and high level relationship between football referees' communication skills and self-confidence. Yıldız and Güven (43) determined that sports improved socialization, self-confidence and responsibility values in the life of national athletes.

The results in the category of personal values can be interpreted as that football referees lead a fit and happy life through regular sports, produce logical ideas, make quick decisions, evaluate life from different perspectives, have an order in their lives and discover their own characteristics. Karakullukcu and Yildiz (25) determined that national boxers gained values such as health, discipline and happiness through sports. Jones and Lavallee (24) found that young athletes considered the discipline value important. Demir (14) stated that football referees made a quick and timely decision by carefully evaluating the alternatives within the framework of the game rules during the decision making process. Yıldız and Karakullukçu (44) determined that professional footballers develop values such as health and discipline in football.

The results in the category of morals values can be explained as that football referees learn to wait quietly in negative conditions, to be attentive and careful, to be close and loyal, to be looked after by others, to stay away from truth, to be moderate and cautious, to be at the same distance for everyone, to understand events with comprehending, to live friendly without leaving truth. Yıldız (42) determined the values that national wrestlers gained through sports as patience, respect, love, equality, empathy, gentlemen and tolerance. Isidori et al. (23) pointed out that refereeing is a process that requires interpretation of the rules of sports within the framework of ethical and moral values and referee training is important. Çiftçi et al. (12) stated that scouting improved their values of love, respect, friendship and tolerance. Yıldız and Karakullukçu (44) found that professional footballers develop values such as respect, tolerance, empathy, patience, friendship and gentlemen in football. Deveci (15) determined that football referees behaved ethically while managing the match and that the referees considered the concept of fairness, one of the biggest values of refereeing. Carlsson (8) stated that the rule knowledge of football referees is the most important competence and the morality of the game should be given priority. Karakullukcu and Yildiz (25) found

that national boxers gained values such as gentlemen, respect, empathy, tolerance, and calmness through sports.

In Table 3, the results in the category of beliefs about the opinions of the football referees about the spiritual values that guide them before the competition can be explained as they prayed to God to conduct a good match before the competition, and that they did not distinguish between the two teams by approaching within the framework of rights and law. In addition, it can be interpreted that they feel strong with their mother's prayer, they say "May God give a chance to the referee" and they are motivated by concentrating their attention on the competition. Yıldız and Güven (43) found that one of the important spiritual values that roborant national athletes is religious beliefs. Cruz et al. (10) determined that equality and fairness values are important for male footballers. Yıldız (42) stated that national wrestlers gained equality value in sports.

The results in the culture category can be explained as that football referees are prepared for the competition by thinking about the people who have blood ties or cognate, and that they are motivated by the power of football game rules, they trust the moral infrastructure in their characters and they care about social values. Yıldız (42) stated that sports gained human values that are accepted in the society and tried to be taught to individuals from a young age, and determined that the family is an important value for national wrestlers. Yıldız and Güven (43) found that family and loved ones are an important spiritual value for national athletes.

In Table 4, the results in the extraversion category regarding the opinions of football referees about what character should be in order to be a good football referee can be explained as being capable of human relations, welcoming people by being sincere, exemplary with their behavior and success. It can also be said to have character features that use body language, which is an effective way of nonverbal communication, and expresses thoughts, feelings clearly. Demir (14) stated that football referees are generally social people who like to talk to people, enterprising and do not like loneliness. Kasımoğlu (26) determined that the communication and body language training program applied to football referees is effective in terms of trust, mental endurance, communication and problem solving skills of referees.

The results in the sensing category can be explained as that can predict what will happen in the future, believe and give confidence, be careful and alert, have seen and experienced, and believe that they can control themselves and events. Gülle et al. (21) found that football referees have high self-confidence in decision making. Çimen (13) determined that self-confidence is the most important feature of football referees, and the referees with low self-confidence can experience situations such as intense stress, anxiety, lack of motivation and wrong decision making in the competition environment. It can be said that the pressure put on the referees by the players, coaches and spectators reduces their self-confidence and causes the matches they manage under stress to make wrong decisions. There are researches supporting this interpretation (17, 34).

The results in the category of thinking can be explained as that act in accordance with the rules, without leaving fairness and justice, making quick and correct decisions, and not making wrong decisions under pressure. In addition, it can be interpreted as that use the ability of intelligence and thinking for the purposes of their profession, take into account criticisms and use them for their professional development, and look after everyone rights. Bailey (3) determined that sports have important and decisive contributions to lifestyle, social skills and social behavior development. Contrary to the findings of the research, there are studies regarding the support of the host team or the crowd noise (19, 39), personal and social factors (6), exposure to violence (27) negatively affect the performance of football referees.

The results in the feeling category can be explained as not having great respect for someone without fail, doing referee love and willingness, understanding someone else's feelings, tending to understand events with comprehending. On the other hand, it can be interpreted as making self-sacrifice for a purpose, trying to do the refereeing thoroughly, controlling its behavior by controlling its nerves, acting with open heartedness, overcome his ego, not spending time with gossip, trying to help people. Albayrak (2) determined that the skills of football referees that they developed in referee positively affect their performance and that their refereeing gave them privilege.

The findings in the judging category can be explained as making decisions without fear, being cool, organized, zealous and determined in his life, using his power and authority, determined and without definitive provisions. Guillen and Feltz (20) stated that an ideal football referee should be consistent, determined, equal, honest, calm, reassuring, besides following the rules of football play.

As a result of the research, various values were reached in social, personal, morals, belief, culture, extraversion, sensing, thinking, feeling, judging categories. In future researches, it is recommended to investigate the values of the referees in the other branches of the team sports and the individual branches through quantitative and qualitative methods.

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The Impact of Country of Origin Effect and Consumer Ethnocentrism on Purchase Intention of Foreign Brand Recreational Materials Used in Sports Activities: An Empirical Research

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Abstract

Enterprises operating in international markets in a globalizing world must take many factors into consideration in their activities. Country of origin effect and consumer ethnocentrism are among these factors. In this study, the goals were to determine (i) the effect of consumer ethnocentrism and the the country of origin effect on attitude towards the foreign brand and (ii) the effect of attitude towards the foreign brand on the purchase intention of foreign brand products. Foreign products were considered as recreational materials used in sports activities. A total of 335 participants (195 women (58%) and 140 men (42%), participated in the study. The data collected with the help of a structured questionnaire were statistically analyzed using SmartPLS 3.0 software. The results revealed that consumer ethnocentrism negatively influences attitude towards the foreign brand, country of origin effect positively influences attitude towards the foreign brand, and finally attitude towards the foreign brand has a strong and positive effect on the purchase intention of foreign brand products. Considering that Turkish consumers generally behave in favor of purchasing local products in textiles and clothing products, the fact that the country of origin effect has a positive effect on the foreign brand attitude of recreational materials used in sports activities has been the most striking point of the study.

Keywords: Country of Origin Effect, Consumer Ethnocentrism, Foreign Products, Recreational Materials, Purchase Intention

INTRODUCTION

The worldwide rapid change has also been reflected in consumer demands and needs and as a result, radical changes have occurred in the understanding of marketing. The development process from the production concept to the social marketing approach has led to a rise in the importance given to the consumer. While success for businesses was considered as the sale of what was produced, it has started to be measured with the degree of satisfaction of consumer demands and needs as a result of the change over time (1).

Brands with high market shares all over the world, primarily the U.S.A., EU countries, and Japan are those of the most developed countries in the world. The high market shares of these brands have an important contribution to the images of the countries they belong to. The positive country image attributed to the product is a positive result of development. This concept, which is called the "country of origin effect" in consumer behavior, has a great role in consumer purchase decisions (2). Consumers also use the "the country of origin" of the product as information about the product apart from its quality, brand, and function. This effect, also known as the the country of origin factor, has been in the focus of the marketing world for many years. This process objective as well as subjective with the effect of psychological factors is called

"country-of-origin" in the international marketing literature (3). Papadopoulos and Heslop (1993) define the country of origin as a clue that has an external product feature, as it is not related to the physical property of the product and that is expressed as "made in…." (4). In this context, it refers to information about the place of production of a particular product (5).

Consumer ethnocentrism is an important concept that should be emphasized when determining the international marketing strategies of companies. For, while the competition in national markets has become extremely impetuous in the globalizing world, operating in international markets is also vital for the survival of companies. At this point, international marketing strategies that are set by measuring and analysing consumer ethnocentrism may gain companies a sustainable competitive advantage (6). The concept of ethnocentrism is a concept consisting of the combination of the words "ethnos" in Greek, meaning "nation, race", and "kentron", meaning the centre (1). One of the most important variables used in explaining negative attitudes towards foreign products is consumer ethnocentrism. Although the pressure of consumer ethnocentrism on the the country of origin effect is variable, studies reveal that consumers with high levels of ethnocentrism prefer products of local origin (7). Turkish consumers do not find it right to purchase foreign products like other developing countries and think that this harms the economy (8, 9). Consumers' perceptions towards the quality of the product are directly associated with the country of origin. For this reason, the the country of origin information and the tendency of consumers to ethnocentrism can be an advantage that marketers can make use of; otherwise, it can turn into a disadvantage if it is not managed properly. Business executives should act on purpose and should not disregard ethnocentrism and the country of origin information while conducting their marketing activities (10).

The literature review reveals studies on the effect of consumer ethnocentrism on the attitude towards the foreign brand products (11, 12, 13) and on its effect on purchase desire and preference towards foreign brand products (14, 15, 16, 17). Likewise, there are studies examining the effect of the country of origin on purchasing foreign brand products (18), its effect on purchase preference and intention towards foreign brand products (19, 20) and its effect on consumers' product evaluation and purchase intention. (21, 22, 23, 24). In addition, there are a limited number of studies taking into consideration consumer ethnocentrism and the country of origin as a whole and their effects on consumer behavior (25, 26, 27, 28, 29).

There are also studies on the effects of consumer ethnocentrism on the purchase behavior in Turkey (30, 31, 32, 33, 34), on the effect of the country of origin on purchase behavior (35, 36), on the effects of consumer ethnocentrism and the country of origin on the purchase behavior of consumers (37, 38, 2, 29, 39).

Participation of the society in recreation and sports activities brings the interaction of commercial areas economically covering a wide industry ranging from the construction of sports and recreation areas, infrastructure works, production of all kinds of sports equipment and those working in these sectors to the tourism sector, press, and broadcasting (40). The fact that sports-centred businesses are multi-purpose businesses that are built in recreational activities rather than act only as places where people benefit from sports, results in higher participation of people benefiting from the services offered. Sports-centred businesses have to renew themselves and expand their range of services, both as private and public enterprises, in terms of integration with society and spreading sports. This situation leads to the emergence of higher quality and modern facilities and thus increasing the standards.

Although rising standards increase the costs of businesses, it is more necessary to establish environment-friendly sports businesses, which are suitable for recreational use, include open spaces, compete not only with competitors but also with themselves (41). Although the issue of examining the effects of consumer ethnocentrism in tandem with those of the country of origin draws the attention of academicians, it is beneficial to increase the number of studies carried out in this regard both in terms of the sample and the type of product. At this point, it has been evaluated that it would be appropriate to examine the materials used in this sector within the paper, especially as in recent years consumers have attached more importance to leisure, namely recreation and sports activities (42). In this context, this study aims to determine the effect of consumer ethnocentrism and the country of origin on attitude towards the foreign brand and the effect of attitude towards the foreign brand on

purchase intention of foreign brand products. Recreational materials of foreign brand used in sports activities are used as examples of foreign products.

This paper will include sections devoted to the literature review and hypotheses development and explanations of the methods to be used to collect data and test the structural and measurement model proposed. Finally, findings from the data analysis will be presented along with a section of the conclusion and discussions on the possible contribution and implications of this research.

2- Theoretical Framework and Hypotheses Development

Consumer ethnocentrism refers to consumers' opinions on how appropriate or moral it is to use and buy foreign products (12). Although the two important concepts, which are the "the country of origin effect" and "consumer ethnocentrism", are handled independently of each other, they are actually very closely related concepts. Consumer ethnocentrism is a preconceived judgment that gives the motive to use the products of one's own country. The country of origin effect is a factor that may cause individuals to preconceive through prejudices in their perceptions. Therefore, consumers who are sensitive about the country of origin do not have to be ethnocentric; on the other hand, ethnocentric consumers have to be extremely sensitive about countries of origin of the products purchased (43). However, the most important factor for consumers with low ethnocentrism is the price, whereas the most important factor for consumers with high ethnocentrism is the country of origin concept (44).

Baker and Ballington point out that, with the current technological changes and developments, especially in the fields of transportation and communication have led to a great competitive environment on the basis of countries and that a competition that can be continued without interruption in such a situation may be advantageous (45). In an on-going competitive environment, if companies seek to take part in this sustainable development, they should pay attention to the concepts of consumer ethnocentrism and the country of origin effect (7).

Both studies in Turkey (33, 30, 37) in the world (46, 47) have shown that high levels of ethnocentrism negatively affect foreign brands.

Hypothesis 1: Consumer ethnocentrism negatively influences the attitude towards the foreign brand recreational materials used in sports.

In the study of Batra et al. on the consumers of developing countries, it was determined that non-local products of foreign origin were preferred due to factors such as perceived quality and social status compared to products perceived locally (48). The country of origin has a positive effect on the purchase intent and perceived quality of foreign brand products (28). Cilingir and Basfirinci revealed that the country of origin is an important factor in the product evaluations of consumers. The attitudes of consumers towards the products of developed countries are positive (29). In the developing countries, the country of origin of the products is preferred by consumers in favor of the foreign brand products of the more developed countries (49, 50, 29). Global brands have a large market share in the sports products industry. Moreover, the imports made from developed countries by Turkey in both apparel industry (51), as well as footwear industry (52) has a big share at high rates. However, according to Kaynak and Çavuşgil, consumers do not give privileges to local products, especially in the electronics, medicine, chemistry and textile sectors. In line with these explanations, the following hypothesis has been proposed (53).

Hypothesis 2: Country of origin effect positively influences the attitude towards the foreign brand recreational materials used in sports.

It can be mentioned that attitude plays an important role in explaining behavior within the scope of the Theory of Planned Behavior. Attitude towards the behavior refers to the positive or negative attitudes of the individual who acts in the direction of behavior (54). In this context, based on the assumption that attitude influences intention and behavior, it can be evaluated that attitude towards the foreign brand influences the purchase intention of foreign products. In light of this information, the following hypothesis has been proposed.

Hypothesis 3: The attitude towards the foreign brand recreational materials used in sports positively influences the purchase intention of foreign brand recreational materials used in sports.

The conceptual model developed based on the literature with the hypothesis explained above is shown in Figure 1 below.

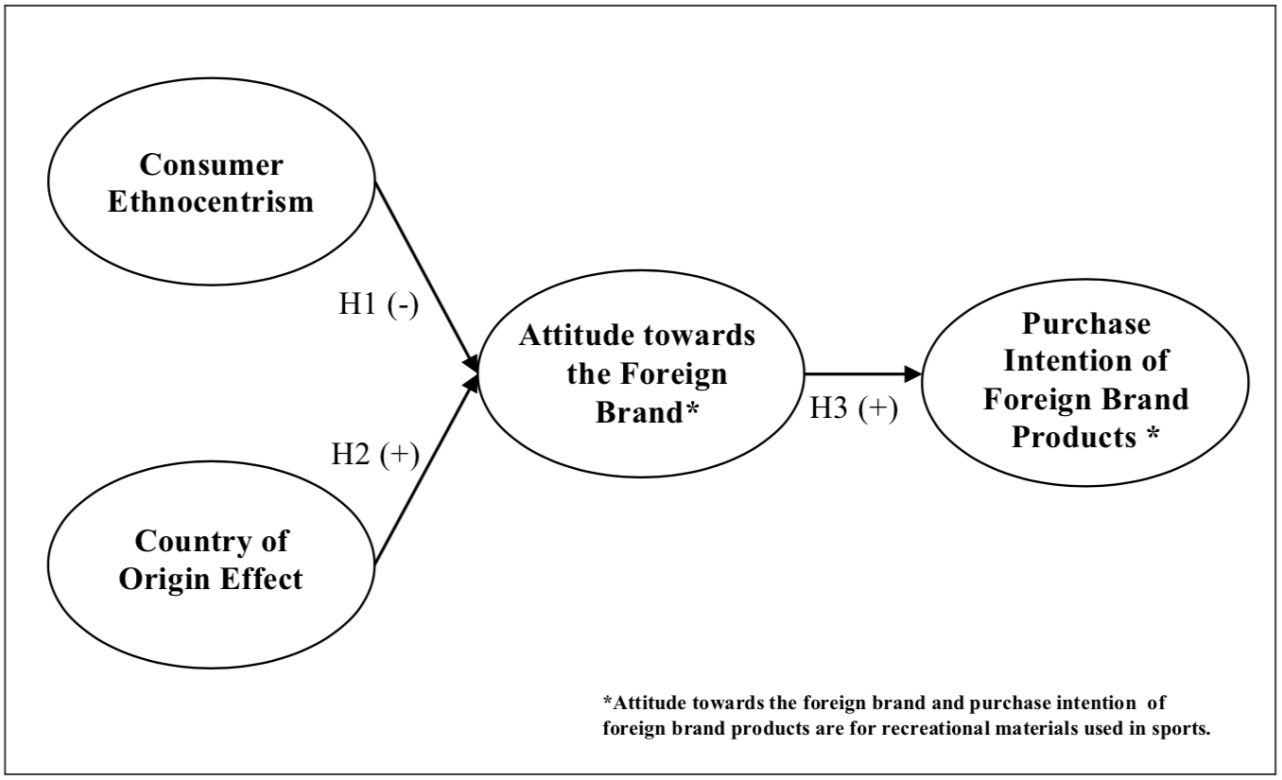

Figure 1. Conceptual model

3. Research methodology

The necessary information about sampling, data collection, measurement, and the research methodology applied to test hypotheses has been explained in the following sections.

3.1 Measurement

Four constructs were measured in this study. These are; consumer ethnocentrism, country of origin effect, attitude towards the foreign brand, and purchase intention of foreign products. These constructs were measured by multiple items, using a five-point Likert-type scale with measure indicators ranging from 1 ('strongly disagree') to 5 ('strongly agree'). In Table 1, the measurement items are shown together with the sources from which they were taken. In this study, Turkish brands with foreign brand names were excluded by using the term "overeas brand products in foreign language" within the questions included in the questionnaire, In order for the mentioned products to be considered as materials used in recreation activities, firstly, the questions asked in terms of attitude towards the and purchase intention of foreign products were specifically mentioned as the tracksuits and sneakers used in "sports and exercise activities", and secondly, particular attention was paid to the fact that the participants of the questionnaire are comprised of individuals who do not do exercise professionally.

Table 1. Measurement items

Construct	Item no.	Measurement items	Source
Consumer Ethnocentrism	CE1	Turkish people should always buy Turkish-made products instead of imports	(47)
	CE2	Only those products that are unavailable in Turkey should be imported.	
	CE3	Buy Turkish-made products. Keep Turkey working.	
	CE4	Turkish products, first, last, and foremost.	
	CE5	Purchasing foreign-made products is non-Turkish.	
	CE6	It is not right to purchase foreign products, because it puts Turks out of jobs.	
	CE7	A real Turk should always buy Turkish-made products.	
	CE8	We should purchase products manufactured in Turkey instead of letting other countries get rich off us.	
	CE9	It is always best to purchase Turkish products.	
	CE10	There should be very little trading or purchasing of goods from other countries unless out of necessity.	
	CE11	Turks should not buy foreign products, because this hurts American business and causes unemployment.	
	CE12	Curbs should be put on all imports.	
	CE13	It may cost me in the long-run but I prefer to support Turkish products.	
	CE14	Foreigners should not be allowed to put their products on our markets.	
	CE15	Foreign products should be taxed heavily to reduce their entry into Turkey.	
	CE16	We should buy from foreign countries only those products that we cannot obtain within our own country.	
	CE17	Turkish consumers who purchase products made in other countries are responsible for putting their fellow Turks out of work.	
Country of Origin Effect	COO1	When buying an expensive item, such as a car, TV or refrigerator I always seek to find out what country the product was made in	(55)
	COO2	To make sure that I buy the highest quality product or brand, I look to see what country the product was made in	
	COO3	I feel that it is important to look for country-of-origin information when deciding which product to buy	
	COO4	I look for the "Made in …" labels in clothing	
	COO5	Seeking country-of-origin information is less important for inexpensive goods than for expensive goods	
	COO6	A person should always look for country-of-origin information when buying a product that has a high risk of malfunctioning, e.g. when buying a watch	
	COO7	I look for country-of-origin information to choose the best product available in a product class	
	COO8	I find out a product's the country of origin to determine the quality of the product	
	COO9	When I am buying a new product, the country of origin is the first piece of information that I consider	
	COO10	To buy a product that is acceptable to my friends and my family, I look for the product's the country of origin	
	COO11	If I have little experience with a product, I search for country-of-origin information about the product to help me make a more informed decision	
	COO12	A person should seek country-of-origin information when buying a product with a fairly low risk of malfunctioning, e.g. when buying shoes	
	COO13	When buying a product that is less expensive, such as a shirt, it is less important to look for the country of origin	
Attitude towards the Foreign Brand (recreational materials used in sports)	ATF1	I think that foreign tracksuits and sports shoes brands in foreign languages give positive tips about the product.	(54)
	ATF2	Foreign brands in foreign language among tracksuits and sports shoes have a positive image for me.	
	ATF3	I believe that foreign brands in foreign language among tracksuits and sports shoes meet my expectations.	
	ATF4	I think that foreign brands in foreign languages among tracksuits and sports shoes add prestige to me.	
Purchase Intention of Foreign Brand Products (recreational materials used in sports)	PIF1	When I buy tracksuits and sneakers, I pay attention to whether it is a foreign brand in a foreign language.	(56, 57)
	PIF2	When I buy tracksuits and sneakers, I often buy a foreign brand in a foreign language.	
	PIF3	I would like to buy more of the foreign brand of tracksuits and sports shoes.	
	PIF4	The fact that the tracksuit and sports shoes brand is a foreign brand in foreign language speeds up my decision to purchase that brand.	
	PIF5	I prefer the foreign brand if I have to decide between the one in local language and the one in the foreign language.	

3.2 Sampling and Data collection

The sample group of the study was determined by the convenience sampling method, and individuals selected from the province of Karaman on a voluntary basis were preferred. The study included 335 participants in total (195 women (58%) and 140 men (42%)).

4. Data analysis and results

Partial least squares (PLS) methodology with Smart PLS 3.0 were used in this study to test the proposed model and related hypotheses. The following sections present the results of the statistical analysis.

4.1 Descriptive statistics

As can be seen in Table-2 below, the sample size of the study is 335 people, and 140 participants are women while 195 participants are men. The age ranges of the participants vary between 18 and 65+, with 112 participants (33%), which is the highest number, ranging between the ages of 18-24 and with 6 participants (2%), which is the lowest number, being 65+. Besides, 77 participants (23%) range in the 25-34 age group, 92 participants (27%) in the 35-44 age group, 25 participants (7%) in the 45-54 age group, and 23 participants (7%) in the 55-64 age group.

Considering the education levels of the participants, they were evaluated in terms of pre-high school education, high school education, university undergraduate education, master's degree education, and doctorate degrees. There were 57 participants (17%) with pre-high school education, 104 participants (31%) with university undergraduate education, 11 participants (%3) with master's degree education, and 163 participants (49%) with high school education.

The income level was taken from the highest income level range with 4 participants having an income level of (8000+ TL - 1%). This was followed by 6 participants with an income level of 6000-7999 TL (2%). The most common income level among the participants was determined as the income level ranging between 2000-2999 (29%) with 96 participants. The next one was 80 participants with 1000-1999 TL (24%). It is also seen that participants with low income ranging between 1000-2999 TL were chosen. Students constitute a large part of these last two groups.

Table 2. Sample characteristics

Sample characteristics		Frequency	Percent (%)
Gender	Male	195	58
	Female	140	42
Age	18-24	112	33%
	25-34	77	23%
	35-44	92	27%
	45-54	25	7%
	55-64	23	7%
	65+	6	2%
Level of education	Pre-high school	57	17
	High school	163	49
	University	104	31
	Master's degree	11	3
	Doctorate	0	0,0
Income	0-499 TL	32	10%
	500-999 TL	36	11%
	1000-1999 TL	80	24%
	2000-2999 TL	96	29%
	3.000 TL-3.999 TL	33	10%
	4.000 TL-4.999 TL	26	8%
	5.000 TL-5.999 TL	22	7%
	6.000 TL-7.999 TL	6	2%
	8.000 TL and over	4	1%

4.2 SEM analysis

The model estimation was carried out in SmartPLS 3 (58). This study first analysed the measurement for its validity. This step was followed by the analysis of the structural equation model to test the relationships hypothesised in the research model.

4.2.1 Measurement model analysis

With the help of confirmatory factor analysis, the convergent validity of each structure was tested. Test results related to the convergent validity of constructs are given in Table 3. Examining the standardised factor loadings of each item in the measurement model, the reliability, and the average variance extracted (AVE) for each construct were examined to evaluate convergent validity.

A factor loading greater than 0.5 is considered a valid condition for item reliability (59). In this respect, the standardised factor loadings of each item were observed and the reliability of the individual items was confirmed.

Cronbach's alpha values for all constructs are above the stipulated level of reliability (0.70), and the AVE for each construct higher than 0.5. The AVE value of the country of origin (0,478) is below 0,50, which is below the critical value. However, where other reliability criteria are met, values below 0.5 can also be accepted (60). As a result, the model satisfies the requirements for the convergent validity.

Table 3. Validity of constructs

Construct	Item no.	Factor loading	Std. Error	t value	AVE (>0.5)	Cronbach's alpha (>0.7)
Consumer Ethnocentrism	CE1	0.531	0.127	4.187	0.527	0.944
	CE2	0.587	0.118	4.976		
	CE3	0.603	0.127	4.736		
	CE4	0.712	0.105	6.771		
	CE5	0.773	0.104	7.449		
	CE6	0.725	0.102	7.097		
	CE7	0.833	0.100	8.312		
	CE8	0.690	0.100	6.897		
	CE9	0.790	0.101	7.844		
	CE10	0.763	0.100	7.633		
	CE11	0.766	0.098	7.861		
	CE12	0.734	0.100	7.351		
	CE13	0.739	0.095	7.816		
	CE14	0.791	0.101	7.846		
	CE15	0.759	0.101	7.500		
	CE16	0.709	0.095	7.468		
	CE17	0.766	0.100	7.654		
Country of Origin Effect	COO1	0.708	0.062	11.511	0.478*	0.920
	COO2	0.640	0.074	8.641		
	COO3	0.706	0.069	10.283		
	COO4	0.659	0.079	8.329		
	COO5	0.502	0.091	5.515		
	COO6	0.662	0.084	7.887		
	COO7	0.718	0.071	10.052		
	COO8	0.771	0.059	12.986		
	COO9	0.675	0.057	11.917		
	COO10	0.806	0.031	25.625		
	COO11	0.711	0.046	15.417		
	COO12	0.787	0.031	25.794		
	COO13	0.580	0.063	9.258		
Attitude towards the Foreign Brand	ATF1	0.907	0.014	67.106	0.838	0.935
	ATF2	0.927	0.011	85.146		
	ATF3	0.912	0.013	68.574		
	ATF4	0.915	0.012	77.280		
Purchase Intention of Foreign Products	PIF1	0.869	0.015	56.301	0.762	0.921
	PIF2	0.917	0.009	101.614		
	PIF3	0.887	0.017	50.871		
	PIF4	0.896	0.014	63.483		
	PIF5	0.790	0.027	28.735		

*Note : Where other reliability criteria are met, AVE values just below 0.5 can also be accepted (Fornell and Larcker, 1981).

Table 4. Construct cross-loadings

	Consumer Ethnocentrism	Country of Origin Effect	Attitude towards the Foreign Brand	Purchase Intention of Foreign Products
CE1	**0.531**	0.243	0.029	0.041
CE2	**0.587**	0.332	0.074	0.092
CE3	**0.603**	0.335	0.015	-0.006
CE4	**0.712**	0.410	0.139	0.035
CE5	**0.773**	0.475	0.155	0.160
CE6	**0.725**	0.387	0.037	0.090
CE7	**0.833**	0.502	0.117	0.127
CE8	**0.690**	0.381	0.079	0.054
CE9	**0.790**	0.406	0.108	0.104
CE10	**0.763**	0.447	0.101	0.048
CE11	**0.766**	0.465	0.083	0.080
CE12	**0.734**	0.471	0.078	0.133
CE13	**0.739**	0.450	0.117	0.137
CE14	**0.791**	0.475	0.083	0.121
CE15	**0.759**	0.514	0.097	0.129
CE16	**0.709**	0.535	0.061	0.075
CE17	**0.766**	0.482	0.077	0.147
COO1	0.460	**0.708**	0.180	0.148
COO2	0.395	**0.640**	0.118	0.084
COO3	0.463	**0.706**	0.157	0.079
COO4	0.440	**0.659**	0.067	0.030
COO5	0.408	**0.502**	0.029	0.032
COO6	0.416	**0.662**	0.080	0.078
COO7	0.509	**0.718**	0.109	0.112
COO8	0.567	**0.771**	0.174	0.121
COO9	0.467	**0.675**	0.146	0.154
COO10	0.542	**0.806**	0.232	0.229
COO11	0.459	**0.711**	0.190	0.225
COO12	0.565	**0.787**	0.270	0.254
COO13	0.147	**0.580**	0.501	0.502
ATF1	0.155	0.399	**0.907**	0.745
ATF2	0.105	0.324	**0.927**	0.788
ATF3	0.121	0.291	**0.912**	0.813
ATF4	0.115	0.301	**0.915**	0.833
PIF1	0.118	0.313	0.769	**0.869**
PIF2	0.134	0.329	0.844	**0.917**
PIF3	0.117	0.296	0.732	**0.887**
PIF4	0.109	0.297	0.794	**0.896**
PIF5	0.122	0.236	0.632	**0.790**

Discriminant validity was examined by comparing the square root of the AVE for each construct. If the square root of its AVE is higher than each correlation values with other constructs, discriminant validity is achieved (60). The results shown in Table 5 indicate good discriminant validity.

Table 5. Square root of AVE (Fornell-Larcker discriminant validity criteria)

	Consumer Ethnocentrism	Country of Origin Effect	Attitude towards the Foreign Brand	Purchase Intention of Foreign Brand Products
Consumer Ethnocentrism	**0.726**			
Country of Origin Effect	0.601	**0.691**		
Purchase Intention of Foreign Products	0.137	0.339	**0.873**	
Attitude towards the Foreign Brand	0.135	0.359	0.869	**0.915**

4.2.2 Hypothesis testing

As summarized in Fig. 2 and Table 7, all hypothesized paths were significant.

Table 7. Summary of hypotheses testing results

Hypothesis				Original Sample	*t*	*p*	s.d.	Supported
H1	Consumer Ethnocentrism	-->	Attitude towards the Foreign Brand	-0.125	2.064	0.039	0.061	Yes
H2	Country of Origin Effect	-->	Attitude towards the Foreign Brand	0.434	8.578	0.000	0.051	Yes
H3	Attitude towards the Foreign Brand	-->	Purchase Intention of Foreign Brand Products	0.869	57.447	0.000	0.015	Yes

Consumer ethnocentrism was significantly and negatively (β = -0.125, t = 2.064, p < 0.05) related with attitude towards the foreign brand. Thus Hypothesis 1 is supported. The results further show that the country of origin effect was significantly and positively (β = 0.434, t = 8.578, p < 0.001) associated with attitude towards the foreign brand, providing support for Hypothesis 2. The results also found that attitude towards the foreign brand was significantly and positively (β = 0.869, t = 57.447, p < 0.001) related to the purchase intention of foreign brand products. Hypothesis 4 is thus supported. Attitude towards the foreign brand explained 75,5% of the variance in the purchase intention of foreign brand products.

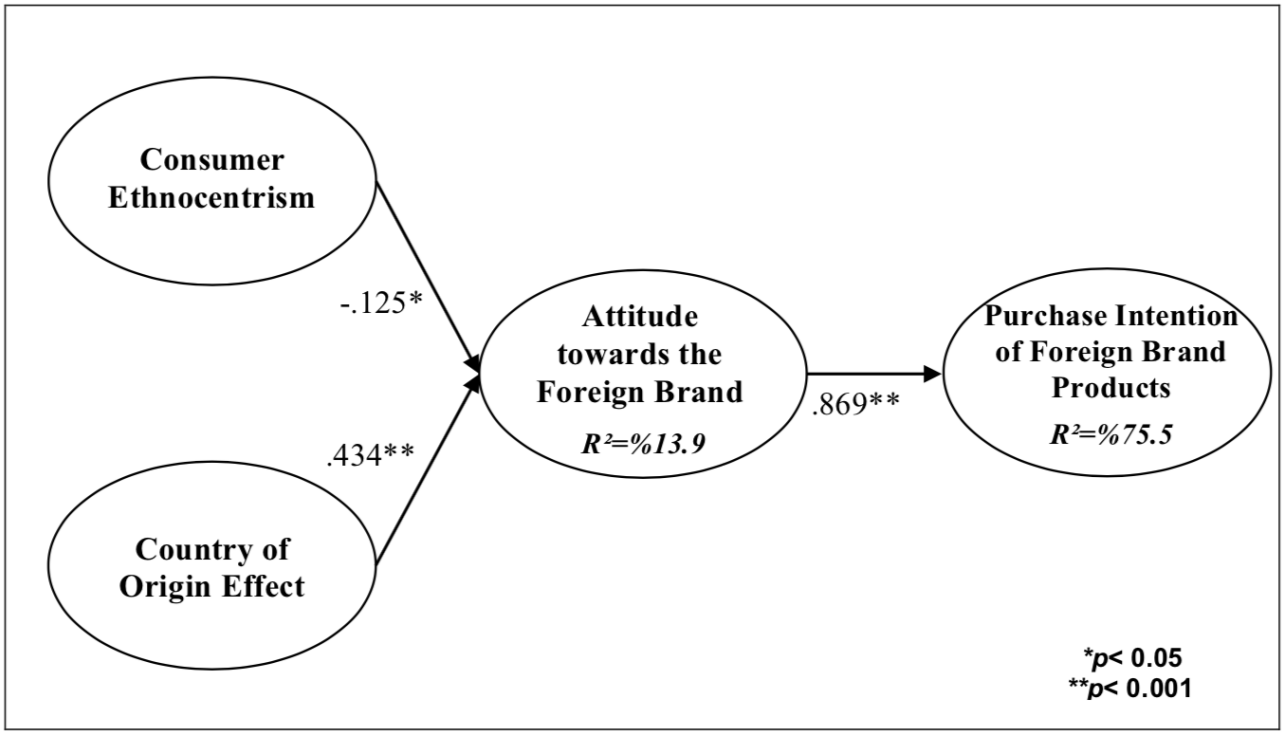

Figure 2. PLS results of the structural model

5. Discussion and Conclusion

This study has been designed to find out whether there is a relationship between consumer ethnocentrism and attitude towards the foreign brand, the country of origin effect and attitude towards the foreign brand, finally attitude towards the foreign brand and the purchase intention of foreign brand products. In this study, it was estimated that the relationship between consumer ethnocentrism and attitude towards the foreign brand is negative, and the relationship between the country of origin effect and attitude towards the foreign brand as well as the relationship between attitude towards the foreign brand and the purchase intention of foreign products is positive.

Studies conducted relating to consumer ethnocentrism both in Turkey (33, 30, 37) and in the world (46, 47) have shown that high levels of ethnocentrism have a negative effect on foreign brands. In this study, the same result has been reached and the existing literature has been strengthened both on sample and product basis.

On the other hand, it is useful to evaluate the relationship between the country of origin and

attitude towards the foreign brand in two main axes. The first is the development level of the country and the other is the product category. While the country of origin effect in developed countries can generally be in favor of their own countries, the country of origin effect in developing countries may be against their countries in terms of the products of more developed country (29, 49, 50). It can be stated that the positive effect of the country of origin effects on the recreational materials used in sports activities cause consumers consider foreign products in this category more positively, and this may be related to these products in question being from developed countries. This may be a reference point for future research.

The second axis within the relationship between the country of origin and attitude towards the foreign brand can be the evaluation of product categories. Customers do not give privileges to local products, especially in the electronics, medicine, chemistry, and textile sectors (53). Some studies conducted in Turkey have proven the contrary of the findings of Kaynak and Çavuşgil in relation to the textile and apparel industry (53). Armağan and Gürsoy found that Turkish consumers view Turkish-made products more positively in textile products (38). Similarly, Arı and Madran found that Turkish consumers view Turkish-made products more positively in clothing products (2). Unlike these studies, which deal with textiles and clothing in general, in this study, recreational materials such as tracksuits and sports shoes that are used in sports activities in attitude towards the foreign brand were taken as a basis. In this study, despite the fact that the sports shoes industry is close to the clothing sector in terms of both the use of consumers and the raw materials used in its production, and the tracksuit product belongs to the clothing sector, the country of origin effect has been claimed and proved to have a positive effect on the attitude towards the foreign brand. It can be considered as the most striking point of the study. It is estimated that one of the factors causing this is the impact of global brands in this sector. This point also constitutes a basis for future research.

Taking the subject of analysis in terms of businesses, some conclusions can be drawn from this study that can be applied in practice. It is beneficial for the companies operating in the tracksuits, sports shoes and sports equipment sectors to consider the fact that consumer ethnocentrism has a negative effect on the attitude towards the foreign brand in the sector in question. It can be said that consumer ethnocentrism should also be taken into consideration while evaluating the customer segmentation factor in marketing strategy and action plans. In order to protect the global brands from the negative impact of consumer ethnocentrism, it may be recommended to use a new local brand with the strategy of producing their products in the country in question or using a completely adaptation strategy.

Apart from the above-mentioned implications for businesses, some practical implications can be made from this study for Turkish businesses that produce sports equipment exclusively. While Turkish consumers generally prefer local products in clothing under normal conditions (38, 2), according to the results obtained from this study, they choose tracksuits and more generally sportswear from foreign brands. This result is estimated to be related to branding problem in the sports goods industry in Turkey. In this context, it can be evaluated that it is essential for Turkish companies to work on branding efforts in the sportswear industry.

Considering in terms of public actions and policies, it can be said that the government may work on taking advantages taking into consideration of consumers' attitude towards the foreign brand and purchase intention of foreign branded product. Branding especially in sectors in which production levels are high, (e.g., Turkey's textile, marble, etc.) may be carried out on an educational and financial level through effective vision and planning and implementation.

There are also several limitations of this study. As the study is based on Turkey, generalizing the study to other nations may be a drawback due to cultural differences. In addition, the scope of the study can be extended by including more variables that influence attitude towards the foreign brand and purchase intention.

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An Analysis On The Relationship Between Serving Strength And Anthropometric Properties And Tennis Serving Success In Young Women Volleyball Players

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Abstract

Although there are many basic techniques in volleyball, the serving technique can change the direction or result of the game. The aim of the study is to examine the relationship between some isometric strength and anthropometric properties of elite female volleyball players aged between 15 and 17 with their capability to serve to the point. 33 female volleyball players aged between 15 and 17 [16,09], playing in three different teams in the Turkish Volleyball 2nd League participated in the study. Some anthropometric and serving arm isometric force measurements, such as serving arm length and circumference, were made on the players participating in the study, and the relationship between the serving points in tennis was evaluated. Descriptive statistics and Pearson correlation test were performed in the SPSS package program. Although a positive relationship is found between the serving hit rate of the players and licensing age (r = 0.35), body mass index (r = 0.36), extension arm circumference (r = 0.59), flexion arm circumference (r = 0.53) and forearm circumference (r = 0.49), no statistically significant relationship was observed with other variables. Consequently, it has been noted that the past of the players as the licensed player and some anthropometric properties are related to tennis serve hit rate in female volleyball players aged between 15 and 17.

Keywords: Volleyball, serving arm strength, anthropometric properties, serving hit rate.

INTRODUCTION

Firstly, serving performance is one of the factors determining success in volleyball that has been originally played for fun under the name of "Mintonette" and has undergone many changes until today (31,33). The serving that is defined as hitting the ball for the start is a significant factor for the team to earn a point and be successful (18). Since serving in the desired area is important for reducing the effectiveness of the opponent's offensive and defensive systems during the game, a good serving can be evaluated as a good attack (15). Serve is divided into two basic groups as the serves rotating around the axis of the ball and the serves not rotating around the axis, and there are variations among the groups (33,6,17). In the tennis serve widely used in the staging of the jump serve as an important technique of offensive in the game system in volleyball, the player faces the net, the right foot is behind and the left foot is ahead for the players using the right hand. The ball is tossed into the air from the level of the foot in the front. The right hand is moved back to the back of the trunk. When the ball reaches a sufficient level for striking, the wrist is fixed in half flexion forward and is hit

directly behind the ball with the palmar face of the hand. Hitting hand does not follow the ball (17,4,23). In order to apply the serve technique, players need good coordination, timing, ball tracking ability and sufficient strength (3). Hence, the implementation of tennis serve can be pretty challenging for young players (14).

Since it is known that sports performance depends on technical, tactical, physical, psychological and anthropometric factors, it can be stated that the anthropometric properties of players are significant determinants of success in volleyball (7,28). For the acquisition of specific volleyball-specific movements, the player needs good physical fitness and some performance factors, such as elasticity, strength, power, and quickness to develop (2). The type of strength used in volleyball may differ from the other sports branches. Since powerful muscle groups are required against the maximum load, it can be perceived that the speed of the ball reaches 100 miles per hour with a strong slam dunking to a volleyball weighing 255 gr if the muscular power is at the optimal level. Having sufficient strength in volleyball offers the opportunity to reach a high speed in arm swing, which ensures a relatively harder hit on the ball compared to the other players (2,20).

Depending on the above explanations and previous research findings; it is intended to investigate the relationship between the biometer and anthropometric properties of the players and tennis serving hit rate.

METHOD

Study Group:

33 female volleyball players, playing in the Turkish Volleyball 2nd League as a licensed player for 4.42 ± 1.93 years, having an age average of 16.06±0.9, voluntarily participated in the study.

Method:

Volunteers and their families were informed about the scope and purpose of the study, and their families were asked to sign the "Informed Voluntary Consent Forms".

Measurements Used in the Study:

Some anthropometric measurements and arm strength tests were implemented to the participants in the laboratory.

Anthropometric Measurements

Seca 213 model stadiometer was used to measure the length of the participants and the Seca 750 model weight scale was used to measure body weights. The results obtained were recorded with a precision of 1/10 cm and 1/10 kg.

Other anthropometric measurements were measured as determined by the International Society for the Advancement of Kinanthropometry (ISAK) using the Holtain brand anthropometric set on the right side as mentioned below and recorded at a sensitivity level of 1/10 cm (27).

Arm circumference in flexion: The measurement was taken from the halfway between acromion and olecranon when the participant was standing and the arm was at the maximum flexion (22).

Arm circumference in extension: The measurement was taken from the halfway between acromion and olecranon when the participant was standing and the arm was at the anatomic position and in the extension (22).

Forearm circumference: The measurement is taken from the maximum bulges of the forearm in the proximal when the participant was standing, and the arm was in extension at an anatomical posture (9).

Wrist Circumference: The tape is applied around the wrist while not applying any pressure to the distal to the styloid processes of the radius and ulna (9).

Arm length: With the participant standing and the arm is at the anatomic position at extension, the midway between the acromion and olecranon is measured (24).

Strength Measurements

Isometric strength measurements of the right arm Biceps Branchii, Triceps Branchii and M. Deltoidus muscles of the participants were performed with Lafayette branded Manual Muscle Tester (01165).

Serve Hit Rate Test

In serve hit rate test, to limit the variables such as field, net, and ground, the competition ball in international standards was used in the fields, complying the international volleyball game rules. The serve technique is limited to the tennis serve.

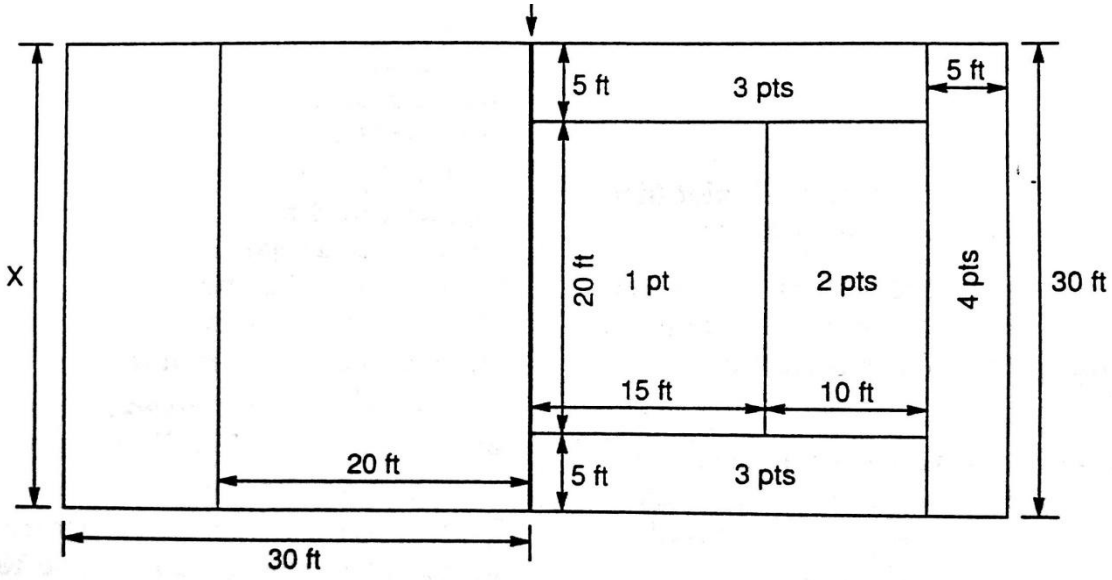

Figure 1. AAHPER Scoring Zones

AAHPER Serve Test: The lengths in the original of the test have been converted into meters (1 ft = 30.48 cm) and the scoring sections are marked on the volleyball court with a white band. The players participating in the study were presented in Figure 1 with serve hit scores, and according to this score, the participant was asked to make valid serves to the areas for getting the most points. As the trial, 20 serves were allowed and after the trial serves, the test of 10 serves was initiated. Points are awarded for the balls falling in the areas shown in Figure 1. However, no points were awarded to the balls hitting the net or to the balls falling outside the scoring area. The scores of the test were collected and recorded as the total score (32).

Statistical Analysis

The data obtained by the measurements were transferred to the computer environment and SPSS 23 package program was used for the analysis. The distribution of the data was analyzed by the Shapiro-Wilk test and normal distributions were reflected. Using the parametric Pearson correlation test for the analysis, the data were evaluated according to their significance levels ($p < 0.05$). Cronbach Alpha internal consistency coefficient was used to determine its reliability. The Cronbach Alpha reliability coefficient for 14 parameters was determined as .75.

RESULTS

According to the data obtained, descriptive statistics of the participants are presented in Table 1.

Table 1. Descriptive Statistics of the Participants

Parameters	N	Min.	Max.	Avr.±Ss
Age (year)	33	15	17	16.06±0.90
Body weight (kg)	33	46	63	55.61±4.71
Height (cm)	33	154	180	164.06±7.00
BMI (kg/m²)	33	13.65	23.49	18.91±2.63
Licensing age (year)	33	2	7	4.42±1.94
Arm's length (cm)	33	61	80	70.58±3.64
Extension arm circumference (cm)	33	21	27	24.21±1.60
Flexion arm circumference (cm)	33	24	30	27±1.82
Forearm circumference (cm)	33	22	27	23.73±1.46
Wrist circumference (cm)	33	14	17	15.82±0.73
Deltoid strength	33	29.2	43.1	35.60±3.62
Biceps strength	33	21.3	39.4	27.81±4.84
Triceps strength	33	21.4	30.4	26.18±2.53
Serve hit points	33	8	38	23.67±9.25

It is stated in Table 1 that 33 female volleyball players participating in the study, who have been involved in sports for 4.42 ± 1.94 years and have an average age of 16.06 ± 0.90, are 164.06 ± 7.00 cm height and 55.61 ± 4.71 kg, and their arm circumference and strength measurements and service hit points averages are shown in Table 1.

Correlation analysis results performed to reveal the relationship between the age, the age for performing sports, anthropometric characteristics and strength parameters of the volleyball players participating in the study and the scores of the tennis serve shots are displayed in Table 2.

Table 2. Correlation Table Between Serve Hit Points and Some Parameters

Parameters	**N**		**Serve Hit Points**
Licensing age	33	r	0.352
		p	**0.045***
BMI	33	r	0.356
		p	**0.042***
Arm's length	33	r	-0.023
		p	0.899
Extension arm circumference	33	r	0.592
		p	**0.000****
Flexion arm circumference	33	r	0.533
		p	0.001**
Forearm circumference	33	r	0.490
		p	0.**004****
Wrist circumference	33	r	-0.056
		p	0.758
Deltoid strength	33	r	0.167
		p	0.354
Biceps strength	33	r	-0.189
		p	0.293
Triceps strength	33	r	0.180
		p	0.317

(* p<0.05, ** p<0.01)

According to the correlation analysis of the serving hit point of the players participating in the study and the other parameters, a positive relationship is found between the serving hit rate of the players and licensing age (r = 0.35), body mass index (r = 0.36), extension arm circumference (r = 0.59), flexion arm circumference (r = 0.53) and forearm circumference (r = 0.49), while no statistically significant relationship was observed with other variables.

DISCUSSION

In this study, the relationship between arm strength and anthropometric characteristics of volleyball players and tennis serve achievement was investigated and a positive relationship was determined between BMI, the age for performing the sports, forearm circumference, flexion and extension arm circumference parameters.

Since the BMI of the volleyball players who participated in the study was found to be 18.91±2.63, it was observed that it was within the normal values according to the World Health Organization Data [18.5-24.9 kg/m2] (34). In numerous studies in the literature, the effect of body mass index (BMI) on performance in volleyball has been examined and some of these studies, some of these studies state that it has a negative level of impact (19,25) while some of the studies allege a positive level of impact, in parallel with this study (13,29). In this study, it is perceived that the tennis serve hit has a positive relationship with the ideal ratio of height and weight. It can be stated that height and weight should be between ideal rates to ensure the tennis serve accuracy.

In terms of the age of getting the license, similar to this study, Atan and Ünver (5) considered that as the age of performing the sports as licensed, the sportive performance also increases. Considering that the volleyball serving skill is highly complex (10), it is expected to have more practice time for the serving skill to be completely learned and to be performed effectively. In this context, it is expected that the successful rate of serve hits will increase when the number of age to perform the sports and the trainings increase.

Information about bone, muscle and adipose tissue can be obtained from anthropometric measurements used to measure body composition (1). No studies investigating the relationship between arm circumference and forearm circumference parameters and serve hit in the literature were observed. In studies investigating the effects of anthropometric characteristics on sportive performance, an ectomorphic somatotype characteristic, as well as the long arms and legs, are considered as advantageous in volleyball (30,26). Kamuk (18) has examined the effect of arm's length on serve success in volleyball and asserted that there is a positive significant relationship ($r = 0.92$; $p < 0.01$) between the right arm length of the girl volleyball players aged between 10 to 11 and the ASPeT serve scores. In another study, Kamuk et al. (19) assert that there is no relationship between the anthropometric properties of female volleyball players aged between 19 and 21 and the serving performance. The difference between the study and the study of Kamuk (18) is thought to be due to the age group and the use of the serving test from the bottom. Kamuk (18) mentions that arm length can be an essential variable in tossing the ball against the other field for the girls aged between 10 and 11. In the study examining the first years of the adolescent period, Kamuk (18) declared that the arm length was related to the serve hit, while in adulthood Kamuk et al. (19), on the other hand, could not find a comparable relationship. It can be interpreted that the relationship existing in the serve hit rate at the beginning of the adolescent period disappeared statistically in the late adolescent period and adulthood with the adaptation of the players to the training.

Contrary to the findings implying that the effect of the isometric strength of the muscles of Triceps Branchii on the tennis serve hit is not at a significant level, Eskiyecek et al. (12) performed explosive power studies with a medicine ball on the female volleyball players aged between 14 and 16 and found a significant difference between pre-test and post-test ($p < 0.05$). They also pointed out that the triceps strength may affect performance of the serve. Braatz's study (8) studied the effect of the wrist and arm strength on serving speed and found that there was no significant relationship ($p < 0.05$). In a study conducted in the Volleyball 2nd League, where our participants of the study compete, it was found that M. Deltoids, Biceps, Triceps Branchii muscles work effectively in the float service in the shoulder and arm areas in 12 female volleyball players with an average age of 20.4 ± 1.6 f (11). Yarım and Orhan (35) conclude that other elements are necessary besides muscle strength; Jain et al. (16) stated that the technical and tactical skills should be coordinated in order to use them at a high level, Kula (21) stated the importance of coexistence of physical skills that determine the sports performance with cognitive and coordinative skills.

CONCLUSION

As a conclusion, while the tennis serve is more successful in female volleyball players aged between 15 and 17, having BMI in the normal range and at least 4 years of athletics experience, strength and anthropometric characteristics (excluding forearm and upper arm circumference) do not have a considerable effect on the achievement.

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The Relationship Between the Upper-Body Strength Characteristics with Velocity and Power Parameters During the Bench Throw Movement: Is Sport Branch An Important Factor ? *

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Abstract

The purpose of this study was to investigate whether the relationship between the upper-body strength characteristic with velocity and power parameters during the bench throw exercise shows a significant difference according to sports branches. In accordance with this purpose; a total of 52 athletes (age: 22,8±3,61 years; height: 183,3±10,8 cm; weight: 80,1±13,4 kg) including 13 volleyball players (age: 20,3±1,25 years; height: 194,7±7,51 cm; weight: 87,8±7,22 kg) and 13 handball players (age: 25,4±3,86 years; height: 187,5±8,33 cm; weight: 90,9±14,8 kg) competed in Turkey 1. League together with 13 national martial players (age: 25,0±3,24 years; height: 175,1±6,91 cm; weight: 70,0±7,70 kg) and 13 arm wrestling players (age: 20,6±1,93 years; height: 175,7±5,39 cm; weight: 71,9±7,92 kg) participated as voluntarily. To determine the velocity and power parameters, a bench throw (BT) movement was performed using an external load of 30 % of the participants' body weight and mean propulsive velocity (MPV), peak velocity (PV), mean propulsive power (MPP) and peak power (PP) by the help of an isoinertial velocity transducer (T-Force dynamic measurement system). Shapiro-Wilk normality test, descriptive statistics and Spearman correlation analysis methods were used to evaluate the data. According to the results of the analysis, it was found that there was a statistically significant relationship between the upper-body strenght characteristics with together velocity and power parameters during the BT movement and this relationship shows a statistically significant difference compared to the sports branches. While both the volleyball players and the handball players have a high and positive relationship between the upper-body strength characteristics with together velocity and power values during the BT movement ($p<0.05$); it was found that martial players have only a significant relationship with PV and MPP values. On the other hand, it was determined that arm wrestling players don't have any statistically significant relationship between both strength and velocity values and characteristic of upper-body strength ($p>0.05$). As a results, it can be asserted that sports branch is an important factor for the relationship between the upper-body strength characteristics with together velocity and power parameters during the bench throw movement.

Keywords: Sports Branches, Strength, Velocity, Power

INTRODUCTION

The ability of the human body to produce maximum power is associated with a number of positive performance outcomes and high level of sports achievement. Maximal anaerobic power (Pmax) and force-velocity (F-v) relationships are defined as the power generation limits of the neuromuscular system, and measurements of these parameters have become a common field of study in recent years. In particular, the force-velocity relationship explains the ability of the skeletal muscle to produce force and maximal movement velocity (12). Since the maximal abilities of the skeletal muscle are intertwined in order to produce both force and velocity, the force-velocity relationship characterizes the ability to produce and maximize power (19).

The force-velocity relationship represents the characteristic feature of the muscle that determine its power production capacities (11) and is therefore considered as the basis of mechanical power output in sports movements (19). It has been stated that the interaction between force and velocity is an important indicator for successful athletic performance in explosive sports disciplines (14). Studies on force-velocity relationship are carried out especially for athletes engaged in combat sports such as boxing, taekwondo and judo (7) and athletes engaged in team sports such as handball and volleyball (21).

The upper body feature and, accordingly, the maximum upper body pushing power is an important feature for combat sports and some team sports in terms of both pushing or hitting the opponents and applying some movements required by the sports branch (5). Since the performance achievement in many sports branches depends on the power feature applied against objects (such as ball, equipment or ground) (20), issues such as the power feature of athletes or how this feature should be enhanced effectively are highly important for athletes, conditioners or coaches (15). In different studies by Baker (2,3,4), muscle force has been shown to be highly correlated with upper body maximal power characteristics of both elite and less experienced athletes. In addition, since the maximal muscle force is a physical factor affecting maximal power, athletes who want to reach a high maximal power are recommended to develop both agonist and antagonist muscle groups (5).

In the literature, there are a very limited number of studies in which the velocity and power parameters obtained during the concentric phase of the bench throw (BT) movement are evaluated or compared according to the sports branches by considering elite, national team or amateur athletics levels (8,9,10,17). The velocity and power values during the exercises applied for the upper body may have different features according to the movements applied depending on the natural structure of each sports branch. Determining these features according to sportive branches will help to determine the characteristic features of branch-specific trainings in the branches where explosive but different movement examples are applied. Therefore, the aim of this study is to examine whether there is a difference between the upper body force characteristics of the athletes engaged in different sports branches and the velocity and power parameters during the bench throw movement in the bar throw movement, where muscle force and movement velocity are the main factors.

METHOD

Participants

Total of 52 athletes competing in different sports branches (handball, volleyball, arm wrestling and combat sports) participated in this study voluntarily. While handball and volleyball players compete in the 1st league, the athletes who compete in arm wrestling and combat sports are the national athletes in their branches. Physical characteristics of the participants are given in Table 1. The participants are in good health and do not use any medication that can adversely affect their test performance. Prior to the study, detailed information was provided to all athletes and their coaches about the purpose of the research, the test procedures to be performed within the scope of the study and the potential risks that may be encountered, and the benefits of the results to be achieved at the end of the study for the relevant sports branches and sports sciences, and a written consent was signed to the participants stating that they voluntarily participated in the study.

Test Prosedures and Measurements

Seca769 branded electronic measurement tool (Seca Corporation, Hamburg, Germany) with a precision accuracy of 0.001 m and 0.01 kg was used respectively in the measurement of the body weights and heights of the participants. The bench throw (BT) movement was done on the Smith

machine (Esjim IT7001, Eskisehir, Turkey) using an external load corresponding to 30% of the subjects' body weights. A linear velocity converter system (T-Force Dynamic Measurement System; Ergotech Consulting SL, Murcia, Spain) was connected to the last part of the weight bar to determine the velocity (MPV: mean propulsive velocity; PV: peak velocity) and power (MPP: mean propulsive power; PP: peak power) values during the BT movement. In this system there is an electromechanical hardware consisting of velocity sensor and interface and a hook connected to the weight bar with a special computer program (T-Force system software) that manages this hardware (22,23). The purpose of applying the BT movement to determine the velocity and power values is that this movement is a multi-jointed movement and it is widely used in the development of upper body muscle force (1). In the implementation of the BT movement, it was stated that the participants should lower the weight bar in a controlled manner until they touch it on their breasts, and raise the bar as fast as they can with the command. The participants were asked to perform this movement three (3) times (17). Free weights are not used for the BT movement applied in this study, and the reason for using the Smith machine tool is that the smith machine limits the movement in the vertical direction (16).

Table 1. Physical characteristics of the participants

Sport Branches		Age (years)	Height (cm)	Body Weight (kg)
Volleyball (n=13)	Mean	20.3	194.7	87.8
	Standard Devision	1.25	7.51	7.22
	Minimal	18.0	178.0	78.2
	Maximal	22.0	201.0	105.0
Handball (n=13)	Mean	25.4	187.5	90.9
	Standard Devision	3.86	.83	14.8
	Minimal	20.0	171.0	67.3
	Maximal	32.0	197.0	113.5
Combat Sports (n=13)	Mean	25.0	175.1	70.0
	Standard Devision	3.24	6.91	7.70
	Minimal	21.0	164.0	60.0
	Maximal	30.0	185.0	85.0
Arm Wrestling (n=13)	Mean	20.6	175.7	71.9
	Standard Devision	1.93	5.39	7.92
	Minimal	18.0	168.0	55.2
	Maximal	24.0	184.0	84.1
Total (n=52)	Mean	22.8	183.3	80.1
	Standard Devision	3.61	10.8	13.4
	Minimal	18.0	164.0	55.2
	Maximal	32.0	201.0	113.5

Upper body strength feature was determined by using one repeated maximal (1RMBP) strength test procedure designed by Beachle et al., (6) to determine the maximal strength on bench press (BP) movement on the subjects through Smith machine (Esjim IT7001 Eskisehir, Turkey). The purpose of using this movement in upper body strength measurement is that BP movement is one of the most used exercises during both training and testing of upper body muscles (chest, arm and shoulder) (13).

The tests were applied to the participants within two (2) consecutive days. Before applying both bench press and bench throw movements, all participants were given a comprehensive warm-up of 20 minutes, including 15 minutes of general (5 minutes of lower and upper body stretching after a medium intensity run) and 5 minutes of special (bench press and bench throw trials with submaximal level) exercises. In order to get the highest efficiency during both movements, verbal encouragement was given to the participants during the tests.

Statistical Analysis

Spearman correlation was used to determine whether there was a significant relationship between the upper body strength feature and the velocity and power parameters achieved during bench throw movement. All variables were expressed as mean and standard deviation.

RESULTS

Descriptive statistical results of the participants for upper body strength features and velocity and power values in bench throw movement according to sports branches are given in table 2, the relationship between the upper body strength feature of the participants and the velocity and power parameters in the bench throw movement are given in table 3 and the statistical results of this relationship according to the sports branches are given in table 4.

Table 2. Descriptive statistical results for velocity and power values in bench throw movement and upper body strength features according to sports branches

Sport Branches		MPV (m/sec^{-1})	PV (m/sec^{-1})	MPP (W)	PP (W)	$BP_{Absolute\ (kg)}$	$BP_{Relative}$ (kg)
Volleyball (n=13)	Mean (±SD)	1.32 (± .20)	2.13 (± .18)	350.1 (± 71.7)	748.7 (± 133.3)	96.1 (± 13.8)	1.08 (± .12)
	Minimal	1.01	1.75	273.4	589.5	75.0	.86
	Maximal	1.62	2.42	460.6	942.9	120.0	1.31
Handball (n=13)	Mean (±SD)	1.12 (± .22)	1.91 (± .29)	307.5 (± 62.6)	654.3 (± 122.1)	97.8 (± 15.0)	1.08 (± .15)
	Minimal	.74	1.22	194.2	447.5	70.0	.71
	Maximal	1.61	2.40	454.3	918.6	125.0	1.28
Combat Sports (n=13)	Mean (±SD)	1.35 (± .18)	2.20 (± .13)	289.8 (± 55.8)	631.1 (± 100.4)	96.5 (± 13.5)	1.38 (± .18)
	Minimal	1.14	1.98	213.1	475.1	75.0	1.11
	Maximal	1.63	2.41	413.1	825.1	115.0	1.66
Arm Wrestling (n=13)	Mean (±SD)	1.11 (± .15)	1.87 (± .24)	242.9 (± 25.6)	515.1 (± 72.3)	75.0 (± 12.6)	1.04 (± .20)
	Minimal	.95	1.58	197.9	424.1	60.0	.85
	Maximal	1.43	2.31	283.7	664.6	105.0	1.52

MPV: Mean Propulsive Velocity; PV: Peak Velocity; MPP: Mean Propulsive Power; PP: Peak Power; $BP_{Absolute}$: Bench Press Absolute Strength; $BP_{Relative}$: Bench Press Relative Strenght

Table 3. Relationship between the velocity and power parameters in the bench throw movement and upper body strength feature of the participants

Variables		PV	MPP	PP	$BP_{Absolute}$	$BP_{Relative}$
MPV	Correlation Coefficient	.959 **	.695 **	.658 **	.529 **	.527 **
	Sig. (2-tailed)	.000	.000	.000	.000	.000
	N	52	52	52	52	52
PV	Correlation Coefficient		.636 **	.675 **	.536 **	.561 **
	Sig. (2-tailed)		.000	.000	.000	.000
	N		52	52	52	52
MPP	Correlation Coefficient			.922 **	.725 **	.256
	Sig. (2-tailed)			.000	.000	.067
	N			52	52	52
PP	Correlation Coefficient				.685 **	.292 *
	Sig. (2-tailed)				.000	.036
	N				52	52
$BP_{Absolute}$	Correlation Coefficient					.622 **
	Sig. (2-tailed)					.000
	N					52

* 0.05 level a significant relationship; ** 0.01 level a significant relationship

MPV: Mean Propulsive Velocity; PV: Peak Velocity; MPP: Mean Propulsive Power; PP: Peak Power; $BP_{Absolute}$: Bench Press Absolute Strength; $BP_{Relative}$: Bench Press Relative Strenght

Regardless of the difference in sports branches, when the table 3 showing the relationship between the upper body strength feature and the velocity and power values in the bench throw movement was examined, it was seen that there was a statistically positive and high level relationship between bench press absolute values and MPV ($r = .529$; $p<0.01$), PV ($r = .536$; $p<0.01$), MPP ($r = .725$; $p<0.01$) and PP ($r = .685$; $p<0.01$) values. There was a statistically positive and high level relationship between relative bench press values and MPV ($r = .527$; $p<0.01$) and PV ($r = .561$; $p<0.01$), and a positive and moderate relationship with PP values ($r = .292$; $p<0.05$).

Table 4. Relationship between the velocity and power parameters in the bench throw movement and upper body strength feature according to sports branches

Değişkenler			MPV	PV	MPP	PP
Volleyball	$BP_{Absolute}$	Correlation Coefficient	.556 *	.589 *	.716 **	.739 **
		Sig. (2-tailed)	.048	.034	.006	.004
		N	13	13	13	13
	$BP_{Relative}$	Correlation Coefficient	.670 *	.632 *	.684 **	.634 *
		Sig. (2-tailed)	.012	.021	.010	.020
		N	13	13	13	13
Combat Sports	$BP_{Absolute}$	Correlation Coefficient	.475	.595 *	.609 *	.456
		Sig. (2-tailed)	.101	.032	.027	.117
		N	13	13	13	13
	$BP_{Relative}$	Correlation Coefficient	.250	.397	.059	.179
		Sig. (2-tailed)	.411	.180	.847	.558
		N	13	13	13	13
Arm Wrestling	$BP_{Absolute}$	Correlation Coefficient	.017	.047	.261	.147
		Sig. (2-tailed)	.957	.878	.389	.631
		N	13	13	13	13
	$BP_{Relative}$	Correlation Coefficient	.404	.484	.017	.191
		Sig. (2-tailed)	.170	.094	.957	.532
		N	13	13	13	13
Handball	$BP_{Absolute}$	Correlation Coefficient	.728 **	.775 **	.703 **	.759 **
		Sig. (2-tailed)	.005	.002	.007	.003
		N	13	13	13	13
	$BP_{Relative}$	Correlation Coefficient	.429	.465	.275	.558 *
		Sig. (2-tailed)	.143	.109	.363	.047
		N	13	13	13	13

* 0.05 level a significant relationship; ** 0.01 level a significant relationship

MPV: Mean Propulsive Velocity; PV: Peak Velocity; MPP: Mean Propulsive Power; PP: Peak Power; $BP_{Absolute}$: Bench Press Absolute Strength; $BP_{Relative}$: Bench Press Relative Strenght

When table 4 was examined, it was seen that there was statistically positive and high level relationship between absolute bench press values and handball players' MPV (r = .728; p<0.01), PV (r=.775; p<0.01), MPP (r=.703; p<0.01) and PP (r=.759; p<0.01) values, volleyball players' MPP (r=.716; p<0.01) and PP (r=.739; p<0.01) values, and a positive and moderate relationship between volleyball players' MPV (r=.556; p<0.05) and PV (r=.589; p<0.05) and combat sports athletes' PV (r=.595; p<0.05) and MPP (r=.609; p<0.05) values. In arm wrestlers, there was statistically no significant relationship between absolute bench press values and velocity and power parameters during bench throw movement. It was observed that there was a positive and high level relationship between relative bench press values and volleyball players' MPP (r=.684; p<0.01) values, and a positive and moderate level relationship between handball players' PP (r=.558; p<0.05) and volleyball players' MPV (r=.670; p<0.05), PV (r=.632; p<0.05), PP (r=.632; p<0.05) values. It was found that there was statistically no significant relationship between the relative bench press values and the velocity and power parameters during bench throw movement in both arm wrestlers and combat sports athletes.

DISCUSSION

In this research, it was examined whether there was any relationship between the velocity and power values reached in the concentric phase of the bench throw movement and the upper body muscle strength, if any, whether the sports branch was an important factor for this relationship and it was concluded that the relationship between velocity and power parameters obtained during bench throw movement and upper body muscle strength differed according to branches. In the literature, some studies have examined the velocity and power parameters during certain movements, which include specific

movement samples applied to the upper body of athletes who are engaged in sports branches where upper body muscle strength is an important factor for successful performance and is used dominantly.

In the study conducted by Can (9), bench throw movement was applied on the handball players competing in Turkish 1st handball league by using external load (30% of their body weights) and velocity and power values of the subjects in bench throw movement was acquired as 1.12 (±.22 m.sec.) for MPV, 1.91 (±.29 m.sec.) for PV, 307.5 (±62.6 W) for MPP and 654.3 (±122.1W) for PP, respectively. In addition, the average 1RM strength values of the participants in the bench press movement were determined as 97.8 (± 15.0 kg). In the mentioned study, it was suggested that there was a positive and high level significant relationship between 1RMBP values of the participants and MPV (r=.728), PV (r=.775), MPP (r=.703) ve PP (r=.759) values of BT exercise in propulsive phase ($p < 0.01$); in the handball branch, due to the importance of arm throwing movement in the situations such as passing and shooting and the upper extremity muscle power and strength have a great importance in the throwing motion, handball players have a statistically significant relationship between velocity and power parameters and 1RMBP strength values during the propulsive phase of the BT movement. In a study conducted by Can et al., (8) regarding the arm wrestling branch, where upper body muscle strength is an important factor and examining whether there is a significant relationship between the upper body strength features of the national arm wrestlers and the velocity values achieved in the BT movement (with an external load corresponding to 30% of the body weight), while the average values of 1RMBP of the participants were 75.2 (± 13.4 kg), the velocity values in BT movement were acquired as 1.02 (± .84 m.sec.) for MPV and 1.78 (± .14 m.sec.) for PV. Furthermore, statistically no significant correlation was found between 1RMBP values and MPV (r= .621) and PV (r= 445) ($p> 0.05$), and it was stated that the absence of any relationship between these parameters could result from the arm wrestlers having low 1RMBP values.

In a study conducted by Can and Bayrakdaroğlu (10) on national boxers and kickboxers, the average values of 1RMBP of the participants were 100.0 (± 12.9 kg) for boxers, while this value was found to be 92.5 (± 14.4 kg) in kickboxers. In addition, the velocity and power parameters of boxers and kickboxers during the BT movement were acquired as 1.41 (± .16 m.sec) and 1.28 (± .19 m.sec) for MPV, 2.26 (± .12 m.sec) and 2.14 (± .14 m.sec) for PV, 295.8 (± 40.8 W) and 282.8 (± 73.3 W) for MPP, 634.8 (± 64.6 W) and 626.8 (± 138.4 W) for PP, respectively. In the mentioned study, it was found that there was statistically no significant difference between the upper body muscle force and the velocity and power parameters of the national athletes competing in both sports branches. However, a statistically significant relationship was found between 1RMBP values and MPV (r=.613), PV (r=.641) and MPP (r=.611) values. In a study by Loturco et al., (18) on athletes in the Brazilian boxing national team, they argued that there was a high level of relationship between the punching velocity applied by using different techniques and the mean propulsive power in the bench throw movement, and this relationship also gained importance as the necessity for the athletes to develop their existing abilities to apply a high velocity strength using their upper limbs. Similarly, in another study by Loturco et al., (17) on athletes in the Brazilian karate national team, they suggested that there was a relationship between the muscle strength and power ability of the national karate players and the velocity skills for punching and kicking, and this relationship might also be due to the dynamic features of hitting movement.

In this study, it was concluded that the relationship between the velocity and power parameters reached during the BT movement and the upper body strength feature differed according to the sports branches. It was concluded that there was a relationship between absolute 1RM values in the bench press movement and MPV, PV, MPP and PP values of handball players, MPV and PV values of volleyball players, and PV and MPP values of combat sports athletes, but there was no such relation in arm wrestlers. In terms of relative 1RM values, such a relationship was found between the volleyball players' MPP and the handball players' MPV, PV and PP values. However, there was statistically no significant relationship in both arm wrestling and combat sports athletes. In general, it is seen that handball, volleyball and combat sports athletes in terms of absolute values and handball and volleyball players in terms of relative values differ from the athletes competing in other sports branches in relation to the upper body strength feature and the velocity and power parameters

during the puropulsive phase. It can be suggested that the reason for this difference is that the pushing movement for the upper body is an important feature for volleyball, handball and combat sports; on the other hand, in arm wrestling, it can be caused by the pull movement being more dominant rather than pushing, and the velocity and power features obtained during the movements applied to the upper body may differ according to the sports branches or the characteristics of the sports branches. In conclusion, this is a study examining the differences between velocity and power parameters and muscle strength during specific movement examples applied for upper body in some sports branches where upper body muscle force is used dominantly and it is thought to be an important source for sports science field.

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The Effect of High Intensity Interval Training in Different Forms Applied to Combat Athletes on Body Composition and Muscular Strength

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Abstract

The aim of this study was to investigate effects of two different high intensity interval program for 3 weeks on body composition and strength of combat sport athletes. Twenty-nine combat sport athletes (karate, judo, taekwondo, wrestling) (age 21.41±1.50 years) voluntarily participated in this study. Participants were randomly assigned to two groups; Tabata protocol and running based high intensity interval protocol. Both methods were applied to participants 3 days per week for 3 weeks. Body composition, leg strength, back strength and hand grip strength of the participants were measured before and after the application. Paired Sample T Test was used to determine intragroup changes while Independent Sample t-test as used to determine intergroup changes. There was no significant difference between groups during the first measurement ($p>0.05$). No significant change was found in the variables between two measurements. When groups were compared, there was difference in back strength in favour of Tabata group.

Keywords: Combat sports, high intensity interval training.

INTRODUCTION

Effective usage of time has gained importance with the developments in technology. The changes and developments in science and communication directly or indirectly significantly affect sport activities and training science (5,18). The notion of time that is one of the most important elements of training sciences has led researchers to look for new training methods (15).

It is well-known that regular and systematic exercises increase work capacity and performance parameters (17). Physical characteristics are one of the factors affecting athletic performance because they affect physiological outputs. Unless the physical characteristics do not fit a specific sport desired level of performance cannot be achieved. Moreover, physical characteristics positively affect sport performance as well as other performance variables such as strength, flexibility, speed, endurance, and agility (23). Of those parameters, endurance and strength are of great importance for many sports. Aerobic capacity can be developed with endurance trainings. Developing aerobic capacity requires long training periods (6). Strength development is a more complicated period.

Sport sciences and training methods have been constantly updated with new findings. Scientists, coaches, and athletic performance specialists expect adaptation to intensity of new training methods applied to athletes and sedentaries and try people to benefit from them as much as possible (20). One of the most common methods for athletic performance is high-intensity interval training (HIIT). (2). HIIT that helps athletes acquire high development is preferred by many coaches and sport scientists (1). HIIT leads to fast and high developments as well as saving of time (10,27). Especially during short preparation periods, HIIT is expected to help coaches and athletes acquire important gains. Although the literature suggests that HIIT improves especially aerobic and anaerobic performance in sedentaries and athletes, its effects on strength of combat sports athletes have not been studied enough (3). Moreover, the number of studies comparing different methods of HIIT method in terms of strength is quite low. Therefore, the aim of this study was to compare two different HIIT methods for 3 weeks on body composition and strength in combat sport athletes. To reveal which methods of high intensity interval training will be more effective in combat sports will make a significant contribution to the literature.

Methods

Participants

Twenty-nine combat sport athletes (karate, judo, taekwondo, and wrestling) whose mean age was 21,41± 1,50 years voluntarily participated in this study. Athletes were chosen from those who were without any health problem, did not use drugs regularly and smoke. Measurements were repeated before and after the exercise program and body mass, body mass index, body fat percentage and back, leg and handgrip strength of the participants measured. The study was designed in accordance with the rules and principles of Helsinki Declaration and approved by the Ethical Committee of Gazi University (91610558-302-08-01 and dated 07.01.2020). The approval form for volunteering were filled by the participants.

Participants were randomly assigned to either the Tabata method or the Repeated Sprint Method. Both groups applied the exercise protocols 3 times a week every other day for 3 weeks. Fifteen minutes of warm-up was done before each training season 10 minutes of cool down was done after the exercise. Both groups continued their technical practices on the other days.

Training Methods

Tabata Method: This method included 5 movements with 4x8 of 20 second work periods. It has been suggested that high-intensity exercise when carried out at an appropriate level developed aerobic and anaerobic energy systems (29). Burpees, crunches, jumping jacks and push up movements were implemented during Tabata method for 3 weeks. Sets were 4x8 for the first week, 5x8 for the second week and 6x8 for the third week with 1-minute recovery between sets. Also 10 seconds recovery was given between repetitions.

Repeated Sprint Method: Repeated sprint is defined as the ability to apply repeated sprints with minimum recovery time or presenting the best mean sprint performance of successive sprints (12,21). Both linear and change-of-direction repeated sprints are frequently used to enhance physical capacities of the athletes in many sports (13,28). This method was applied as 4 reps in the first week, 5 reps in the second week, and 6 reps in the third week with all-out effort and covered 150 meters. Four mins recovery was given between each repetitions.

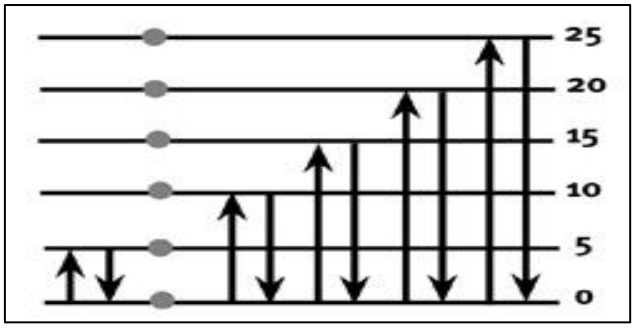

Figure 1. Repeated Sprint Method.

Body Composition Measurements

The height of the participants was measured with a stadiometer (Holtain, England) to the nearest 1 cm. Body mass index (BMI), Basal Metabolism Rate (BMR), Body Fat Percentage (FB%) Total Fat Mass (FAT MASS) were measured using TANITA Body Composition Analyzer. The measurements were taken while the participants were hungry.

Hand-grip Strength

Participants hold the dynamometer (Takei-Back & Lift) for 3-5 seconds in a standing position with 45 degrees between body and arm. Measurements were

taken from both hands. Dominant hands of the participants were the right hands.

Back Strength Measurement

Back muscle strength was measured with a calibrated dynamometer (Takkei-Back & Lift) and recorded in kilograms (kg). For the test, the length of the chain was adjusted to the participants' height by asking the subject to stand on the base of the dynamometer with extended knees. Subsequently, the handle was positioned at the height of the intra-articular space of the knee joint. For the test, participants had to stand on the base, with knees and hips flexed slightly while the lower back had to maintain an appropriate lordotic curve. Subjects were asked to lift in a vertical direction by providing continuous isometric contractions of the extensors of the knees, hips, and lower back while holding the handle. Participants were asked to increase the pull in a safe manner gradually and reach the maximal force in three seconds while keeping this pull for another two seconds. After a demonstration and a familiarization trial, three trials were performed, with rest periods of 30 seconds between trials.

Leg strength measurement

Leg strength was measured with a calibrated dynamometer (Takkei-Back & Lift) and recorded in kilograms (kg). The participant was asked to stand erect with knees bent so that the grasping hand rests at a proper height. They then lifted the handle of the dynamometer, bending his legs, and then straightened the legs. The strength of the leg muscles was recorded on the dial of the dynamometer as for the best of three trials in kg. Thirty-second-time intervals separated each leg strength test.

Statistical Analyses

Data normality was verified using Skewness and Kurtosis values. Paired Sample t-test was used to determine intragroup changes while the Independent Sample t-test was used to determine intergroup changes. P-value was set at $p<0.05$.

Results

Mean values and standard deviations of the physical variables of the participants were shown in Table 1.

Table 1. Physical characteristics of the participants.

	N	Minimum	Maximum	Mean	SD
Age (y)	29	19	24	8,85	2,79
Height (cm)	29	163,00	186,00	176,72	5,47
Body mass (kg)	29	60,20	87,50	72,25	6,53
BMI (kg/cm2)	29	20,10	25,60	23,34	1,41

BMI=Body mass index, SD=standard deviation

Mean values, standard deviations, and 95% confidence intervals of the variables obtained in the first measurement are presented in Table 2.

Table 2. First measurement results of the groups

	Group		t	*p*
	Running (N=15)	Tabata (N=14)		
	Mean±SD	Mean±SD		
Fat percentage (%)	12.30±4.23	12.00±2.67	0.231	0.819
Fat mass (kg)	8.99±3.40	8.71±2.05	0.265	0.793
Back strength	128.97±25.13	145.57±18.30	-2.021	0.053
Leg strength	126.91±26.54	134.36±25.33	-0.772	0.447
Hand grip right	42.04±6.93	44.50±7.96	-0.890	0.382
Hand grip left	40.55±4.80	43.69±6.69	-1.460	0.156

There was no significant difference between groups during the first measurement ($p>0.05$). Mean values, standard deviations and 95% intervals of the variables obtained in the second measurement are given in Table 3.

Table 3. Second measurement results of the groups

	Group			
	Running (N=15)	Tabata (N=14)	t	p
	Mean±SD	Mean±SD		
Fat percentage	12,52±4.18	12,64±2.49	-0.095	0.925
Fat mass	9,26±3.50	9,16±2	0.089	0.929
Back strength	126,14±17.94	146,31±22.71	-2.663	0.013
Leg strength	130,15±26.64	142,52±23.37	-1.325	0.196
Hand grip right	46,30±6.65	46,628.72	-0.111	0.913
Hand grip left	44,77±7.68	43,97±7.18	0.288	0.775

The intragroup changes of the participants can be seen in Table 3. No significant change was found in the variables between two measurements.

Table 4. Comparison of two measurements of two groups

	GROUP	First Measurement	Second Measurement	Sig
Body mass (kg)	Running	72.3±6.6	72.8±6.5	,059
	Tabata	72.1±6.6	72.8±6.5	,149
BMI	Running	23.02±1.61	23.49±1.32	,317
	Tabata	23.68±1.12	23.49±1.32	,634
Fat percentage	Running	12.30±4.23	12.52±4.18	,591
	Tabata	12.0±2.67	12.64±2.49	,286
Fat mass	Running	8.99±3.40	9.26±3.50	,373
	Tabata	8.71±2.05	9.16±2	,289
Back strength	Running	128.91±25.13	126.14±17.94	,557
	Tabata	145.57±18.30	146.31±22.71	,900
Leg strength	Running	126.91±26.54	130.15±26.64	,595
	Tabata	134.36±25.33	142.52±23.37	,121
Hand grip right	Running	42.04±6.93	46.30±6.65	,073
	Tabata	44.50±7.96	46.62±8.72	,247
Hand grip left	Running	40.55±4.80	44.7±7.68	**,037**
	Tabata	43.69±6.69	43.97±7.18	,864

p<0.05

Discussion

The aim of this study was to investigate effects of two different high-intensity interval exercise methods for 3 weeks on body composition and strength parameters. It has been proven that the high-intensity exercise method had scientifically positive effects on aerobic and anaerobic performance (8,9,13). Unlike, this study investigated body composition and strength components.

The main finding of the study was that the back strength of the athletes who attended the Tabata protocol was found higher. It is thought that this difference may stem from Tabata protocol during which athletes work out with their body mass and which includes especially strength exercises. When with-in group pre and post test results are investigated, there were percental changes in body mass, BMI, leg strength, hand-grip right parameters despite not being statistically significant. There was a significant difference in hand-grip left parameter (p=,037). In Tabata group, there were also percental changes in body mass, BMI, back strength, leg strength, hand-grip right and hand-grip left parameters. Fat percentage did not present any change in both groups.

Pinillos et al. (24) applied two different HIIT methods on long-distance runners and suggested that 40x100 m all-out effort positively affected counter movement jump and squat jump performance. Another study stated that HIIT leads to improvement in body fat percentage (26). Bermejo et al. (11) implemented two different HIIT methods (cycling and functional training) on physically active young individuals for 4 weeks and stated significant improvements in fat mass and fat percentage. These studies lasted longer than our study and diet of the participants were not altered during the present study, so it is thought that there were differences especially in fat mass and fat percentage.

Ribeiro et al. (25) applied routine BJJ (Brazilian Jiu-jitsu) training to the control group (n = 9) and high-intensity interval training program to the experimental group (n = 9) in a study they performed on Brazilian 18 Jiu-jitsu athletes for 10 weeks. When the parameters of muscular endurance body composition of high-intensity interval training athletes are examined, it is stated that there is more decrease in body fat masses and fat percentages compared to the control group. In addition, high-intensity interval training is reported to be more effective in muscle endurance.

In the study where Monks et al. (22) Examined the effects of 4-week high-intensity running training on taekvondo's athletic performances, the groups had 2 different running-based HIIT training. They found that the high intensity short-term sprint group had a greater decrease in body weight and body fat percentage than the long-term sprint group.

There are not enough study in the literature investigating the effects of HIIT methods on the strength parameters of the athletes. When related studies were investigated, Pinillos et al. (24) implemented running-based HIIT on triathletes for 4 weeks and suggested no difference in control group while indicating significant interactions in vertical jumping ability and athletic performance in the study group. Pinillos et al. related these results with muscle strength increase.

In the study conducted by Alsairavan et al. (4). It was reported that high-intensity interval workouts with 6-week sessions and high-intensity interval training significantly improve the back force and are in line with our study.

In another study, Eather et al. (16) significantly increased muscle mass and muscle strength in the body for 8-12 minutes, 8 weeks and 3 sessions per week for 8 weeks and 3 sessions a week in their study reported that they have developed.

Another study applied Tabata protocol to 64 female volleyball players for 8 weeks and significant differences were presented between pre and post test measurements in standing long jump, vertical jump and slam dunk performance (7).

Related studies have indicated that HIIT enhanced strength performance. The duration of the protocols ranged from 4 to 8 weeks. This study was implemented 3 days for 3 weeks and investigated effect of HIIT on specifically strength performance. It can be suggested that more than 3 weeks are needed to improve strength parameters with HIITs. Moreover, adaptation to HIITs in terms of strength is thought to last more than 3 weeks. Diet of the athletes should also be altered in order HIIT affect body composition and body fat percentage.

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The Effect of Goal orientation and Motivation of Female Footballers in Sports on Resilience Power*

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Abstract

The aim of this study is to investigate the effect of goal orientation and motivation of female footballers in sports on resilience power. In the study, there 183 female footballers based upon the leagues Süper Lig (Super League), PTT 1st League, 3rd League and Amateur League. As data collection tools, Resilience Scale, Task and Ego Orientation in Sport Questionnaire and Sport Motivation Scale were used. The results were obtained through One-way ANOVA and Regression analyses. As a result of the analyses, the female footballers have significant, positive and low level correlation between goal orientation and resilience; on the other hand, there is a significant, positive and very low level correlation between goal orientation and sport motivation ($p<0,05$). A significant, positive and low level correlation among the mean scores of resilience, goal orientation and sport motivation ($p<0,05$). There is a significant, positive and low level correlation between sport motivation and goal orientation ($p<0,05$). As a consequence of the results obtained, various suggestions are made in order to shed a light on the possible future studies.

Keywords: Female Football, Goal Orientation, Motivation

INTRODUCTION

As there are various stories, myths and urban legends about the emergence of the Olympic games, there are roots in many nations and communities in football. Football is mentioned to be the beginning of game types in many countries of the world (4). Looking at resources, it is confirmed that football has been played since the 12th century in the Island. In the 17th century, it is known that football is accepted as a part of people's lives in England and even the royal family encourages their people to play football (15). The person who has made football so much popular is King Charles II. Charles II who had to shelter in Italy spent a lot of time and effort to spread the" Giuocco del Calcio" sport they watched in Italy when he returned to the island with his nobles.

Various claims have been put forth about when and where modern football was born. It is suggested that "Harpatsam" played by the soldiers especially in Rome after Christ is the basis of today's modern football and the Romans created the name of this game inspired by the Elens' "Episkyres" games (21). The type of football, similar to the one played today, appeared in the 17th Century England.

Football, being highly popular among both the nobles and the public, has started to spread rapidly on the island. Until 1848 in England, there were different game rules. In order to implement the existence of the same rules everywhere, a law called "Cambridge Rules" came into force. In 1857, the University of Cambridge students organized a competition among themselves and the first official football club was established as the "Sheffield Club". On 26 October 1863 considered to be the beginning of modern football history, 9 major club leaders gathered in London and established the Football Association being the first official federation of football community, which is addressed as one of the most important steps taken in the field of modern football (1). Football, which has made significant progress within the historical process, maintains its currency in every aspect. Football, which can influence and direct political, social, cultural and economic developments due to its integrated structure with the society, is also the subject of scientific research. Football in Turkey has a vital place in the sense of leading many structural changes as in the beginning of Turkish sports organization (24).

Today, achievements and unsuccessful situations especially in football-based sports can be attributed to multiple reasons. These reasons include physiological as well as psychological conditions. Motivation has become the most important one of the psychological situations, but in recent years, it has become a popular field in the area of psychology. In this regard, goal orientation and motivational climate seem to be the psychological factor affecting success in team sports. Motivation level of each person who forms the team in football is an effective element in the results. For this reason, goal orientation and motivation is one of the psychological factors that affect success, especially in team sports (3; 21).

Goal orientation is examined in two parts: task and ego orientation. Ego orientation refers to the goal of the athlete to be superior over the opponent or her/his teammates, to stand out or to perform better while task orientation refers to the goals of the athlete to do better than the previous performance, to learn new skills or to master a task (6). Motivational climate is defined as the situational environment that directs the target of action in success

situations. In short, motivational climate denotes how the structure of success environment is perceived (11).

MATERIAL and METHOD

Participants: A total of 183 female football players based upon the leagues Super League, PTT 1st League, 3rd League and Amateur League participated in the study. Simple random sampling method was used for sample selection. All participants were included in the study on a voluntary basis. The sports duration of the athletes and the league status of the athletes were taken as independent variables. Therefore, the descriptive characteristics of the participants were determined through these independent variables. Continuous variables such as height and body weight characteristics were excluded from evaluation.

Data Collection Tool:

The Resilience Scale (Psychological Endurance Scale)

The Resilience Scale aims to determine self-recovery and resilience levels of the person. Turkish adaptation of the scale developed by Wagnild and Young (23) was performed by Terzi (20). This is a 24-item and 7-point Likert type scale. The responses range from "(7) Totally Agree" to "(1) Totally Disagree" for each statement. The scores of each item change between 1 and 7. The lowest score to be obtained from the scale is 24 while the highest score is 168. A high score indicates a high level of resilience. Reliability and validity of the scale were performed. The reliability of the scale was determined through three ways. Cronbach alpha reliability coefficient of the scale was found to be .82 and test-retest reliability coefficient was determined as r = .84.

Task and Ego Orientation in Sport Questionnaire (TEOSQ)

Task and Ego Orientation in Sport Questionnaire (TEOSQ) developed by Duda (7; 8) is composed of 13 items, 7 of them come from task orientation and 6 of them from ego orientation. The

respondents of the scale participate in each item according to the 5-point evaluation system. The scale was adapted to Turkish athletes by Toros (22).

Sport Motivation Scale (SMS)

In order to measure motivation in the research, "Sport Motivation Scale-SMS" developed by Pelletier et al. (18) was used. Turkish adaptation of Sport Motivation Scale was performed by Kazak (12). The sport motivation scale consists of 28 items in which the judgments are made according to seven evaluation steps and includes seven subscales. These seven subscale scores are also used to calculate intrinsic motivation, extrinsic motivation and amotivation scores (12). The respondent athletes give a score of 1-7 according to the most appropriate option for them to the statements prepared in response to the question "Why do you do sports?"

FINDINGS

Table 1 : Evaluation of Target Commitment Levels of Athletes by Duration of Sports

Duration	N	Mean Square	df	X^2	p
0-2 years	61	95,34			
3-5 years	51	85,75			
6-8 years	31	90,47	5	4,041	,544
9-11 years	23	100,35			
12-14 years	15	82,93			
15 and over	2	145,50			
Total	**183**				

In Table 1, the target commitment levels of the athletes participating in the study were evaluated in terms of the duration of sports. No significant differences were observed among the variables (p>0,05).

Table 2 : Evaluation of Resilience Levels of Athletes by Duration of Sports

Duration	N	Mean Square	df	X^2	p
0-2 years	61	81,51			
3-5 years	51	88,82			
6-8 years	31	83,32	5	16,203	**,006***
9-11 years	23	119,37			
12-14 years	15	125,47			
15 and over	2	61,75			
Total	**183**				

According to Table 2, the resilience levels of the participant athletes were evaluated in terms of the duration of sports. Significant differences were observed among the variables (p<0,05).

Table 3 : Evaluation of Sport Motivation Levels of Athletes by Duration of Sports

Duration	N	Mean Square	df	X^2	p
0-2 years	61	77,61			
3-5 years	50	90,32			
6-8 years	31	91,31	5	11,999	**,035***
9-11 years	23	111,13			
12-14 years	15	117,60			
15 and over	2	126,00			
Total	**182**				

When Table 3 is examined, the motivation levels of the athletes participating in the research were evaluated in terms of the duration of sports. Significant differences were observed among the variables (p<0,05).

Table 4 : Evaluation of Target Commitment Levels of Athletes by the League Status

Duration	N	Mean Square	df	X^2	p
Amateur League	147	92,88			
3rd League	17	90,53			
PTT 1st League	5	84,70	3	6,650	,084
Super League	10	49,45			
Total	**179**				

According to Table 4, the target commitment levels of the participant athletes were evaluated in terms of their league. No significant differences were observed among the variables (p>0,05).

Table 5 : Evaluation of Resilience Levels of Athletes by the League Status

Duration	N	Mean Square	df	X^2	p
Amateur League	147	95,35			
3rd League	17	76,35			
PTT 1st League	5	93,60	3	14,990	**,002***
Super League	10	32,75			
Total	**179**				

In Table 5, the resilience level of the athletes participating in the study was evaluated in terms of their league. Significant differences were observed among the variables (p<0,05).

Table 6: Evaluation of Sport Motivation Levels of Athletes by the League Status					
Duration	N	Mean Square	df	X^2	p
Amateur League	146	93,34			
3rd League	17	86,85			
PTT 1st League	5	58,50	3	7,547	,056
Super League	10	53,50			
Total	**178**				

In Table 6, the target commitment level of the athletes participating in the study was evaluated in terms of their league. No significant differences were observed among the variables (p>0,05).

Table 7: Evaluation of the Relationship among Scales				
Variables		Target Commitment	Resilience	Sport motivation
	P.Correlation	1	,277	,199
Target Commitment	p		**,000***	**,007***
	N	183	183	182
	Correlation	,277	1	,438
Resilience	p	**,000***		**,000***
	N	183	183	182
Sport Motivation	Correlation	,199	,438	1
	p	**,007***	**,000***	
Total	**N**	**182**	**182**	**182**

Looking at Table 7, the relationship between the three scale mean scores used in the study was evaluated. Accordingly, there is a low-level positive correlation between target commitment and resilience scores, and there is a considerably low-level positive correlation between target commitment and sport motivation scores (p<0,05). There is a significantly positive and low-level correlation between resilience and target commitment and sport motivation scores (p<0,05). There is a significantly positive and low-level relationship between sport motivation and target commitment scores (p<0,05).

DISCUSSION and CONCLUSION

Studies reveal the importance of psychological capital in women's participation. In football, which is a psychological field, it is seen that female football team players are excluded from football due to psychological, social capital deficiencies and gender inequalities (16).

In Table 1, the target commitment levels of the athletes participating in the study were evaluated in terms of the duration of sports. No significant differences were observed among the variables (p>0,05). Target commitment levels were found to be higher in athletes doing sports for 15 years and more. In the study of Domínguez-Escribano et al. (9) performed on 117 female football players, a decrease is observed in the target commitment level of female football players as they age. In the study of Kocaekşi (13) performed on female handball players, no statistically significant difference was found between measurements and no change was stated in ego orientation scores of female athletes in time.

According to Table 2, the resilience levels of the participant athletes were evaluated in terms of the duration of sports. Significant differences were observed among the variables (p<0,05). Resilience levels of athletes doing sports for 12-14 years was found to be higher than other variables.

In Table 3, the motivation levels of the athletes participating in the research were evaluated in terms of the duration of sports. Significant differences were observed among the variables (p<0,05). The sport motivation levels of the participants doing sports for 15 years and more were found higher than the sports duration of other participants.

Looking at Table 4, the target commitment levels of the participant athletes were evaluated in terms of their league. No significant differences were observed among the variables (p>0,05). Amateur league athletes were found to have higher

levels of target commitment than athletes in other leagues. Following the study of Chie-der et al. (5), a positive correlation was found between the target orientation scores of the female athletes and the sub-dimension scores of ability demonstration and physical performance. The high ego orientation scores of female athletes with high perceived strength competence coincide with the ego orientation, which is based on the principle of being superior to others and considered within the framework of social comparison. In this sense, it has been stated that female athletes with high perceived strength want to defeat their rivals with less effort and perform better than others. The study of Altıntaş et al. (2) shows that female athletes are focused with task and ego orientation on the belief that they can achieve both by learning new skills, showing mastery in the task, working hard and proving superior ability and defeating rivals.

In Table 5, the resilience level of the athletes participating in the study was evaluated in terms of their league. Significant differences were observed among the variables ($p<0,05$). Resilience levels of athletes in amateur league were found to be higher than the athletes in other leagues.

In Table 6, the target commitment level of the athletes participating in the study was evaluated in terms of their league. No significant differences were observed among the variables ($p>0,05$). Sport motivation levels of athletes in amateur league were found higher than the athletes in other leagues.

Looking at Table 7, the relationship between the three scale mean scores used in the study was evaluated. Accordingly, there is a low-level positive correlation between target commitment and resilience scores, and there is a considerably low-level positive correlation between target commitment and sport motivation scores ($p<0,05$). In other words, the higher target commitment scores are, the higher resilience and sport motivation scores can become. In our study, there is a significantly positive and low-level relationship between sport motivation and target commitment scores ($p<0,05$). There is a significantly positive and low-level correlation between resilience and target commitment and sport motivation scores ($p<0,05$). When these results were evaluated, it was determined that the scales used in the study predicted each other. When the sources examined in order to contribute to the study are evaluated, it is stated in the study of Marta Domínguez-Escribano et al (9) performed on 117 female football players that the highest league show high values of ego orientation and task orientation in the perception of success and motivational variables of the individual and team strengthen the motivation of women to participate in football. In the study of Hein and Müür (10), it is stated that behaviors, emotions, perceptions, persistence and even effort in the physical activities of individuals can affect climates. In the study, it was stated that the ego orientation was less likely to decrease the willingness of the individual to engage in a task for their own purposes while the intrinsic motivation was higher in high task orientation. In the study of Pepijn K.C. van de Pol et al. (17) performed on 362 male and 48 female football players, a positive relationship was ascertained between target orientation and motivation. They have stated that target-oriented athletes can evaluate the relationship with their abilities, apply the standards of personal development and performance, and also easily find their way to meet their normative goals in a concrete effort. In the study of Susumu Iwasaki et al. (19) performed on 190 female football players, it was found that the target climate and goal orientations of female footballers mediated the relationship between their abilities and to peak under pressure. In another study by Loghmani and Benar (14) conducted on 40 female handball, volleyball and football players, no clear and significant relationship was observed between target orientation and sport commitment. In particular, they found a negative relationship between task orientation and sport commitment within the goal orientation, and it can be articulated that it might be less important for them to expand and develop their basic skills in the sport with task-oriented characteristics, given that the task-oriented athletes are professional players.

In conclusion, various studies have been carried out to explain the goal orientation, sports motivation and resilience commitment of female football players. Following the researches, the perception of success with football, the level of collective productivity and the relationship established with peers, sports motivation and target orientation can be evaluated as determinants of resilience. Therefore, these three variables can be the focus of training programs to increase women's motivation and commitment in football teams (9). In this regard, taking into account the target orientation of athletes

and sport motivation levels must be the elements trainers pay attention while preparing training programs. Both task and ego orientation goals, motivations and resilience strength must be important factors to enhance sport participation of particularly female football players.

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The Effects of Perceived Freedom in Leisure on Leisure Benefits: Students of The Faculty of Sports Science

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Abstract

This study aims to determine the differences between the levels of perceived freedom in leisure and the leisure benefits in terms of specific socio-demographic characteristics of the students studying in the faculty of sports sciences, the predictive power of the levels of the perceived freedom in leisure on their leisure benefit levels. A total of 318 participants, including 199 male and 119 female, studying in different sports sciences faculties selected by the convenience sampling method, constitute the sample. In addition to the Personal Information Form, the "Perceived Freedom in Leisure Scale-25" developed by Witt and Ellis (34) and adapted to Turkish by Lapa and Kaas (22) and the "Leisure Benefit Scale" developed by Ho (15) and adapted to Turkish by Akgül et al. (2) were used as data collecting tools in the study. Descriptive statistics, independent t-test, ANOVA, MANOVA, and regression analysis were adopted in the analysis of the data. The independent t-test results showed no significant difference between the levels of individuals' perceived leisure levels by their gender. The ANOVA results showed no difference between the participants' satisfaction status and the levels of perceived freedom in leisure per week. The MANOVA results showed that the effect of individuals' gender, welfare status, and weekly leisure on their leisure benefit levels was not significant and that there were no statistical differences between the sub-dimensions. To the results of regression analysis, the perceived freedom in leisure is an important predictor of leisure benefit. Consequently, the research revealed that the levels of perceived freedom in leisure and leisure benefit do not differ based on socio-demographic characteristics and that the perceived freedom in leisure is an essential factor in participants' benefits.

Keywords: Sports Science Faculty Students, Perceived Freedom in Leisure, Leisure Benefit

INTRODUCTION

Neulinger defines the concept of perceived freedom (35), which emerged as an essential dimension to understand individuals' leisure behavior, as specified by Ellis and Witt (9) and Neulinger (25) as a primary criterion of leisure and as a situation in which people do what they do willingly or by choice (31,22). In other words, perceived freedom is in the form of a cognitive, motivational structure that includes people's perceptions of leisure activities they participate in (1). Poulsen et al. (27) stated that individuals' experiences in leisure, whether successful or unsuccessful, may affect their level of freedom when they participate in a particular activity (17). Öztürk et al. (26) reported that perceived freedom is an important variable affecting leisure participation. The individuals who experience perceived freedom in leisure feel more competent and perceive that they can control their leisure before, during, and after participation in activities (19). Therefore, he suggested that individuals should have some qualifications such as having the necessary competence, controlling their experience, and participating in activities with intrinsic rather than extrinsic expectations to get the maximum benefit from leisure activities (23,5). In leisure when people have the opportunity to express themselves as "free" and "voluntary" (18,4) it is necessary to determine what the objectives and expectations of participation in activities are (12). In parallel with this argument, Eskiler et al. (10) expressed that people participate in leisure activities to feel good or happy and to meet

their psychological needs. Especially from leisure activities in which individuals participate independently of work or daily living activities (33), they achieved different levels of benefits and satisfaction (36). In this sense, leisure benefits are defined as the perceptions of individuals participating in various activities during leisure to improve personal conditions and meet individual needs (16). In literature, studies prove that individuals doing leisure activities benefit in various aspects. They include weight control, stress prevention, meeting new people (11), strong family bonds (14), improved physical fitness, mental relaxation and satisfaction (24), reduced health problems such as high blood pressure and heart disease, and self-recognition and self-realization (32,28). Thus, this research aims to determine the differences between the levels of perceived freedom in leisure and the levels of leisure benefit by the socio-demographic characteristics of the students studying in sports sciences faculties and the predictive power of the levels of the perceived freedom in leisure on their leisure benefit levels.

Materials and Method

Research Model

Following the aim of the study, the research adopted a relational screening model. In this model, questions such as the degree of change between variables or the level of the situation examined are clarified with relational screening design (13).

Study Group

The study group consists of 318 participants, including 199 male ($Mean_{age}$=20.95±2.22) and 119 female ($Mean_{age}$= 20.29±2.16), who studied at the faculties of sports sciences of different universities in Turkey, were selected by convenience sampling method. Among the participants, 67.6% of those surveyed had a "normal" welfare state, while 34.3% had a weekly leisure time of "16 hours and more".

Data Collection Tools

Personal Information Form: The "Personal Information Form" prepared by the researcher consists of questions such as gender, age, department, grade, welfare status, and weekly leisure to gather information about the individuals involved in the study.

The Perceived Freedom in Leisure Scale -25: The "Perceived Freedom in Leisure Scale-25" developed by Witt and Ellis (34), firstly adapted to Turkish by Lapa and Ağyar (21), and then tested by Lapa and Kaas (22) regarding the construct validity was used to determine individuals' perceived competence, perceived control, and perceived intrinsic motivation in leisure. The scale possesses 25 items and one sub-dimension, and the reliability coefficient has been determined as 0.93. The items on the scale are scored from (1) 'Strongly Disagree' to (5) 'Strongly Agree.'

The Leisure Benefit Scale: The "Leisure Benefit Scale" developed by Ho (15) and adapted to Turkish by Akgül et al. (2), was used to describe the leisure benefit of individuals. The scale consists of three sub-dimensions and 24 items, including "Physical Benefit" (7 Items), "Psychological Benefit" (8 Items), and "Social Benefit" (9 Items). While the reliability coefficient of the scale was measured as 0.83, the internal consistency coefficients for the sub-dimensions were 0.81 for the physical benefit sub-dimension, which was 0.80 for the psychological, and 0.86 for the social benefit sub-dimension. The items on the scale are scored from (1) 'Strongly Agree' to (5) 'Strongly Agree.'

Data Analysis

SPSS 20.0 software was used to analyze the research data. The percentage and frequency method was used to determine the distribution of participants' personal information. Skewness and kurtosis values were examined to decide whether the data shows the normal distribution, and it was found that the data are of the normal distribution. The independent t-test, ANOVA, MANOVA, and regression analysis were used to analyze the research data. Lastly, Cronbach Alpha coefficients were calculated to determine the reliability of the scales.

FINDINGS

Table 1. Distribution of scale scores

	Sub-dimensions	Item Number	n	Mean	Sd.	Skewness	Kurtosis	α
PFLS	**Perceived Freedom in Leisure**	25	318	3.77	0.59	-0.36	-0.30	0.94
LBS	**Physical Benefit**	7	318	3.97	0.67	-0.56	0.49	0.90
	Psychological Benefit	8	318	3.90	0.65	-0.50	0.35	0.88
	Social Benefit	9	318	3.88	0.71	-0.61	-0.53	0.89

In Table 1, the mean score of PFLS was determined as (3.77). The highest mean of the LBS level in the sub-dimensions was found to be in the sub-dimension of "physical benefit" (3.97), while the lowest mean was in the sub-dimension of "social benefit" (3.88). For PFLS, the reliability coefficient was measured as 0.94, while for LBS, the internal consistency coefficients ranged between 0.88 and 0.90.

Table 2. Analysis Results of PFLS-LBS Scores by Gender of Participants

	Male (n=199)		*Female (n=119)*	
	Mean	**Sd.**	**Mean**	**Sd.**
Perceived Freedom in Leisure	3.74	0.59	3.81	0.60
LBS				
Physical Benefit	3.96	0.69	3.99	0.65
Psychological Benefit	3.88	0.66	3.92	0.63
Social Benefit	3.90	0.72	3.87	0.69

Table 2 presents the analysis results by the gender of the participants in the research. According to the analysis results, PFLS scores of individuals do not differ significantly by their gender (t=-0.980; p>0.05). Besides, the MANOVA analysis results showed that the main effect of the gender of the participants on the sub-dimensions of the LBS was not significant, and there was no statistically significant difference among the sub-dimensions [λ= 0.995, $F_{(3,314)}$=0.534; p>0.05].

Table 3. Analysis Results of PFLS-LBS Scores by Welfare Status of Participants

	Low (n=47)		*Normal (n=215)*		*High (n=56)*	
	Mean	**Sd.**	**Mean**	**Sd.**	**Mean**	**Sd.**
Perceived Freedom in Leisure	3.73	0.73	3.74	0.58	3.92	0.49
LBS						
Physical Benefit	4.08	0.83	3.95	0.65	4.00	0.62
Psychological Benefit	4.03	0.76	3.86	0.61	3.91	0.69
Social Benefit	3.94	0.82	3.85	0.70	3.98	0.64

Table 3 shows the analysis results related to the welfare status of the participants in the research. According to the analysis results, there was no meaningful difference between individuals' PFLS scores by their welfare status (F=2.281; p>0.05). Besides, the MANOVA analysis results showed that the main effect of the participants' welfare status on the sub-dimensions of LBS was not significant, and there was no statistically significant difference among the sub-dimensions [λ= 0.984, $F_{(6,626)}$=0.818; p>0.05]

Table 4. Analysis Results of PFLS-LBS Scores by Weekly Leisure Periods of Participants

	1-5 hours (n=59)		*6-10 hours (n=94)*		*11-15 hours (n=56)*		*16 hours+ (n=109)*	
	Mean	**Sd.**	**Mean**	**Sd.**	**Mean**	**Sd.**	**Mean**	**Sd.**
Perceived Freedom in Leisure	3.74	0.65	3.72	0.56	3.80	0.62	3.81	0.58
LBS								
Physical Benefit	3.84	0.71	3.98	0.64	4.04	0.67	4.01	0.69
Psychological Benefit	3.80	0.72	3.84	0.64	3.93	0.64	3.98	0.62
Social Benefit	3.76	0.79	3.86	0.67	3.91	0.72	3.96	0.69

In Table 4, the results of the analysis are given according to the participants' weekly leisure periods in the study. The analysis results indicate that PFL scores of individuals did not differ significantly by the weekly leisure periods (F=0.518; p>0.05). Additionally, in the results of MANOVA analysis, it was determined that the main effect of the weekly leisure periods of the participants on the sub-

dimensions of LBS was not significant and there was no statistically significant difference among the sub-dimensions [λ= 0.976, $F_{(9,759)}$=0.830; p>0.05].

Table 5. PFLS and LBS Regression Analysis Results

	B	Standard Error	β	P
Constant	1.650	.175	-	**.000**
Physical Benefit	-.080	.063	-.091	.204
Psychological Benefit	.407	.074	.443	**.000***
Social Benefit	.220	.060	.262	**.000***

Table 5 shows the results of regression analysis of individuals' perceived leisure freedom levels and their leisure benefit levels. According to the results of the analysis, it was determined that the individuals' perceived leisure freedom levels were a significant predictor of the psychological and social sub-dimensions of leisure benefit levels (R=0.597; R^2=0.356; $F_{(3,314)}$=57.895, p<0.05). It was observed that there was a positive and moderate correlation (R=0.597) between the participants' perceived leisure freedom levels and their leisure benefit levels, and the perceived leisure freedom levels explain 35% of the total variance on their leisure benefit levels.

Discussion

In this study, firstly, the differences between the perceived leisure freedom levels and the leisure benefit levels based on the socio-demographic characteristics of the students studying in sports sciences faculties, and secondly, the predictive power of the levels of the perceived freedom in leisure on their leisure benefit levels were analyzed.

Although female's perceived leisure freedom levels were higher than male's, no significant difference was found. To Lapa and Ağyar (23), there was no significant difference in perceived leisure freedom levels among university students by their gender. While this study shows parallelism in terms of the study results by Demirel et al., (5), Serdar and Ay (29), and Demirel et al., (6), the research findings do not overlap with the results of studies by Yüksel et al., (37), Kara (19), and Lapa (20). When the levels of leisure benefits were examined according to the gender variable, the main effect on the sub-dimensions was insignificant, and there was no difference among the sub-dimensions, which can refer to the level of benefit that males and females receive through their perceived freedom in leisure, is generally similar. Ho's (15) study on the leisure attitudes and benefits of high school students in Taiwan found that the main effect on leisure benefit levels in terms of the gender of students was insignificant, and there were no differences in the sub-dimensions. Similarly, the research is in line with Doğan (7) in literature, while the results of the research conducted by Chen et al. (3) did not coincide with the results of this study.

It was found out that the main effect of leisure benefit levels of individuals relative to their welfare status was not significant, and there were no differences among the sub-dimensions. The finding can imply that individuals' welfare status is not a significant variable over their leisure benefits. The study by Ho (15) found that the main effect of students' weekly income on leisure benefit levels was not significant, and there was no difference in the sub-dimensions. This result is in parallel with the finding of the study. To the literature, there was a difference between the benefit levels of individuals obtained from leisure by their welfare status in the studies conducted by Doğan (7) and Durhan and Karaküçük (8).

Although the levels of perceived freedom in leisure with functional welfare status were higher than those of other individuals, no significant difference was found. Serdar et al.'s (30) investigation on the relationship between leisure boredom and perceived freedom indicated no difference between individuals' perceived freedom in leisure and welfare status. However, Lapa (20) found that individuals with high-income levels had higher perceived freedom in leisure.

Although the levels of perceived freedom in leisure with a leisure period of 16 hours or more per week were high, no significant difference was found. Our study results show parallelism with the results of the study conducted by Serdar et al. (30). The result can refer that the levels of perceived freedom in leisure based on their leisure period is similar to another. Besides, it was determined that

the main effect on the leisure benefit levels according to weekly leisure periods was not significant, and there was no difference in sub-dimension. However, in light of the study findings, it can be suggested that as individuals' weekly leisure periods increase, the leisure benefit levels improve. Based on the literature, the study results do not coincide with the results of the research by Doğan (7).

The regression analysis results showed that the levels of perceived freedom in leisure were a significant predictor of the psychological and social sub-dimensions of leisure benefit levels. There was a moderate and positive relationship between the levels of perceived freedom in leisure and their leisure benefit levels.

Conclusion

The levels of perceived freedom in leisure have an essential effect on psychological and social leisure benefits. Although there was no statistically significant difference between the levels of perceived freedom in leisure and leisure benefit, it was concluded that especially the perceived freedom levels by females were higher than males and that they benefited from leisure physically and psychologically. It was also determined that individuals with good welfare status have high levels of perceived freedom in leisure as well as leisure benefits mainly from physical and social aspects. It was observed that individuals with leisure periods of 16 hours or more per week benefit more psychologically and socially. Consequently, it can be suggested that the levels of perceived freedom in leisure have an essential role in benefiting from leisure.

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The Effects of Some Anthropometric Features on Dynamic Balance

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Abstract

Various neurophysiological and mechanical factors (such as height, weight, body composition, the base of support, the length and weight of each limb) can affect the balance. This study aims to examine the effect of some anthropometric features on balance. Totally 22 healthy male athletes participated the study. Body weight and height parametres were measured before the balance measurements of the athletes, and then body mass indexes were calculated. Circumferential measurements and skinfold thickness were measured by using a caliper. Balance measurements of the athletes were calculated with the Biodex Balance System with dominant legs. In the study, while a significant positive correlation was found between body mass index body weight, knee joint diameters, thigh and calf circumference, and balance scores, no significant relationship was found between age, height, foot length, and foot width and all three balance scores. It could be said that body weight, knee joint diameter, body mass index, thigh and circumference characteristics of the study were significantly related to the balance scores in the positive direction but not regarding age, height, foot length and width characteristics.

Keywords: Foot length, foot width, balance, anthropometric features.

INTRODUCTION

It has been discussed which body profiles are appropriate for which branches in the studies conducted and the extent to which this issue will play important role in selecting skills in the background has been researched [1]. Balance is the process of maintaining the position of the body's center of gravity vertically over the base of support, in other words, the ability to sustain body center of pressure within the base of support necessary to maintain a position in space or a movement in a harmonized and controlled situation and against internal and external perturbation [6,9,19,20]. Accordingly, balance is of crucial importance in daily activities, optimizing performance and preventing injuries in sports [14,20]. The two types of static and dynamic balance play a significant role in achieving motor skills. Static balance is the one in which the individual retains poise in one single situation, whereas the dynamic balance is the body's ability to retain poise or steadiness when moving or shifting from one situation to another [17,20]. In order to effectively coordinate the movements and to achieve the maximum potential, athletes must master balance, which is essential for success in any sport [8,23,24] . Some evidence in the studies express that the better balance in the experienced athletes is mainly due to the repetitive exercises they do, which affects the dynamic responses [3,26]. Various neurophysiological and mechanical factors such as visual, vestibular, auditory, somatosensory and motor systems can change the balance [9]. Also, some anthropometric features such as height, weight, body composition, the base of support, the length and weight of each limb can mechanically affect the individuals' balance [21,26]. The factor specified as the base of support in the definitions is the area covered by the feet of a standing man. The literature has been examined with the assumption that the size of this area will positively affect the balance performance. A sufficient number of studies have not been found in the scientific literature on how the length and width of the feet affect balance

performance. Thus, the study aims to examine the effect of foot length and width and some anthropometric properties on balance performance.

MATERIALS AND METHODS

Participants

There were 22 males aged 20-26 who actively participate in this research. The average age of the athletes was 22,55 ± 2,28 years, the average height was 1,79 ± 0,05 m, and the average body weight was 78,75 ± 9,37 kg. At the beginning of the study, each of the subjects was given detailed information about the risks and discomforts that could be encountered in the study, and the voluntary consent form was read and signed by the participant. All the volunteers participating in the research signed the informed consent (volunteer) form and filled personal information form.

Research Design

Subjects came to the Selcuk university sports science laboratory once (at 10 am). Afterward they came to laboratory, height (m), body weight (kg), knee joint diameter (cm), thigh circumference (cm), calf circumference (cm), foot width (cm), foot length (cm), thigh (subcutaneous fat mm), calf (subcutaneous fat mm) measurement were taken by instructors. Following the anthropometric measurement, participants were done to the balance performance test. Subjects did not involve any exercise sections 24 hours before the end of the test section. Participants were informed about the amount and type of food (60% carbohydrates, 30% lipids and 10% protein due to energy metabolism) that they had to take 24 hours prior to the first trial.

Dynamic Balance Test

The Subjects Postural control measures of subjects were performed using the Biodex Balance System (Biodex Balance System, Biodex Medical Systems Inc, Shirley, NY). System; It has a moving balance platform that can tilt up to 20° at 360° range of motion. There are adjustable levels of stability from one to 12. Level 1 has the lowest level of stability; level 12 has the highest level of stability. The platform is linked to computer software for objectively evaluating the equilibrium. With this software, postural scores can be obtained in anteroposterior and mediolateral directions as well as a general postural control score. The postural control score refers to the balance ability of the person in general, and the high balance score means that the balance performance is low [2,4,13]. During the postural control measurement subjects were tested on the platform with knees 45º slightly flexed on the dominant leg, the other leg 90º flexed and the arms crossed. During the test, the screen was covered, and the subjects were asked to look at a fixed spot about 1 meter from the eye. For postural control measurement, the platform was set to level 8 in open eyes condition. Subjects were allowed three practice trials before pre-exercise balance measurements, which lasted 20 seconds and practice and two practice done with open eyes. A 5-minute rest period was provided between each test.

Measurement of Height and Body Weight

The measurements are made by causing the subjects to be on measuring device with their bare foot and only shorts on them. Body weights are made by placing the Kaliper sliding on the scale in a way to touch the upper of the heads of the subjects while they are standing vertically on their foot and the height is read with the accuracy of 1 mm.

Circumference Width Measurement

It is measured with Anthropometric set.

Statistical Analysis

The statistical evaluation of the findings was performed with the SPSS 21.0 computer package program, and the arithmetic means and standard deviation of all parameters were calculated. Pearson's correlation analysis was used to evaluate the relationships between variables in our study. Differences in $P < 0.05$ level were accepted as significant

RESULTS

Table 1 shows the age, height, body weight, body mass index, knee joint diameter, thigh circumference, calf circumference, foot width, foot length, thigh (subcutaneous fat) and calf (subcutaneous fat) average values of athletes participating in the study.

Table 1. Mean of anthropometric characteristics of subjects participating in the study

Parameters	N	Min.	Max.	Mean ± Sd. Dev.
Age (year)	22	20	26	22,55±2,283
Height (m)	22	1,70	1,91	1,79±0,05
Body Weight (kg)	22	66	105	78,75±9,37
Body Mass Index (kg/m2)	22	20,83	35,90	24,51±3,47
Knee joint diameter (cm)	22	9,6	12,8	10,31±0,71
Thigh circumference (cm)	22	48	67	54,89±4,53
Calf circumference (cm)	22	33	44	37,52±2,63
Foot width (cm)	22	5,7	9,7	8,21±0,80
Foot length (cm)	22	26,1	28,5	26,88±0,66
Thigh (subcutaneous fat (mm)	22	8,0	37,0	18,14±6,58
Calf (subcutaneous fat (mm)	22	7	24	16,34±4,95

Table 2. Average of balance performances of subjects participating in the study

Balance parametres	N	Min.	Max.	Mean ± Sd. Dev.
OSI (overall stability index)	22	1	3	2,20± 0,61
A/PI (anterior/posterior stability index)	22	0,7	2,9	1,60± 0,56
MLI (medial lateral stability index)	22	0,6	2,2	1,22± 0,36

In Table 2, the determining participants' OSI (overall stability index) balance average score was 2.20 ± 0.61, the A/PSI (anterior/posterior stability index) balance average score was 1.60 ± 0.56, and the M/LSI (medial/lateral stability index) balance average score was 1.22 ± 0.36.

Table 3. Correlation Analyzes of Participants in the Study

Parameters		OSI	A/PI	MLI
Age	Pearson Correlation	,034	,141	-,224
	Sig. (2-tailed)	,881	,532	,316
Height	Pearson Correlation	-,112	-,037	-,338
	Sig. (2-tailed)	,621	,871	,124
Body Weight	Pearson Correlation	,703**	,580**	,571**
	Sig. (2-tailed)	,000	,005	,006
Knee joint diameter	Pearson Correlation	,675**	,644**	,475*
	Sig. (2-tailed)	,001	,001	,025
Thigh circumference	Pearson Correlation	,690**	,610**	,575**
	Sig. (2-tailed)	,000	,003	,005
Calf circumference	Pearson Correlation	,681**	,543**	,621**
	Sig. (2-tailed)	,000	,009	,002
Foot width (cm)	Pearson Correlation	,119	,101	-,069
	Sig. (2-tailed)	,597	,655	,759
Foot length (cm)	Pearson Correlation	,209	,334	-,102
	Sig. (2-tailed)	,352	,129	,651
BMI	Pearson Correlation	,666**	,522*	,653**
	Sig. (2-tailed)	,001	,013	,001

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

DISCUSSION

The protection of the balance, which is based on all movements and influenced by various factors, is effected by visual, kinesthetic and vestibular stimuli. Besides, balance is necessary for the realization of motor skills [10]. Factors such as age and height are essential factors in balance [1]. However, no statistically significant relation was found between age and height parameters and balance scores in our study. This finding is similar to studies of Moein & Movaseghi [20] and Tabrizi et al., [26]. While there was no correlation between eyes-open OSI, A/PSI and M/LSI balance scores and age of male and female subjects in Alonso et al. [1] study, they found a significant relationship only between women's A/PSI balance scores with eyes closed and their ages.

The same relationship was also established between male and female eyes closed M/LSI balance scores and height. This difference emerges as a sign of increased balance oscillation when the eyes are closed. Also, according to Vieira et al. [27] and Cavalheiro et al., [5] there is no correlation between age performance and age in young adults, which is similar to our result. However, Hue et al. [15] stated that the difficult conditions and the aging were deteriorating the balance performance.

A positive and significant relationship was found between the body weight and BMI parameters and all three balance scales (OSI r = 0.703, p = 0,000; A/PSI r = 0.580, p = 0.005; M/LSI r = 0.571 p = 0.006) in the presented study. Greve et al. [11] found significant correlations between BMI and body weight and balance scores in the positive study. Alonso et al. [1] reported that individuals with larger body mass and soft tissue mass had greater M/LSI and A/PSI balance swings when the eyes were open and closed. Similarly, Singh et. al. [25] reported a positive relationship between body mass index and balance scores in young adult subjects. Also, it was also reported that the balance performances of people with a body mass index of 40 kg / m2 were deteriorated especially in long-standing exercises. Rozzi et al. [22] and Lee & Lin [18] stated that girls have more balance oscillation than boys have.

As the body weight increases, the balance score increases positively, but the balance

performance is deteriorated. In the study, it was seen that subjects had a high level of a significant relation between knee joint diameter, thigh and calf circumference and OSI, A/PSI and M/LSI balance scores. That is, as the circumference of the knee joint, thigh and calf increases, the balance oscillations increase in a positive direction. This important relationship is similar to the findings of Tabrizi et al. [26] However; it contradicts the findings of Moein & Movaseghi [20]. It is thought that this contradiction came from the fact that Moein & Movaseghi [20] worked on sedentary ladies. In addition, according to the literature, increase in diameter and circumference measurements of persons and rise in weight centers increase postural oscillation [11,15,16]. There was no significant relationship between foot length, width and all three balance scores in the study conducted. However, unlike our study, Fabunmi & Gbiri [9] and Habib et al. [12] found a significant relationship between foot length and balance. Cote et al. [7] reported that static and dynamic balance was significantly affected in those with foot supination and pronation. It can be stated that the researchers using different balance tests, measurement and analysis methods and researches with varying groups of age can cause this difference.

Conclusions

In conclusion, we could say that body weight, knee joint diameter, body mass index, thigh and circumference characteristics of the study were significantly related to the balance scores in the positive direction but not regarding age, height, foot length and width characteristics

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Conflicts of Interest

The authors declare no conflict of interest.

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The Comparison Of Physical Capacities, In-Game Activity Profiles And Decision-Making Skills Of Football Referees According To Their Experience Level

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Abstract

The aim of this study was to compare the physical capacities, in-game activity profiles and decision-making skills of experienced and less experienced football referees during the match. A total of 10 football referees, 5 experienced (>5 years) and 5 less experienced (<5 years) participated in this study voluntarily. As a result of statistical analysis; aerobic capacity of experienced referees (61.14±3.31 ml/kg/min) was significantly higher than the less-experienced referees (54.67±2.93 ml/kg/min.) ($p<0.05$). As compared with less-experienced referees (9.09±1.08 km), the total distance covered (10.73±.41 km) and sprint distance of experienced referees (experienced: 686.95±140.93 m, less-experienced: 459.85±168.37 m) were significantly higher in the match. There was no significant difference in the total decision scores in two football competitions between experienced and less experienced referees (184.80±21.25 and 193.40±26.12) ($p>0.05$). It was found that less-experienced referees made more incorrect decisions in the match than experienced referees (9.60±4.21 and 20.20±2.68) ($p<0.05$). Experienced referees had higher in-game activity profiles than less-experienced referees, and their incorrect decision making scores were lower. In addition, in order to minimize the incorrect decision scores of the experienced and especially less-experienced referees in the match, it is thought that it is important to include exercises related to perceptual-motor skills in their training programs as well as physical training.

Key Words: Activity Profile, Decision-Making, Experience, Football Referee, Video Analysis

INTRODUCTION

The field referee has full authority to control, and regulate the behavior of players and coaches in cooperation with two assistant referees. The referee's mission is to ensure that the game is played under certain rules, and to apply sanctions in cases of violation of the game rules (22). Elite referees perform high intensity activity with short intervals every 4-5 seconds in matches, such as running forward/sideways, sudden change of direction, and transition from forward sprint to side movements (11,16,30,31).The previous studies showed that that elite referees covered a total distance of 11-12 km, about 10-15% of this was high intensity activity (>18 km.hour^{-1}), their average heart rate was 85-95% (177±12 beats/min., their maximal oxygen intake was in the range of 70-80%), and their blood lactate concentrations increased up to 14 mmol/L in a 90-minute period at international matches (4,6,23,30,33). This shows that the football match causes a significant physiological stress on the referees. In addition, referees are subjected to mental stress due to complex decision-making by dealing with players, coaches and audiences (28,44). In a

study, it was asserted that a football match increased the cortisol level, and decreased the immunoglobulin A level of professional football referees, and the change in these parameters was associated with physical and mental stress during the match (28). Therefore, despite the high physical and mental stresses (12,30), the referees require to have a high level of physical capacity and match performance in order to be able to keep up with the tempo of the game, and evaluate possible violations from the most appropriate point of view (35,39,42). The physical capacity of the referees need to be as good as that of the players. In studies indicated that the covered distance and the high intensity activities of the referees in the matches were almost similar to those of football players (46,48). The fact that football referees have a good physical capacity without feeling tired contributes to making a correct and consistent decisions by making them follow the game as closely as possible (13,44,45). Decision making is the basic component of a football referee's match performance because the referees have to make the right decision in a very limited time and each decision has a direct or indirect effect on the outcome of the match (24,39,44). In order for the referees to make satisfactory decisions, it is extremely important to position themselves optimally/take the ideal position, and to arrange their proper distance based on where the infringements may occur without interfering with the players and the ball (6,27,33,39,42,44). In a study, it was reported that the referees had a low risk of misjudgments when they followed positions within the central area of the game (where the collaboration of the assistant referee is limited) from a distance of 11-15 m (33). At the same time, the match performance of the referee is affected by the level of experience, and experience is considered a prerequisite for an elite level of performance. Football referees often reach the peak of their careers at the age 40 or over years when most football players retire, and this age is defined as the golden-age for the referees' career. The average age of 8 super-elite referees who managed the quarter-finals in 2002 FIFA World Cup was 41±4 years. This means that football referees often perform their best in an age range, which is thought to be associated with a decrease in their physical capacity (8,9). Better physical capacity may not be associated with a better referee experience (13). Weston et al. (47) observed that physical performance-related characteristics such as total distance covered, high intensity activity distance, and number of sprints in the match declining with age did not affect elderly experience referees' ability to keep up with the game, and the referees made an effective decision by creating the most appropriate angles for them. In studies, it was noted that experienced referees were more master at using advanced visual cues to guide forward-looking responses compared to inexperienced referees. In addition, it was seen that older and more experienced referees were better at predicting and reading the game, and they acted more economically in their movements and organized their workloads better in the match due to their long years of training (47). Castagna and Abt (5) found that experienced referees regulated their competitive behavior during the match, reduced unnecessary movements in order to avoid fatigue, and generally showed high intensity activities towards the end of the game where the game speed peaked.

In recent studies, it was seen that different techniques such as portable Global Positioning Systems (GPS) (12,14,15,21,26), Polar Heart Rate (HR) monitoring (17), and Multiple-Camera (47) were used to determine in-game activity profiles of referees, and their physical demands during the game. According to traditional Video-Based Time Motion Analysis method (30,31), these new automatic match analysis devices provide a more comprehensive and accurate review of the locomotor motion patterns of referees in football, and also providing better objectivity and higher time resolution (38). The football game is played in a chaotic environment with a lot of visual stimuli that can affect referees' decision making. Therefore, it is very important that the referees are physically and psychologically trained to meet the physical and cognitive demands of the game throughout the whole match. The determination physical capacity and in-game activity profiles of football referees allow the evaluation of whether the referees can meet the physical demands of the match, to make more accurate and consistent decisions, and to provide specific information in the effective planning of the training programs. In the literature, there is enough research examining football referees' in-game activity profiles. However, there is no study, which examines the physical capacity and in-game activity profiles of Turkish football referees with wearable technology, determines their decision making skills in the matches by video analysis method, and compares all parameters related to performance according to the referees' experience.

This reveals the importance of the study in terms of literature.

MATERIAL AND METHODS

Participants

Ten referees, including university students at Mugla Sitki Kocman University (M.S.K.U) who have been actively refereeing for at least 2 years in the province of Mugla, undergo regular health checks every year, without any having health problems, participated in this study voluntarily. The referees were divided into two groups, experienced (>5 years: 5 experienced referees), and less-experienced (<5 years: 5 less experienced referees). City referees was incorporated into less-experience referee group, and experienced referee group were formed by regional and classification referees.

Ethical Considerations

Before the study started, the permissions were obtained from Mugla Provincial Referee Committee depending on Turkey Football Federation, and M.S.K.U. Human Research Ethics Committee (Decision No. 19, Protocol No: 190005, Date: 02.07.2019). In addition, the volunteers signed an Informed Consent form.

Procedures

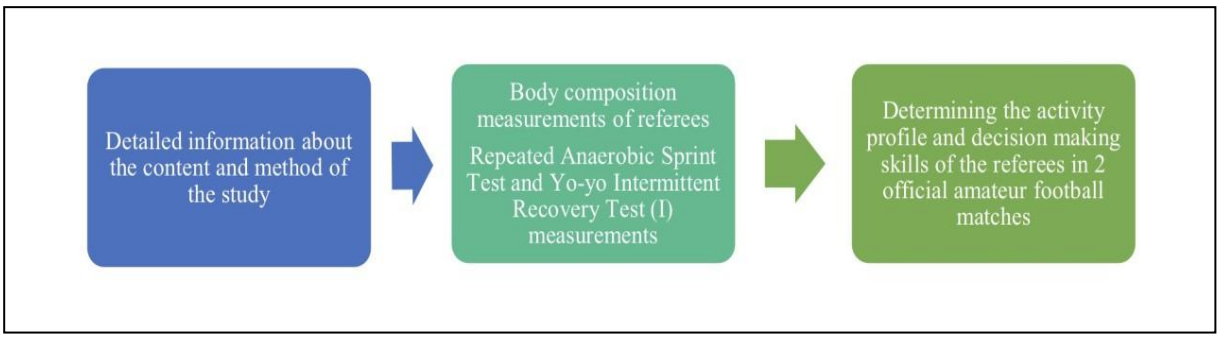


Figure 1. Data Collection Process

As shown in Figure 1, firstly, volunteer referees were informed about the purpose, content, and methodological model of the study. Later, the height, body weight and body fat percentage of the participants were measured between 10 and 12.00 hours in the Sports and Performance Laboratory in M.S.K.U. On a different day, Repeated Anaerobic Sprint test and Yo-Yo Intermittent Recovery Test (I) were applied to the referees on the football field during the training hours of the referees (between 18.00-20.00). Before the tests, they warmed up for 15 minutes, including dynamic and static stretching exercises. The rest time between anaerobic and aerobic test was 8 minutes as recommended by FIFA. After these measurements were carried out, in-game activity profiles of the referees in 2 amateur football competitions (2018-2019 season) were determined in at least two weeks in coordination with the Mugla Provincial Referee Committee, and the difficulty level of the match and the level of experience of the referee were taken as criteria by the committee for the assignment of the referees in the matches. In addition, 2 amateur matches managed by the referees were recorded with the camera, and their decision making skills were examined by video analysis method.

Measures

Height and body weight measurements

The body weight of the referees was measured with Seca (Germany) electronic weight scale (bare feet and Shorts-T-shirt) with a sensitivity of 0.01 kg. and their height determined by a metal meter with a precision of 0.01 cm standing on this scale (50).

Body fat percentage

Holtain brand skinfold caliper that applied 10 gr/sq mm pressure at every angle was used to detect the body fat percentages of the referees. In order to minimize the error in the measurements, the instructions to be considered for skinfold measurements were followed by American College of Sports Medicine (1). The subcutaneous fold thicknesses of the referees from the 4 regions such as biceps, suprailiac, subscapular and triceps were measured. The values from four regions were placed in the formula developed by Durnin and Womersley (19), and the percentage of body fat of referees was calculated.

Anaerobic Capacity

The anaerobic power and capacities of the referees were measured by Repeated Anaerobic Sprint Test using photocell system. The Run-Based Anaerobic Sprint Test (RAST), developed by Draper and Whyte (18) at the University of Wolverhampton in the UK in 1997, is a test protocol designed to detect anaerobic power and capacity, and widely used by exercise specialists to follow the performance of athletes (49). The test comprises six sprints on a distance of 35 m with a 10-second rest interval between each sprint. By measuring body mass and sprint times, it is possible to determine the power in each sprint (Power=body mass x distance2 /time3). For each referee, the maximum power, mean power, minimum power, and fatigue index were calculated by entering the 6 sprints value of the calculation tool into the formulas.

Aerobic Capacity

The Yo-Yo Intermittent Recovery Test (I) was utilized to specify the aerobic capacities of the referees. The test consists of a track with 20 m round trips. At the end of each round trip (40 m), there is a 5+5 m recovery section where the participant actively rests for 10 seconds. If the participant fails to reach the finish line twice in time, the test is terminated, and total distance covered is evaluated as the test performance. At the first level of this test, there are a total of 4 round trips, and the speed is 10-13 km/h; there are 7 round trips at level 2, and the speed is 13.5-14 km/h. In this study, this increase continued until the referees were exhausted or two mistakes were made. The VO2max values of the referees were calculated by the following formula according to the Yo-Yo IR1 test result;

Yo-Yo IR1 test: VO2max (ml/min/kg) = IR1 distance (m) x 0.0084 + 36.4 (3,32).

Determining the in-game activity profile

The activity profile of the referees within 90 minutes of the match was measured with the Player Tek GPS system. This system consists of the PlayerTek pod, a vest for transporting and fixing the pod, and a USB cable (to charge the device and transfer data). The professional sensors in the pod perform 2500 measurements and monitoring per second. Every move of the referees on the field is monitored with high precision. The sensors include a complex GPS module that measures speed and position 10 times per second. In addition, 3D sensors measure power, every response, turn, and motion. In this study, the Player Tek GPS vests were dressed to referees before the official matches (after warm-up). The vests were removed as soon as the match was over. Then, each pod in the vest was connected to the computer, and the total distance (km), sprint distance (m), energy consumption (kcal), top speed (km/h), and maximal heart rate (beats/min) of the referees during the match were detected through the program on the website;

https://www.playertek.com/gb/playertek/

In order to provide homogenization of external factors that may affect the performance of the referees, it was paid attention that the selected matches were in similar time periods (between 14.00-16.00), in the same field, and climate conditions.

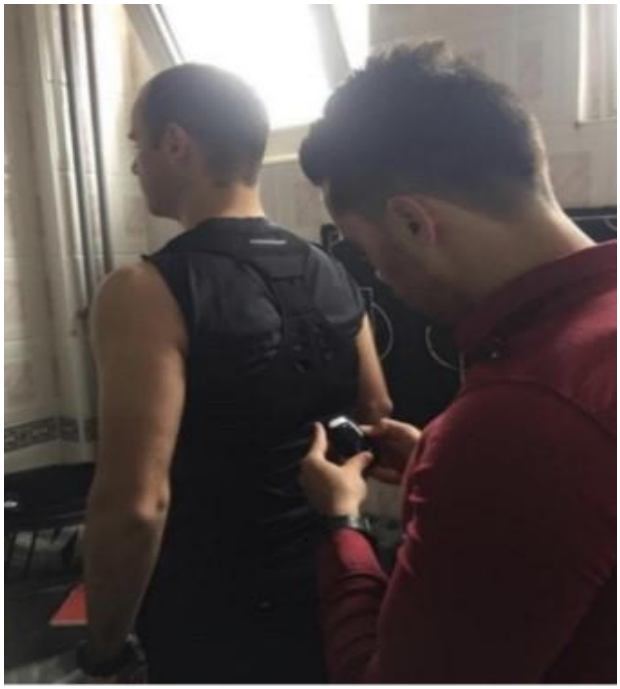


Figure 2. Determination of in-game activity profile of referees

Determination of decision making skill

Two amateur football matches managed by the referees were filmed from 2 different angles with camera, and their decisions for 90 minutes evaluated by the video analytical method by 3 specialists who were completely independent from each other (in different environments), and determined by the Mugla Provincial Referee Committee. Prior the study, the referees were informed that 3 experts who evaluated the matches of referees would only score

within the scope of the study, that the positive and negative points to be obtained from these matches were not related to the Mugla Provincial Referee Committee, and would not mean institutional scoring. It was used with the match tracking table created by the researchers to analyze the decisions of the referees in the matches. The decisions of referees in the match tracking table were analyzed in two different categories: technical penalty (throw-in, throw out, corner kick, indirect free kick, direct free kick, and penalty kick) and disciplinary penalty (yellow and red card decisions shown). The average of all decisions/ incorrect decisions evaluated by three experts was taken, and the total number of decisions, and incorrect decisions made by the referees within 90 minutes in 2 matches was determined.

Analysis

All data obtained in the study were recorded in the SPSS (version18.0) program. Whether the data showed normal distribution was determined by Shapiro-Wilk test. Independent Sample t test or Man Whitney U test was used to compare the physical capacity, in-game activity profile and decision-making skills of the referees according to experience level. Significance level was accepted as $p < 0.05$.

RESULTS

Table 1. The age, height and experience values of referees

	Groups	N	Mean	S.D.
Age (years)	Experienced	5	28	4.47
	Less experienced	5	27.5	7.39
Height (m)	Experienced	5	1.81	.05
	Less experienced	5	1.82	.09
Experience (years)	Experienced	5	6.80	2.58
	Less experienced	5	4.60	.54

Table 2. Comparison of body composition, aerobic and anaerobic capacity values of experienced and less experienced referees with Mann Whitney U test.

	Variables	Groups	N	Mean	S.D.	Z	p
Body composition	Body fat (%)	Experienced	5	12.74	2.06		
		Less experienced	5	14.06	1.88	-1.156	.310
Anaerobic capacity	Maximum power (W)	Experienced	5	740.40	90.40		
		Less experienced	5	642.20	44.50	-1.358	.222
	Minimum power (W)	Experienced	5	552.20	112.65		
		Less experienced	5	477.00	54.94	-1.149	.310
	Average power (W)	Experienced	5	639.60	76.03		
		Less experienced	5	552.40	53.55	-1.776	.095
	Fatigue index (W/sec.)	Experienced	5	6.09	1.69		
		Less experienced	5	5.20	1.15	-.731	.548
Aerobic capacity	Yo-Yo test covered distance (m)	Experienced	5	2946.00	394.68		
		Less experienced	5	2176.00	349.39	-2.200	.032*
	Aerobic capacity (ml/kg/min.)	Experienced	5	61.14	3.31		
		Less experienced	5	54.67	2.93	-2.200	.032*

*p<0.05

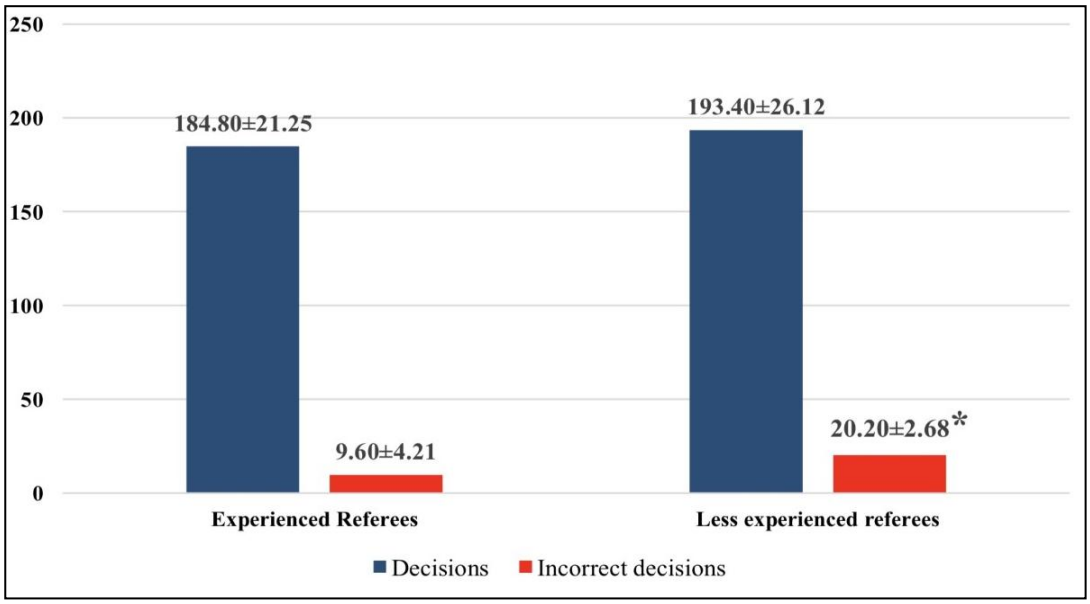
In Table 2, the aerobic capacity of experienced referees (61.14±3.31 ml/kg/min.) was statistically significantly higher than less experienced referees (54.67±2.93 ml/kg/min.) ($Z = -2.200$, $p = .032$).

Table 3. Comparison of average values of experienced and less experienced referees' in-game activity profiles in 2 amateur football matches

	Variables	Groups	N	Mean	S.D.		p
In-game activity profile	The total distance covered (km)	Experienced	5	10.73	.41	t=3.158[a]	.013*
		Less experienced	5	9.09	1.08		
	Sprint distance (m)	Experienced	5	686.95	140.93	t=2.313[a]	.049*
		Less experienced	5	459.85	168.37		
	Energy expenditure (kcal)	Experienced	5	1206.27	60.15	z=-1.776[b]	.076
		Less experienced	5	1028.94	146.01		
	Top speed (km/s)	Experienced	5	25.16	1.15	t=1.098[a]	.304
		Less experienced	5	24.58	.27		
	Maximal heart rate (beat/min.)	Experienced	5	181.65	4.50	t=1.177[a]	.273
		Less experienced	5	178.85	2.83		

*p<0.05, [a]Independent Sample t test, [b]Man Whitney U test

As shown in Table 3, the total distance (9.09±1.08 km versus 10.73±.41 km, p =.013) and sprint distance 459.85±168.37 m versus 686.95±140.93 m) covered by experienced referees during the match was found to be statistically significantly better than less experienced referees.



*p<0.05

Figure 3. Comparison of average values of experienced and less experienced referees' decision making skills (total and incorrect decisions) in 2 amateur football matches

As shown Figure 3, while experienced referees made an average of 184.80±21.25 total decisions, the total number of decisions of less experienced referees were 193.40±26.12 in two matches. It was found that less experienced referees (20.20±2.68 errors) made statistically significantly more incorrect decisions in two matches compared to experienced referees (9.60±4.21 errors) (Z=-2.417, p=.016). From these results, it can be said that approximately 5% and 11% of the total decisions made by experienced and less experienced referees in 2 amateur matches were incorrect.

DISCUSSION

The aim of this study is to compare the physical capacities, in-game activity profiles, and decision making skills of football referees by experience level. The referees do the unusual different activities of a with very fast and unexpected tempo changes in a football match. Football referees perform low-intensity activities, such as walking and jog, in approximately 30% and 60% of the match (average heart rate=158.88±3.99 bpm), and energy is supplied aerobically during these activities. However, the referees display a total of 1268 activities that change in about 4 seconds in a match. Approximately 160 of

these activities are sprints, sudden change of direction, and short-term high intensity activities with a mean duration of 2-4 seconds. During these activities, the referees reach a fairly high blood lactate level and high maximal heart rate (97%), and energy is provided anaerobically during these activities. Therefore, it is very important that the main component of the physical capacity such as aerobic capacity need to be perfect for the referees to show the activity profiles at the highest level in the match, and to make the right and fast decisions (20,29). A good aerobic capacity helps the referees to keep up with the speed of the game taking place at unexpected speeds, and to make an accurate and effective decision by taking the optimal position against various positions. The performance in the Yo-Yo intermittent recovery test is closely related to the high intensity activities performed during a game, and is a fairly convenient and reliable test to assess the referees' physical performance capabilities (8,29). In this study, as a result of Yo-Yo Intermittent Recovery Test-I; the aerobic capacity of experienced football referees (2946±394.68 m, MaxVO2=61.14±3.31 ml/kg/min.) was found to be better compared to less-experienced referees (2176.00±349.39 m, MaxVO2=54.67±2.93 ml/kg/min.) (Table 2). Sanchez-Garcia et al. (41) found the Yo-Yo Intermittent Recovery Test-I test performances of football referees with 6 years of experience as 1213.91±432.26 m. In a study, it was detected that the aerobic capacity of the referees varied according to the experience level. Castagna et al. (8) determined the Yo-Yo Intermittent Recovery test performance of Italian referees in the 1st (elite level, series AB, mean age: 37.5±4.5 years), 3rd (intermediate, series C, mean age: 27.8±3.2 years), and 4th (low level, series D, mean age: 24.8±1.2 years) leagues as 1.874±431 m, 1.360±172 m, and 1.272±215 m, respectively. The Yo-Yo test performance of experienced referees was better than the referees with intermediate and low experience level. In addition, compared to elite experienced referees, there were higher increases in lactate levels of referees with intermediate and low experience after the Yo-Yo test. It was expressed that lifestyle and training regimes used by elite referees were effective in avoiding possible age-related decreases in endurance performance. According to less experienced referees, it was stated that experienced referees at the elite level were more economical in the face of actions in the match (such as moving forward and backward in a gradual intensity in the field), and recovered more quickly after high intensity activities. Finally, it was emphasized that a well-designed training program performed at high intensity speeds, and aiming to improve the ability to change direction would be beneficial for referees of all levels. Castillo et al. (13) ascertained better distance performance of national referees in the Yo-Yo test as compared with the regional referees. Mazeheri et al. (36) determined MaxVO2 performances of football referees as 59.94±7.09 ml/kg/min. Castagna et al. (2019) detected the cutting points in aerobic capacity for elite referees. They pointed out that values equal to or higher than 50.6 ml/kg/min. (3.93 L/min.) were recommended as ideal values for the aerobic capacity of the referees. They also emphasized the importance of considering the intensities at the anaerobic threshold speed (14 km/h, 91% heart rate max) in the training programs planned to improve the aerobic capacity of the elite referees. According to Castagna et al. (10), we can say that experienced and less-experienced referees in this study have a good aerobic capacity. It was notified that especially intermittent and high intensity training (above 90% HRmax) should be applied to the referees in order to meet the physical demands required for a match. After these training sessions, it was stated that the referees improved their Yo-Yo test performance (31%), increased in-match high intensity activity distance, decreased their average heart rate, and these improvements were also reflected in the decision making performance of the referees, so that they did not stay away from violations, and their incorrect decision rates decreased (24,29).

This study demonstrated that experienced referees covered a total distance of 10.73±.41 km, performed 686.95±140.93 m of high intensity activity, consumed 1206±60.15 kcal energy, reached 181.65±4.5 beats/min. in heart rate, and achieved a speed of 25.16±1.15 km/h in sprints in two amateur matches, while less experienced referees covered a total distance of 9.09±1.08 km, sprinted 459.85±168.37 m, spent 1028.94±146.01 kcal energy, achieved 178.85±2.83 beats/min. in heart rate, and reached a speed of 24.58±.27 km/h in sprints. The covered total distance and sprint distance of experienced referees in the match was significantly higher than the less-experienced referees. In addition, although it was not significant, it was determined that experienced referees consumed more energy, reached higher speeds in the sprints, and performed their activities in the match at higher

heart rates (Table 3). E Silva et al. (20) indicated in their systematic review study involving 428 referees and 2936 game analysis, and reported that that the referees covered a total distance of 10.36±1.11 km for 90 minutes, their average number of heart rate during the match was 158.88±3.99 beats/min. and they performed short and explosive activities varying between 2-4 seconds in the match and that the maximum heart rate reached 97% in these high-intensity activities. In a study conducted by 13 international referees, Castagna and D'ottavio (7) showed that the referees traveled approximately 11.5 km during the match, while 1642 m of this was high-intensity activity. It was noted that the national referees (12.956±548 m) covered more distance during the match than international referees (11.218±1.056 m). It was also determined that the national referees' running speed was more than 18 km/h (2.378±423 m) and that they displayed higher intense activity compared to international referees (1.642±689 m). The reason for this may be that international referees regulate their movements more economically during the match. Gomez-Carmona and Pino-Ortega (23) stated that the referees who managed the match in the 3rd league traveled approximately 10.200 m in the match, their average speed varied between 7.2 and 13 km/h, and their heart rate achieved 85-95%. Da Silva et al. (16) reported that football referees working in Italian League Series A and B covered a total distance of 9155.4±70.3 m during the match, and spent an average of 734.7±65 kcal energy. Weston et al. (2012) found the total distance traveled by the referees in the match as 11770±808 m. They specified that 889±327 m of this distance was high-intensity running (>19.8 km/h), and the referees had a total of 30.5±21.3 sprints (>25.2 km/h) in the match. Considering all these studies, it was seen that the football referees performed high-intensity activities about 19% of the total distance covered ~10.2 km in the match, and were exposed to almost as high physical load as players, such as 85% of the maximal heart rate (24). The standard of the competition also affects the referee's physical performance and the in-game activity profile because the referee runs high intensity and fast runs to keep up with the speed of the game. Therefore, the distance covered by high-speed running during a match is the best indicator of the referee's kinematic performance and the development of fatigue rather than the total distance covered (29,34,35). Compared to the studies in the literature, we can say that experienced and less-experienced referees have a very high in match activity profile in this study. In addition, the reason why experienced referees had higher in-match activity profiles than less experienced referees in this study may be due to their better physical performance, to assign in high-difficulty matches, and their training number or intensity.

Decision making is the primary precondition for refereeing performance. A soccer referee makes 137 decisions per average game, that is, an average of three to four decisions per minute during a 51-minute net play (about 56.5%). The referee gives about 45% of all decisions on her/his own, and 64% in cooperation with other referees (24). Therefore, a referee need to maintain physical performance and cognitive perception at the highest level throughout the 90-minute game, and focus on the game without losing concentration. It is not enough for a referee to have high level physical capacity. It needs to integrate this physical capacity with high-level cognitive capacity such as decision-making processes. This is extremely important for the referee to make an effective and accurate decision against the positions that take place sudden and in a matter of seconds. Also, the referee having a certain experience is a prerequisite for an elite level of performance. In one study, it was reported that the referees analyzed the "environment/game" more efficiently, more selectively, and more quickly with the increasing experience level (24). At the same time, experienced referees make a better spatial evaluation of the playing field, can change their movements during the match, use less energy, adjust the distance to the positions more comfortably, and reach the right decisions (20). Considering the results of this study, it was seen that experienced referees made an average of 184.80±21.25 in two amateur football matches, and 9.60±4.21 of these decisions were incorrect. It was also observed that less-experienced referees made a total of 193.40±26.12 decisions, and 20.20±2.68 of these decisions were incorrect. From these results, it can be said that approximately 5% and 11% of the total decisions made by experienced and less experienced referees in 2 amateur matches were incorrect, respectively (Figure 3). The taking best position of the referees on the field, and adjusting their distance to the violations affects their decision-making performance (21,25). Mallo et al. (33) examined the decisions of the referees in the case of 80 fouls and 165 offside situations in international

matches, and they determined the referees' rate of incorrect decision making as 14%. They stated that when the referees made the decisions between 11-15 m, the risk of making incorrect decisions decreased, and the incorrect decision making rates (23%) peaked due to fatigue in the last 15 minutes of the game. They also expressed that it was important for the referees to have a high level of physical capacity to follow the game until the final parts of the game (33). In another study, Hossner et al. (25) found an error of 6.9% in the referees' decisions for a total of 1,527 potential foul conditions after analyzing 64 matches in the FIFA World Cup 2014 organization. When analyzed in terms of the general view-distance effect, they observed that the referees had a 10.55 times higher rate of whistle error when they were 10 to 15 m away from positions, and when they were 0-5 m away from the positions, non-whistle errors rate were 5.51 times higher. It is also possible that exercise-induced fatigue can negatively have an impact on decision-making process. Gomez-Carmona and Pino-Ortega (23) observed 18 technical errors and 11% discipline errors in the decisions made by the referees during the match. They pointed out that most of the errors occurred in the first half of the game during the first 15 minutes, and more often when the referees exceeded 85% of their maximal heart rate. Besides, they showed that the factors affecting the decision making of the referees, and causing errors were the part of the pitch, the duration of the game played, and the referee's percentage of HRmax. They suggested that training the referees at intensities exceeding 85% of their maximal heart rate could also improve their incorrect decision-making skills in the match. Aslan et al. (2) determined whether the decision-making skills of referees at different exercise intensities changed. The referees were asked to make a decision about the positions by watching 20 videos of 15 seconds regarding the positions including technical and disciplinary penalties in their target heart rate determined for each exercise intensity. Compared to the decisions they made during low intensity exercise, especially in exercises performed at 90% of the target heart rate, a 7.7% decrease in the decision-making performance of the referees was observed. They claimed that a decrease in the decision-making performance could be related to high blood lactate level (about 8-12 mmol/L). Mcmorris and Hale (37) ascertained that high-intensity exercises led to an increase in catecholamine levels, this increase triggered neural noise, which may have a negative effect on cognitive performance such as decision-making. Krustrup and Bangsbo (29) demonstrated that the referees remained 30±35 m away from the violations due to the fatigue in the second half of the game, and this situation negatively had an impact on the decision-making ability of the referees, and their incorrect decision-making increased. In another study, Elsworthy et al. (21) indicated that increased physiological demands (especially above the respiratory threshold) before violations potentially negatively affected cognitive processes related to decision making. In particular, they found that the working speed of the referee recorded just before a free kick awarded (5 sec) was quite high before the incorrect decisions compared to the correct decisions. That is, they reported that the high relative running speed before any decision caused incorrect decision, and argued that the mechanisms behind the referees' incorrect decision were associated with changes in cerebral blood flow. Finally, it was shown that the referees having superior anticipation skill reduced the demands for running before any decision, and helped to make the right decision. Rooks et al. (40) stated that cerebral oxygenation increased from low intensity to high intensity exercise, then plateau was formed, and cerebral oxygenation decreased during very high and strenuous exercises. The results of this study may be related to the results of studies in literature that examine the reason why the referees make wrong decisions during high intensity exercises or because of fatigue. In this study, although experienced referees were assigned to high difficulty matches, and their incorrect decision-making scores were lower compared to less experienced referees. Experienced referees are accustomed to combating physical and cognitive stress brought by these matches compared to less-experienced referees, and their behavior of reading the game or anticipation skills may be better due to the variety of positions they face in these matches. In addition, they have higher number of matches they have previously managed, and also superior physical performance and in-game activity profiles as compared with less-experienced referees. In this study, the fact that experienced referees have lower incorrect decision scores can be based on the such reasons. The studies emphasized that it is important to include perceptual-cognitive and video-based related to visual perception exercises in training programs in order to improve the decision-making skills of referees (24,33,43)

CONCLUSION

This research is the first study that comprehensively examines the physical capacity, in-game activity profile and decision making level of Turkish football referees. It was found that physical performance and in-game activity profile of experienced referees were higher than less experienced referees. In addition, experienced referees (9.60±4.21 errors) had a low rate of incorrect decision making in the matches compared to less experienced referees (20.20±2.68 errors). From these results, it can be said that approximately 5% and 11% of the total decisions made by experienced and less experienced referees in 2 amateur matches were incorrect, respectively. In order to improve the decision-making skills of the referees in both groups especially the referees in the less experienced group, and to minimize incorrect decision-making scores, it is thought that it is very important to include perceptual-cognitive specific exercises or video-based trainings that improve visual perception, visual control and anticipation skills as well as physical training in referees' training programs. This study can be repeated on the referee or assistant referees who manage the matches in higher level leagues by increasing the number of matches. This study was performed on male referees. In the next studies, this study can also be done on women referees.

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Examination Of The Relationship Between The Identification Levels And Aggression Levels Of The Fans; Example Of Alanyaspor Fans

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Abstract

The primary objective of this study is to examine the relationship between the levels of identification of fans with their teams and their levels of aggression. In addition, it is aimed in this study to determine whether the levels of identification and aggression of fans differ according to their personal information. Alanyaspor fans (n=305) were the participants of the study. In the study, the "Sports Fan Identification Scale", developed by Wann and Branscombe in 1993 and determined by Günay and Tiryaki in 2003 to be suitable for Turkish sports fans and the "Buss and Perry Aggression Scale", developed by Buss and Perry in 1992 and demonstrated by Madran in 2012 to be suitable with its Turkish form, were used. The normality distribution of the data was examined with the Kolmogorov-Smirnov test and as a result, it was evaluated with correlation analysis, t test and one-way variance analysis (Anova) in the analysis of inter-parameters relations. At the end of the study, it was found that there was no relationship between the identification levels of the fans and their general levels of aggression, but there was a significant relationship between their levels of identification and their levels of physical aggression. However, it was seen that there was a positive-significant relationship between the level of identification of the fans and age, gender, marital status, the state of going to a home match and the state of going to an away match, that there was a negative-significant relationship between the level of identification of the fans and the level of education and the membership of the fans group. Finally, it was observed that there was a negative-significant relationship between the aggression levels of the fans and the age, marital status and the state of going to a home match, while there was a positive-significant relationship between the aggression levels of the fans and their educational status.

Key words: Fan, Identification, Aggression

INTRODUCTION

Conceptual Framework of Identification

The concept of identification, which was firstly used in the literature by Harold Dwight Lasswell in his book "World Politics and Personal Insecurity, is a cognitive state in which an individual begins to consider himself a member of a social entity (11). Identification is one of the key concepts in organizational behavior that has a significant impact on individuals' attitudes and behaviors, dealing with the perception of unity or belonging to an organization (29). At the same time, identification is a form of social identity in which an individual perceives a sense of belonging and unity towards an organization and the activities and members of that organization (7).

Identification is an important process that begins in early childhood by perceiving the environment in the family and imitating family members, and takes place in the formation of personality by systemizing in later ages. Identification is the process in which one adopts another's behavior system friendlily and self-possesses, as well as reorganizing one's own soul,

thought and behavior structure according to an example he has adopted (20). In the process of identification beginning in childhood, the individual chooses the people or groups closest to him and rearranges his behavior structure according to these individuals or groups. The individual adopting the behavior patterns of these persons and groups expands the circle of identification as time progresses. This expanding environment begins to consist of elements such as school, sports team, supporters groups, political or religious environment (22). From this information, it is possible to say that identification has a psychosocial meaning.

With growing age and developing environment, the individual makes an effort to effectively participate in a group emotionally and behaviorally, rather than assimilating another person. Identification is the perception of one's own existence and characteristics depending on the group he or she is a member of and the characteristics of the group. Members who identify strongly with a group are likely to work more selflessly in achieving the group's goal, showing themselves within the group, exhibiting similar behaviors with the group (25).

The collective identification of groups is explained by the emotional importance that group members give to membership. This emotional importance leads to the formation of a common "we" feeling, and it is understood that Inter-member interaction and shared experience reinforce identification (56).

Identification in Sports and Identification of Fans

There are organizations and institutions established to meet people's sporting needs. These institutions prepare and present their programs and activities using information specific to sports services on which they are active (10).

Fans that support these activities of sports organizations identify with thinking that their teams represent cities, religions, nations, or other social categories. As a result of this situation, fans believe they have affected the performance of the sporting team they support and consider themselves part of the organization. This process of identification is seen as a psychological link between one's team and the differences in the level of identification affect the behavior of the fans (46).

Several studies have been conducted on this subject by researchers. While some of them explained identification with the team through psychological bonding, some researchers described the success and defeats of the team supported by the fans as their level of perception of their own success and defeats (4).

Several researchers considering that the identification of the fans with the team has nothing to do with professional success or failure have found that loyalty persists even when opposing an average team. Fans who identify themselves with a team see their team as an extension and think they are better than opponent fans. The fan who sees his team as part of himself enjoys much more as his team wins and his bond with the team becomes stronger (50).

While individuals identify with teams representing various categorizations, they also identifying with each other through the name of the clubs. They think that the moral support they give to the clubs positively affects the morale of the sportsman and managers while they provide financial support to the club by purchasing competition tickets (43).

The level of identification also affects the behavior of fans towards sponsors. As the level of identification increases, it is seen that the fans behave in favor of the team sponsors and are more inclined to shop from these sponsors (23).

Fan identification and sporting emotional commitment affect a large segment of society. In some studies, it was stated that a large section of the society became a supporter of a team and that this commitment had an effect on everyday life. The data obtained revealed that sport is an active area for identification (4).

Conceptual Framework of Aggression

The concept of aggression can be explained as verbal, physical or indirect acts intended to harm someone else. Today, aggression is defined as harmful, injurious, even lethal, damaging behavior to any living or inanimate object (59). Aggression is seen as misbehavior as it negatively affects human life in many ways. Aggression is seen as behaviors involving emotions such as anger, ambition, competition, which causes an individual to harm another individual or object (55).

One of the first researchers to study aggression, Berkowitz and Dollard et al firstly described aggression as a form of behavior intended to harm

another object or person. Many researchers who have done research in this field have suggested that it is not true to classify any behavior that has a painful or damaging effect on someone else by collecting it under the heading of aggression. These researchers refer to the concept of "intent" as the basic element of aggression (14).

Aggression, a type of the concept of violence, can be addressed in four main titles: verbal, physical, emotional and hostile aggression. Verbal aggression is intended to harm the other party with words. Methods such as threats, insults, shouting, taunting are applied (31).

Physical aggression is described as acts intended to harm the object or person on the other side with motor skills (44). Hostile aggression is intended to hurt and harm the other party with extreme hatred and anger (15). Emotional aggression is intended to hurt the other side emotionally and to harm spiritually. Other types of aggression also have emotional aspects (21).

Researchers note that many factors are effective in the emergence of aggression. Psychological and biological factors, inhibitions, physical and social environment are some of these factors (26).

Aggression, unfortunately, is a behavior that has become commonplace in almost every part of society, and as such it is on its way to becoming a style of expression in the social relations of individuals in the future (19).

Aggression in Sport and Supporter Aggression

Besides the family factor, sport has a great importance in the individual's proper upbringing and attaining appropriate behaviors. It is thought that sport can help individuals to control their anger and manage aggression properly (51).

Sport has also become a catalyst for the manifestation of aggression in people with unworthy status in society. This is especially valid for disappointed football fans, people who come from the lower classes of society who think they haven't found what they're looking for in life. These people feel powerful and try to influence situations in stadiums and beyond. Their bravado and hooliganism make them the center of attention but also make them appear as heroes in the eyes of their friends and themselves (36).

Aggression in sport can be defined as verbal or physical actions that one or a few of the ones (athlete, coach, audience) included in the mentioned event performs during a sporting contest or a competition having been influenced by psychological, biological or social factors and going beyond the rules determined for sports in order to hurt the other person or to achieve a goal (17). Aggression in sports has also been defined as the type of behavior done to harm an organization. The purpose of these behaviors is o turn the outcome of the competition into advantage by using aggressive behavior, brute force, which cannot be won in accordance with the rules (45).

Aggression in sport can be studied in two main categories; hostile aggression and the use of aggression as a tool. If aggression is used as a tool, the goal is not to harm the other party but to achieve success. For this goal, the harsh intervention of the other party is acceptable violence. In hostile aggression, the goal is to harm the other side. This is accompanied by anger. While aggression used as a tool is acceptable or even encouraged in some cases, hostile aggression is not acceptable n any way (13).

Sport teaches to discharge aggression impulses naturally and in accordance with social rules (9). While the description of sport is made today based on this statement, it is mentioned in many of them that it eliminates or alleviates aggression and outbursts of anger. On the other hand, it is seen that there is an increase in the number and severity of aggressive behavior in many sports competitions, especially in football.

Fans identify all kinds of failures and unhappiness arising from their subcultures with the team they support. As a result of this identification, the fans who try to gain a place in the society by serving almost as bodyguard of their team, demonstrate their belonging to the team with the violence and aggression they perform and try to obtain a respectable identity (33).

Method

Contributor Group

Alanyaspor fans (n=305) were the participants of the study. 41 (13.4%) of fans were female and 264 (86.6%) were male.

Data Collection Tools

Sports Spectator Identification Scale (SSIS): The scale was developed by Wann and Branscombe (57). The scale, consisting of a total of 7 items, is scored in the form of ratings, with statements showing two

opposite ends, such as "(1) not important, not at all" and "(8) very important, always". The fact that identification is more is understood from the high scores. The suitability of the Sports Fan Identification Scale for Turkish sports fans was determined by Günay and Tiryaki (28).

Buss and Perry Aggression Questionnaire (BAQ): The scale was developed by Buss and Perry (12). The scale consisting of 29 items in total and evaluated in 5 Likert format includes 4 sub-dimensions: physical aggression, verbal aggression, emotional (containing anger) aggression and hostile aggression. Physical aggression is measured with articles 2, 5, 8, 11, 13, 16, 22, 25 and 29, verbal aggression with articles 4, 6, 14, 21 and 27, emotional aggression with articles 1, 9, 12, 18, 19, 23 and 28 and hostile aggression is measured with articles 3, 7, 10, 15, 17, 20, 24 and 26. The appropriateness of the Turkish form of the aggression scale was presented by Madran (40).

Analysis of Data

The data of the study was uploaded to the SPSS 21 statistical program and the analyses were carried out through this program. The compatibility of the data with the normality distribution was examined with Kolmogorov-Smirnov test and Skewness-Kurtosis values on both scales were found to be between +1,500 and -1.500 (SFIS; -1,108 to ,802 / BPAS; ,568 to ,792). When Kurtosis and Skewness values are between -1.5 and + 1.5, it is accepted that the data show normal distribution (52). From this viewpoint, the data that is seen to comply with the normality distribution were evaluated by Pearson correlation analysis, t test and one-way variance analysis (Anova). Furthermore, the data obtained are presented in the form of frequency distributions and percentages.

Reliability analyses of the scales used in the study were performed and Cronbach's alpha value of the identification scale was found to be 0.873 and cronbach's alpha value of the aggression scale was 0.910. Since the reliability of the scales used in the research is acceptable, we proceeded to the findings section.

Research Findings

In this section, the results obtained as a result of the analyses conducted in line with the purposes of the research are given.

Table 1. Distribution of fans participating the research by personal information

Variable	Category	Frequency	Percentage	Cumulative Percentage
Age	Age 15-19	84	27,5	27,5
	Age 20-24	84	27,5	55,1
	Age 25-29	20	6,6	61,6
	Age 30-34	28	9,2	70,8
	Age 35-39	33	10,8	81,6
	Age 40 and over	56	18,4	100,0
Gender	Female	41	13,4	13,4
	Male	264	86,6	100,0
Marital Status	Single	201	65,9	65,9
	Married	104	34,1	100,0
Place of Birth	Antalya province and districts	55	18,0	18,0
	Alanya	166	54,4	72,5
	Other provinces and districts	84	27,5	100,0
Income Level	Low	26	8,5	8,5
	Medium	152	49,8	58,4
	Good	127	41,6	100,0
Educational Status	Primary School	15	4,9	4,9
	Secondary School	30	9,8	14,8
	High School	81	26,6	41,3
	University	179	58,7	100,0
Status of Going to the Home Match	Rarely	93	30,5	30,5
	Sometimes	68	22,3	52,8
	Too often	144	47,2	100,0
Status of Going to Away Matches	Never	128	42,0	42,0
	Rarely	73	23,9	65,9
	Sometimes	70	23,0	88,9
	Too often	34	11,1	100,0
Membership of Fan Group	Yes	101	33,1	33,1
	No	204	66,9	100,0

Looking at the distribution according to the age of the fans involved in the research, it is seen that 84 (27,5%) of them were at the age of 15-19, 84 (27,5%) were at the age of 20-24, 20 (6,6%) were at the age of 25-29, 28 (9,2%) were at the age of 30-34, 33 (10,8%) were at the age of 35-39, 56 (18,4%) were over the age of 40; and looking at the distribution according to gender it is seen that 41 of the fans (13,4%) were female, 264 of them (86,6%) were male; looking at the distribution according to their marital status it is seen that 201 of the fans (65,9%) were single, 104 of them (34,1%) were married; looking at the distribution according to place of birth of the fans 55 (18,0%) of them were born in Antalya and its districts, 166 of them (54,4%) were born in Alanya, 84 (27,5%) of them were born in other cities and districts; when looking at the distribution according to income level, it is seen that the 26 (8,5%) of the fans stated their income level as bad, 152 (49,8%) of them stated it as medium and 127 (41,6%) stated their income level as good; when looking at the distribution according to their educational status of the fans, it is seen that 15 (4,9%) we graduate of primary school, 30 (9,8%) were graduate of secondary school, 81 (26,6%) were graduate of high school, and 179 (58,7%) were graduate of university. Furthermore, when looking at the distribution according to the status of going home games of the fans involved in the research, it is seen that 93 (30,5%) of the fans rarely went to a game, 68 (22,3%) went sometimes, and 144 (47,2%) went too often to the game; when looking at the distribution according to the status of fans going to an away game, it is seen that 128 (42,0%) of them have never gone to a game, 73 (23,9%) of them went rarely, 70 (23,0%) of them went sometimes, and 34 (11,1%) of them went too often. Finally, when we look at the distribution of the fans involved in the research according to the fan group membership, it is seen that 101 (33,1%) of the fans are members of the group, and 204 (66,9%) are not members of the group.

Table 2. Correlation table showing relationship between identification and personal information of fans

		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1. Identification	R	1	,186**	,348**	,198**	-,056	-,035	-,266**	,562**	,460**	-,377**
	p		,001	,000	,001	,332	,538	,000	,000	,000	,000
	n	305	305	305	305	305	305	305	305	305	305
2. Age	R	,186**	1	,282**	,835**	-,015	-,029	-,391**	,419**	,078	,116*
	p	,001		,000	,000	,788	,618	,000	,000	,176	,043
	n	305	305	305	305	305	305	305	305	305	305
3. Gender	R	,348**	,282**	1	,243**	-,117*	,086	-,225**	,476**	,187**	-,134*
	p	,000	,000		,000	,042	,136	,000	,000	,001	,019
	n	305	305	305	305	305	305	305	305	305	305
4. Marital Status	R	,198**	,835**	,243**	1	-,040	,006	-,385**	,404**	,096	,080
	p	,001	,000	,000		,484	,914	,000	,000	,093	,164
	n	305	305	305	305	305	305	305	305	305	305
5. Place of Birth	R	-,056	-,015	-,117*	-,040	1	,050	,073	-,135*	-,028	,111
	p	,332	,788	,042	,484		,383	,205	,018	,627	,054
	n	305	305	305	305	305	305	305	305	305	305
6. Income Level	R	-,035	-,029	,086	,006	,050	1	,114*	-,005	,013	,038
	p	,538	,618	,136	,914	,383		,047	,926	,815	,505
	n	305	305	305	305	305	305	305	305	305	305
7. Educational status	R	-,266**	-,391**	-,225**	-,385**	,073	,114*	1	-,376**	-,275**	,191**
	p	,000	,000	,000	,000	,205	,047		,000	,000	,001
	n	305	305	305	305	305	305	305	305	305	305
8. Status of going to the home match	R	,562**	,419**	,476**	,404**	-,135*	-,005	-,376**	1	,559**	-,347**
	p	,000	,000	,000	,000	,018	,926	,000		,000	,000
	n	305	305	305	305	305	305	305	305	305	305
9. Status of going to away matches	R	,460**	,078	,187**	,096	-,028	,013	-,275**	,559**	1	-,517**
	p	,000	,176	,001	,093	,627	,815	,000	,000		,000
	n	305	305	305	305	305	305	305	305	305	305
10. Membership of Fan Group	R	-,377**	,116*	-,134*	,080	,111	,038	,191**	-,347**	-,517**	1
	p	,000	,043	,019	,164	,054	,505	,001	,000	,000	
	n	305	305	305	305	305	305	305	305	305	305

*p<0.05, **p<0.01

When the above table is examined, it is observed that there is a positive-significant relationship between identification and age, gender, marital status, status of going to a home game and away game ($p<0.001$). Accordingly, it can be said that identification increases as age goes up, identification is higher in men and married people, and identification increases as the frequency of going to home games and away games increases. Again, when we look at this table, it is observed that there is a negative-significant relationship between identification and educational status and fan group membership ($p<0.001$). Accordingly, it can be said that identification increases as the level of education decreases, and identification is higher in those who are members of the group of fans.

Table 3. Pearson correlation table showing relationship between aggression and personal information of the fans

		1	2	3	4	5	6	7	8	9	10
1. Aggression	R	1	-,410**	-,054	-,377**	-,025	-,066	,161**	-,169**	,075	-,066
	p		,000	,343	,000	,660	,251	,005	,003	,191	,248
	n	305	305	305	305	305	305	305	305	305	305
2. Age	R	-,410**	1	,282**	,835**	-,015	-,029	-,391**	,419**	,078	,116*
	p	,000		,000	,000	,788	,618	,000	,000	,176	,043
	n	305	305	305	305	305	305	305	305	305	305
3. Gender	R	-,054	,282**	1	,243**	-,117*	,086	-,225**	,476**	,187**	-,134*
	p	,343	,000		,000	,042	,136	,000	,000	,001	,019
	n	305	305	305	305	305	305	305	305	305	305
4. Marital Status	R	-,377**	,835**	,243**	1	-,040	,006	-,385**	,404**	,096	,080
	p	,000	,000	,000		,484	,914	,000	,000	,093	,164
	n	305	305	305	305	305	305	305	305	305	305
5. Place of Birth	R	-,025	-,015	-,117*	-,040	1	,050	,073	-,135*	-,028	,111
	p	,660	,788	,042	,484		,383	,205	,018	,627	,054
	n	305	305	305	305	305	305	305	305	305	305
6. Income Level	R	-,066	-,029	,086	,006	,050	1	,114*	-,005	,013	,038
	p	,251	,618	,136	,914	,383		,047	,926	,815	,505
	n	305	305	305	305	305	305	305	305	305	305
7. Educational status	R	,161**	-,391**	-,225**	-,385**	,073	,114*	1	-,376**	-,275**	,191**
	p	,005	,000	,000	,000	,205	,047		,000	,000	,001
	n	305	305	305	305	305	305	305	305	305	305
8. Status of going to the home match	R	-,169**	,419**	,476**	,404**	-,135*	-,005	-,376**	1	,559**	-,347**
	p	,003	,000	,000	,000	,018	,926	,000		,000	,000
	n	305	305	305	305	305	305	305	305	305	305
9. Status of going to away matches	R	,075	,078	,187**	,096	-,028	,013	-,275**	,559**	1	-,517**
	p	,191	,176	,001	,093	,627	,815	,000	,000		,000
	n	305	305	305	305	305	305	305	305	305	305
10. Membership of Fan Group	R	-,066	,116*	-,134*	,080	,111	,038	,191**	-,347**	-,517**	1
	p	,248	,043	,019	,164	,054	,505	,001	,000	,000	
	n	305	305	305	305	305	305	305	305	305	305

*p<0.05, **p<0.01

When the table above is examined, it is observed that there is a negative-significant relationship between aggression and age, marital status and the status of going a home game ($p<0.001$). Accordingly, it can be said that aggression increases as the age decreases, aggression is higher in singles, and aggression increases as the frequency of going to a home game decreases. Again, when we look at this table, it is observed that there is a positive-significant relationship between aggression and educational status ($p<0.001$). Accordingly, it can be stated that as the level of educational status increases, aggression increases too.

Table 4. Correlation table showing the relationship between identification and aggressiveness and sub-dimensions of aggression

		1	2	3	4	5	6
1. Identification	R	1	,073	,113*	,042	,058	,009
	p		,201	,049	,469	,315	,869
	n	305	305	305	305	305	305
2. Aggression	R	,073	1	,873**	,752**	,890**	,765**
	p	,201		,000	,000	,000	,000
	n	305	305	305	305	305	305
3. Physical aggression	R	,113*	,873**	1	,570**	,713**	,478**
	p	,049	,000		,000	,000	,000
	n	305	305	305	305	305	305
4. Verbal aggression	R	,042	,752**	,570**	1	,662**	,467**
	p	,469	,000	,000		,000	,000
	n	305	305	305	305	305	305
5. Emotional aggression	R	,058	,890**	,713**	,662**	1	,562**
	p	,315	,000	,000	,000		,000
	n	305	305	305	305	305	305
6. Hostile aggression	R	,009	,765**	,478**	,467**	,562**	1
	p	,869	,000	,000	,000	,000	
	n	305	305	305	305	305	305

*p<0.05, **p<0.01

When examine table 4, it is observed that there is a positive-significant relationship between identification and physical aggression (p<0.05). Accordingly, it can be stated that as identification increases, physical aggression increases too.

Furthermore, when Table 4 is assessed, it is observed that there is no significant relationship between identification and general level of aggression, verbal aggression, emotional aggression, and hostile aggression.

Table 5. Table of one-way variance analysis (Anova) on differences in identification and aggression levels according to ages of fans

	Age	n	Average	Ss	F	p	Significant Difference*
Identification	**1.** Age 15-19	84	5,5884	1,85594	3,350	,006*	1-5*
	2. Age 20-24	84	5,7517	1,84033			
	3. Age 25-29	20	6.2500	1,14930			
	4. Age 30-34	28	6,5408	1,40690			
	5. Age 35-39	33	6,6364	1,36000			
	6. Age 40 and over	56	6,1684	1,17301			
Aggression	**1.** Age 15-19	84	2,9228	,50904	13,383	,000*	1-5* 1-6*
	2. Age 20-24	84	2.8748	,64600			2-5*
	3. Age 25-29	20	2,8586	,51765			2-6*
	4. Age 30-34	28	2,6970	,62559			3-5*
	5. Age 35-39	33	2,3250	,40214			3-6*
	6. Age 40 and over	56	2,3239	,45480			4-6*

*p<0.05

When the above table is examined, it is observed that there is a significant difference between the levels of identification of the fans in terms of their ages. According to this, it is understood that identification levels of the fans at the age of 35-39 are significantly higher than those at the age of 15-19. Again, the same table shows that there is a significant difference between the levels of aggression of the fans in terms of their age. Accordingly, it is understood that the level of aggression of the fans of 15-19 age was significantly higher than the aggression level of fans of 35-39 age and the age of 40 and over, the level of aggression of the fans of 20-24 age was significantly higher than the aggression level of fans of 35-39 age and the age of 40 and over, the level of aggression of the fans of 25-29 age was significantly higher than the aggression level of fans of 35-39 age and the age of 40 and over, the level of aggression of the fans of 30-34 age was significantly higher than the aggression level of fans of 40 age and over.

Table 6. T test table on differences in identification and aggression levels by gender of fans

	Gender	n	Average	SS	t	p
Identification	Female	41	4,5331	1,69032	-6,458	,000*
	Male	264	6,2094	1,52310		
Aggression	Female	41	2,7923	,58947	,949	,343
	Male	264	2,6972	,59754		

*p<0.05

When the above table is examined, it is observed that there is a significant difference between the levels of identification of the fans in terms of their genders. According to this, it is understood that the levels of identification of men are significantly higher than the levels of identification of women. Furthermore, when table 6 is examined, it is observed that there is no significant difference between the levels of aggression in terms of the gender of the fans.

Table 7. T test table on differences in identification and aggression levels by marital status of fans

	Marital Status	n	Average	SS	t	p
Identification	Single	201	5,7498	1,77722	-3,518	,001*
	Married	104	6,4368	1,24664		
Aggression	Single	201	2.8717	,59086	7.096	,000*
	Married	104	2.3975	,47148		

*p<0.05

When Table 7 is examined, it is observed that there is a significant difference between the levels of identification of the fans in terms of their marital status. According to this, it is understood that the identification levels of married people are significantly higher than the identification levels of single people. However, there is also a significant difference in the level of aggression of the fans in terms of their marital status. Accordingly, it is understood that the levels of aggression of singles are significantly higher than the levels of aggression of married ones.

Table 8. One-way variance analysis (Anova) table on differences in identification and aggression levels according to the birthplace of fans

	Place of Birth	n	Average	Ss	F	p	Significant Difference*
Identification	**1.** Antalya province and districts	55	5,6026	1.87672	9.522	,000*	1-2* 2-3*
	2. Alanya	166	6,3494	1,45104			
	3. Other provinces and districts	84	5,5119	1,69208			
Aggression	**1.** Antalya province and districts	55	2.8345	,53029	2.414	,091	
	2. Alanya	166	2.6460	,60131			
	3. Other provinces and districts	84	2.7549	,61682			

*p<0.05

When table 8 is examined, it is observed that there is a significant difference between the identification levels of the fans in terms of their birthplace. Accordingly, it is understood that the identification levels of the fans whose place of birth is Alanya a re significantly higher than the identification levels of the fans whose place of birth is Antalya province and its districts and other provinces and their districts. When the same table is evaluated, it is observed that there is no significant difference between the aggression levels of the fans in terms of their place of birth.

Table 9. One-way variance analysis (Anova) table on differences in identification and aggression levels according to income levels of fans

	Income Level	n	Average	Ss	F	p	Significant Difference*
Identification	**1.** Low	26	5,9560	1,76440	,397	,673	
	2. Medium	152	6,0667	1,52210			
	3. Good	127	5,8909	1,76901			
Aggression	**1.** Low	26	2,9987	,51807	3,629	,028*	1-2*
	2. Medium	152	2,6606	,55348			
	3. Good	127	2,7100	,64624			

*p<0.05

When table 9 is evaluated, it is observed that there is no significant difference between the level of identification of the fans in terms of their income level. When the same table is evaluated, it is observed that there is a significant difference between the levels of aggression in terms of the income level of the fans. It is understood that the aggression levels of fans with low income levels are significantly higher than the aggression levels of fans with medium income levels.

Table 10. Table of one-way variance analysis (Anova) on differences in identification and aggression levels according to educational status of fans

	Educational Status	n	Average	Ss	F	p	Significant Difference*
Identification	**1.** Primary School	15	6,0952	1,48331	12,562	,000*	2-4* 3-4*
	2. Secondary School	30	7,1333	,81586			
	3. High School	81	6,4762	1,29874			
	4. University	179	5,5595	1,75362			
Aggression	**1.** Primary School	15	2,1747	,52124	4,571	,004*	1-2* 1-3* 1-4*
	2. Secondary School	30	2,6690	,60845			
	3. High School	81	2,7288	,56979			
	4. University	179	2,7532	,59445			

*p<0.05

When the above table is examined, it is observed that there is a significant difference between the levels of identification of the fans in terms of their educational status. Accordingly, it is understood that the identification levels of fans with secondary school and high school education are significantly higher than the identification levels of fans with university education. Furthermore, when table 10 is examined, it is observed that there is a significant difference between the levels of aggression of the fans in terms of their educational status. Accordingly, it is understood that the levels of aggression of fans having secondary school, high school and university education are significantly higher than the levels of aggression of fans having primary school education.

Table 11. Table of one-way variance analysis (Anova) on differences in identification and aggression levels according to the status of the fans going to home game

	Status of going to the home match	n	Average	Ss	F	p	Significant Difference*
Identification	**1.** Rarely	93	4,6759	1,83457	70,685	,000*	1-2* 1-3* 2-3*
	2. Sometimes	68	5,9769	1,20553			
	3. Too often	144	6,8323	1,03889			
Aggression	**1.** Rarely	93	2,8572	,49423	4,576	,011*	1-3*
	2. Sometimes	68	2,6983	,51179			
	3. Too often	144	2.6205	,67381			

*p<0.05

It is seen in table 11 that there is a significant difference between the level of identification of the fans in terms of their status of going to home game. Accordingly, it is understood that the identification levels of the fans going to the match too often are significantly higher than the identification levels of the fans going to the match rarely and sometimes, and that the identification levels of the fans going to the match occasionally are significantly higher than the identification levels of the fans going to the match rarely. Furthermore, when table 11 is examined, it is observed that there is a significant difference between the aggression levels of the fans in the terms of the status of the fans going to a home game. Accordingly, it is understood that the levels of aggression of fans who rarely go to the match are significantly higher than the levels of aggression of fans going to the match too often.

Table 12. Table of one-way variance analysis (Anova) on differences in identification and aggression levels according to the status of fans going to away games

	Status of going to away matches	n	Average	Ss	F	p	Significant Difference*
Identification	**1.** Never	128	5,1540	1,83907	27,989	,000*	1-2* 1-3* 1-4* 2-4*
	2. Rarely	73	6,1585	1,20434			
	3. Sometimes	70	6,7265	1,13448			
	4.Too often	34	7.2059	,80903			
Aggression	**1.** Never	128	2,7363	,57703	4,745	,003*	2-4* 3-4*
	2. Rarely	73	2,5635	,43444			
	3. Sometimes	70	2,6680	,63118			
	4.Too often	34	3,0122	,77613			

*p<0.05

It is seen in table 12 that there is a significant difference between the level of identification of the fans in terms of their status of going to away games. It is understood that the identification levels of the fans going to games rarely, occasionally and too often are significantly higher than the identification levels of the fans who never go to away games, and the identification levels of the fans going to games too often are significantly higher than the identification levels of the fans who rarely go to games. Furthermore, it is seen in table 12 that there is a significant difference between the level of aggression of the fans in terms of their status of going to away games. Accordingly, it is understood that the aggression levels of fans going to away games too often are significantly higher than the aggression levels of fans going to away games rarely and occasionally.

Table 13. T test table for differences in identification and aggression levels of fans according to their status of fan group membership

	Membership of Fan Group	n	Average	SS	t	p
Identification	Yes	101	6.8642	1.05335	7,080	,000*
	No	204	5,5483	1,71375		
Aggression	Yes	101	2,7661	,68809	1,157	,248
	No	204	2,6822	,54503		

*p<0.05

When the above table is examined, it is observed that there is a significant difference between the levels of identification of the fans in terms of their fan group membership. Accordingly, it is understood that the identification levels of the ones who are members of the fans group are significantly higher than the identification levels of those who are not members of the fans group. However, when we examine the table 13, it is observed that there is no significant difference in the aggression levels of the fans in terms of their membership in the fan group.

Discussion And Conclusion

As a result of the study, it was found that there was no relationship between the identification levels and general aggression levels of the fans. Supported by studies in the same extension (18), this conclusion shows that identification is not a trigger factor in aggressive tendencies in general. Another finding is that there is a significant relationship between the identification levels and the physical aggression levels of the fans. Accordingly, it can be said that there are parallel studies stating that physical aggression increases as identification increases (48, 53, 3). In this case, the supporter intends to convert the way of identification into action. It is mentioned in the literature that physical aggression may be less dangerous than verbal aggression in terms of incitement. Therefore, one of the most important elements of aggression, "intent to harm the other party", is seen more often with verbal aggression. The emergence of physical aggression depending on identification that is identified in the study is thought to be one of the factors affecting intent to cause harm. Wann et al., (58) revealed that there is no relationship between identification and physical aggression.

According to the research findings, there is a positive-significant relationship between the identification level of the fans and age, gender, marital status, the state of going to a home game and the state of going to an away game. There are many studies that have parallels with these results of the research on the basis of field. Accordingly, it can be said that there are supporting studies showing that identification increases as age goes up (30, 53), identification is higher among males (47, 42, 24, 22, 41) and married ones, identification increases as the frequency of going to home games and away games increases (46, 32, 23, 54, 50). Considering the male population of football spectators, men feel themselves better watching football games on screen or going to games during off-the-job times. Being married or having a growing age does not prevent them from identifying with the teams they are fans of. When they participate in matches in a physical sense, their identification level is positively affected by the psychological atmosphere they are in. According to the research findings, the fact that there is a significant difference between identification level of the fans in terms of their age, gender, marital status, state of going to home games and away games is also supporting the abovementioned relations.

It is found out in the study that there is a negative-significant relationship between identification and educational status and fan group membership. In the studies supporting this result, it was observed that the they reached the conclusions that identification increases as the level of educational status decreases (47, 54), that identification is higher in those who are members of the fan group (16). Individuals develop their social environment and relationships in line with their education. That is to say, a new environment is added to their lives in every degree of education they receive. Therefore, that there is an increase in identification as the level of education decreases in the research is related to the limited social environment and social relations they have in the current situation. In this case, the individual will devote more time to the team he supports and will devote himself to. Besides, the person who is devoted to his team, who follows it or its sportsmen, who has positive feelings for them, supports them and meets their desires related to football in this way is called a supporter (6). Therefore, it is an expected situation that identification increases in individuals who also provide their loyalty to the team by being a member of the group of fans. That there is a significant difference in the level of identification according to educational status of the fans and their membership of a fan group in the results of the research supports the mentioned relations.

It was observed that there was a negative-significant relationship between aggression and age, marital status and the status of going a home game ($p<0.001$). Accordingly, it can be said that aggression increases as age downs (34, 53, 35), that aggression is higher in singles, aggression increases as the frequency of going to a home game decreases. As of young age, we acquire many behaviors in the social environment we are in. The first of the most important processes that determine our behavior are sensations. Particularly, visual sensations lead to the acquisition of behaviors. Our behaviors change with perception in further ages. Maybe this process goes on for the rest of human life. That there is a more aggression in the fans at younger ages and the decreasing tendency of aggression with growing age can be attributed to this fact. Gümüşgül (27) concluded that contrary to the current study result, aggression behaviors were more common in married individuals, while Kural (37) concluded that

there was no difference between aggression behaviors relative to the marital status of the parties. There is no study in the literature on the relationship between aggression and the frequency of going to a home game. Therefore, based on the results of the research, it can be said that there is an increase in the tendency of aggression of fans not having the opportunity to watch live matches in their city. As a result of the research findings, the fact that there is a significant difference between aggression levels of the fans in terms of their age, marital status, state of going to home games is also supporting the abovementioned relations.

It is observed that there is a positive-significant relationship between aggression and educational status. Accordingly, it can be stated that as the level of educational status increases, aggression increases too. The fact that there is a significant difference between the levels of aggression of the fans in terms of their educational status supports this relationship. There are no studies supporting this situation in the literature. Koçer's study (35) concluded that aggression increases as the level of educational status decreases. In his study Yıldırım (60) stated that as the level of educational status of fans increased, their awareness of the laws in force for aggression and violence in sports increased.

Ladd's (39) study was supported by finding that there was no significant difference between the levels of aggression in terms of the gender of the fans as a result of the research. This result can be explained by the concept of "social impact". Social impact is defined as the change in an individual's thoughts, feelings, attitudes, or behaviors as a result of their interaction with another person or group (49). In other words, if the individual is physically inside a crowded group, he or she does not act contrary to the group by hiding his or her thoughts and behaviors, and tends to adapt to the group's thoughts and behaviors. Therefore, it is possible to say that women are involved in the social impact process in football which is generally followed by men.

It is observed that there is a significant difference between the identification levels of the fans in terms of their birthplace. Baş's (8) study conducted on the fans of Trabzonspor supports this study in which the ones living in Alanya identified with Alanyaspor with a higher rate. This situation can be explained by cluster-cluster identification. Cluster-cluster identification is the identification of a sociological group by integrating with another group of sportsmen. There are many examples on a regional basis like the identification of the ones living in Trabzon with Trabzonspor.

It is observed that there is no significant difference between the aggression levels of the fans in terms of their place of birth. There are no studies supporting or refuting this situation in the literature.

It is observed that there is no significant difference between the identification levels of the fans in terms of their income level (5, 3, 43, 8). As can be understood from the result here, income level does not constitute an obstacle to identification.

Nonetheless, it is observed that there is a significant difference between the aggression levels of the fans in terms of their income level (1, 38). The low level of economic income brings about many social and psychological problems. Therefore, one of the reasons behind the aggressive behavior faced in sports should be regarded as the economic situation.

It is observed that there is a significant difference between the level of aggression of the fans in terms of their status of going to away games. Albayrak (2) found that there was no significant differentiation in sub-dimensions of destructive and assertive aggression, but there was a significant differentiation in sub-dimensions of passive aggression in his study in which he compared the sub-dimensions of aggression with fans' status of going to away game.

It is observed that there is no significant difference between the aggression levels of the fans in terms of their membership to a fan group. The fact that the participants did not differ in terms of aggression whether or not they were members of the fan groups can be explained by a sense of loyalty or belonging. Even if the individual is not a member of the fan group, he/she will fully include himself/herself in the process of his/her team. Hence, his/her response in the face of any situation will be the same with that of the individual who is a member of the fan group.

The followings should be carried out by sports clubs in line with the research results;

Scientific study groups should be formed to analyze the psycho-social behavior of fans,

Positive emotions of the supporters should be ensured to be reflected to the pitches by supporting

the social activities of the supporters out of the competition,

Studies should be carried out for informal supporter groups and member acquisitions to the associations should be ensured.

Events should be organized where fans can participate with their families and,

Efforts should be made to ensure active participation in home games.

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Examination of Doping Usage Opinions of Bodybuilding Athletes in the Context of Sports Ethics *

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Abstract

The aim of this research is to examine the thoughts of bodybuilding athletes on the use of doping from the perspective of sports ethics. Interview method, one of the qualitative research patterns, was used in the research. The research group consisted of 14 elite bodybuilding athletes who participated in international competitions in the bodybuilding branch. In the study, the data were obtained through face-to-face interviews method with bodybuilding athletes who volunteered to participate in the research in February 2018 and evaluated by the content analysis method. According to the survey, bodybuilding athletes of Turkey's Youth and Sports Ministry in doping "zero tolerance" policy for their use depending on the doping of athletes of other countries in views on the competitive environment in the contest; Unfair competition, no one who does not use abroad, seeing this branch as a doping sport, getting rid of the backstage, power war of the states, health is more important than success; In their views on the relationship between the diplomatic power of the countries and the use of doping in international competitions, backstage power is important in success, making money negotiations, "Turkish athletes' work is very hard" themes; In his views on the use of doping with the thought that every way should be tried to win at all costs, health is more important than anything, the themes of reaching the desired performance with patience, the truth of this sport, contrary to sports ethics, everything is necessary for victory; knowing that they were not able to detect that they used doping through wipers before an important international competition, felt the necessity to take risks in their country and their own reputation for one-time use of doping; the themes of the athletes they know and observe in their country and other foreign countries using doping, with themes such as a wide variety of health problems and negativity should not be connected to doping in their lives about their physiological and physical changes; It is determined that the athletes they know and observe by using doping bodybuilding in our country and other foreign countries express a wide variety of psychological problems and addiction themes in their opinions about their psychological changes in their lives after the end of the competition life.

Key Words: Doping; sports ethics; bodybuilding athletes

INTRODUCTION

Bodybuilding is an all round sports branch that works to strengthen and develop muscles and various systems of the body by carrying out scientific, programmed studies with certain weights, tools and machines, and gains aesthetics by keeping a person healthy, fit and fit at any age (4).

Equality is the most basic and determining principle of sports competitions. Such that when the equality is lifted or broken, the sporting event disappears. Equality is the area where the sport is done can be explained as the tools that the sport is done in, the rules specific to the sport, prohibitions and penalties. Thus, thanks to equality, it remains to show the athlete his own sportive power, skill and creativity (12).

Today, the fact that sports effects a wide audience and the addition of financial gain has

made it inevitable to be successful. This led the athletes to use a number of substances, materials and practices that will affect the outcome of the competition beyond the performance they gain through training (26). Athletes do not hesitate to pursue their own interests in the sports branches in which they compete, in order to become famous, to break records and to achieve more financial gain as a result, they adopt the philosophy of everything to win. In order to be successful, athletes resort to many methods by ignoring unethical behaviors and factors that threaten their health. Doping substances, which we frequently hear in our country and in the world, are at the top of these unethical behaviors (9).

The champions, who grew up with the desire to climb to the top through doping easily with tricky methods, contain false, broken records artificial, the time and distances reached are non-sports ethics. In this sense, the main feature of the ethical relationship is the actions that there is a relationship between values and valuation experienced by people in the chain of events (16).

In fact, when the literature on sports ethics is examined, it is observed that studies on doping have increased in recent years. The first reason for this is that doping has become widespread enough to threaten the elite sports culture. So much so that exhibiting a fair competition and following the rules are now seen as rare virtuous behaviors. Yet, these are compulsory elements that are at the core of sports and enable fair competition. Therefore, doping eliminates the idea of a fair competition based on an agreement (27).

In this sense, those who do the sports and those who watch the competitions should organize their movements in accordance with the moral rules and the Olympic philosophy in terms of sports ethics. For this, they should adopt Fair-Play behavior from a young age and understand the philosophy of Olympism (12).

WADA (World Anti-Doping Agency), which is the most authoritative institution in the fight against doping today, publishes the list of banned substances and lists prepared by research methods every year. IOC (International Olympic Committee) and International Sports Federations accept these lists. He stated the definition of WADA doping as "The presence of traces of metabolites of these banned substances specified in the WADA doping code in all body fluids such as blood urine and doping the prohibited method or manipulation practices specified in the code" (20).

The purpose of this research is to evaluate the views of bodybuilding athletes on the use of doping in the sense of sports ethics.

METHOD

Research Model

The research was evaluated with qualitative research patterns and interview method was used. The method of interview is a good way of understanding people's perceptions, meanings, definitions, constructing the truth, and it is also one of the most powerful methods used to understand others (21). In the "Interview Form" prepared to collect qualitative data, 6 semi-structured open-ended questions were included. Qualitative data was made into a 50-page written document after a face-to-face interview with 14 bodybuilders participating in the research.

Research Group

The research group consisted of 14 elite bodybuilding athletes who participated in international competitions in the bodybuilding branch.

Interview method brings important limitations together on sample size. Such research is usually performed out by the researchers themselves. In very few cases, there may be more than one researcher. Even when more than one researcher is present, the time, energy, organization, and money required to collect interview data require the sample to be limited. An interview record that can start at least half an hour and spread over several hours; This is the way of working, which is commonly used in qualitative research, as it is written down, extracting meaningful themes from this interview text or data from the data. Therefore, whichever method is chosen, the sample size cannot reach the size in quantitative research (36).

The distribution of bodybuilding athletes, which constitute the sample of the research, according to their gender, age, how many years they have been engaged in bodybuilding sports, their educational background, how many times they have been national and how many competitions they have internationally is given in Table 1 .

Table 1. The numerical distribution of the bodybuilding athletes who constitute the sample of the research regarding their gender, age, how many years they have been doing bodybuilding sport, their educational status, how many times they have been national and how many competitions they have held and the date of the interview

Codes	Gender	Age	Body Building Sports Doing Years	Educational Status	Number of Being National	International Competition Number	Interview Date
VG1	Male	46	20	High school	7	17	03.02.2018
VG2	Female	33	3	Bachelor	2	2	03.02.2018
VG3	Male	46	30	Bachelor	12	15	03.02.2018
VG4	Male	51	36	High school	108	115	04.02.2018
VG5	Male	29	10	Bachelor	2	5	04.02.2018
VG6	Male	39	22	Bachelor	2	3	05.02.2018
VG7	Male	35	18	High school	2	8	05.02.2018
VG8	Female	38	21	Bachelor	3	4	06.02.2018
VG9	Male	35	23	High school	5	12	06.02.2018
VG10	Male	39	23	High school	6	6	07.02.2018
VG11	Male	41	27	Bachelor	12	15	07.02.2018
VG12	Female	33	12	Bachelor	2	3	08.02.2018
VG13	Male	45	28	Bachelor	12	22	08.02.2018
VG14	Male	28	10	Bachelor	2	3	09.02.2018

When Table 1 is observed, it can be seen that; 3 athletes are female and 11 athletes are male; the age range ranged from 28 to 51 years old; the range of years of doing bodybuilding sports varies between 3 and 36 years; In terms of educational status, 5 athletes are high school graduates and 9 athletes are undergraduate graduates; the number of being national varies between 2 and 108; the number of international competitions varies between 3 and 115.

Data Collecting Tools

In this research, "Personal Information Form" and "Interview Form" developed by researchers were used as data collection tools.

Personal Information Form

The Personal Information Form consists of 6 questions developed to gather information about bodybuilding athletes. These questions are; The expressions of gender, age, how many years of bodybuilding sport is done, educational status, number of being national, number of international competitions.

Preparation of Interview Form and Validity-Reliability Study

For the development of this form; Qualitative sub-problems of the research were analyzed and what kind of data could be needed to answer these sub-problems. The questions to be asked in the meeting were clearly and clearly stated so that the individuals to be interviewed can be easily understood, care was taken not to have general and abstract questions, care was taken not to include question types that could cause short answers, and a pool of questions consisting of 11 items was created. In addition, the interview form was presented to the opinions and evaluations of the instructors who were experts in the field, and their reactions were taken by interviewing with 3 bodybuilding athletes similar to the sample to be applied. At the end of the trial, the interview form was found as working actively, and the 6 best questions that serve the purpose of the research were selected from the determined questions.

After preparing and testing the interview form, which is the main dimensions of the interview method, the interviews were arranged, preparations were made and interviews were carried out. Each of these are the stages that need to be carefully considered and have a very important place in collecting valid and reliable data. The importance of validity in qualitative research is that researchers' proximity to the research area, collecting detailed and in-depth information through face-to-face interviews, reporting the gathered data in detail, and direct quotations from the interviewed individuals (36).

According to Miles and Huberman (1994), the reliability of the content analysis method depends particularly on the coding process. Identifying themes and defining them clearly is the most important step. The fact that the interpretation of the themes does not change from the researcher to the researcher or in two different times provides reliability, which is a condition of objectivity. The

reliability coefficient of the document calculated by giving it to different researchers gives better results than the same document is given to the same people at two different times. This is because when the reliability coefficient among the researchers is high, the reliability coefficient in terms of time is also high (28). Therefore, the collected data was given to three different experts and the correlation between the results obtained from each was calculated.

The reliability of the data was calculated with the Miles and Huberman's Formula (1994). (28): Mediation Percentage =Consensus provided theme /Consensus unprovided + Disagreed theme X 100

It is expected that the result of the above formula, which is aimed at testing the compatibility between the coding researchers, will be higher than 70%. As a result of the application of the formula, 27 of the 30 codes suggested by the experts were approved, and 27 / 30 x 100 = 90 consensus was reached on the suitability of the codes. 3 codes that no consensus provided upon are combined with other appropriate codes.

Field Application Process of Data Collecting Tools

The interview form was gained through a one-on-one interview with bodybuilding athletes who volunteered to participate in the research in February 2018. The interviews were recorded with the recorder, which provided important facilities for the researcher. First of all, the researcher's problem of taking notes disappeared and the researcher fulfilled the functions of asking questions and listening more effectively. At the end of the application, all raw data were stored by the researcher to eliminate ethical problems. This can prove how distant the data provided by the process are from prejudices, opinion, researcher's tendency and concerns.

Analysis of the Data

The data were evaluated by the content analysis method of qualitative research. In content analysis, data similar to each other were combined and interpreted within the framework of certain concepts and themes. In content analysis, data were analyzed in four stages: Coding data, finding themes, Organizing and defining data according to codes and themes, Interpretation of findings (36).

The answers given by bodybuilding athletes to the interview questions were tabulated in frequency and percentages according to the frequency of repetition (Table 2-7). 14 bodybuilding athletes included in the interview were coded as "VG1, VG2, VG3…" in the dataset.

FINDINGS

According to the opinions of the bodybuilding athletes participating in the research; Turkey's Youth and Sports Ministry in doping 'zero tolerance' policy for their views of the findings in the competitive environment due to competition use, depending on the doping of athletes from other countries are presented in Table 2.

Table 2. Depending on Turkey's Youth and Sports Ministry in doping "zero tolerance" policy for their use depending on the doping of athletes of other countries; Findings about the opinions of bodybuilding athletes about the competitive environment in competitions

Themes	Frequency (f)	Percentage (%)
Everybody Use it Abroad	2	10
Escaping of a Person who has Lobby	1	5
Unfair Competition	9	45
Success is not Just Depended on Doping	1	5
Power War of States	1	5
Ministry Should be More Positive	3	15
Considering this Branch as a Doping Sports	2	10
Health is more Important than Success	1	5
Total	20	100

When Table 2 is examined, the most frequently stated situation of bodybuilding athletes participating in the research was the theme of "Unfair Competition". During the interviews, the participants expressed this situation with the following sentences:

"... in our country related to this doping policy is really a very good level, but ... I do not believe operated by other countries of sanctions and even when performed there, athletes, very well developed training and labs related to doping of coaches and that therefore the great tribulation athletes of our friends in Turkey. It is because we are now trying to do our sport without doping in recent years… The zero tolerance policy of doping implemented in our country is not so harsh in other countries ... We do not compete in the same conditions when it is not implemented, which really makes our athletes victim and fall behind in degrees. This is an open wound, I hope ... they will do good work on this in other countries in the future, and if this sport is really taken in other countries when this sport is made naturally, we can get out of the unfair competition environment and compete naturally with other countries ... "(VG10)

Besides this, other themes specified by bodybuilders are; Ministry Should be More Positive, Everybody Using this In Foreign Countries, Considering this Branch as Doping Sports, One who has Lobby activity Being Escaped, Success in Not only Depended on Doping, Power War of States, Health is Important than Success.

Among these themes there is an opinion presented by an athlete for the attention-grabbing theme Everybody Using this In Foreign Countries:

"They do it outside, I mean, I raced a lot. We gave two or three tests abroad, but there is no man who says he is not using it abroad. I have never seen such a man. No, they are using it abroad. " (VG1)

An athlete presented an opinion related to One who has Lobby activity Being Escaped theme:

"… Those who have a lobby they slip through the net. Even… they took us at the last world championship, but they did not take the Iranian athlete. I guess they didn't get a Russian again in my previous European championship. So according to their minds, you come, okay, it takes two people to sacrifice. But we say they are not taken, why don't you accept them… No answer. They took when I was there, we were accepted hardly. They did not take the Iranian ... However they became the champion. No, there is no ease for us. Even though we asked about this, they did not answer it… This situation is presented so well, that is, they organize the event that we call lobby in the best way, that is, they do it very well. They take whoever they want. " (VG1)

An athlete presented an opinion related to Power War of States theme:

"I think this business has been a state policy for years since the 1950s. It is an attempt by states to try to outperform each other, or to express their limits, so to say. Olympics are already countries' power struggle with each other. Here, the states seem to be preventing this work, but in fact they are not behind the door. In other words, the bribery of Russia that gave more than $ 400,000 to the Olympic doping board center was detected. There is even a documentary about it 45 minutes… " (VG3)

The findings regarding the opinions of the bodybuilding athletes participating in the research about the relationship between the diplomatic power of the countries and the use of doping in international competitions are given in Table 3.

Table 3. Findings related to the opinions of bodybuilding athletes about the relationship between the diplomatic power of countries and the use of doping in international competitions

Themes	Frequency (f)	Percentage (%)
Lobby Power is Important in Success	12	80.2
Doing Monetary Bargains	1	6.6
Believing in Diplomatic Power	1	6.6
Turkish Athletes' Work is Hard	1	6.6
Total	15	100

When Table 3 is analyzed, the most frequently stated situation of bodybuilding athletes participating in the research was the theme of "Lobby Power is Important in Success". During the interviews, the participants expressed this situation with the following sentences:

"I witnessed a few examples of this by myself. In other words, economically strong countries use IFBB (International Bodybuilding Federation). I now see IFBB as a business organization. How many athletes you bring to IFBB, how much you donate, how many referees are there, how effective are their

bilateral warm relations ... athletes of strong countries are supported by lobby power. Officially, they support each other in a form of in one weight this, in another weight that." (VG6)

Besides, other themes that body builders presented their opinion; Doing Monetary Bargains, Believing in Diplomatic Power, Turkish Athletes' Work is Very Hard.

Among these themes an athlete presented an opinion to an attention grabbing theme related to Doing Monetary Bargains:

"…If they catch one of our countries… they conspires. They say that if you pay 5000 Euros, we will set you free, and when they can't get that money, they sometimes take doping, this is obvious… They called our friend, for example, to take doping. The child is not tested abroad, it turned out clean in the country. The boy… uses something very lightly during that month. There they know that the child is medicated, they call the child, they say: We do you like this, here you give this much money, we do it right away ... we couldn't pay this money and the child got doping from there. That's why the child was punished, everyone was informed that he took doping. Anyway it is a big trouble, they open way to this thing, they negotiate, they make money from this business, this is clear ... " (VG3)

The findings related to the opinions of bodybuilding athletes participating in the research on the use of doping with the idea that every way should be tried to win at any cost are given in Table 4.

Table 4. Findings related to the opinions of bodybuilding athletes about the use of doping with the idea that every way should be tried to win at all costs

Themes	Frequency (f)	Percentage (%)
Health is Important than Everything	8	44.5
It is against to Sports Ethics	5	27.8
Doping is Truth of this Sports	2	11.1
Everything is Fair for Victory	2	11.1
Reaching out the Desired Performance with Patience	1	5.5
Total	18	100

When Table 4 is examined, the most frequently stated condition of bodybuilding athletes participating in the research was the theme of "Health is More Important than Everything". During the interviews, the participants expressed this situation with the following sentences:

"Now I do not defend this view. It is because health is valuable to me. The athletes say that I will be ready for the competition once, I will put my intensity, once again, I will not enter the world champion again. You take the 2nd place, you take the third place, you take 6-7 years and the damage caused by him causes the sport to quit early ... We see our brothers who use drugs constantly. It's really a poignant situation… " (VG4)

In other respects, other themes expressed by bodybuilding athletes; Against to Sport Ethics, Doping is the Truth of this Sport, Everything for Victory is Fair, Reaching the Desired Performance with Patience.

Among these themes "Doping is the Truth of this Sport" theme expressed in an athlete's opinion as follows:

"… We have athletes who use doping, but unfortunately, and this a bitter fact that we do not have a success in the international arena without using it. It is because used by athletes of all countries; somehow masking it or discontinuing medications and entering competitions with a good form. This affects Turkish athletes, Turkish sports and Turkish bodybuilders negatively and pushes them to failure. " (VG7)

The bodybuilding athletes participating in the study know that it is not possible to detect that they used doping through wipers before an important international competition; The findings regarding the views of the countries and their own reputation for the one-time use of doping are given in Table 5.

Table 5. Bodybuilding athletes knowing that it was not possible to detect that they were using doping through wipers before an important international competition and findings related to their country and their views on the use of one-time doping for their own reputation

Themes	Frequency (f)	Percentage (%)
If there is no Equality Feeling Compulsory in Doping Using	3	21.5
Avoiding of Taking Risk	3	21.5
Feeling Necessary to Take Risk for the National Emotions	6	42.8
It is not Compatible with Sports Ethics	2	14.2
Total	14	100

When Table 5 is analyzed, the most frequently stated situation of bodybuilding athletes participating in the research was "Feeling Necessary to Take Risk for the National Emotions" theme. During the interviews, the participants expressed this situation with the following sentences:

"… I do not know one man who will say no to this question. I was in bodybuilding for 30 years and in wrestling and judo in 15-20 years before that. I don't know a human son who can say no to such a proposal, I do not know even a person who will say "no I will do it naturally, and I will stay in this way." I say it clearly, especially when it comes to the country. " (VG3)

Besides, other themes expressed by bodybuilding athletes, respectively; If there is No Equality, it is Compulsory in the use of doping, Do not Avoid of Taking risks, It is not Compatible with Sports Ethics.

Findings regarding the physiological and physical changes of the athletes participating in the research about the physiological and physical changes of the athletes they know and observe in our country and other foreign countries using doping are presented in Table 6.

Table 6. Findings related to the opinions of bodybuilding athletes about physiological and physical changes of the athletes they know and observe in our country and other foreign countries using doping

Themes	Frequency (f)	Percentage (%)
Various Health Problems	13	76.5
Negativities Should not be Linked to Doping	3	17.6
Taking Precautions to Minimize Negativities	1	5.9
Total	17	100

When Table 6 is analyzed, the most frequently stated situation of bodybuilding athletes participating in the research was the theme of "Various Health Problems". During the interviews, the participants expressed this situation with the following sentences:

"… Cardiovascular diseases, after that, a heart attack… When he uses drugs, his blood pressure rises. When he has high blood pressure, the stiffness begins to form. Vascular stiffness is already in your body… bad cholesterol increases, vascular stiffness… vascular disorder due to cholesterol, vascular occlusion… you have a heart attack. Two days ago, another athlete had a heart attack on my friend ... So this is one of the inevitable endings, but you may die suddenly… " (VG11)

In addition, other themes expressed by bodybuilding athletes; Negativities should not be Connected to the Doping, Taking Precautions to Minimize Negativities.

The findings related to the opinions of the bodybuilders participating in the research on the psychological changes of the athletes they know and observe in our country and other foreign countries using doping are given in Table 7.

Table 7. Bodybuilding athletes in our country and in other foreign countries know and observe the bodybuilding sport using doping. And Findings related to their views on psychological changes in their lives after the end of the competition

Themes	Frequency (f)	Percentage (%)
Leading to Addiction	3	20
Various Psychological Problems	11	73.3
Not Affecting on Psychology	1	6.7
Total	15	100

When Table 7 is examined, the most frequently stated situation of bodybuilding athletes participating in the research was the theme of "Various Psychological Problems". During the interviews, the participants expressed this situation with the following sentences:

"It collapses very quickly, physically, as a result of this collapse, unfortunately it collapses together in psychology, with physiology, we have such friends around us ... people respect and love these friends when they are champions. But after their championship is over and their form is also bad, friends can get bored unfortunately, they can get away psychologically. This affects their social lives and their future lives negatively… Success is important, but our health is even more important ... if a person loses his health, he loses everything, loses his social life, losing his working life. In this sense, of course, we have many friends who suffer from psychological breakdowns… One of the biggest side effects of these drugs is that they make people feel very psychologically very good, and when they are released, they are exposed to great depressive troubles. We have many friends living this. " (VG10)

In addition, other themes expressed by bodybuilding athletes, respectively; Leading to Addiction, Not Affecting on Psychology

One of the athletes, who draw attention among these themes, presented an opinion as follows:

"Psychologically, it's addictive, so when he quits like a drug, when he's crumbling, or when he can't feel the feeling of growth in his muscles, he looks for it again and feels compelled to use it again." (VG14)

DISCUSSION AND RESULT

When the results in Table 2 are evaluated, today all sports are done with their own rules and competitions are held within these rules. It can be said that the use of doping agents that allow athletes or teams to break their current rules and outperform their opponents in ways that are not suitable for sports ethics causes an unfair competition in competition environments. In the world, bodybuilding is also seen as a doping sport because of the fact that it is a sport related to strength and endurance, so the use of doping in bodybuilding is an indisputable fact of this sport, and it is also frequently used to reach high performance in other branches. It can be interpreted as. Unfortunately, it is seen that various countries, which are sometimes politically strong, have made doping a policy by supporting this mistake not only in bodybuilding sports but also in all sports branches for the sake of success, and they also allow doping use of their athletes. Araman (2002) in some countries in the 1970s and 1980s that doping was carried out by the state, and that the former German Democratic Republic was to be shown as an example, Simson and Andrew (1994) made many national and international federations doping their national teams; They demonstrated that they neglected important athletes engaged in doping and concealed positive results.

At this point, it can be said that states that do not use doping in international arenas due to the doping policies of states, caused unfair competition in terms of teams or athletes, and therefore, the use of doping has become a power war between the states for the sake of success. For this reason, it is stated that the participants expect that they use more doping in bodybuilding abroad and that the athletes who have backstage power in international sports organizations are not exposed to any obstacles while passing doping control, and that they are expected to carry out a more constructive and solution-oriented activity in the face of this unfair competition. Nevertheless, the way to achieve success in bodybuilding can be achieved not only with doping, but with disciplined training and dedication, and the use of doping agents can lead to fatal consequences in the health of athletes; For this reason, it can be said that health is always more important than success and should be remembered. While the studies of Yıldız (2006), Turkcapar et al (2014), Eröz (2007), Yıldız et al (2016) are in line with the results of the research; The studies of Dinçer (2010), Solberg et al. (2010) support the research results.

When the results in Table 3 are evaluated, it is known that countries use sports as a kind of showing off in sports organizations held from past to present in order to prove their power to the world in various subjects. For this reason, in international sports organizations of diplomatically strong countries, their athletes return to their countries with championships and records, incompatible with social morality, leading to unfair competition, disregarding the rules of the game, not only for the benefit of the countries, but for the benefit of the countries, not only for the benefit of the athletes. It can be said that they used various doping agents to increase the level. Moreover, it can be interpreted

that it is aware that such problems are prevented by negotiating money with countries and institutions and organizations performing doping control in order to ensure that the results are not positive while passing the doping controls of athletes in sports organizations by using their diplomatic powers around the world. In addition to this, bodybuilding athletes stated that the backstage power of countries is important for success in international sports organizations, they stand behind their athletes about the use of doping of other countries and that even all the athletes of other countries use doping in international competitions; and for these reasons, they can be interpreted as being pessimistic.

Considering the results in Table 4, it can be said that success in sports and achieving something are among the common goals of almost everyone, success in sports can be achieved as a result of disciplined and devoted work. However, sometimes it is seen that individuals ignore all ethical values in order to achieve success and to experience the feeling of success. In fact, the desire to win since the very beginning of human history and the ambition of people to prove themselves to others have increased gradually, and for the sake of realizing these, individuals resort to all kinds of tricks, ignoring all their selves and values. It can be said that athletes from time to time keep their health in front of everything, reach their goals with discipline and dedication, and achieve this unfair success by disregarding human values, from time to time to deceive their health. Also, for some of the bodybuilding athletes, the athletes of the idea that the use of doping in bodybuilding is an inevitable fact; It can be interpreted that it pushes against an idea that is contrary to sports ethics, such as "I can do everything by ignoring even my health for victory, rather than competing against unfair competition", and this is especially because athletes ignore the damage of doping in line with the desire to get early results by using doping. Studies of Bloodworth and McNamee (2010), Eröz (2007), Barkoukis et al (2014), Şapçı (2010), Yıldırım (2008), Dinçer (2010), Kurtipek et al (2016), Laure et al (2001) It is in line with the research results. In this context, it can be said that the wrong attitudes of bodybuilding athletes towards the use of doping can be corrected with various trainings. Wanjek et al (2007), Melzer et al (2010) stated that athletes need doping training.

Considering the results in Table 5, bodybuilding athletes in international sports competitions know that they will not be caught in pre-competition wipers to use doping for their own or their country's reputation due to the pressures and they are aware that there is no equality in most of the countries they will compete about, It can be interpreted as directed to take it. This can be explained by the fact that the vast majority of bodybuilding athletes participating in the study take risks, ignoring the health of their national feelings. The studies of Dinçer (2010), Eröz (2007), Bloodworth and McNamee (2010), Yıldız et al (2016) are similar to the results of the research.

When the results in Table 6 are evaluated, natural or artificial searches that are not suitable for sports ethics developed to increase the sportive performance from the past to the present, make it necessary for the states to prove themselves in the world arena; this situation has caused the sports struggles to turn into an international war arena, the Fair-Play thought disappeared in the spirit of the competition and the health of athletes to be neglected. Beltz and Doering (1993), Williams (1992), Deligiannis and Koudi (2012) determined that the use of doping in sports is associated with serious health complications.

Besides, it can be said that bodybuilding athletes act without thinking about their health by using various doping agents to show their strength and power at the highest level in competitions. Therefore, it can be said that the bodybuilding athletes participating in the research know that they will encounter a wide variety of health problems observed in athletes whose life ends. Gençtürk et al (2009), Turkcephe et al (2013), Bloodworth and McNamee (2010), Yalnız and Gündüz (2004), Akgün (1989), Günay and Cicioğlu (2001), Sobal and Marquart (1994) support the research findings.

Apart from these, it may be attributed to the participants' tendency to use doping substances to achieve high performance and increase their sports prestige, even though they do not relate with the negativities that may be experienced with their health in the short and long term with the use of doping agents and know that they will put their health and prestige in great danger. According to the conclusion here, it can be interpreted that doping is used consciously by bodybuilding athletes, so that the athletes are not against doping use, but they think that the level of use of doping agents should be adjusted well by the professionals

who do not harm their health. This situation shows that bodybuilding athletes do not have enough information about the use of doping and the damages that may occur afterwards. Looking at the results in Table 7; the dream of success is a fact that takes athletes to the point of taking everything. Thus, it can be said that in recent years, amateur athletes have started to use doping agents, which are used by athletes in order to maximize their success. However, it is known that the use of doping causes various health and psychological problems in the short and long term. In this context, it can be interpreted that the participants are aware of the psychological problems and addiction ailments they observe in athletes who have finished their sports life using doping agents, encouraging the athletes not to use these substances, albeit partially. Except this, it can be said that doping is addictive in athletes in terms of causing a decrease in a good form in a short time in terms of performance and convincing that they will not catch the same form unless they use doping. In addition, it can be explained that bodybuilding athletes have partial knowledge of doping but do not use this information to maximize their sports performance. The studies of Berglund et al (1987), Yarasheski et al (1992), Yalnız and Gündüz (2004), Beşiktaş (2016) support the research results. Future work in this area will be done in Turkey can be generalized to include more of the general or results are thought to give some different countries. In addition, by giving experts, trainers and managers, training seminars on "values that must be present in all shareholders of doping and sports in terms of sports ethics" in order to know what is right and wrong, preparation of various public spots is recommended by experts to raise awareness about physiological and psychological disorders that may occur after the use of doping substances.

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The Investigation Of Elit Table Tennis Sportsmen In Terms Of Their Risk Evaluations

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Abstract

Aim of this study is analyzing risk assessment of elite table tennis players. In parallel with this aim, risk assessment level of elite table tennis players is compared in respect to gender, age, education level, marital status, perceived level of income, duration of training and taking part in national team. 186 sportsmen, who play actively table tennis at elite level in different sports club, participated to study. Criterion sampling, which is one of the purposeful sampling method, is used to define participators. Study is supported by descriptive survey model. Research data is gained through Personal Information Forms and Risk Assessment Scale (29). Mann Whitney-U test and Kruskall Wallis-H test, which are non-parametric tests, are used to determine whether there is a statistically significant relationship between independent variables (gender, age, education level, marital status, perceived level of income, duration of training and taking part in national team) and points which are gained through Risk Assessment Scale at analyzing gained data. p value of <0.05 was considered statistically significant. The study results show that, points of participators, which are obtained from Risk Assessment Scale and its' sub-factors, demonstrates meaningful distinction according to gender, education level, duration of training and taking part in national team while it does not show meaningful distinction according to age, marital status and perceived income level. As a conclusion, variables such as gender, education level, duration of training and taking part in national team are effective on risk assessment level at the study which is conducted in order to investigate risk assessment conditions of elite table tennis sportsmen.

Key Words: Risk Assessment, Sport, Table Tennis, Sportsman

INTRODUCTION

The risk comes from the Italian, and which means the risk of an event that could lead to a damage or loss. It is a concept in French (Risque) and means disadvantage. (20). Failure of structured plans, wrong decision-making opportunities, loss or not to make a profit are generally defined as risk (4). Risk management is the process of attempting to prevent the potential for loss due to hazards such as personal injury, damage to assets or economic losses. The risks in nature cannot be eliminated but can be managed with good planning (41). Risk management is a three-step process. The first is to determine and measure, the second is to develop and implement a plan to manage these losses, and finally to review the plan once it has been implemented. The risk management process generally requires the following steps (14); Step 1: Measure and identify potential losses Step 2: Choose and apply the most effective methods to control and finance potential losses. Step 3: Examine the results. Step 3: Examine the results. While physicians argue that the changes between mental and physical activities at regular intervals increase the mental and physical health in a balanced way, psychologists express the sport as an effective antidote that is competing over time despite the negativity such as friction and tension brought by daily life and finally social behaviorists

their main task is to explain and reinforce determinative values and to bring solutions to the problems we face in life (18).

Risk Factors in Sport: In order to define the risks, first of all, it is necessary to determine the sources, events and effects that will constitute that risk (17).

Internal Factors: Psychomotor Development, Physical Fitness, Resilience, Strength and Speed, Physical Structure and Coordination, Gender and Age, Height, Body Weight and Body Fat Percentage, Previous Injuries and Diseases, Muscle Tension and Frequency, Weakness and Inequality of Lower Extremity, Physical Defect, Psychological Factors, Personality and Self, Motivation and Concentration, Perception, Winning Emotion and Risk, aggression and Anxiety, Fear and Stress, Psychological Loads, Emotional and Mental Conflict, Sudden Deaths in Sport. (15, 24). (33). (16).

External Factors in Sports: Factors Related to the Field (31). Factors Related to Tools, (7). Clothes, Footwear & Protective Materials, Social Factors

Parent Factor: Coach, Referee and Media Factor (23). Education and Culture Factor, Spectator Factor (2).

Factors Related to Training: Warming, Wrong Training and Overtraining (5). Weight Training

Environmental Factors: Circudian Rhythm, Height, Hot (Heat Strike) and Cold, (22).

Factors Related to Habits: Alcohol and Smoking (1). Nutrition and Weight Loss (13). Ergogenic Help, Doping, Sexual Experience and sleeping pattern.

Table Tennis Sports and Risk Factors

Table tennis is a sports branch where a table tennis player on both sides of a tennis table uses a racket in their hands to throw a ball, which is small, onto the opposite side of the table via a net that is stretched in the middle of the table (39).

According to Turhan (2007), the risk factors experienced in table tennis branch are;

Timing: The table tennis branch is a sports branch that requires the right decision in a very short period of time during the game. Performing the proper stroke on time, smooth movement is important for table tennis performance and is an important criterion for success. Punching and responding to the ball by applying force in place is an important step to make an effective hit.

Distinction: This ability allows you to distinguish between slow spin, fast spin, ball spin, soft attack, hard attack, smash, etc. in different situations and conditions.

Feeling the Ball: Feeling the ball means that ball violence, spins, speed, directions of the ball is estimated. This ability makes it possible to get a good number of difficult positions (38).

Correction Ability: It is the control of the faults by correcting and comprehending the movement with the Kassal perception. It is a coordinating feature to adapt to the situations in which sudden changes are observed in different sports activities.

Vision and Motoric Skill: During the competition, it is very important to follow the ball and take the position of movement at the same time.

MATERIALS & METHODS

Research Model: The research was supported in a descriptive screening model. The screening model is a research approach that aims to describe a situation that has existed in the past or the present (27). The fact that the data of this type of research is collected from different sources, having detailed information about the researched subject and the data being collected from too many people is one of the most important features of the researches designed in the survey model (26).

Research Group: Turkey Table Tennis Federation 2016-2017 season in Super League, which competes in the 1st semester and 89 women and 97 men, including 186 athletes participated in the research. The research group was formed by face-to-face interviews and e-mails with athletes participating in competitions in Yalova 1st League, Eskişehir 2nd League and Isparta and Ordu 3 leagues. Athletes aged 16 and over were evaluated. Targeted 100 male and 100 female athletes were reached; however, 14 scales were excluded and excluded from the evaluation because they were randomly filled. As a result, 89 female and 97 male table tennis athletes were reached. Demographic data of the research group are shown in Table 1.

Table 1. Demographic Information of the Research Group

Variable		f	%
Gender	Woman	89	47,8
	Man	97	52,2
Age	16-21 age	91	48,9
	22-27 age	35	18,8
	28-33 age	27	14,5
	34 years and older	33	17,7
Education	Grade School	14	7,5
	High school	85	45,7
	Undergraduate	75	40,3
	Post Graduate	12	6,5
Marital status	Single	141	75,8
	Married	45	24,2
Perceived income status	Lower	63	33,9
	Middle	47	39,8
	Upper	49	26,3
Sport Experience	1-5 years	20	10,8
	6-10 years	63	33,9
	11-15 years	42	22,6
	16-20 years	33	17,7
	21 year and older	28	15,1
Taking Place in the National Team	Yes	70	37,6
	No	116	72,4

Table 1. When examined, a total of 186 athletes (89 female, 47.8%) and 97 male (52.2%) participated in the study. Of the participants is, 91 were in the 16-21 age group (48.9%), 35 in the 22-27 age group (18.8%), 27 in the 28-33 age range (14.5%),and 33 were 34 years and older (17.7%). According to the education level, 14 of the participants were in secondary school (7.5%), 85 in high school (45.7%), 75 in undergraduate (40.3%) and 12 in postgraduate (6.5%). According to marital status, 141 of the participants were single (75.8%) and 45 were married (24.2%). According to the learned income situation, 63 of the participants were in the lower income level (33.9%), 47 were in the middle income level (39.8%) and 49 were in the upper income level (26.3%). According to the duration of sports, 20 of the participants were 1-5 years (10,8%), 63 were 6-10 years (33,9%), 42 were 11-15 years (22,6%), 33 were 15-20 years (17.7%) and 28 of them have 21 years and more (15.1%) of sports. According to the national team, 70 of the participants were in the national team (37,6%), 116 of them were not in the national team (21,42%).

Data Collection Tools

The data included in the study were obtained by using "Person Information Form"and " Risk Assessment Scale" Personal Information Form: This form has been formed in order to obtain information about the gender, age, educational status, marital status, perceived income status, sport experience and participation in the national team.

Risk Assessment Scale: The risk assessment scale developed by Karatas (2012) includes how the athletes and trainers evaluate the questions on the scale in terms of their own risk. The scale items were prepared using the studies of (20 and 9). As a result of the analysis, some items with low criteria or more than one criterion were excluded from the scale. As a result of repeated analysis, the scale has a total of 4 factors with 23 items; the first factor (1,2,3,4,5,6,7,8) related to health management of the substances, the second factor (9,10,11,12,13) related to facility management, the third factor (14,15,16,17,18,19)related to financial management, the fourth factor (20,21,22,23) related to of the social security management. As a result of the analysis, it was seen that these items consisted of risk assessment elements related to social security management. Considering the variance explanation rates of the scale; 15.95% of the health management factor variance; 12.64% of the facility management factor variance; 10.73% of the variance of financial management factor; 12,31% of the social security management factor variance is explained. All 23 items in the scale explained 51.64% of the total variance. Factor variance for each factor should be looked at in order for the factor analysis results to be sufficient. If these values are above 0.50, it is decided that the number of factors is sufficient (25). The

values obtained indicate that the scale is valid in this form. Cronbach Alpha calculations for the internal reliability of the scale; for the sub factor of health management .82, for facility management sub-factor.78, for the financial management sub-factor.73, for social security management sub-factor.81, for the whole scale.92 was found.

Data Analysis

The statistical analysis of the data obtained from the study was carried out through SPSS 20.00 package program. In the data analysis, it was tested whether the data set showed normal scatter. Kolmogorov-Smirnov test was used to evaluate the normal scatter of data. As a result of the normality test of the data, it was concluded that the scatter did not fulfill the assumption of normality in the overall scale and sub-factors according to all variables ($p<0.05$). Therefore, the relationship between independent variables (gender, age, and educational status, perceived income status, marital status, sporting exprience and taking part in the national team) and the scores obtained from the risk assessment scale were evaluated using non-parametric tests such as Mann Whitney-U test and Kruskall Wallis. H-test. According to the Kruskal-Wallis test, the difference between the groups was examined by the Mann-Whitney U test using the binary combinations of the groups (6).

FINDINGS

The findings of elite table tennis athletes are evaluated according to gender, age, education level, marital status, perceived income level, sporting experience and taking part in national team.

Table 2. Mann-Whitney U Test Results for Determining Whether The Points Obtained From the Risk Assessment Scale Differ According to the Gender Variable

Factors	Gender	N	Mean Rank	Line Total	U	p
Healthcare Management	Woman	89	112,07	9974,00	2664,00	0,000**
	Man	97	76,46	7417,00		
Facility Management	Woman	89	110,68	9850,50	2787,50	0,000**
	Man	97	77,74	7540,50		
Finance Management	Woman	89	109,42	9738,00	2900,00	0,000**
	Man	97	78,90	7653,00		
Social Security Management	Woman	89	107,28	9548,00	3090,00	0,001*
	Man	97	80,86	7843,00		
Total	Woman	89	114,53	10193,50	2444,50	0,000**
	Man	97	74,20	7197,50		

Table 2. When examined, the health management of the athletes with the Risk Assessment Scale (U=2444,50, p<0,001) (U=2664,0, p<0,001), facility management (U=2787.50,p<0.001),finance management (U = 2900.00, p <0.001) and social security management (U = 3090,00, p <0,01) scores were found to be significantly different from gender variable.

Table 3. The Results of The Kruskal-Wallis H Test to Determine Whether the Points Obtained from the Risk Assessment Scale Differ According to the Age Variable

Factors	Age	N	Mean Rank.	Sd	X^2	p
Healthcare Management	16-21	91	94,37	3	1,215	0,749
	22-27	35	88,71			
	28-33	27	87,81			
	34 years and older	33	100,82			
Facility Management	16-21	91	89,88	3	2,204	0,531
	22-27	35	88,84			
	28-33	27	98,98			
	34 years and older	33	103,94			
Finance Management	16-21	91	88,40	3	2,913	0,405
	22-27	35	90,97			
	28-33	27	106,54			
	34 years and older	33	99,59			
Social Security Management	16-21	91	91,32	3	2,427	0,489
	22-27	35	85,06			
	28-33	27	101,28			
	34 years and older	33	102,09			
Total	16-21	91	89,43	3	2,753	0,431

Table 3. As seen in the above, athletes, with the overall "Risk Assessment Scale" ("2 (3) = 2.753, p> 0.05), health management (p2 (3) = 1,215, p> 0,05), facility management (p2 (3) = 2,204, p>0,05), financial management (p2 (3) = 2,913, p>0,05) and social security management (lılık2 (3) = 2,427, p> 0,05) and between points obtained from their sub-factors big difference were not detected according to age variables.

Table 4. The Results of the Kruskal-Wallis H Test to Determine Whether The Points Obtained from the Risk Assessment Scale Differ According to Marital Status

Factors	Marital Status	N	Mean Rank	Line Total	U	p
Healthcare Management	Single	141	94,49	13323,00	3033,00	0,657
	Married	45	90,40	4068,00		
Facility Management	Single	141	97,26	13713,00	2643,00	0,091
	Married	45	81,73	3678,00		
Finance Management	Single	141	95,09	13408,00	2948,00	0,474
	Married	45	88,51	3983,00		
Social Security Management	Single	141	95,07	13404,50	2951,50	0,481
	Married	45	88,59	3986,50		
Total	Single	141	95,52	13468,50	2887,50	0,365
	Married	45	87,17	3922,50		

Table 4. As seen in the above, athletes, with the overall "Risk Assessment Scale" (U = 2887,50, p>0,05) and health management (U=3033,00, p>0,05), facility management (U=2643,00,p>0,05),financial management (U=2948,0, p>0,05) and social security management (U=2951,50, p>0,05) and between points obtained from their sub-factors big difference were not detected according to marital status.

Table 5. The Results of the Kruskal-Wallis H Test to Determine Whether the Points Obtained from the Risk Assessment Scale Differ According to Education

Factors	Education	N	Mean Rank	Sd	X^2	p	Difference
Healthcare Management	1. Grade School	14	57,79	3	16,227	0,001*	1-2 1-3 1-4 2-3, 2-4
	2. High school	85	84,05				
	3. Undergraduate	75	106,59				
	4. Post Graduate	12	120,29				
Facility Management	1. Grade School	91	75,61	3	14,913	0,002*	1-3 1-4 2-3 2-4
	2. High school	35	81,15				
	3. Untergraduate	27	105,09				
	4. Post Graduate	33	129,46				
Finance Management	1. Grade School	91	72,71	3	18,097	0,000**	1-4 2-3 2-4
	2. High school	35	80,76				
	3. Untergraduate	27	104,85				
	4. Post Graduate	33	137,04				
Social Security Management	1. Grade School	91	68,75	3	12,423	0,006*	1-3 1-4 2-3 2-4
	2. High school	35	84,45				
	3. Untergraduate	27	103,02				
	4. Post Graduate	33	127,00				
Total	1. Grade School	91	61,71	3	25,663	0,000**	1-3 1-4 2-3 2-4
	2. High school	35	78,91				
	3.Untergraduate	27	108,71				
	4. Post Graduate	33	138,92				

Table 5. As seen in the above, athletes, with the overall "Risk Assessment Scale" ($\chi 2$ (3) = 25,663, p<0,001), health management (p2 (3) = 16,227, p<0,01), facility management (,2 (3)=14,913, p<0,01) financial management (,2 (3) = 18,097,p<0,001) and social security management ($\chi 2(3)$= 12,423, p<0,01) and between points obtained from their sub-factors difference were detected according to education.

Table 6. The Results of the Kruskal-Wallis H Test to Determine Whether the Points Obtained from the Risk Assessment Scale Differ According to Perceived Income Status

Factors	Perceived Income Level	N	Mean Rank	Sd	X²	p
Healthcare Management	Lower	63	98,86	2	1,501	0,472
	Middle	74	93,70			
	Upper	49	86,32			
Facility Management	Lower	63	94,67	2	1,076	0,584
	Middle	74	96,90			
	Upper	49	86,86			
Finance Management	Lower	63	93,71	2	0,696	0,706
	Middle	74	96,68			
	Upper	49	88,43			
Social Security Management	Lower	63	91,72	2	0,112	0,945
	Middle	74	94,06			
	Upper	49	94,94			
Total	Lower	63	95,97	2	0,755	0,686
	Middle	74	95,18			
	Upper	49	87,80			

Table 6. As seen in the above, athletes, with the overall "Risk Assessment Scale" ($\chi 2(2)$=0,755, p>0,05) and health management ($\chi 2(2)$=1,501, p>0,05), facility management ($\chi 2(2)$=1,076, p>0,05), financial management ($\chi 2(2)$=0,696, p>0,05), and social security management ($\chi 2(2)$= 0,112, p>0,05), and between points obtained from their sub-factors big difference were not detected according to perceived income status.

Table 7. The Results of The Kruskal-Wallis H Test to Determine Whether the Points Obtained from the Risk Assessment Scale Differ According to Sport Experience

Factors	Sport Experience	N	Mean Rank	Sd	X²	p	Difference
Healthcare Management	1. 1-5 years	20	82,95	4	15,304	0,004**	1-4
	2. 6-10 years	63	80,80				2-4
	3. 11-15 years	42	85,96				2-5
	4. 16-21 years	33	118,09				3-4
	521 years and older	28	111,93				3-5
Facility Management	1. 1-5 years	20	90,38	4	18,402	0,001**	1-4
	2. 6-10 years	63	77,55				2-4
	3. 11-15 years	42	87,05				2-5
	4. 16-21 years	33	124,39				3-4
	5. 21 years and older	28	104,89				
Finance Management	1. 1-5 years	20	76,13	4	16,357	0,003**	1-4
	2. 6-10 years	63	76,25				1-5
	3. 11-15 years	42	102,27				2-3
	4. 16-21 years	33	113,85				2-4
	5. 21 years and older	28	107,57				2-5
Social Security Management	1. 1-5 years	20	81,68	4	10,843	0,028*	2-4
	2. 6-10 years	63	79,05				2-5
	3. 11-15 years	42	99,07				
	4. 16-21 years	33	110,61				
	5. 21 years and older	28	105,95				
Total	1. 1-5 years	20	78,05	4	24,690	0,000***	1-4
	2. 6-10 years	63	74,84				1-5
	3. 11-15 years	42	91,25				2-4
	4. 16-21 years	33	126,59				2-5
	5. 21 years and older	28	110,89				3-4

Table 7. As seen in the above, athletes, with the overall "Risk Assessment Scale" (χ2(4)=24,690, p<0,001), health management (χ2(4)=15,304, p<0,01), facility management (χ2(4)=18,402, p<0,01), financial management (χ2(4)=16,357, p<0,01) , and social security management (χ2(4)= 10,843, p<0,05) and between points obtained from their sub-factors difference were detected according to education.

Table 8. The Results of The Kruskal-Wallis H Test to Determine Whether the Points Obtained from the Risk Assessment Scale Differ According to Taking Place in the National Team

Factors	Taking part in the National Team	n	Mean Rank	Line Total	U	P
Healthcare Management	Yes	70	117,58	8230,50	2374,50	0,000*
	No	116	78,97	9160,50		
Facility Management	Yes	70	111,37	7796,00	2809,00	0,000*
	No	116	82,72	9595,00		
Finance Management	Yes	70	115,91	8113,50	2491,50	0,000*
	No	116	79,98	9277,50		
Social Security Management	Yes	70	115,71	8099,50	2505,50	0,000*
	No	116	80,10	9291,50		
Total	Yes	70	121,82	8527,50	2077,50	0,000*
	No	116	76,41	8863,50		

Table 8. As seen in the above, athletes, with the overall "Risk Assessment Scale" (U= 2077,50, p<0,001) health management (U= 2374,50, p<0,001), facility management (U=2809,00, p<0,001), financial management (U=2491,50, p<0,001) and social security management (U= 2505,50, p<0,001) and between points obtained from their sub-factors difference were detected according to taking place in the National Team.

DISCUSSION & CONCLUSION

In this study, the risk assessment levels of elite table tennis athletes were examined in terms of gender, age, educational status, marital status, perceived income level, sporting experience and taking part in the national team, and the following results were obtained.

When the findings related to the risk assessment levels of the participants were evaluated according to the gender variable (Table 3.2.), the risk assessment levels of the participants in their sub-factors were detected difference according to the gender (p<0.01, p<0.001). Considering the average of the scores obtained from the risk assessment scale of the participants, the risk assessment levels of the female athletes were found to be higher than the male athletes. This result is consistent with the results obtained in the studies conducted by (40, 28 and 36). In these studies, it is revealed that women perceive the risk more than men. In addition, it is emphasized that women pay more attention to risk taking than men (35) and women are more likely to focus on the negative aspects of risky situations than males (10). Although there are studies showing that women have a higher level of risk assessment compared to men, there are studies suggesting that there is no difference between the risk assessment levels of women and men. For example; (29) in his research on the handball athletes engaged in the sports, the level of risk assessment of athletes showed no significant difference according to the gender variable. Similarly, (11) found no significant difference between gender and risk preferences in his research on the perception of risks in outdoor sports.

According to Schrader and Wann (1999), most of the studies have shown that men are likely to participate in high-risk activities and that most of the risk recipients are young and middle-class (12). In their study, (30) found that women and men do not have different risk levels. (37) did not detect any difference between risk assessments of boys and girls. (32), in their study on handballers, volleyball players, athletes and taekwondo determined that women's volleyball players have a high level of risk taking. It is accepted that women's and men's risk perceptions are different. Women and men are exposed to different risks in their lives, they perceive risks differently and find themselves in risks in different ways. It is noteworthy that men perceive

lower risk than women. This is mainly due to biological and social factors (42).

When the findings about the risk assessment levels of the participants were analyzed (Table 3.3.), It was found that the risk assessment levels of the participants did not show a significant difference according to the age variable in the overall scale and sub-factors of the scale ($p> 0.05$). When the researches in the related field writings are examined, it is seen that there are more researches suggesting that there is no significant difference between the level of risk assessment of athletes and age variables. (29), research in the handball branch and (20) in the study of volleyball players engaged in the volleyball branch of the risk assessment level showed that there is no significant difference according to the age variable. (28) found that there was no significant difference between the risk perception of basketball players and age variables in basketball players playing in league. (19)found that there was no significant difference between of the managers and expert the risk factors and the level of evaluation according to age variables. On the other hand, (8) found that there was a significant difference between the risk assessment levels of the athletes according to the age variable in examining the risk assessment levels of the top players. According to (9), inexperience is an important risk factor for young athletes. These age groups are not afraid to take risks without thinking about their future life. Especially with the dynamism of the youth, inexperienced athletes risk themselves without realizing it in training or competition. This risk may occasionally lead to injury to them or their friends. In addition, inexperienced behavior may lead to unnecessary energy consumption and poor performance. This puts the team's overall performance at risk.

When the findings related to the risk assessment levels of the participants were taken into consideration according to the educational status variable (Table 3.5.), It was determined that the risk assessment levels of the participants differed significantly according to the educational status variable in the overall scale and sub-factors ($p<0.01$, $p<0.001$). When the average of the scores of the participants from the risk assessment scale was taken into consideration, it was seen that the athletes with undergraduate and graduate education level had a higher risk assessment level compared to the athletes with secondary and high school education level. This result is in the same direction with some studies in the related field and it is in contrast with some studies. (8) found that the level of risk assessment of top athletes differed significantly different according to educational variable. (28) found a significant difference between the risk perceptions of the athletes dealing with the basketball branch according to the educational status variable. On the other hand, Karatas (2012) found in another study that the risk assessment levels of handball athletes did not differ significantly different according to the age variable. Similarly, (34, 21,3) suggested a negative relationship between education level and risk perception.

When the findings related to the risk assessment levels of the participants were examined according to the marital status variable (Table 3.4.), it was determined that the risk assessment levels of the participants did not show a significant difference in the overall scale and sub-factors of the scale compared to the marital status variable ($p> 0.05$). In the related field writings, there is no significant difference between the risk assessment levels of the athletes and marital status variables in (29, 28, 9). In these studies, it was found that whether the athlete was single or married had no effect on the level of risk assessment.

When the findings about the risk assessment levels of the participants were analyzed according to the perceived income level variable (Table 3.6.), it was determined that the risk assessment levels of the participants did not show a significant difference according to the perceived income level variable in the overall scale and sub-factors of the scale ($p>0.05$).

When the findings related to the risk assessment levels of the participants according to the duration of sports experience (Table 3.7.), It was found that the risk assessment levels of the participants showed a significant difference according to the sport experience variable in the overall scale and sub-factors of the scale ($p<0.05$, $p<0.01$, $p<0.001$).). When the average score of the participants from the risk assessment scale was taken into consideration, it was determined that the athletes with higher sports experience had higher risk assessment levels. In the related writings, it was seen that the researches which examined the relationship between the risk assessment levels of the athletes and the sport experience variable showed different results. For example; (28) found a significant difference between basketball players' risk perceptions according to the sport experience

variable. Similarly, (8) suggested that the level of risk assessment of top players differed according to the variable sport experience. (40) found that there was a significant difference between the level of risk assessment of the archers engaged in archery sports according to archery experience. On the other hand, (29) determined that there is no significant difference between the risk assessment levels of handball athletes according to sports experience variable. In the study conducted by (20), it was revealed that volleyball players' risk assessment levels did not differ significantly according to the sport experience variable.

When the findings related to the risk assessment levels of the participants were examined according to the taking part in the national team (Table 3.8.), It was determined that the risk assessment levels of the participants showed a significant difference according to the national team participation variable in the overall scale and the sub-factors ($p < 0.001$). This result is consistent with the results of the study conducted by (40) in order to examine the perceived risk level of athletes in archery branch. In the study, it was determined that there was a significant difference between the perceived risk levels of archery athletes according to taking part in the national team.

As a result of the study, it was concluded that gender, education level, spor experience and taking place in the national team were effective on the risk assessment levels of elite table tennis athletes. Elite table tennis athletes may face risk factors arising from a variety of reasons within the active sports lives. The extent to which the athletes are affected by the risk factors they face, and to what extent they consider them risky is seen as extremely important in terms of their success in sports. For this reason, in the light of the findings obtained from the results of this research, in which the risk assessment of elite table tennis athletes were examined, some suggestions were made below.

- Units related to risk assessment and management can be established at the relevant sports clubs, especially in sports federations.

- Coordination committees for cooperation in the area of risk assessment

and management between relevant institutions may be formed from specialized academics.

- Inexperienced athletes take more risks than experienced athletes and become impatient. For this, long-term training and hard work should be increased patience and experience.

- When it is not the right technique, unnecessary energy is consumed and lost. Table tennis should be taught with the right technique.

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Effects of Curcumin on Hematological Parameters in Aflatoxin B1 Applied Rats

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Abstract

In this study, it is aimed to determine the possible effects of curcumin on hematological parameters in aflatoxin applied rats. Thirty eight healthy male Wistar Albino rats were used in the study. Group I animals was no applied. Animals in Group II were orally given 1 ml 10% DMSO daily for 60 days. Animals in Group III were orally given 300 mg/kg curcumin dissolved in 10% DMSO daily for 60 days. Animals in Group IV were orally given 250 µg/kg aflatoxin B1 dissolved in 10% DMSO daily for 60 days. Animals in Group V was orally given 250 µg/kg aflatoxin B1 dissolved in 10% DMSO and 300 mg/kg curcumin dissolved in 10% DMSO daily for 60 days. At the end of the study, erythrocyte count, leukocyte count, platelet count, hemoglobin amount, hematocrit value, percentage ratios of leukocyte types, mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH), mean corpuscular hemoglobin concentration (MCHC) were determined in blood samples taken from all animals. In the study, erythrocytes count, hemoglobin concentration, hematocrit value and MCHC level in the aflatoxin applied rats significantly decreased compared to the control group ($p<0.05$). MCV level in the aflatoxin applied rats was found significantly higher compared to the control group ($p<0.05$). In the group in which aflatoxin and curcumin were administered together, erythrocytes count, hemoglobin concentration, hematocrit value and MCHC levels were found to be significantly higher compared to the group administered only aflatoxin ($p<0.05$). In the study, the leukocyte count significantly decreased in the aflatoxin group compared to the control group ($p<0.05$). Granulocyte and monocyte percentage significantly increased depend on aflatoxin application ($p<0.05$). In the group in which aflatoxin and curcumin were administered together, the leukocyte count significantly increased compared to the aflatoxin group ($p<0.05$). We concluded that curcumin may alleviate the abnormalities in hematological parameters resulting from aflatoxicosis.

Key words: Aflatoxin, Curcumin, Hematological Parameters, Rats

INTRODUCTION

In parallel with the economic developments of the countries, the demands of the societies for meat, milk and other animal products are increasing in order to get the necessary protein and essential minerals with nutrients (12). There are different environments and contaminations in which foodstuffs are exposed in many stages from the field and industrial production to consumption. Depending on any of these stages, the presence of mycotoxins in foodstuffs remains one of the most important obstacles to the developing food sector (19). Although there are many mycotoxins in the world, aflatoxins are the most common seen mycotoxins. Aflatoxin B1 is a secondary metabolite with hepatotoxic properties produced by Aspergillus species such as Aspergillus flavus, Aspergillus nomius and Aspergillus parasiticus. These cause contamination during the production and processing of foods and feeds (32). Recent studies have shown that humans and livestock are sensitive to aflatoxins and that aflatoxins have acute toxicity, mutagenicity and carcinogenic effects (16). Mycotoxins cause hepatotoxicity, nephrotoxicity, hepatocarcinogenicity in humans and animals due to their various negative effects (15). It is reported that the damage of tissues and cells due to aflatoxin intoxication especially causes the decrease in protein synthesis in the liver and intestines (7, 26). As a

result of aflatoxin B1 damaging hematopoietic organs, it is reported that it causes negative changes especially in erythrocyte counts and hemograms (33), as well as it reduced the levels of parameters such as hemoglobin and hematocrit value (7, 26). It is suggested that the decrease in erythrocyte counts indicates inhibition of protein synthesis (24, 26, 42). It is reported that stress caused by aflatoxin on liver and kidney tissue decreases the total erythrocyte count, which is the result of decreased erythropoietin activity depending on aflatoxin B1 (30, 36).

Curcumin(1,7-bis(4-hydroxy-3methoxyphenyl)-1,6-hepadien-3,5-dion) is a herbal phenolic compound that is abundant in the roots of the Curcuma Longa plant. It is used as a coloring and spice in foods. It is among the notifications that curcumin can prevent oxidative stress occurring in erythrocyte membranes and can reverse the negative effects of oxidative stress on plasma proteins (22, 43). Curcumin has been reported to have positive effects on mycotoxins-induced cell damage, free radical release and lipid peroxidation (11, 25).

Based on the above information, this study is planned to determine the possible effects of curcumin on hematological parameters in rats administered aflatoxin.

MATERIALS AND METHODS

Thirty eight healthy male Wistar Albino rats (2 weeks old) were used in the study. In the study, suitable living conditions (heat, humidity and light) were provided for the rats. The animals were divided into five groups and fed for 60 days with standard rat food as ad libitum. This study protocol was approved by Selçuk University Experimental Medicine Research and Application Center Ethics Committee (Report no. 2018-26).

Group I (K) (n=6): Nothing was applied.

Group II (DMSO) (n=6): The animals were orally given 1 ml 10% DMSO daily for 60 days.

Group III (Cur) (n=6): The animals were orally given 300 mg/kg curcumin (Sigma Aldrich, St. Louis, MO, USA) dissolved in 10% DMSO daily for 60 days.

Group IV (AFB1) (n=10): The animals were orally given 250 μg/kg aflatoxin (Acros Organics, Geel, Belgium) B1 dissolved in 10% DMSO daily for 60 days.

Group V (AFB1+Cur) (n=10): The animals was orally given 250 μg/kg aflatoxin B1 dissolved in 10% DMSO and 300 mg/kg curcumin dissolved in 10% DMSO daily for 60 days (21, 31).

In the study, blood was taken from animals in all groups at the end of 60 days. In these blood samples, erythrocyte count, leukocyte count, platelet count, hemoglobin amount, hematocrit value, percentage ratios of leukocyte types, mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH), mean corpuscular hemoglobin concentration (MCHC) were determined. Erythrocyte count, leukocyte count, platelet count, hemoglobin amount, hematocrit value, percentage ratios of leukocyte types, MCV, MCH and MCHC levels were measured by the impedance method in the Abbott Cell Dyn 1800 autoanalyser.

The data obtained from the study were analyzed by one-way ANOVA (SPSS 19). Differences among the groups were determined by Duncan's multiple range test. Differences were considered significant at $p<0.05$.

RESULTS

In the study, the effects of curcumin application in rats treated with aflatoxins on erythrocyte count, hemoglobin, hematocrit, MCV, MCH and MCHC levels are given in Table 1 and its effects on leukocyte count, granulocyte, lymphocyte, monocyte and platelet levels are given in Table 2.

Table 1. The effects of curcumin on erythrocyte count, hemoglobin, hematocrit, MCV, MCH and MCHC levels in aflatoxin-applied rats (Mean±SE).

	Erythrocyte count ($x\ 10^6/mm^3$)	Hemoglobin (g/dl)	Hematocrit (%)	MCV (μm^3)	MCH (pg)	MCHC (%)
Group I	7.25±0.14^{a}	13.23±0.42^{ab}	38.12±0.60^{a}	52.58±0.84^{b}	18.27±0.53	34.72±0.55^{a}
Group II	7.21±0.44^{a}	13.18±0.29^{ab}	38.37±0.77^{a}	53.22±2.22^{ab}	18.28±0.66	34.35±1.04^{a}
Group III	7.39±0.47^{a}	13.55±0.38^{a}	38.93±0.69^{a}	52.68±2.55^{b}	18.33±1.01	34.82±0.79^{a}
Group IV	5.32±0.40^{b}	9.43±0.60^{c}	31.28±0.43^{c}	58.80±1.54^{a}	17.73±0.60	30.15±0.71^{b}
Group V	6.57±0.33^{a}	11.79±0.41^{b}	35.56±0.89^{b}	54.12±1.87^{ab}	17.95±0.56	33.16±0.85^{a}

$^{a-c}$ The difference between mean values with different superscripts in the same column is significant at the $p<0.05$ level.

Table 2. The effects of curcumin on leukocyte count, granulocyte, lymphocyte, monocyte and platelet levels in aflatoxin-applied rats (Mean±SE).

	Leukocyte count ($x\ 10^3/mm^3$)	Granulocyte (%)	Lymphocyte (%)	Monocyte (%)	Platelet (K/µl)
Group I	10.44±0.66^{a}	16.62±0.76^{bc}	79.52±2.54	2.87±0.23^{b}	628.33±42.34
Group II	10.63±0.90^{a}	16.55±0.66^{bc}	79.30±1.56	4.15±0.34^{a}	638.67±29.57
Group III	10.38±0.63^{a}	15.23±0.45^{c}	81.15±1.73	3.62±0.41^{ab}	634.17±41.70
Group IV	6.07±0.69^{c}	18.97±0.67^{a}	76.62±0.74	4.41±0.30^{a}	581.50±36.39
Group V	8.24±0.58^{b}	18.43±0.55^{ab}	77.63±1.44	3.94±0.25^{a}	597.80±35.51

$^{a-c}$ The difference between mean values with different superscripts in the same column is significant at the $p<0.05$ level.

DISCUSSION

In the study, erythrocyte count, hemoglobin concentration and hematocrit value from hematologic parameters of the rats administered aflatoxin for 60 days showed a significant decrease compared to the control group ($p<0.05$, Table 1). While MCV level, which is one of the erythrocyte indices, was found to be significantly higher with aflatoxin application compared to the control group ($p<0.05$, Table 1), the MCHC level was significantly lower than control group ($p<0.05$, Table 1). In the study, it was determined that erythrocyte count, hemoglobin concentration and hematocrit value in the group which aflatoxin and curcumin were administered together with the same duration were significantly higher compared to the group that only aflatoxin was applied ($p<0.05$, Table 1). With the application of curcumin together with aflatoxin, the change in the level of MCHC from erythrocyte indices was significant compared with aflatoxin group ($p<0.05$, Table 1). A marked decrease in the MCV level with the application of curcumin together with aflatoxin was observed, but this decreament was not impotant. There was no significant difference among the groups in terms of MCH level.

The hematopoietic system acts as a mirror that reflects changes occurring the body depending on exposure to chemicals, toxic agents and drugs in humans and animals (2, 44). Aflatoxins have harmful effects in terms of many tissues and organs, especially liver, kidneys and hematopoietic system, in humans and animals (30, 36). In the study, negative changes in erythrocyte count, hemoglobin and hematocrit value related to aflatoxicosis can be attributed to many factors. These include the fact that aflatoxin B1 directly affects erythropoiesis in the bone marrow and decreases the production of erythrocytes, as well as the rapid destruction in erythrocytes produced by spleen and released from there into the circulation (30, 36). The significant decrease in hemoglobin level depending on aflatoxicosis observed in the study appears to reflect macrocytic hypochromic anemia. The reason for the decrease in hemoglobin level can be attributed to decrease in erythrocyte count and impairing of heme biosynthesis in the bone marrow (30, 36). On the other hand, it is suggested that aflatoxin B1 may cause hemolytic anemia depending on hemopoietic cellular defects, which may contribute to negative changes in erythrocyte count and hemoglonin level (2, 5, 40). It is suggested that another factor which causes negative changes in hematological parameters may be down-regulation of erythropoietin activity depending on the stress caused by aflatoxin in kidneys (30, 36). It is also reported that aflatoxins reduce serum total iron binding capacity and cause protein synthesis inhibition and low serum albumin level (1, 20, 23).

There are several reasons for the decrease in hemoglobin level depending on aflatoxicosis, such as aflatoxin B1 increases the autooxidation rate of oxyhemoglobin and shortens cell life time with negatively affecting ATP energy support and sugar transfer as a result of aflatoxin B1 binding to cell membrane proteins (6, 8, 14). The decrease in erythrocyte count and hematocrit value is attributed to hemolysis caused by lipid peroxidation of plasma membrane due to aflatoxin B1 (29).

Curcumin, a yellow substance obtained from the roots of the Curcuma longa plant, is a crystalline compound. Since it has many biological activities, it is claimed that curcumin is used as a hepatoprotective based on its antioxidant and anti-inflammatory properties, and it is also useful in various types of cancer (3, 17, 39). In the study, positive changes in erythrocyte count, hemoglobin amount and hematocrit value as a result of curcumin application together with aflatoxin support the reports that curcumin minimizes the negative changes occurring hemogram. It is stated that curcumin increases erythropoiesis, supports cell membrane stabilization and prevents cellular damage caused by reactive oxygen species, thereby restoring the amount of blood (2, 10, 35). It is reported that curcuminoids extracted from turmeric are a natural absorbent, can absorb toxins through polar ends, besides detoxifying epoxides, inducing drug metabolizing enzymes such as glutathione-S-transferase and they increase their detoxifying properties against toxins (18, 29, 37, 38). It is stated that these properties reflect positive effects of curcumin on changes in blood parameters related to aflatoxin (29). In this study, positive findings related to curcumin can be attributed to the above mentioned features of curcumin.

In the study, the leukocyte count, which is one of the hematological parameters, significantly decreased in aflatoxin B1 applicated rats compared to the control group ($p<0.05$, Table 2). When leukocyte fractions were examined, it was determined that while the percentage of granulocytes significantly increased depending on aflatoxin application ($p<0.05$, Table 2), the percentage of monocyte from mononuclear leukocytes significantly increased ($p<0.05$, Table 2) and the change in the percentage of lymphocyte was not significant. In terms of the number of platelets determined in the study, there was no significant difference between the groups depending on aflatoxin application. In the study, while the leukocyte count of group with curcumin application together with aflatoxin was significantly increased compared to the aflatoxin group ($p<0.05$, Table 2), it was still significantly lower than the control group ($p<0.05$, Table 2). In the study, the changes determined in the percentages of granulocytes and monocyte of group with curcumin application together with aflatoxin were not statistically significant compared to the aflatoxin group.

In the study, the significant decrease in the leukocyte count in the aflatoxin group compared to the control group ($p<0.05$, Table 2) is evaluated as a reflection of the immunosuppressive effect caused by aflatoxin B1 (27, 28, 34, 36). The decrease in total leukocyte count depending on aflatoxin is in agreement with the findings of various researchers (2, 8). In the study, the reason of high granulocyte percentage determined in aflatoxin group may be the result of lymphopenia, as well as may be an indicator of the persistence of aflatoxin B1 related inflammation (13). The significant increase in the amount of monocytes can also be considered as a reflection of the inflammatory condition caused by aflatoxin in various organs and tissues. The decrease in the total leukocyte count may be the result of various factors such as impaired immunogenesis, decreased phagocytic activity, thymus aplasia, suppression of cell-mediated immunity and suppression in leukocyte migration, besides general suppression caused by aflatoxin B1 in the hemopoietic system (4, 28, 36). The fact that curcumin application has reducing effect negative results caused by aflatoxin B1 on the hematopoietic system supports that herbal products contains antioxidative and anti-inflammatory agents. Enhancing effect on total leukocyte count of Curcuma Longa extract and curcumin shows that curcumin has immunostimulatory activity (9, 36). On the other hand, it is suggested that curcumin as an anti-inflammatory agent can disrupt the interaction between circulating cells and endothelium, thereby improving the survival time of leukocytes (3, 41).

CONCLUSION

The results we obtained in the study are considered important in terms of revealing that the administration of curcumin together with aflatoxin for 60 days alleviated the negative changes in hematological parameters related to aflatoxicosis.

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Public Perception of Massage Therapy

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Abstract

Massage therapy, as a service, is susceptible to churn for its misconceived efficiency and practice. However, therapists and massage businesses could frame messages that highlight, for instance, their service proficiency or price promotions on the public's perception of massage to overcome such misconception. We tested this prediction in two studies. In study 1 (n = 1,925), we distinguished four groups of individuals by their massage perception (positive, negative) and whether they had ever received a massage (yes, no). In study 2 (n = 1,209), we observed the four types of people that study 1 determined to compare the influences of a service expert and discount on their perceptions of massage therapy in a 2 (therapist: expert, nonexpert) x 2 (discount: yes, no) Solomon four-group experiment. There is evidence that positive perception is prone to service expert among those who had received a massage before. Those who experienced massage service for the first time, however, were prone to a bargain. Despite their lack of practical experience, these results imply that inexperienced and emerging therapists (e.g., students on practicum, interns) could help a massage business create customers when their imperfect services are bundled with an economic incentive. An expert therapist could, then, convert the initially discount-prone receivers of massage into quality-prone repeating customers and justify a price premium.

Keywords: Complementary and alternative treatments, Massage therapy, Public perception, Solomon four-group, New Zealand.

INTRODUCTION

Who would not enjoy a massage after a tiring workday? Anecdotal evidence indicates many would, but empirical evidence from studies with Western samples suggests otherwise due to the belief that the efficiency of complementary and alternative treatments, such as massage, are hardly comparable to modern medicine (1). The misperception created by, for example, media coverage about therapists accused of sexual harassment (2) and movies associating massage with sex industry (3) could also be among the reasons that might restrain one from receiving a massage service. Notwithstanding the threat that such factors could establish a negative public perception of the entire profession besides the individual therapist, perceptual studies on massage have been rare. There are, in comparison, reams of medical research examining massage as a supportive (4–6) and integrative treatment (7–9) for pain management or reduction. Although there have been calls for research on the public perception of massage (10), responding attempts have mostly employed samples comprised of professionals [e.g., massage therapists (11)], general practitioners (12, 13), nurses (14), faculty members (15) and medical students (16). It seems, therefore, that scholarly works have partially fulfilled this void.

In most Eastern countries, massage is a popular complementary and alternative treatment method, and governments entirely regulate massage therapy (e.g., in China, India, Thailand). In comparison, only a few Western counties regulate massage services (e.g., Germany) while many do not (e.g., the UK, New Zealand). It seems interesting; therefore, that massage therapy has gained popularity among the Western consumer to become an industry in, for example, New Zealand (17) despite the afore-mentioned demerits and lack of government regulation. The inclusion of body massage as a

basket item in the New Zealand Consumer Price Index computations in 2017 (18) instances a recent incident as an illustration. Amid the controversy that massage therapy receives negative publicity (2) and is unregulated in the country, but increasing demand has lately grown it as an industry, the indication is that the perceptions of massage therapy among the members of the New Zealand public could be unenduring, varied, and even fragile.

Accordingly, we conducted a randomised experiment on a large New Zealand sample over 17 months that started in mid-2018. Our attempt for an insight into the public perception of massage could supply a cross-cultural comparison opportunity for the relevant literature. Moreover, the present investigation could assist not just the providers of massage therapy in attracting new and retaining existing customers, but also medical authorities in the creation and maintenance of positive public awareness of complementary and alternative medicine. Next, we present an overview of our studies. The methodological details of and findings from our studies follow. A discussion on the contributions of our work concludes the paper.

MATERIALS AND METHODS

Overview of studies

In the prelim study 1, we surveyed people for their perceptions of massage therapy (positive, negative) and massage experience (yes, no) to group them into four. As seen in table 1, we labelled these groups as satisfied, unsatisfied, prospect, and pessimist based on the indications of the theories conceptualising consumer service perceptions (19) and behavioural decision-making (20). In reasoned conations, perceptions are anterior to behaviour (20), which implies in context, for example, that one's perception that massage therapy is incomparable to contemporary medicine could coerce them into forbearing from receiving it. The succeeding study 2 was a 2 (therapist: expert, nonexpert) x 2 (discount: yes, no) randomised experiment using six Solomon four-group comparisons that involved 13 groups on each of the four subject categories study 1 determined (see Fig. 1). The design's attempt to explain the decision to consume a massage service from the economic perspective was informed of the theory of expected utility (21). In context, the theory suggests that massage consumption could represent a rational choice-making to satisfy a current need (e.g., relaxation) and to facilitate decision-making in future occasions arising from the same need (e.g., by visiting the same therapist instead of seeking alternatives). Consumer decision theories indicate that price is a significant cognitive reference influencing decision-making (22) and consumption behaviour (23). In sum, the indications of this theoretical and empirical evidence sparked two research questions: RQ1 does massage experience cause a change in people's perception of massage therapy? And, whether receiving a massage RQ2(a) from an expert therapist or (b) on discount is more influential on people's massage perception?

Study 1

A 14-item instrument collected data from 2,052 volunteers in intercepts at four shopping centres in Auckland, New Zealand. Three questions discovered involvement with massage and eight items, adapted from Lawler and Cameron (13), operationalised massage perceptions on a 4-point scale (1 = strongly disagree, 4 = strongly agree). The remaining questions explored sample demographics. Survey participants comprised not only visitors and shoppers at the shopping centres but also the customers of a chain business running a massage salon in each mall. The business was participating in the university-industry collaboration programme of multiple New Zealand tertiary institutions, including the authors'. After the exclusion of 127 (6%) incomplete questionnaires remained 1,925 analysable data (56% male; 69% ≥30 years of age). A principal component analysis explored the factorial structure of the 8-item construct. Index scores on massage perception were grouped into two as $1 \leq$ negative perception $\leq 2.49 <$ positive perception ≤ 4 (see table 1).

Table 1. Subject groups in study 1 (with key descriptors)

		Massage experience		
		Yes	No	Total
Massage perception	Positive	**Satisfied**	**Prospect**	956
	Description	*Perceived quality of massage therapy ≥ expectations*	*Heard of massage from '+' content (e.g., word-of-mouth)*	
	Sample composition	*n=692 (36%)* *Female (52%)* *≥30 years of age (74%)* *$M(SD)_{perception}$=3.31 (.56)*	*n=264 (14%)* *Male (60%)* *≥30 years of age (62%)* *$M(SD)_{perception}$=3.17 (.55)*	
	Negative	**Unsatisfied**	**Pessimist**	969
	Description	*Perceived quality of massage therapy < expectations*	*Heard of massage from'–' content*	
	Sample composition	*n=453 (24%)* *Male (61%)* *≥30 years of age (75%)* *$M(SD)_{perception}$=1.70 (.30)*	*n=516 (27%)* *Male (62%)* *≥30 years of age (60%)* *$M(SD)_{perception}$=1.80 (.39)*	
Total		1,145	780	1,925

Notes: The sum of percentages for group sizes exceeds 100% due to rounding. Having received a massage before changed one's perception significantly [F (3, 1921) = 1704.164, p < .001]; the odds of a subject with massage experience to have a positive perception were 3 times higher than those without

Study 2

Sample. We re-invited study 1 subjects, 64% (1,238) volunteered to participate in the experiment. Twenty-nine random exclusions equalised the sizes of massage-receiving groups across the 13 experimental conditions in Fig. 1. Overall, study 2 recruited 1,209 people (see table 2).

Design and Procedures. In the experiment, a pair of Solomon four-group (S) designs measured the effect of a discount on massage perception (S1, S6); another pair explored that of massage provider (S2, S5), and two examined the combined effect of these (S3, S4). This arrangement required comparing few conditions with others. In such occasions, a group's response to a stimulus in an S design was reused in other S designs that exposed subjects to the same stimulus. For instance, as shown in upper Fig. 1, the condition 'expert+no discount' in S1 was compared with three conditions: first 'expert+discount' (in S1), second 'nonexpert+no discount (NoD)' (in S2), and third 'nonexpert+discount' conditions (in S3). Accordingly, S1, S2, and S3 shared groups 2 and 4. As lower Fig. 1 depicts, there were six such groups in the master design; half control (2, 4, and 10), half treatment groups (3, 6, and 8).

Table 2. Subject groups in study 2 (with key descriptors)

		Massage experience		
		Yes	No	Total
Massage perception	Positive	**Satisfied**	**Prospect**	572
	Sample composition	*n=390 (32%)* *Female (57%)* *≥30 years of age (70%)* *$M(SD)_{perception}$=3.07 (.70)*	*n=182 (15%)* *Male (53%)* *≥30 years of age (66%)* *$M(SD)_{perception}$=2.61 (.81)*	
	Negative	**Unsatisfied**	**Pessimist**	637
	Sample composition	*n=286 (24%)* *Male (52%)* *≥30 years of age (61%)* *$M(SD)_{perception}$=1.95 (.60)*	*n=351 (29%)* *Male (54%)* *≥30 years of age (63%)* *$M(SD)_{perception}$=2.15 (.69)*	
Total		676	533	1,209

Notes: Group sizes in the S design are 30, 22, 14, and 27 (x13 groups, see Fig.1) for the satisfied, unsatisfied, prospect, and pessimist, respectively. No significant interaction between the effects of gender and consumer type [F (3, 1917) = .391, p = .719], or that of age (i.e., those <30 vs ≥30 years) and consumer type on massage perception [F (3, 1917) = .289, p = .758]. Perceptions differed by experience [F (3, 1205) = 1088.435, p < .001]; the odds of a subject with massage experience to have a positive perception were 2.63 times higher than those without.

In S1, which controlled for the therapist, group 1 participated twice to experience different conditions: 'expert+NoD' (O1) and 'expert+discount' (O2). Group 2, control with a pre-test, also had two exposures, but both were for the same condition 'expert+NoD' (O3, O4). Group 3 participated once to experience the 'expert+discount' (O5) stimulus. Group 4, control without a pre-test, was exposed to the 'expert+NoD' (O6) condition once.

In S2, where bargain was controlled, group 5 was observed for 'expert+NoD' (O7) and 'nonexpert+NoD' (O8) conditions. Group 6 experienced only the 'nonexpert+NoD' condition (O9). The remaining two were the same control groups as in S1. S3 recruited group 7 once for the 'expert+NoD' (O10) and then for the 'nonexpert+discount' (O11) exposures. Group 8 experienced the 'nonexpert+discount' condition (O12) for once. The two control groups were the same as in S1. In S4, groups 9 and 10 participated twice, the former had dissimilar ['expert+discount' (O13), 'nonexpert+NoD' (O14)] whereas the latter had the same exposures ['expert+discount' (O15, O16)]. The remaining two were the groups 6 (of S2) and 3 (of S1). Controlling for the bargain, S5 employed group 11 two times; first for the 'expert+discount' (O17), second for the 'nonexpert+discount' (O18) conditions. Of the remaining three groups in S5, two were control (10 of S4 and 3 of S1), and the other was the group 6 of S2. Lastly, S6 controlled for the therapist and exposed group 12 to two different conditions ['nonexpert+NoD' (O19), 'nonexpert+discount' (O20)]. Similarly, it recruited group 13 twice, but their repeated exposures were identical ['nonexpert+NoD' (O21, O22)]. The others were the treatment group 8 (of S3) and the control group 6 (of S2).

The experiment was conducted at the four massage salons, where study 1 collected part of its data. Expert therapists were employees (M = 12.5, SD = 3.4 years of experience) holding a massage qualification. Nonexperts were interns studying towards a massage qualification at a New Zealand institution. During massage interventions, all therapists served in their service uniforms, experts (nonexperts) wore their nametags (intern tags). Expert therapists had their qualifications displayed on the premise. A member of the research team administered the perception scale after a consumer's receipt of massage.

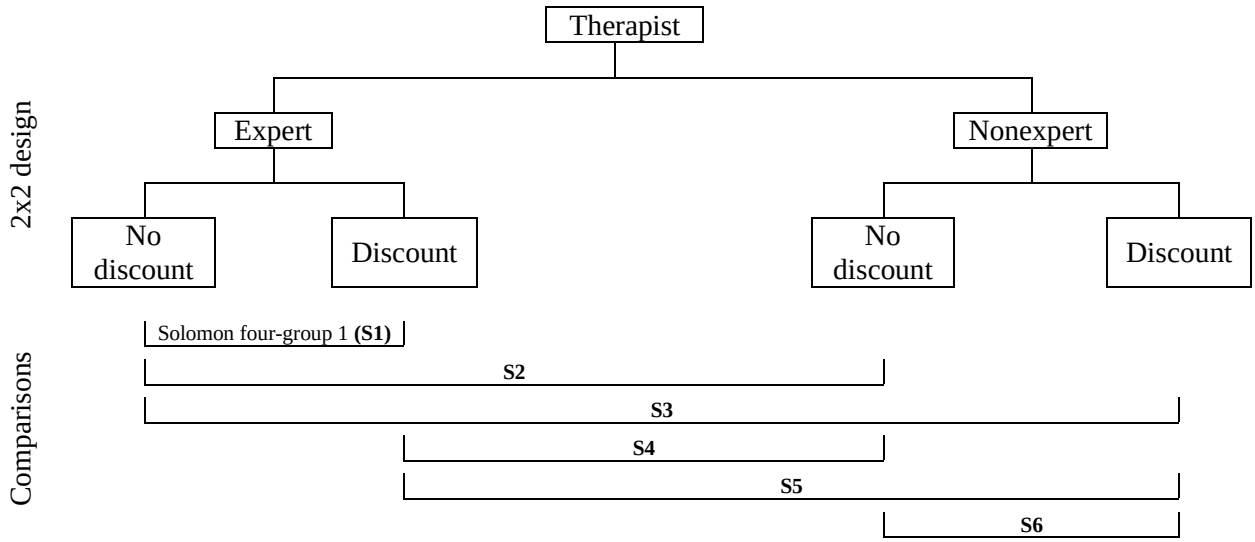
Data Analysis. A 2 (treatment: yes, no) x 2 (pre-test: yes, no) ANOVA on post-test scores in each S checked for pre-testing effect. A pre-testing effect would exist; for instance, in S1 (see Fig. 1), when massage perception in O2 were higher than that in O4, and O5 were higher than O6. A follow-up test computed two Cohen's ds for main-effects using the cell means in each S for a within-group comparison of the pre/post-test outcomes of the first group (e.g., O1/O2 in S1), and a between-groups comparison of the post-test outcomes of the last two groups (e.g., O5 and O6 in S1). All data were analysed using the PAST (Paleontological Statistics) software.

RESULTS

Study 1: Public Perceptions

Participants, who had received a massage in the past 12 months (60% of the sample), reported that the main reason for their visit to a salon was injuries (34%), followed by relaxation (30%), tension or stress (16%), chronic pain (11%), and sprains or strains (9%). Rare consumption (once a month) was typical (51%), only 5% were regularly receiving a massage; the remainder was occasional receivers.

The eight items formed six underlying components; four producing one component that explained 75% of the variance (see appendix A). An index score of this foursome of variables was computed to represent massage perception. Table 1 reports mean perception scores for groups. Massage perception across the sample ranked positive M = 2.51 (SD = .89). Neither the effects of gender and consumer type [$F(3, 1917) = .492$, $p = .608$] nor that of age (i.e., those <30 vs ≥30 years of age) and consumer type returned a significant interaction on perception, $F(3, 1917) = 1.078$, $p = .345$.



Comparisons with Solomon four-group

S1: Controlling therapist (expert)

Group	Pre-test	Treatment	Post-test
(R)1	O_1	X	O_2
(R)2*	O_3		O_4
(R)3*		X	O_5
(R)4*			O_6

S2: Controlling bargain (no discount)

(R)5	O_7	X	O_8
(R)2*	O_3		O_4
(R)6*		X	O_9
(R)4*			O_6

S3: Experiment condition-1

(R)7	O_{10}	X	O_{11}
(R)2*	O_3		O_4
(R)8*		X	O_{12}
(R)4*			O_6

S4: Experiment condition-2

(R)9	O_{13}	X	O_{14}
(R)10*	O_{15}		O_{16}
(R)6*		X	O_9
(R)3*			O_5

S5: Controlling bargain (discount)

(R)11	O_{17}	X	O_{18}
(R)10*	O_{15}		O_{16}
(R)8*		X	O_{12}
(R)3*			O_5

S6: Controlling therapist (nonexpert)

(R)12	O_{19}	X	O_{20}
(R)13	O_{21}		O_{22}
(R)8*		X	O_{12}
(R)6*			O_9

Figure. 1 The experimental design with Solomon four-group comparisons in study 2

(Notes. The illustrated design was used on each of the four subject categories study 1 determined. Abbreviations: R = randomisation, O = outcome measure (perception of massage), X = treatment.)

(* Group reused in repeating conditions.)

Study 2: Trade-off of Expert Therapist and Discount on Massage Perception

Manipulation Checks. One-way ANOVA on the perception scores of the pre-test groups (i.e., O1, O3, O7, O10, O13, O15, O17, O19, and O21 in Fig. 1) revealed that the random assignment of subjects was ideal [F (8, 261) Satisfied = .682, p = .707; F (8, 189) Unsatisfied = 1.981, p = .053; F (8, 117) Prospect = .268, p = .976; and F (8, 234) Pessimist = 1.468, p = .171]. Treatments were free from pre-testing effect except for the pessimists in S4, where the experiment tested a combined effect of therapist and discount (see appendix B).

The Satisfied. Neither in S1 nor S6 where therapist was controlled for expert and nonexpert (intern), respectively, a discount affected perceptions, t (29) Expert = .31, p = .378; t (29) Intern = .13, p = .449. When massage was on discount (in S2 and S5), an expert massage returned significantly higher scores on perceptions [M (SD) S2 = 3.26 (.55); M (SD) S5 = 3.31 (.54)] than an intern's [M (SD) S2 = 2.83 (.76); M (SD) S5 = 2.86 (.73); t (29) S2 = –2.40, p =

.010, d = .64; t (29) S5 = –2.61, p = .006, d = .70. Results for the combined effect of therapist and bargain in S3 and S4 showed that a discounted massage by an intern did not improve perceptions (M = 2.86, SD = .73) whereas an expert massage at regular price did (M = 3.26, SD = .55), t (29) S3 = –2.34, p = .011, d = .62. A price reduction boosted perceptions when massage was performed by an expert therapist [M (SD) Expert = 3.31 (.54) vs M (SD) Intern = 2.83 (.76)], t (29) S4 = –2.66, p = .005, d = .71. Overall, a discount was ineffective in strengthening massage perceptions among the satisfied unless an expert therapist delivered the service.

The Unsatisfied. A discount did not change perceptions when therapist was controlled [t (21) Expert = –1.21, p = .117 in S1; and t (21) Intern =.29, p = .385 in S6], however, the therapist did when discount was. Under no-discount condition (in S2), subjects served by an expert returned higher perception scores (M = 2.18, SD = .69) compared to those served by an intern (M = 1.54, SD = .48), t (21) S2 = –3.07, p = .002, d = 1.09. When discount was present (in S5), therapists caused no difference in perceptions, t (21) S5 = –1.33, p = .098. A combined effect of these variables was significant; a discount elevated perceptions when subjects received massage from an expert (M = 2.81, SD = .69), but not from an intern therapist (M = 1.59, SD = .48; t (21) S3 = –2.82, p = .004, d = 1.00. Conversely, perceptions were indifferent between the group receiving a discounted massage from an intern and that receiving a regularly priced service from an expert, t (21) S4 = –1.56, p = .066. In sum, neither a massage by an inexperienced therapist nor a discount was as effective in recovering negative perceptions as an expert service was. However, when used in tandem to promote service expertise, a discount tempered non-positive massage perceptions.

The Prospect. When therapist was controlled for expertise, a discount did not cause a change in perceptions, t (13) S1 = 1.54, p = .064, but it did when intern therapist was controlled, t (13) S6 = 2.16, p = .018, d = .59. In neither of the conditions that controlled for discount the therapist had an effect on perceptions [t (13) S2 = –.36, p = .358; t (13) S5 = –.02, p = .492]. Conditions testing the tandem effect of therapist and discount returned significant results for the service on promotion, regardless of the therapist, t (13) S3: Intern + discount = 1.73, p = .045, d = .46 and t (13) S4: Expert + discount = –1.88, p = .033, d = .50.

The Pessimist. Both expert (M S1: Discount = 2.38, SD = .77 vs. M S1: No discount = 1.88, SD = .70) and intern therapists (M S6: Discount = 2.39, SD = .88 vs. M S6: No discount = 1.92, SD = .59) improved the negative perceptions of this group when their services were on discount [t (26) S1 = 2.59, p = .006, d = .69; t (26) S6 = 2.18, p = .017, d = .63]. When discount was controlled, perceptions remained analogous between the groups served by an expert and an intern, irrespective of pricing [t (26) S2: No discount = .26, p = .404; t (26) S5: Discount = .05, p = .478]. Test results for the combined effect of therapist and discount showed that perceptions improved regardless of the massage provider, unless massage was not charged regularly, t (26) S3 = 2.52, p = .007, d = .65 and t (26) S4 = –2.30, p = .013, d = .67.

DISCUSSION AND CONCLUSION

In this study, we first explored public perceptions of massage therapy, then analysed service expert and discount bases in a randomised experiment to assess their impact on that perception. We found evidence in support of the theoretical and empirical indications that past massage experience can determine present/future massage perceptions (19, 23). We also found that not only the therapist's proficiency but also a discount could recuperate pre-existing negative perceptions and strengthen positive ones. Our results suggest that inexperienced recruits who are emerging in the profession (e.g., student interns) could help a massage business create customers when price promotions are bundled with their poor service. Additionally, massage provided by an expert therapist might convert the initial discount-proneness of new customers into quality-proneness in time, and justify a price premium on repeating customers.

Contributions our study makes at a theoretical level are twofold. To our knowledge, the present study is the first randomised experiment to explore public perceptions of massage using the Solomon four-group design. With its two treatment and two control groups, each containing a pre-test, this design provides immunity to threats on validity in repeated measures (24, 25). Secondly, our study 1 divided its subjects into four by their massage perception (+, –) and experience (yes, no). This allowed not only a closer look at perceptions within different consumer groups in study 2 but also meaningful implications for the massage industry.

Our findings suggest that the perception of people with prior massage experience are sensitive to expertise; when served by an expert therapist, their positive/negative perceptions could improve/revert. Positive/negative perception-holding individuals were in/sensitive to a discount. This implies that a value-based marketing campaign highlighting service quality (e.g., professional achievement of therapists) could justify a premium-pricing strategy for niche markets. Differentiated pricing that offers budget incentives on expert services to less happy customers from both within (e.g., complaint issuers) and outside business accounts (e.g., those that competition fails to satisfy) could help broaden the base of customers with positive perceptions. For the achievement of this, active communication channels for market intelligence is necessary (e.g., satisfaction surveys). It could also be worthwhile to consider adding value to market offerings, for example, by expanding customer gain at experiential level (i.e., receiving a massage) to an intellectual level through informational or practical guidance to consumer wellbeing (e.g., short videos, printable leaflets on company website/social media).

We also found that individuals who have never received a massage before are prone to discounts; thus, could be regarded as opportunity-seeking trial-runners. Among such consumer group, we found that even a therapist on training could improve the perceptions of those who already have a positive perception. These results suggest that a recruit could turn prospects into satisfied customers when their service is bundled with a price promotion. Further, we noticed that pessimistic subjects might not necessarily be as such (contrary to our naming of them in study 1) because a discounted massage service significantly improved their perceptions regardless of the therapist's level of expertise. It also seems for this particular group that a budget motivation might have a hold on quality evaluations over massage services.

Theoretically, consumers bias the functional component against technical when evaluating a service performance due to their incapacity to assess the latter (26). In the health services context, functional components refer to the means for delivering a health service, whereas the technical aspects refer to the esoteric accuracy of diagnosis (27). In line with these indications, the 4-item compact device enfolded massage perceptions mostly in subjects' functional judgments. Additionally, we neither observed participants' medical condition (in study 1) nor had control over our primary independent variables (in study 2). Thus, massage services that ranged in duration, type, and price might have influenced perceptions differently across our study 2 sample. Moreover, the pre-testing effect in one of the six S designs partly limited our interpretations of results for the pessimist. This pre-testing effect was an inadvertent administrative error caused by reusing the responses from group 3 (of S1) in S4 (see Fig. 1), which we could only notice when data collection was over. These caveats that thwarted the utility of our findings might be avenues for future research.

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The Evaluation Of Tibial Torsion Angle After Anterior Cruciate Ligament Reconstruction*

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Abstract

The aim of this study is to investigate the effect of anterior cruciate ligament (ACL) reconstruction on tibial torsion angle (TTA) in the operated limb using computed tomography (CT) and physical examination methods and to show the relationship between post-operative muscle strength features and TTA by using isokinetic dynamometer. 21 patients between 18 and 36 years old (25.4±6.8) who underwent ACL reconstruction with hamstring tendon (HT) autograft and then completed the ACL rehabilitation were included in this study. Isokinetic strength measurements were evaluated by Biodex-Multi Joint System-Pro 4 dynamometer. To evaluate TTA; CT, transmalleolar and thigh-foot angle (TFA) measurements were carried out. There was no significant TTA differences between 21 operated and non-operated knees for any method ($p > 0.05$). At the isokinetic evaluation to the extension direction there were a significant differences 60-180º/sec in peak torque value ($p=0,0001$, $p=0,003$) and average power value ($p=0,004$, $p=0,002$). As the percentage of losses in peak torque value to the flexion direction at velocity of 180 º/sec increases, the CT diagnosed angle difference between both knees increases. ($p<0,01$, $r=0,548$) As the percentage of losses in average power value to the extension direction at the velocity of 60 º/sec increases, the TFA difference between both knees increases. ($p<0,01$, $r=0,563$) . The isokinetic evaluation findings show that the strength loss between the knees increases the TTA differences. This finding shows the relationship of post-op rehabilitation with TTA varies and re-injury risk. In the isokinetic evaluation, subjects with high loss of strength in the direction of flexion at 180º/sec velocity had higher TTA differences, so rehabilitation protocols should be also focused on muscle endurance.

Keywords: Anterior Cruciate Ligament, Tibial Torsion, Muscle Strength Dynamometer

INTRODUCTION

Although anterior cruciate ligament (ACL) injuries may occur with traumas encountered in daily life, they occur mostly in the form of sports injuries (%91).(1) The most widely used autograft for ACL reconstruction is hamstring tendon (HT) autograft, followed by bone-tendon-bone autograft.(2-4) HT autograft is a commonly used graft for ACL reconstruction due to its accessibility and ease of harvesting, soft tissue tunnel passage, comparable strength to natural ACL, and some

positive benefits such as a specific personalized graft length and diameter.(3, 4)

One of the important intrinsic risk factors for ACL injuries is lower extremity alignment problems.(5-8) Dynamic valgus and torsional alignment stresses are modifiable risk factors for ACL tears and re-injuries and they can be affected by muscle fatigue and strength imbalance.(5, 7) Because of the important role of limb muscle imbalance in alignment problems and associated ACL tear or re-injury risk, strength and proprioceptive exercises are integrated into many professional training prevention programs.(5, 9, 10). Tibial torsion is one of these important alignment problems for ACL injuries and also is the most important reason for in-toeing.(7, 8, 11)

What is rotation, what is torsion?

The difference between tibial torsion and rotation for the first time was emphasized by Rosen and Sandick in 1955.(12) Rotational bone issues within the normal values (±2 standard deviations of the mean) range are termed rotational variations and those outside the normal range are referred to as torsional deformities.(11) Torsion angle is defined as the rotational deformity of the long bones and it occurs as a result of long bones turning longitidunally around their own axes.(13-15). The 'tibial torsion angle' (TTA) is the angle between the axis passing through the tibial condyles and the axis passing through the malleols in the ankle also called 'transmalleolar angle' (TMA).(11, 15-18)

How to evaluate TTA?

Tibial torsion was first described by Le Damany in 1903 and then in 1909, Le Damany accepted the patella-tuberositas tibia and malleols as reference points and made anthropometric measurements with the "BROCA" device and obtained an average value of 23.7°.(19) Staheli and Engel described the method of measurement 'tibiofibular torsion' evaluation using a trigonometric method in 1972.(13) In 1976 Ritter et al. and in 1979 Malekafzali and Wood have published their own TTA measurement techniques with goniometer-adapted devices.(20, 21) Turner and Smillie in 1981, they reported "JIG device method" for TMA measurement.(22) Staheli et al. have described the measurement of TMA by physical goniometric assesments for the first time such as thigh-foot angle (TFA) and angle of the transmalleolar axis in 1985.(11) Hazlewood et al. in 2007 identified the 'footprint method'and compared it with TMA measurement methods.(23)

TTA was first measured in 1955 by Rosen and Sandick using a radiographic method.(12) Computed tomography (CT) scanning was used by Jakob et al. for the evaluation of TTA and it was compared with the physical assesment methods of TTA measurements in 1980.(24) In 1987, Joseph et al. performed ultrasonography (USG) for the first time for tibial torsion measurement.(25) The magnetic resonance imaging (MRI) technique was used in 1997 by Schneider et al. for the measurement of TMA.(26)

CT is the most reliable method for tibial torsion measurements, as it is the gold standard in bone imaging and easy to identify reference points.(22, 24, 27). A difference of more than 2 degrees between both extremities in CT and TMA evaluation is considered abnormal.(22, 24) A difference of more than 1 degree between both extremities in TFA evaluation is considered abnormal.(5, 13, 24). A gap has been observed in the area of investigation of the effect of ACL reconstructions on TTA. The aim of this study is to investigate the effect of ACL reconstruction on TTA in the operated knee and to show the relation of post-op. rehabilitation with TTA by isokinetic system.

MATERIAL AND METHODS

22 volunteers between 18 and 36 years old (25.4±6.8) who underwent ACL reconstruction with HT autograft and then completed the ACL rehabilitation were included in this study. One volunteer was excluded because of femoral anteversion diagnosed. All patients received the same postoperative protocol at the same institute. All of the ACL injuries occurred while doing sports. Surgery reports of all of subjects were examined before they were included in the study. 9 of the 21 subjects were included in the study at 6-9 months of post-op, 7 at 15-18 months and 5 at 18-21 months. (Table 1)

Inclusion criteria:

- Male gender, aged between 18-36,
- The operation was performed with HT autograft,
- The subject has completed the 6th month of post-op. rehabilitation and Lysholm score must be over 90 points.

Exclusion criteria:

- ACL re-injury and/or revision surgery,
- Any meniscus tear, cartilage lesions, medial-lateral ligament sprain and ruptures or repair on the operated and the other extremity,
- Any torsional problem such as femoral anteversion and/or metatarsus adductus, which may affect TTA in the operated and other extremity.

The knees of the patients were evaluated with the 'Lysholm' knee score. Detailed lower extremity physical examination including rotational profile evaluation of both limbs were performed. Both knees laxity were compared by KT-1000 (Med-metric, San Diego, California) arthrometer. Both knee joints isokinetic strength of extensor/flexor muscle groups measurements were evaluated with Biodex-Multi Joint System-Pro 4 (Biodex Medical Systems Inc, Shirley, NY, USA) dynamometer. In the isokinetic evaluation, the loss and gain values of Peak Torque (Newton.meter) and Average Power (Watt) in flexor and extensor muscle groups at 60 °/sec (5 reps) and 180 °/sec (10 reps) values were recorded.

To measure TTA, physical examination methods TMA and TFA (Figure 1) evaluations were used. CT (Lightspeed 16, GE Medical Systems, Milwaukee, Wisconsin, USA), one of the imaging methods, was also used for measurement and CT based TTA (Figure 2) was evaluated by the same highly-experienced radiologist.

Ethical approval was obtained from the faculty's ethical committee (334/14.09.2010). Written informed consent was obtained from all patients and a separate informed consent form was also signed for CT scanning. The procedure was performed in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Statistics

Wilcoxon test was used to evaluate TTA between the operated and non-operated knee differences. Paired t test was used to evaluate isokinetic differences. The relationship between TTA differences and the isokinetic dynamometer test results (percentage of loss) was examined using Spearman correlation.

RESULTS

TTA evaluation

In the CT evaluation, the number of subjects with a difference of more than 2 degrees between the two sequences was 13 (%61,9) (Table 2). In the TMA evaluation, the number of subjects with a difference of more than 2 degrees between the two extremities was 15 (Table 3) (%71,4). In the TFA evaluation, the number of subjects with a difference of more than 1 degree between the two extremities was 12 (%57,1) (Table 4).

There was no significant difference between 21 operated knees and 21 non-operated knees for any method ($p > 0.05$). (Table 5)

Isokinetic evaluation (Table 6)

The Peak Torque (Newton.meter)

- There was a significant difference in 60º/sec extension between operated knee and normal knee values ($p<0,001$).
- There was a significant difference in 180º/sec extension between operated knee and normal knee values ($p<0,01$).

The Average Power (Watt)

- There was a significant difference in 60º/sec extension between operated knee and normal knee values ($p<0,01$).
- There was a significant difference in 180º/sec extension between operated knee and normal knee values ($p<0,01$).

The relationship between the Isokinetic values and TTA

In the relationship between the percentage of losses in Peak Torque value and the TTA differences between the operated knee and the non-operated knee:

- As the power loss at extension at velocity of 60º/sec increases, the TMA difference between both knees increases. ($p<0,05$, $r=0,507$)
- As the power loss at extension at velocity of 60º/sec increases, the TFA difference between both knees increases. ($p<0,05$, $r=0,525$)
- As the power loss at extension at velocity of 60º/sec increases, the CT diagnosed angle difference between both knees increases. ($p<0,05$, $r=0,526$)
- As the power loss at flexion at velocity of 180º/sec increases, the CT diagnosed angle difference between both knees increases. ($p<0,01$, $r=0,548$)

- As the power loss at flexion at velocity of 180º/sec increases, the TMA difference between both knees increases. (p<0,05, r=0,454)

In the relationship between the percentage of losses in Average Power value and the TTA differences between the operated knee and the non-operated knee:

- As the power loss at extension at velocity of 60º/sec increases, the TMA difference between both knees increases. (p<0,05, r=0,436)
- As the power loss at extension at velocity of 60º/sec increases, the TFA difference between both knees increases. (p<0,01, r=0,563)
- As the power loss at flexion at velocity of 60º/sec increases, the TMA difference between both knees increases. (p<0,05, r=0,455)
- As the power loss at flexion at velocity of 60º/sec increases, the TFA difference between both knees increases. (p<0,05, r=0,488)
- As the power loss at flexion at velocity of 180º/sec increases, the TMA difference between both knees increases. (p<0,05, r=0,435)
- As the power loss at flexion at velocity of 180º/sec increases, the TFA difference between both knees increases. (p<0,05, r=0,438)

DISCUSSION

ACL injuries are often non-contact injuries and occur mostly in the form of sports injuries.(1) Recently the techniques performed with HT autograft for ACL tear have been preferred more because of reasons such as less post-operative anterior knee pain complaints and range of motion (ROM) restriction, strength to natural ACL, safer in young patients whose epiphyses are not completely closed and minimal loss of quadriceps muscle strength.(2-4)

Lower extremity alignment problems such as increased femoral anteversion and TTA are one of the most important intrinsic risk factors for ACL injuries and re-injuries.(6, 7) Dynamic valgus and torsional alignment differences are modifiable risk factors for ACL tears/re-injuries and they can be affected by muscle fatigue and limb strength imbalance.(5-8). In particular, the studies of Shelbourne et al. were highly effective in the development and acceleration of ACL rehabilitation. According to these studies, the period of return to sports after ACL repairs and rehabilitation is given as 5-6 months unless there is any complication.(10) Because of the important role of limb muscle imbalance in dynamic alignment problems, intensive strength and proprioceptive training exercises are integrated into these accelerated programs in time.(5, 9, 10)

There was no significant difference in the flexion at isokinetic measurements between the both knees of the each subjects in the peak torque and average power values in this study. However, statistically significant differences were found at all speeds in the direction of extension. This finding was in line with the literature information that after ACL reconstruction, quadriceps muscle strength decreased more than hamstring muscles independent of the graft type.(4, 9, 28) According to these studies, it was stated that the primary priority in rehabilitation should be given to this muscle group since quadriceps are stabilizing muscles.(4, 5, 9)

The method that is accepted as the gold standard in the measurement of TTA is CT.(11, 24, 27, 29) In this study, TFA and TMA, which are among the physical examination methods, were preferred due to their ease of measurement and compatibility with each other and CT.(11, 14) Although the methods described in the clinical examination are practically useful, they can lead to different results among the people who perform the measurement.(29) In addition, various TTA evaluation studies have values close to those in all evaluation methods of this research.(11, 13, 14, 17) In this study, there was no significant difference between 21 operated knees and 21 non-operated knees for any method (p> 0.05). In most of the patients between 6-9 months post-op, the TTA differences between the two knees was found abnormal. (Table 3,4,5) Although there were differences in all three angle measurements in this group, there was no statistically significant difference due to the low number of patients.

There is a gap in the area of investigation of the effect of ACL reconstructions on TTA However, statistically significant correlations were found between the angles mentioned by the isokinetic evaluation, which is a good indicator of the outcome of the rehabilitation process. In the isokinetic system, tests performed at 60º/sec velocity are more effective in measuring maximal strength, while tests at 180º/sec are more effective in measuring muscle endurance. In the isokinetic evaluation of this study,

as the losses in both peak torque and average power increased, the differences in TTA increased. As the losses both peak torque and average power in 60º/sec (both at the quadriceps and hamstring muscle groups) increased, the differences in TTA increased. As the losses both peak torque and average power in 180º/sec (only at the hamstring muscle groups) increased, the differences in TTA increased. In some systematic review and meta-analysis studies, it was found that the risk of ACL re-injury is higher for the athlete with low muscle endurance.(1, 30-32) When our correlation finding and the literature information about low muscle endurances association with re-injury are combined, it can be said that putting weight on strength exercises (low weight and abundant repetition) in the direction of the hamstring muscle group may reduce the risk of ACL re-injury. In 2011, Clare et al. in their meta-analysis study, they argued that the rate of return to sport should be questioned below fifty percent regardless of the duration of post-op rehabilitation period in elite sports and that the criteria for return to the sport should be reviewed and the tibial rotation evaluation being a criterion.(30) Despite the fact that all of the subjects were selected as post-op patients after the 6th month in accordance with the current protocol and all of these patients received post-op rehabilitation, the determination of these values suggests that the rehabilitation processes and protocols should be questioned. In the meta-analysis study involving 5770 patients from 47 studies examining return to sports in athletes after ACL repairs by Arden et al. although an average of 90% of the patients achieved good results in basic laxity and strength tests and 85% of the patients received good ratings at knee scoring tests, only 63% were able to reach the pre-injury activity level, and only an average of 44%

returned to sports.(30) Arden et al. Afterwards, with the study they updated, they stated that the criteria of return to sports for all sports injuries should be questioned and they proposed a 5-question model.(33) In the discussion section of the their 2011 study, it was emphasized that the results of ACL repair and rehabilitation were exaggerated and the criteria used for return to sports focused on anterior instability, and tibial rotation measurements were skipped and tibial rotation measurements could be an emphasis for return to sports.(30)

THE MAIN POINTS

Accelerated rehabilitation protocols, time to return to sport, and criterias are still controversial to reduce the risk of re-injury. Although it was found that the ACL operations did not change the TTA statistically, the fact that this angle difference varies between the operated knee and normal knee in a great majority of patients in post-op 6-9 months suggests that this angle difference may be related to the rehabilitation period.

The high loss in strength differences increases the TTA differences between the knees. This finding shows the relationship and importance of post-op rehabilitation with TTA.

In the isokinetic evaluation, subjects with high loss of strength in the direction of flexion at 180º/sec velocity have higher TTA differences.

In the rehabilitation protocols, besides the maximal strength, especially in the direction of flexion, strength training should be focused on endurance.

There is no conflict of interest with Authers and financial support for study, so financial confilct.

Tables & Figures

Table 1: Grouping the post-operative period by months

Post-op (month)	N	**Percentage (%)**
6-9	9	**42,9**
15-18	7	**33,3**
18-21	5	**23,8**
Total	21	**100**

Table 2: Grouping CT angles according to post-op period

Post-op (month)	CT angle-no difference N Percentage (%)	CT angle differences >2º N Percentage (%)	**Total** **N** **Percentage (%)**
6-9	2 %22,2	7 %77,8	**9** **%100**
15-18	3 %42,9	4 %57,1	**7** **%100**
18-21	3 %60	2 %40	**5** **%100**
Total	8 %38,1	13 %61,9	**21** **%100**

Table 3: Grouping TMA according to post-op period

Post-op (month)	TMA-no difference N Percentage (%)	TMA differences >2º N Percentage (%)	**Total** **N** **Percentage (%)**
6-9	1 %11,1	8 %88,9	**9** **%100**
15-18	3 %42,9	4 %57,1	**7** **%100**
18-21	2 %40	3 %60	**5** **%100**
Total	6 %28,6	15 %71,4	**21** **%100**

Table 4: Grouping TFA according to post-op period

Post-op (month)	TFA-no difference N Percentage (%)	TFA differences >2º N Percentage (%)	**Total** **N** **Percentage (%)**
6-9	3 %33,3	6 %66,7	**9** **%100**
15-18	3 %42,9	4 %57,1	**7** **%100**
18-21	3 %60	2 %40	**5** **%100**
Total	9 %38,1	12 %61,9	**21** **%100**

Table 5: Evaluation of TTA differences

Methods	Mean±SD	P value
CT (operated)	37,1±6,1	
CT (normal)	37,1±7,5	**1**
TMA (operated)	23,1±5,3	
TMA (normal)	21,6±5,3	**0,391**
TFA (operated)	10,7±3,2	
TFA (normal)	10,1±3,3	**0,148**

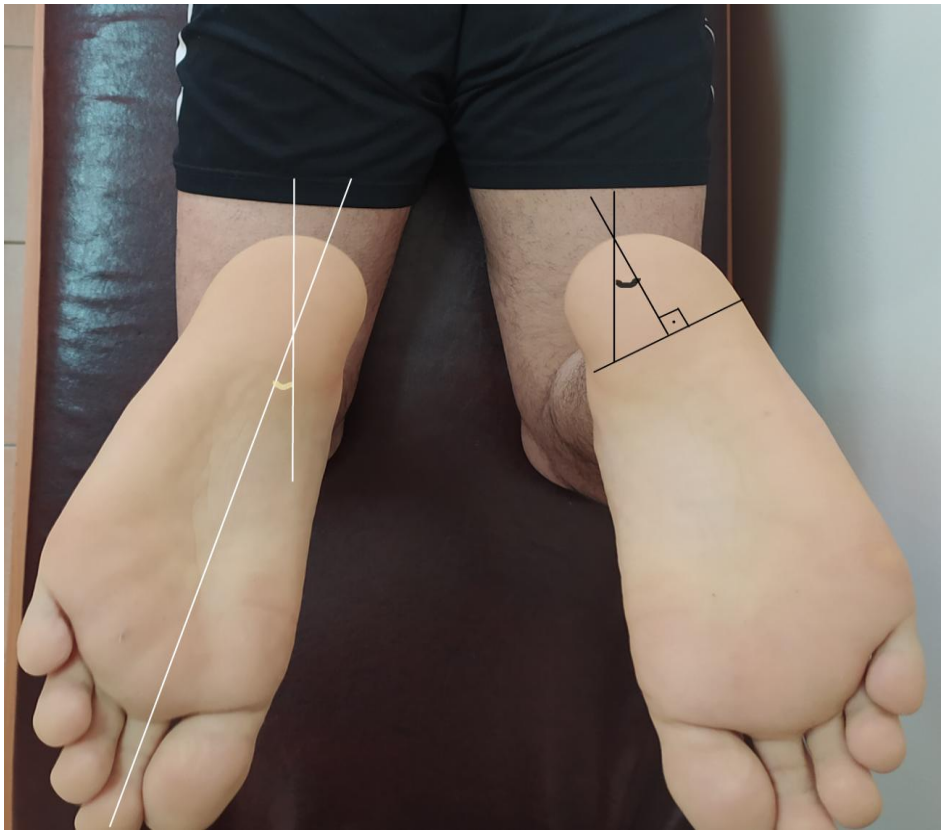

Figure 1. Left limb: TFA, Right limb: TMA evaluation.

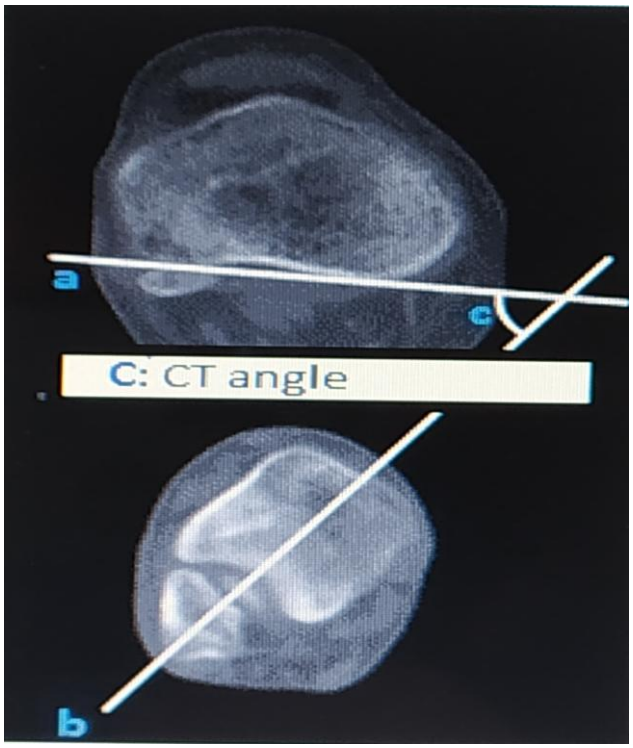

Figure 2. a: Tibial Proximal Transverse Axis, **b:** Lateral Malleolar Axis, **c:** CT-based angle.

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Effect of Sports in Self-Control & Self-Management Levels of Students

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Abstract

The study was conducted to examine the effect of sports on students' self-control and self-management levels. The research group totally consists of 277 people, 125 of them are female and 152 of them are male, studying in the School of Physical Education and Sports in Bingol University in the 2018-2019 academic year. In order to gather data for the purpose of the research, "Self-Control-Self-Management Scale-SCMS" was used. The students participating in the research were asked personal information questions regarding their demographic characteristics. The research was carried out in SPSS 22 statistical package program and the significance level was taken as 0.05. For testing whether the collected data show normal distribution, the normality of the distributions (Kolmogorov-Smirnov) and then skewness and kurtosis tests were examined. According to the test results, double comparisons are Mann Whitney-U, and multiple comparisons are Kruskal Wallis analysis. According to the answers given by the students participating in the research, the self-assessment and self-empowerment levels of the students who are doing licensed sports are significantly higher, female students are more self-confident in the activities that need to be done, and the self-management-control of the students engaged in individual sports levels were determined as higher.

Key Words: Sports, Self-Control, Self-Management

INTRODUCTION

Self-control is an attempt to control oneself with the self-respect. Self control comes into play when a person tries to think, feel and act otherwise (20). Self-control, which is important both in relation to the individual and with others, defines the control and management of the individual's emotions, thoughts and behaviors (21). According to Rotter (22), the balance between internal and external control is a distinctive feature on our life. Individuals who balance the internal and external control become more successful in school and business life. This is because individuals who provide internal and external control set permanent goals and enjoy realizing these goals (10). Erikson also mentioned that this would come out as a universal article. In addition, internal and external control is achieved through the high performance and intensive work of skilled people. People with high self-awareness and patience achieve their goals along with perfection (11). The fact that individuals have high self-control skills prevents them from performing unwanted behaviors and ensures that they are protected from undesirable results from their behaviors (14).

Self-management is related to the use and use of learning resources for individuals to achieve their learning goals (9). Candy (3) expresses the concept of self-management as a willingness to learn and the capacity to manage the learning process. The individual should make learning continuous and meaningful by reaching the right material, giving feedback and asking questions. In the self-managed learning process, the self-management of the

individual is also considered important for obtaining positive results from their attempts to learn. Secondly, it is important for the success of the process that learners can control and organize internal situations (effort, ability, motivation) and external situations (luck, opportunity, risk, etc.) which are the possible effects on the learning process (3, 19). Finally, in the self-managed learning process, individuals' willingness to learn is seen as important in organizing learning environments in order to activate themselves and achieve their goals (28).

Self-control and self-management are extremely important for people to develop themselves positively and escape from negativity. When the body of literature was examined, it was determined that sports has an effect on self-control and self-management as well as self-control on sport. As an example of these studies; It is determined that master athletes have better self-control skills than amateurs. (5, 17).

It was found that successful athletes tried to determine how close they were to the desired success by monitoring their current status and developed their self-control skills that increased their performance (4). In addition, in studies showing that self-control processes help athletes learn effectively, it is emphasized that self-control is very important especially in young athletes and lack of self-control leads to poor performance (1, 12, 13, 16, 31).

This research was carried out with the aim of determining the effect of sports on students' self-control-self-management levels and examining whether they differ according to some variables.

Method

Study Group

The study group of the research conducted to examine the affect of sports on students' self-control and self-management levels consists of 277 people, 125 of them are female and 152 are male, studying at the School of Physical Education and Sports in Bingol University during the 2018-2019 academic year. It has been determined that 20.9% of the students participating in the study are studying in the physical education and sports teaching department, 33.9% in the coaching department, 19.1% in the recreation section and 26.0% in the management department.

Data Collecting Tools

In the research, survey technique was applied as a data collection tool. In the first part of the research, there are 6 questions that will reflect the demographic information of the participants (gender, department, etc.). In the second part of the research, " Self-Control-Self-Management Scale-SCMS ", which was adapted to Turkish by Ercoskun (8) developed by Mezo (18), used in the research. The self-management scale consists of 16 questions and 3 sub-dimensions: self-adjustment, self-assessment and self-empowerment. In the study of Ercoskun (8), the overall Cronbach alpha reliability coefficient of the scale was determined as .81. Expressions in the scale are rated as 6-Likert type.

Statistical Analyses

The data assembled through the scale used to determine the effect of sport on students' self-management levels were analyzed through the statistical package program SPSS.22 program and the results were interpreted. Descriptive statistics including arithmetic average, standard deviation, frequency and percentage distributions are presented in order to gain insight into demographic information and other group questions. For the determination of the students' self-management levels and the sub-dimensions of these variables with some demographic variables, the normality of the distributions (Kolmogorov-Smirnov) and then Skewness and kurtosis tests were examined. In the research, "normal" expression scores are individuals whose Z value varies between -3 and +3, while "extreme values" are scores whose Z value is outside the range of -3 and +3. However, according to Shao (23), the normal distribution of the data to be applied in the study depends on the values of skewness and kurtosis between ± 3. According to test results, Mann Whitney-U was used in independent binary comparisons, and Kruskal Wallis tests were used in multiple comparisons between demographic variables. In case of differences between groups in multiple comparisons between demographic variables, Mann Whitney-U tests were used to determine which group or groups this difference derived from. Besides, Chi-Square (Chi-Square) test was used to compare the answers of students about each expression in the scale according to demographic variables. The results were evaluated at 95% confidence interval and significance was evaluated at the level of $p < 0.05$. Besides, statistics including frequency and

percentage distributions were presented in order to reveal students' opinions about determining the level of self-control.

This is the section where the statistical results of the study will be explained. Statistical analysis based on the demographic characteristics of the people participating in the research will be contained.

Findings

Table 1. Comparison of the students' self-control - self-management general averages and sub-dimensions according to gender variance

		Gender	N	X	S.s	U	P
Self-control Self-management Sub dimensions	Self-Adjustment	Female	125	25.89	3.164	8150.000	**,040***
		Male	152	25.17	3.295		
	Self-Assessment	Female	125	21.39	4.270	8500.500	.126
		Male	152	21.04	4.116		
	Self-Reinforcement	Female	125	20.86	2.809	8769.000	.266
		Male	152	20.26	3.413		
Self-control Self-management General Total		Female	125	68.15	7.982	8583.500	.166
		Male	152	66.48	8.786		
Total			**277**				
p<0.05*							

When Table 1 is examined, there was a significant difference found between the groups in terms of self-adjustment from the self-control sub-dimensions according to the gender variable of the students participating in the research. It is seen that the difference is in favor of female students. There were on significant differences found between the groups in terms of self-control-self-management general averages and self-assessment and self-reinforcement sub-dimensions.

Table 2. Comparison of the self-control - self-management general averages and sub-dimensions of the students according to their licensed sports status

		Do you do sports as licensed?	N	X	S.s	U	P
Self-control Self-management Sub dimensions	Self-Adjustment	Yes	135	25.61	2.977	9545.000	.952
		No	142	25.38	3.498		
	Self-Assessment	Yes	135	21.36	4.416	7947.000	**.012***
		No	142	21.04	3.957		
	Self-Reinforcement	Yes	135	20.17	3.132	7794.000	**.007****
		No	142	20.88	3.164		
Self-control Self-management General Total		Yes	135	67.14	8.329	9284.000	.651
		No	142	67.32	8.609		
Total			**277**				
p<0.05* p<0.01**							

When Table 2 is examined, there was a significant difference found between the groups in terms of self-Assessment and self-reinforcement among self-control and self-empowerment sub-dimensions according to the licensed sports of the students participating in the research. It is observed that the difference is in favor of students who do not do sports as licensed both in self-assessment and self-reinforcement sub-dimensions. There was no significant difference found between the groups in terms of self-control-self-management general averages and self-adjustment sub-dimensions.

Table 3. Comparison of the self-control-self-management general averages and sub-dimensions of the students according to the performed kind of sport

		What kind of sports do you do?	N	X	S.s	U	P
Self-control Self-management Sub dimensions	Self-adjustment	Individual Sports	69	26.00	2.864	1926.500	.120
		Team Sports	66	25.21	3.061		
	Self-Assessment	Individual Sports	69	21.91	3.947	1917.500	.109
		Team Sports	66	20.78	4.821		
	Self-reinforcement	Individual Sports	69	20.65	2.822	1871.000	.072
		Team Sports	66	19.66	3.375		
Self-control Self-management General Total		Individual Sports	69	68.56	7.788	1758.500	**.022***
		Team Sports	66	65.66	8.672		
Total			**135**				
p<0.05*							

When Table 3 is examined, there was a significant difference found between the groups in the general average of self-control and self-management only according to the type of sports performed by the students participating in the research. It is seen that the difference is in favor of the students doing individual sports.

Table 4. Comparing the students' self-control - self-management general averages and their sub-dimensions according to the department variance

		Department	N	X	S.s	Sd	X^2	p
Self-control Self-management Sub dimensions	Self-adjustment	[a]Physical Education and Sports Teaching	58	26.25	2.039	3	3.913	.271
		[b]Coaching Education	94	24.98	3.462			
		[c]Recreation	53	25.67	3.528			
		[d]Sports Management	72	25.41	3.475			
	Self-Assessment	[a]Physical Education and Sports Teaching	58	22.06	3.111	3	11.062	**.011*** **a>b**
		[b]Coaching Education	94	19.81	5.339			
		[c]Recreation	53	22.05	2.885			
		[d]Sports Management	72	21.68	3.587			
	Self-reinforcement	[a]Physical Education and Sports Teaching	58	20.96	2.239	3	1.085	.781
		[b]Coaching Education	94	20.25	3.372			
		[c]Recreation	53	20.71	2.957			
		[d]Sports Management	72	20.43	3.645			
Self-control Self-management General Total		[a]Physical Education and Sports Teaching	58	69.29	5.672	3	7.136	.068
		[b]Coaching Education	94	65.06	9.791			
		[c]Recreation	53	68.45	7.102			
		[d]Sports Management	72	67.52	8.884			
Total			**277**					
p<0.05*								

When the Table 4 is analyzed, there is a significant difference found between the groups in the self-Assessment sub dimension which one of the sub dimensions of self-control- self-management according to students' department variance. It has been determined that the difference is between students studying in physical education and sports teaching and students studying in the education of coaching.

Table 5. The Comparison of the students who participated in the research to the statements related to self-control and self-management according to their distribution and sports

	PROPOSITIONS	Do you do sports as licensed	It never defines me	It does not mostly define me	It doesn't define me much	It defines me somehow	It pretty defines me	It defines me completely	It never defines me	It does not mostly define me	It doesn't define me much	It defines me somehow	It pretty defines me	It defines me completely	P
			n	%	n	%	n	%	n	%	n	%	n	%	
Self-Adjustment	When I work on something, I pay my full attention.	Yes	-	-	1	0.7	1	0.7	21	15.6	58	**43.0**	54	**40.0**	**.000***
		No	-	-	3	2.1	3	2.1	13	9.2	26	**18.3**	97	**68.3**	
	I focus on the tasks I have to do, even if I don't like them.	Yes	-	-	2	1.5	2	1.5	21	15.6	60	**44.4**	50	**37.0**	**.040***
		No	-	-	4	2.8	8	5.6	14	9.9	79	**55.6**	37	**26.1**	
	While working for a purpose, I become conscious of what I am doing.	Yes	-	-	-	-	1	0.7	17	12.6	40	29.6	77	57.0	.620
		No	-	-	-	-	3	2.1	14	9.9	38	26.8	87	61.3	
	When I work towards a goal, I constantly follow my progress.	Yes	-	-	-	-	1	0.7	21	15.6	52	38.5	61	45.2	.634
		No	-	-	1	0.7	2	1.4	26	18.3	59	41.5	54	38.0	
	While working on something difficult, I concentrate on my thoughts.	Yes	-	-	-	-	1	0.7	16	11.9	51	37.8	67	49.6	.304
		No	-	-	-	-	6	4.2	17	12.0	48	33.8	71	50.0	
	While working for a purpose, I know which path I can follow.	Yes	1	0.7	1	0.7	2	1.5	20	14.8	54	40.0	57	42.2	.378
		No	-	-	2	1.4	3	2.1	30	21.1	62	43.7	45	31.7	
Self-Assessment	When I set important goals for myself, I usually fail to achieve those goals. (*)	Yes	83	**61.5**	32	**23.7**	4	3.0	6	4.4	5	3.7	5	3.7	**.005****
		No	59	**41.5**	67	**47.2**	3	2.1	4	2.8	5	3.5	4	2.8	
	I don't think I have the ability to make clear plans for most of the problems I encounter in my life. (*)	Yes	67	49.6	50	37.0	7	5.2	6	4.4	3	2.2	2	1.5	.746
		No	72	50.7	50	35.2	5	3.5	5	3.5	8	5.6	2	1.4	
	The goals I achieved do not mean much to me. (*)	Yes	73	**54.1**	39	**28.9**	15	11.1	1	0.7	7	5.2	-	-	**.031***
		No	76	**53.5**	54	**38.0**	3	2.1	2	1.4	7	4.9	-	-	
	I think it is useless to make plan. (*)	Yes	84	62.2	35	25.9	6	4.4	5	3.7	5	3.7	-	-	.266
		No	78	54.9	53	37.3	5	3.5	4	2.8	2	1.4	-	-	
	The standards I set for myself are uncertain and it is difficult for me to decide on how to do a task. (*)	Yes	68	**50.4**	46	**34.1**	12	8.9	5	3.7	3	2.2	1	0.7	**.023***
		No	51	**35.9**	70	**49.3**	5	3.5	6	4.2	6	4.2	4	2.8	
Self-reinforcement	I appreciate myself when I succeed.	Yes	-	-	2	1.5	8	5.9	45	33.3	55	**40.7**	25	**18.5**	**.004****
		No	-	-	-	-	6	4.2	25	17.6	63	**44.4**	48	**33.8**	
	To enjoy later; I plan hard work by making a plan.	Yes	1	0.7	1	0.7	13	9.6	20	14.8	48	35.6	52	38.5	.672
		No	1	0.7	3	2.1	11	7.7	28	19.7	54	38.0	45	31.7	
	Although others do not appreciate me, I quietly appreciate myself.	Yes	-	-	2	1.5	8	5.9	24	17.8	45	33.3	56	41.5	.853
		No	-	-	3	2.1	6	4.2	20	14.1	50	35.2	63	44.4	
	When I do something right, I enjoy it.	Yes	-	-	-	-	3	2.2	21	15.6	43	31.9	68	50.4	.447
		No	-	-	1	0.7	4	2.8	13	9.2	51	35.9	73	51.4	
	When I make progress, I reward myself.	Yes	-	-	2	1.5	5	3.7	22	16.3	53	**39.3**	53	**39.3**	**.005****
		No	-	-	2	1.4	4	2.8	7	4.9	46	**32.4**	83	**58.5**	

p<0.05* p<0.01 p<0.001***** *Propositions with the (*) symbol at the end are reverse-coded questions. (-) Symbol shows the answer option that is not preferred at all.*

When the Table 5 is examined, there is a significant difference found between the groups in terms of focusing on the work to be done and devote time for the work done in the answers given to the expressions in the self-adjustment sub-dimension of the students according to the situation of doing sports. It is observed that people who do not do sports on the work to be done spend more time, and students who do sports on focusing on the things to do are more focused. According to the responses made for the statements in the self-assessment sub-dimension; It was determined that people who do sports in setting and achieving important goals are more believers, in terms of giving meaning to what they accomplish, they are in favor of those who do sports, and finally, when they decide how to do a task, those who do sports see themselves more successfully than those who do not. In the self-reinforcement sub-dimension, it is revealed that people who do not play sports as licensed appreciate themselves more in case of success and reward themselves when they make progress on a topic.

DISCUSSION AND RESULT

The study group of the research carried out to investigate the effect of sports on the levels of self-management of the students consists of 277 people, 125 of whom are female and 152 of whom are male at the School of Physical Education and Sports in Bingol University during the 2018-2019 academic years. In this research, the following results were reached:

According to the gender variable of the students participating in the study, there was a significant difference between the self-regulation sub-dimensions and self-adjustment dimensions between the groups. It is seen that the difference is in favor of female students. No significant differences were found between the groups in the self-control-self-management general averages and the self-assessment and self-reinforcement sub-dimensions. When the literature is examined, it is seen that these findings obtained in the research are supported by various studies in the literature (8, 15, 24, 27, 30, 6, 2).

Depend on the licensed sports of the students participating in the study, a significant difference was determined between the self-control and self-reinforcement dimensions among the self-control and self-management sub-dimensions. It is seen that the difference is in favor of students who do not do sports as licensed both in self-assessment and self-reinforcement sub-dimensions. In the sub-dimensions of self-control-self-management and self-adjustment sub-dimensions, there was no significant difference between the groups. When the researches on self-control and self-management levels of those who do sports in the literature are examined; shows that those who do sports have a better level of self-control and self-management than those who do not (7). In another study, when the students who do sports and do not do sports are compared; a significant finding has been reached in favor of students doing licensed sports (30). The results of these studies are in line with the results we obtained.

According to the type of sports performed by the students participating in the study, only a significant difference was found between the groups in the general average of self-control-self-management. It is observed that the difference is in favor of students doing individual sports. In the study of Yılmaz (30) on high school students, although there is no difference between the students' self-control and self-management perceptions according to their team sports, individual sports or not doing sports; it has been determined that students who do team and individual sports have a significantly higher self-control and self-management perception than non-sports students.

According to another finding, there was a significant difference between the groups in the self-assessment sub-dimension only from the self-control-self-management sub-dimensions according to the department variable in which the students studied. It has been determined that the difference is between students studying in physical education and sports teaching and students studying in coaching education. It is seen that the self-control - self-management levels of the students studying in the department of physical education and sports teaching are higher than the students studying in the education of coaching. The reason for this is that students who study in physical education and sports teaching departments have achieved a high score in the higher education exam that they entered in order to be eligible to study at universities, or that mostly national or professional athletes usually study in physical education and sports teaching; and for this reason, it can be said that the self-control-self-management levels of the students studying in this section are significantly high.

In the last part of the study, there was a significant difference between groups in terms of self-regulation perceptions of self-regulation perceptions of self-regulation sub-dimension of students who are licensed sports and amateur level or sedentary. It is observed that people who do not do sports on the work to be done spend more time, and students who do sports on focusing on the things to do are more focused. According to the answers given to the statements in the self-assessment sub-dimension, people who do sports in setting important goals and achieving this are more professed; It has been determined that those who do sports in terms of giving meaning to what they have achieved are in favor of those who do sports and finally, when they decide on how to do a task, those who do sports still see themselves more successful than those who do not. In the self-reinforcement sub-dimension, it is determined that people who do not do sports as licensed will appreciate themselves in case of success and reward themselves more when they make progress on a subject. When the body of the literature is examined; in different studies, it was revealed that athletes with high self-control benefit more from practices and competition (25, 26), better control their anxiety levels and perform high. (29).

Consequently; it has been revealed with the studies that sports has many positive effects on people. As it is known, sometimes sports are carried out in the context of certain rules and in a certain competitive environment. In order for people to be successful in sports environments, there are sometimes rules set by themselves and sometimes by their teammates and coaches. In order for the team spirit to be formed and success to be achieved, they must follow these rules. Hence, discipline and willpower are indispensable. It is inevitable that the people operating in such an environment and those with a certain level of discipline and will bring this to their daily life. In this context, it will not be a coincidence that people are successful in both business life and social relations even in their daily life. In this frame, it is recommended that families should do something for their children in the name of sports and benefit from sports environments at a very young age. It can be said that this will bring both health and success in an individual sense and social prosperity and development to the next level.

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Modularity In Football Passing Networks

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Abstract

In recent decades, within the boundaries of complexity sciences, network science has been used to analyze many kinds of networks. A complex system is formed by smaller subsystems which can be designed independently yet function together as a whole. Modules of a network can be called as groups, clusters or communities and modularity can be defined as a measure of the structure of networks or graphs. If it has dense connections within a network's modules and sparse connections between nodes in different modules, in this case networks have high modularity. At the end of each football match, successful pass networks can be achieved. These modular structures can be thought as "independent yet function as a whole" football modules. Generally so called modules in the technical directors' thoughts can be listed as defense, midfielders area and strikers area. If they want to know how modules are generated and how their disconnection leads to functional decay they should analyze the modularity formed as a result of a football match. The aim of this study is to examine to what extent the football teams' managers have implemented their strategies in games. First, 10 matches with the e-analysis football program were analyzed. And then modularity analysis began with transforming the video of a football match into a pass network. Using this pass network, network metrics was to be computed and then these metrics was to be used to make a modularity analysis using Gephi. After modularity analysis using Gephi, modularity classes of these networks were found for all networks. When the results obtained from the modularity analysis were examined, it was observed that the number of modules varied between 2 and 4. Consequently, it was observed that the systems found as a result of the modularity analysis were very different than the planned systems.

Keywords: Network Science, Network Metrics, Modularity, Football.

INTRODUCTION

In recent decades, within the boundaries of complexity sciences, network science has been used to analyze many kinds of networks. A complex system is formed by smaller subsystems which can be designed independently yet function together as a whole (1). "Biological and technological systems both exhibit a common pattern of modular organization. A modular system is formed by quasi-independent parts that are tightly integrated within themselves but also exhibit a certain degree of interdependency among them" (2). For example, "Muscle coordination of isometric force production can be explained by a smaller number of *modules"* (3).

To provide and form communication platforms, to detect the similarities and differences, we classify living organisms, objects and relations in science. We know that biological *networks* are generally *modular* and many social networks and

complex systems are found to be naturally divided into clusters of densely connected nodes, and it is called as community structure (CS). Also brain networks can be examined and analyzed with a large variety of graph theory tools, "Methods for detecting modules, or network communities, are of particular interest because they uncover major building blocks or subnetworks that are particularly densely connected, often corresponding to specialized functional components" (4).

Modules may correspond to groups of individuals in social networks, ensembles of interacting proteins (5), or coregulated genes in cellular networks and building blocks in the brain networks (6). Modules of a network can be called as groups, clusters or communities and modularity can be defined as a measure of the structure of networks or graphs. This means that nodes of a network can be partitioned into internally dense and externally sparse subnetworks and these are called modules or communities (7). If we have dense connections within a network's modules and sparse connections between nodes in different modules, in this case we have high modularity. In Figure 1 we see the modularity and community structure in a network.

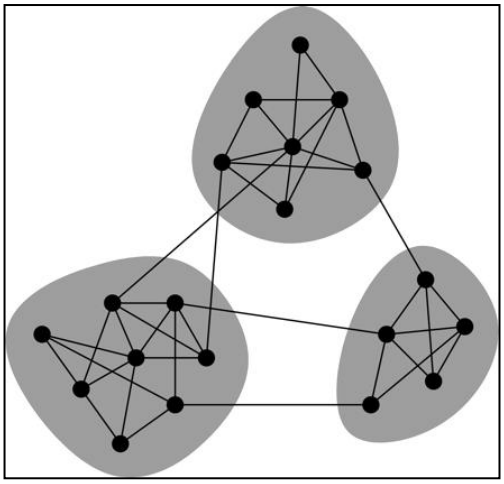


Figure 1. Modularity in a network (8).

In general we use large-scale network data sets, such as social networks, internet and web data, or biochemical networks to divide a complex network into clusters. Modularity also can be seen in networks include the webs of interactions among proteins, genes, enzymes and metabolites or signaling molecules (9). According to Valverde, "A modular architecture allows independent changes in different parts of the system without affecting the whole. Well-adapted modules are conserved and provide a robust infrastructure for future adaptation" (6) and, "Modules are also expected to play a key role in providing a source of specialization, while their proper interconnection guarantee integration at the system-level scale. Both are needed in order to sustain proper functionality and we need to understand both how modules are generated and how their disconnection leads to functional decay" (6). As a result of faulty intermodule communication we get breakdown of modularity. At the end of every football match, we can get resulting pass networks. Although we have mentioned that modularity can be used in large scale networks, it can also be used in small scale pass networks in football. In this article, we have used network science tools to analyze these pass networks that can be transformed into modular structures. Football players (nodes in network terms) in such modules should be homogeneous according to their talents. These modular structures can be thought as "independent yet function as a whole" football modules. In general so called modules in the technical directors' thoughts can be listed as defense, midfielders area and strikers area. If they want to how modules are generated and how their disconnection leads to functional decay they should analyze the modularity formed as a result of a football match.

MATERIALS AND METHODS

The research sample was composed of 10 matches made by Turkish National Football Team in 2014 World Cup qualifiers. As seen In Figure 2, our modularity analysis begins with transforming the video of a football match into a pass network. Using this pass network, network metrics are to be computed and then these metrics are to be used to make a modularity analysis using Gephi. The spearman correlation test was used to determine the relationship between the number of modules in the competitions of the Turkish National Football Team and the goals scored and scored ($p<0.05$).

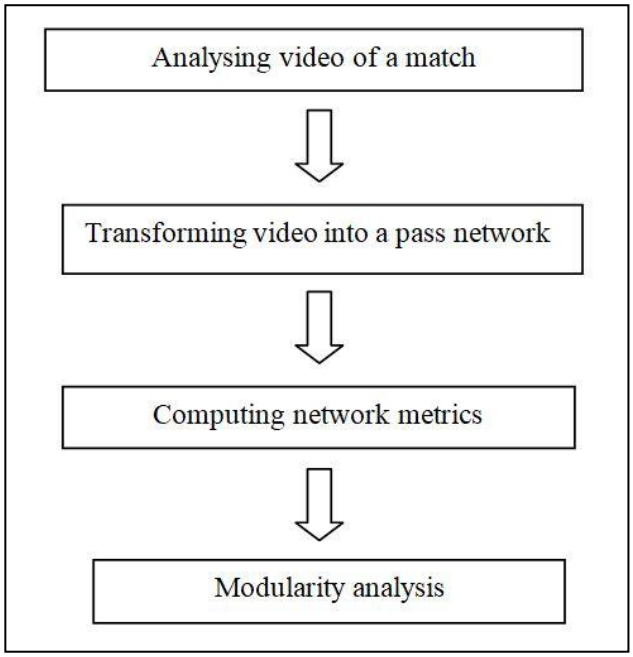
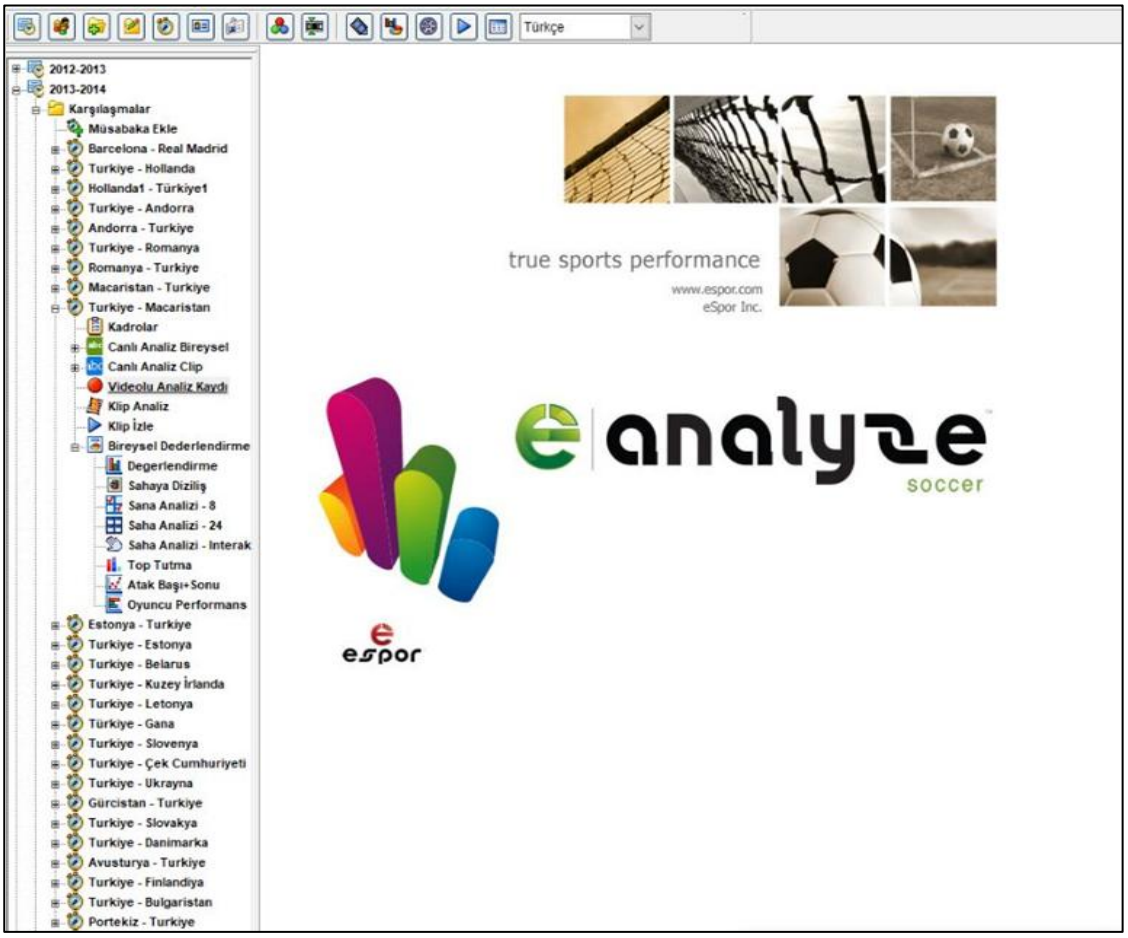


Figure 2. Modularity analysis process of a football match

Analysing Video Of A Match

The 10 matches were analyzed with the e-analysis soccer program (Figure 3).



1027	T21	T6
1028	T6	T21
1029	T21	T2
1030	T2	T3
1031	T3	T14
1032	T14	T8
1033	T8	M3
1034	M3	T4
1035	T4	T2
1036	T2	T6
1037	T6	T2
1038	T2	T19
1039	T19	T21
1040	T21	M17
1041	M17	M12
1042	M12	M13
1043	M13	T4
1044	T4	T8
1045	T8	T21
1046	T21	T8
1047	T8	T2
1048	T2	T17
1049	T17	T19
1050	T19	T6
1051	T6	T8
1052	T8	T14
1053	T14	M3
1054	M3	T4
1055	T4	T23
1056	T23	T2
1057	T2	M3
1058	M3	T3
1059	T3	T14
1060	T14	T21
1061	T21	T3
1062	T3	T21
1063	T21	M16
1064	M16	T6
1065	T6	M12
1066	M12	M13
1067		

Figure 4. Pass Actions Excel File

Computing Network Metrics

The obtained Excel pass files were processed to open source Gephi 0.9.1 program and the networks of the competitions were measured.

Modularity Analysis

Modularity analysis was performed using Gephi 0.9.1 program.

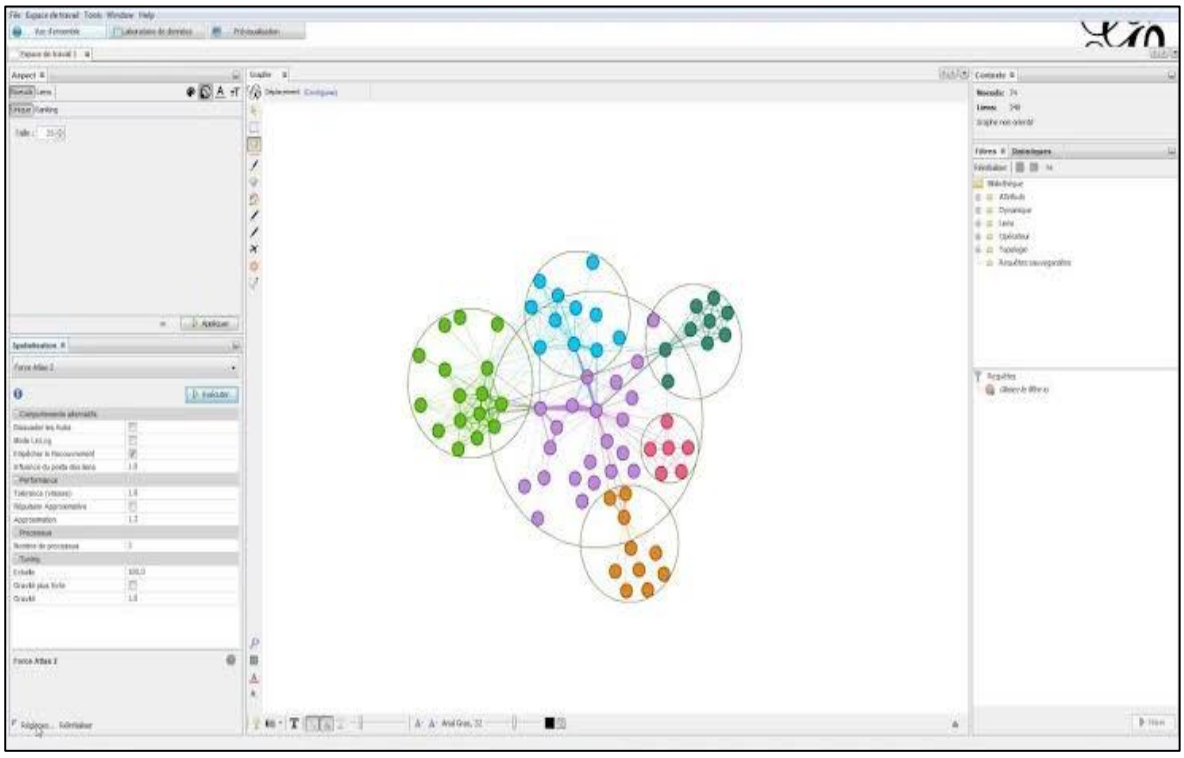
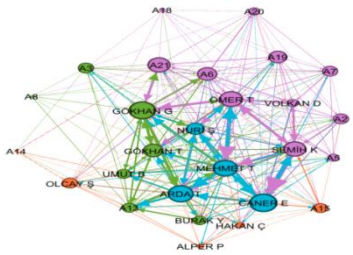
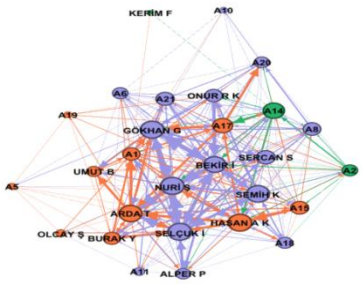
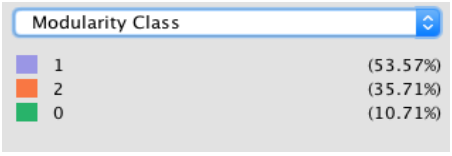


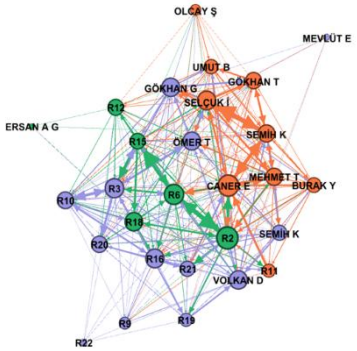
Figure 5. Gephi 0.9.1 Programme

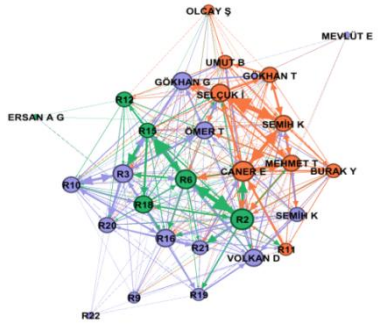
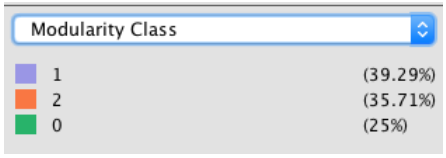
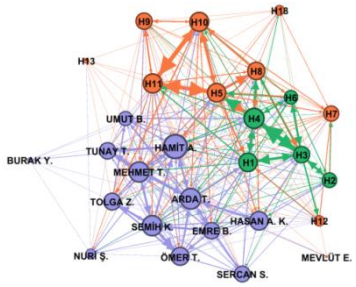
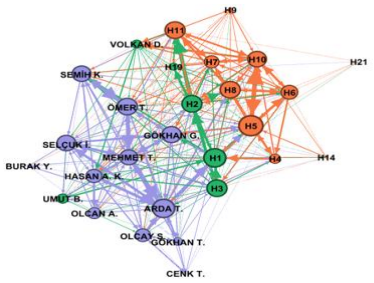
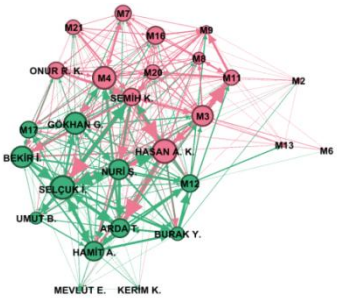
RESULTS

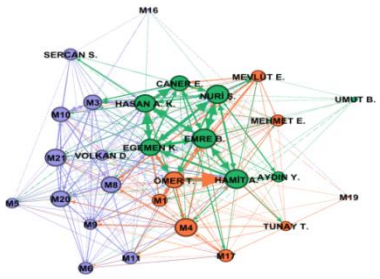
In this study, 10 of Turkish National Football Team's 2014 World Cup Qualifying matches are used. With various algorithms for modularity analysis, open source Gephi's algorithm for network analysis is used. The results obtained are shown in Table 1 and Table 2.

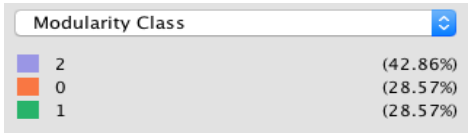
Table 1. Pass networks and modularity classes of these networks

Turkey-Andorra (06.09.2013)	4-4-2 (4mod)
	
Andorra-Turkey (22.03.2013)	4-4-2 (2 mod)
	

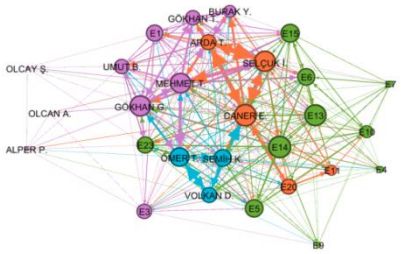
Turkey-Romania (12.10.2012)	4-2-3-1 (2mod)
	
Romania-Turkey (10.09.2013)	4-4-2 (3mod)

	
Holland-Turkey (07.09.2012)	4-2-3-1 (1 mod)
	
Turkey-Holland (15.10.2013)	4-4-2 (2 mod)
	
Turkey-Hungary (26.03.2013)	4-2-3-1 (2mod)
	
Hungary-Turkey (16.10.2012)	4-2-3-1 (3mod)

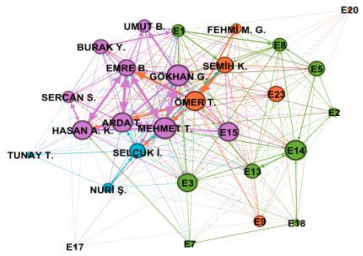


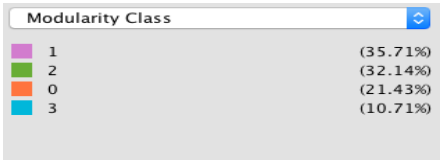


Estonia-Turkey (11.10.2013) | 4-4-2 (3mod)



Turkey-Estonia (11.09.2012) | 4-2-3-1 (3mod)





When we examine the results obtained from Table 2, we see that the number of modules varies between 2 and 4. The general the three-module layout (4-4-2) is observed in 6 of the 10 games. Moreover, even if the 3-module layout occurs in the field, the number of players in the modules has no remote or close relationship with the number of players within the module considered before the game. Table 2 shows us clearly that in football things may not always go as planned. In addition, the modularity measures in Table 2 explain to us how good the adaption to modularity level is. Another striking point is that the distribution of modularity measurements is close to normal distribution (n = 10, KS = 0.273, p-value = 0.04). In the matches of the same two teams, the proximity of the modularity measurements can be viewed in the column titled "Modularity difference of the same teams (Absolute value)".

Table 2. Summary of results

Matches	Results	Modularity	Modularity difference of the same teams (Absolute value)	Number of modules (Turkey's modules)	Number of nodes in modules
Turkey-Andora (06.09.2013)	5-0	0,108	0,027	4 (4)	11-4-5-7
Andora - Turkey (22.03.2013)	0-2	0,081		3 (2)	3-15-10
Turkey-Romania (12.10.2012)	0-1	0,137	0,003	3 (2)	7-11-10
Romania-Turkey (10.09.2013)	0-2	0,140		3 (3)	9-6-13
Holland-Turkey (07.09.2012)	2-0	0,163	0,011	3 (1)	13-10-5
Turkey-Holland (15.10.2013)	0-2	0,152		3 (2)	9-7-12
Turkey-Hungary (26.03.2013)	1-1	0,138	0,012	2 (2)	12-15
Hungary-Turkey (16.10.2012)	3-1	0,150		3 (3)	8-8-12
Estonia-Turkey (11.10.2013)	0-2	0,135	0,003	4 (3)	10-3-10-5
Turkey-Estonia (11.09.2012)	3-0	0,132		4 (3)	6-10-9-3

When we examine the number of players in the modules, we see that these numbers change between 3 and 15 and the value is 10 (Figure 6).

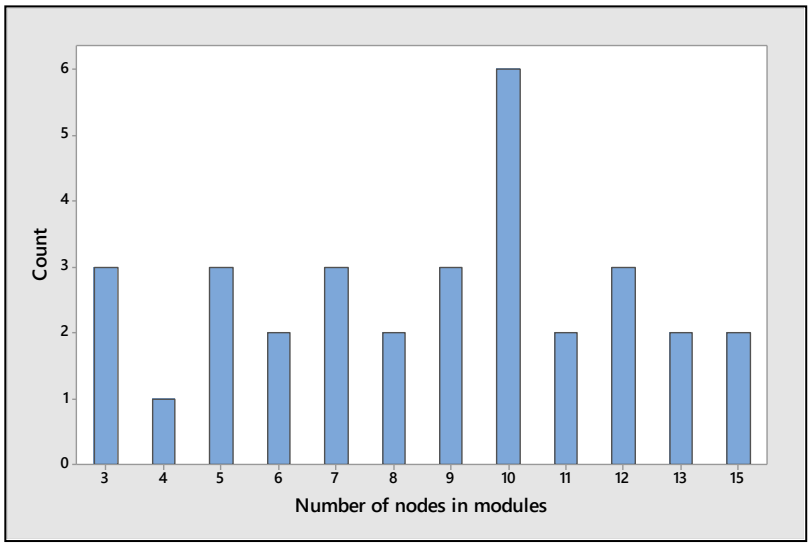


Figure 6. Number of nodes in modules

8,688, which is found the average number of players in the modules, also tells us that there is a big difference between what was planned and what is occurring in football.

Table 3. Descriptive Statistics

	Mean	Std. Deviation	N
Goals	1,6000	1,57762	10
Goals allowed	,9000	1,10050	10
Modules Numbers	2,5000	,84984	10

Table 4. Correlations

			Modules Numbers
Spearman's rho	Goals	Correlation Coefficient	,798**
		Sig. (2-tailed)	,006
		N	10
	Goals Allowed	Correlation Coefficient	-,497
		Sig. (2-tailed)	,144
		N	10

**.Correlation is significant at the 0.05 level (2-tailed).

In our study, the relationship between the number of goals and goals allowed and the number of modules in the match was investigated with Spearman correlation coefficient. With the obtained value 0.006 it was seen that this relation is strong (0.798) and significant (Table 3 and Table 4).

DISCUSSION AND CONCLUSION

Modularity is a widely-used criterion for evaluating the quality of the detected community structures. The modularity is computed as a summation of the difference between the actual number of links and the expected number of links of a node-node pair over all pairs. The larger the modularity, the better the quality of the detected community structures (10). In this study, the game tactics (systems) used in football are explained with the concept of modularity.

Today, the basic system implemented in football matches is the 4-4-2 system. In the 4-4-2 system, the defense with a four-defensive defense is usually a self-defense. When we divide the field into three equal areas, it is inevitable for the success of the 4-4-2 system that each player in the number one field will have the defense block installed. The most important point in the wing is the harmony between the two in the middle of the defender. The 4-2-3-1 system is a transformed form of 4-4-2. Defense principles and understanding are the same as 4-4-2. With five midfielder teams using teams 4-2-3-1, they can control the game by forcing defenses to move away from the margins.

Our data set is limited to 10 games. It is noteworthy that the number of players in the modules is sometimes 10. Although the results obtained in 10 games as the number of modules are not far from the 4-4-2 system, it is seen that there is a big difference between the ones planned before the match and the ones taking place in terms of the number of players in the modules. When we examine the pass network of the match Holland-Turkey (07.09.2012) in Table 1, this network has three modules, one module of the Turkish National Football Team and two modules of the Netherlands national team. In particular, the strength of the ties between the modules of the Dutch national team connecting H5 and H8 to each other, explains the fact that the Dutch National Team wins the match.

One of the interesting points is that in Hungary-Turkey (16.10.2012) match, Hungary won the match despite it has only one module. In the Turkey-Holland (15.10.2013) match Turkey played as a single module, but Turkey has lost the match this time. Turkey-Hungary (26.03.2013) match is also a two-moduled match with one small exception. All of these also confirm that there is no relationship between the number of goals scored in a match and the number of modules in the match. As a result, we can say that there is a significant problem in the reflection of the systems that the managers designed in their minds, even if we have a limited data set.

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Additional Field Player Tactics' Effects to Match Performance During the Numerical Asymmetric Situations In Female Handball

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Abstract

The aim of this study was to analyze to effects of additional field player rule as a tactical intervention in elite female handball. The thirty-nine highly competitive handball matches were undergone notational analysis from 2020 IHF Women's World Championship. Goal, 7-m and 2-min penalty, missed shots, technical errors, received goal empty net, missed shots empty net, fast break goals and substitution failures analyzed during the goalkeeper benched durations for tolerate the numerical inferiority or creating numerical asymmetry to attack with an extra player for each 10-min periods. There was a significant difference between 5&6 and 7&6 situations however no statistically significant differences all parameters in both situations in comparison winner and loser teams. Moreover, we did not observe significantly changes all parameters when compared the match periods in 5&6 and 7&6 situations. These findings suggested that current tactical variation more frequently used by teams to tolerate the numerical inferiority in the attack whereas the consequences of application has a low risk to receive goal the empty net. Current findings of this study teams which used the additional field player strategy has no extra attacking efficiency however this tactical application does not result in any negative effects within risk of empty goalie

Keywords: Handball, Additional Field Player, Numerical Asymmetric Attack

INTRODUCTION

Handball is a team sport especially common in Europe, based on defense through body contact by holding and pushing (20). Handball players are allowed to defense the opponent by upper body contact using their arms to block their running course and prevent them from entering the goal area. Moreover, it is completely within rules to prevent the opponent from passing the ball or scoring a goal by pressing the throwing arm to block an active attack and errors resulting in a lost ball with such interventions bring a free throw (6). However, contact on the face and throat areas of the attacking player, pulling the opponent from behind, and contact with a stretched arm are considered out of the sport's etiquette and result in a two-minute penalty according to the game rules (6). The punished team is left with the disadvantage of playing with one player less in the offense and defense. In 2016, the International Handball Federation (IHF) introduced a series of changes in the rules including the "substituting the goalkeeper with an additional field player" (6). This rule allows the field player in with the goalkeeper stepping aside and gives teams an even chance for attack instead of attacking with numerical inferiority. Around ¾ of all teams choose to make use of this rule (12). Moreover, this rule is not only used during offense by teams with the numerical inferiority, but also by some coaches who have trouble finding

goals in offense in certain instances of the game with seven players.

Before the rule change, completing the offense force with the goalkeeper and replacement or performing the offense with an additional player was the tactic used, but this was not practical due to some difficulties. This old rule allowed the additional field player to enter the game in a jersey in the same color as the goalkeeper's but with own number showing and only that additional player could switch with the goalkeeper. There are a limited number of studies researching the strategy of goalkeeper-player substitution within the framework of these old rules (3,8,14). In a recent study, it was shown that the additional field player tactics had beneficial effects and no major harmful return despite the empty net (3). The results of a study collecting the opinions of elite coaches about the new rule revealed that initially there was no consensus for this rule-tactic implementation (10). In the only study conducted with this modern version of the additional field player rule, games in the 2016 Olympics were analyzed. The results of this study show that it did not make a significant contribution to the offensive team performance, but did not do any harm in the attacking opponent on an unguarded net (11). However, lack of any findings on the factors affecting the implementation of this strategy and other performance indicators in handball deserves some attention. The aim of this study was to analyze the effect of the additional field player rule, which led to the special situation of numerical asymmetry in women's handball in the last world championship.

METHOD

Study Model

The following actions were evaluated in the games during the times the team was missing players (attack with numerical inferiority, 5&6 + 1 field player) or numerical equality was broken (attack with numerical superiority, 6&6 + 1 field player).

Analyzed parameters:

Scored goal: These are scored when playing with the additional field player.

A 7-m penalty or 2-minute suspension gained (7-m&2-min): Actions that do not result in a goal while attacking with the additional field player, but include attaining a 7-m shot or having the opponent out of the game.

Missed shots (MS): Situations where the goal shots during the attack with the additional field player are not goals such as out of target, block, or saved by the goalkeeper.

Technical error (TE): Faulty actions resulting in a lost ball during offense, such as the violation of the goal area, offensive foul, steps or passing or catching error, or goal area violation during an attack with the additional field player.

Received a goal with an empty net (RGEN): Goals scored by the opposing team when the net is empty, before the goalkeeper had a chance to switch with the additional field player at the end of the attack.

Missed shots at the empty net (MSEN): These are the shots sent by the opposing team into the empty net, before the goalkeeper had a chance to switch with the additional field player at the end of the attack.

Fast-break goals (FBG): Goals scored as a result of a fast-break attack before the opponent could form their defense, even when the goalkeeper was successfully substituted at the end of the attack.

Substitution failure (SF): Substitution failures that resulted in penalty when substituting the goalkeeper with the additional field player.

Notation analysis was performed for six consecutive periods of 10 minutes each throughout the game. Moreover, the teams were marked as winners and losers for evaluation after the analysis.

Universe-Sample (Study Group)

In this study, 39 of the games in the IHF 2020 Women's World Handball Championship that ended with a competitive score were analyzed retrospectively. Games that ended with a score difference of four goals maximum were accepted as competitive. The 3rd - 4th match of the teams between the last four ranks ended with a big difference, yet included as an exception. Games were viewed and analyzed through the public videos at the website;

https://www.youtube.com/watch?v=qpUBd6b08sU&list=PLWCecFpv5TPsFZ6FLu8ftjhDp5XLuU4oQ (last access date: May 25, 2020). A group of operators with experience as handball players and coaches independently performed notation analysis after a standard training in analysis variables.

Analysis of the Data

Statistical analysis of the data was performed with SPSS 25 statistical package software. (IBM Corp. Released 2017, IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY). Statistical significance level was accepted as $p<0.05$. Descriptive statistics were made for all parameters. The difference between winning and losing teams and 5&6 or 7&6 comparisons were evaluated with the independent sample Student's t-test. Whether the actions analyzed in both 5&6 and 7&6 situations differ between game periods was tested with the one-way variance analysis (ANOVA). Bonferroni post-hoc test was applied to identify the significantly different periods.

RESULTS

Descriptive analysis for the parameters obtained in different periods of the game and in cases of numerical asymmetry (inferiority or superiority) is presented in Table 1.

Table 1. Descriptive data for the parameters according to the periods and inferiority/superiority status

	Goal	7m2min	SE	TE	RGEN	MSEN	RGFB	SF
5&6	158	53	116	62	26	20	26	5
7&6	46	9	26	9	5	2	11	0
1st period (0-10 min)	28	6	16	3	3	1	8	0
2nd period (10-20 min)	21	7	21	8	1	3	9	0
3rd period (20-30 min)	39	15	28	18	7	5	6	1
1st half total	88	28	65	29	11	9	23	1
4th period (30-40 min)	32	14	25	14	4	6	2	2
5th period (40-50 min)	42	12	22	10	10	2	5	1
6th period (50-60 min)	42	8	30	18	6	5	7	1
2nd half total	116	34	77	42	20	13	14	4
Game total	204	62	142	71	31	22	37	5

MS: missed shot; TH: technical error; RGEN: received goals in empty net; MSEN: missed shots at empty net; RGFB: received fast-break goals; SF: substitution failure.

Comparing all 5&6 and 7&6 situations in all games, we found significant differences in all parameters (Figure 1).

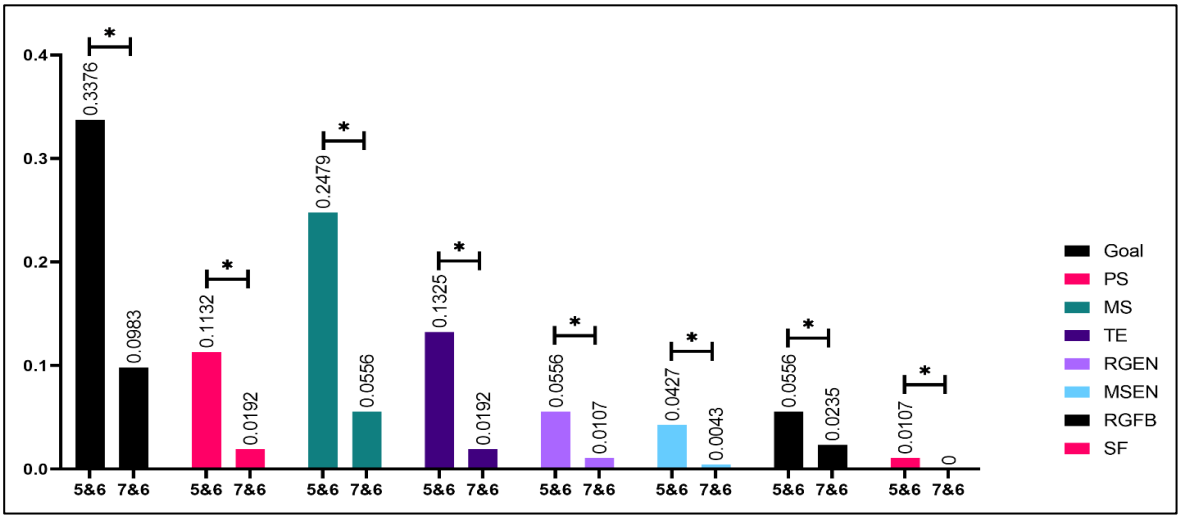

Figure 1. Change in the parameters analyzed as compared to the numerical situation where the tactic of using an additional field player is employed. 7m2min: Gained 7-m penalty or 2-min suspension; MS: missed shots; TE: technical error; RGEN: received goals at empty net; MSEN: missed shots at empty net; RGFB: received fast-break goals; SF: substitution failure. * p=0.001

No significant difference was found in the parameters analyzed as a result of playing with an additional field player both for the losing and winning teams in situations of 5&6 and 7&6 (Figure 2).

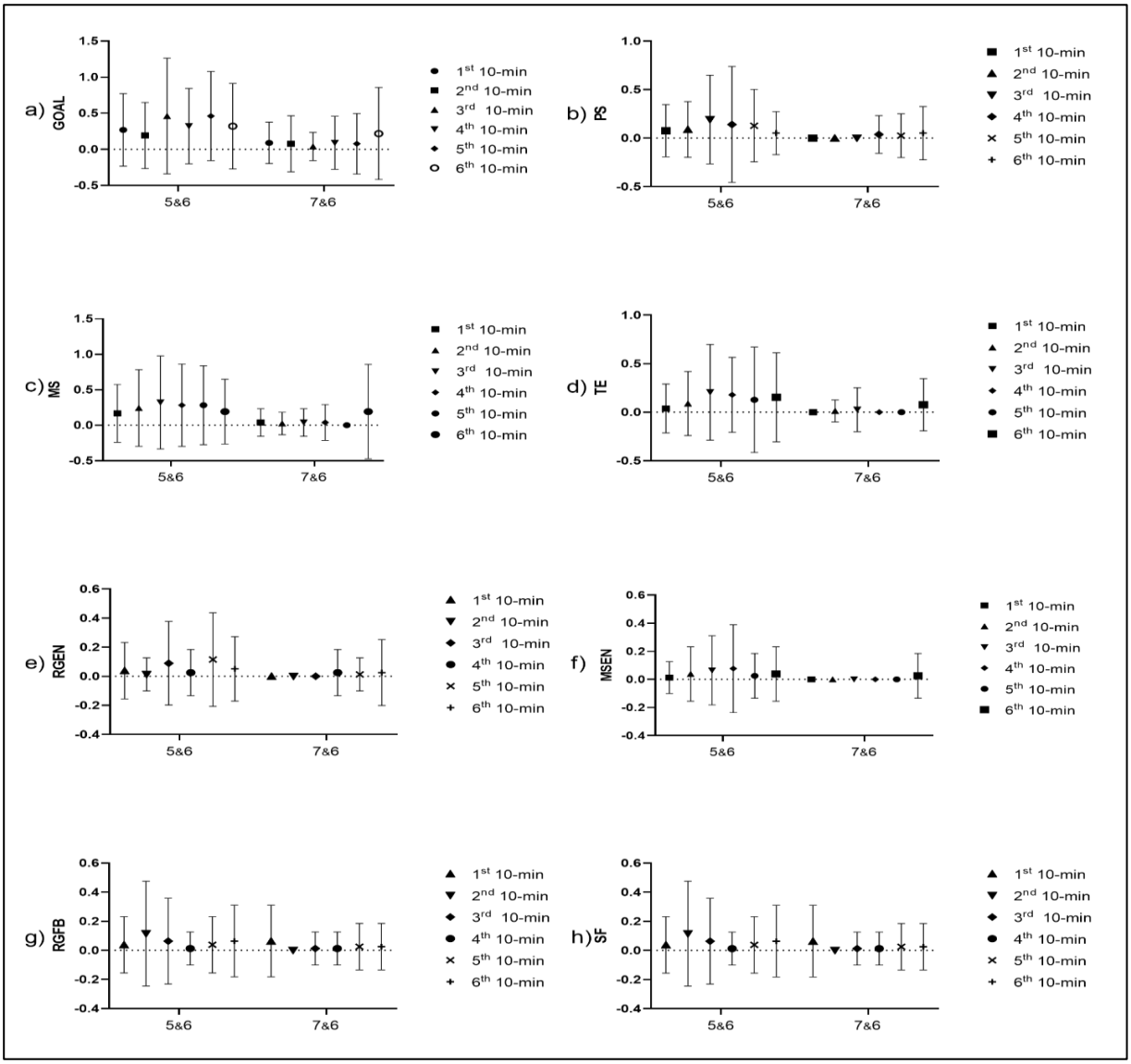

Figure 3. Variance analysis of the parameters based on the game periods for the situations of 5&6 and 7&6. a) goal; b) 7m2d: 7-m penalty or 2-minute suspension gained; c) missed shot; d) technical error; e) received goals at empty net; f) missed shots at empty net; g) received fast-break goals; h) substitution failure.

DISCUSSION

This study was conducted with the aim of exploring the potential benefits and possible negative outcomes of the strategy of playing with an additional field player in handball leaving the net empty. The findings of the study showed that this tactical variation was used to achieve numerical equality by penalized teams, rather than playing with an offensive edge and that teams did not suffer a significant negative outcome despite the risks an empty net might involve.

In handball games, numerically asymmetric situations are on the rise due to the 2-minute suspensions applied (17) and the tactical behavior of players is affected by the numerical change in their teams (18). Observations indicate that after one player is out, the team has difficulty in scoring a goal with fewer players on the offense and their attack performance suffers (15). In beach handball, a common tactic is attacking with one more player at the end of the goalkeeper substitution (5). Similarly, substituting the goalkeeper with an additional player in the last minutes of the game is also a strategy in ice hockey (2).

The first finding of this study is that winning and losing teams both use the tactic of goalkeeper-player substitution, which makes no difference in terms of the positive or negative outcomes it yields. This may be because teams want to stick with their own systems of game and do not want to take any

additional risks besides using this tactic to tolerate missing players. In the literature, attack activity during the periods of numerical asymmetry in the game stands out as a factor that separates the winning and losing teams (4,19). Contrary to the findings of this study, Prudente et al. (2019) found that playing with an additional field player brought about negative outcomes including an increase in lost balls, avoiding shots, and fewer assists. Beiztegui-Casado et al. (2019) reported a rare use of this tactic (927 situations of numerical inferiority / 154 times a goalkeeper-player tactic used). According to the findings of the same study, the strategy of an additional field player increases the chance to score, while the risk taken by leaving the net empty does not cause any statistically significant harm. The reason teams' appeal to this tactic less frequently may be found in the analysis of the games in a previous tournament played according to the old goalkeeper-player rule. The timing of the substitution due to the old rule, the area where the attack ends and the side of attack the substitution area corresponds to are all factors that affect the practical application of this tactic. On the other hand, Prudente et al. (2019) found that the rate of application of this tactic was 11.5% in the 2017 Men's World Championship. Research findings indicate that teams tend to hold longer attacks when using this tactic and especially the midfield players in the quarterback position avoid taking risks. In another similar study, it was shown that playing with an empty net (5&6 or 7&6 with an additional field player) prolongs the attack and allows more passes to be thrown (9). Krahenbül et al. (2019b) not only found that the attack efficacy did not change significantly when teams played with an additional field player, but also showed that no overly negative situation (e.g. conceding a goal in the empty net) was experienced due to disadvantages such as a lost ball (11). According to these studies, the reason that the additional player tactic is used at a low rate is the fact that it is still in its infancy following the rule change of the IHF and the teams did not have enough time to devise and adapt suitable tactical variations yet. In a long-term study, Klett (2014) investigated the outcomes of attacking with seven players, and identified it as a low-impact tactic resulting from an increase in goals conceded at an empty net (8). However, this research, too, covers the games played out according to the old rule of goalkeeper-player substitution. The application of the rule in this way limits the behavior of the additional player joining the game to start the attack and run for substitution rather than being a threat with their shooting. This result can be explained by the opponent's defensive strategies devised in this direction. Bachman's study (2014) supports this result with its finding that the additional player chose not to perform an offensive shot and that team attacks tend to end in the opposite direction of the substitution area after this tactic is implemented (1). Another study indicated a relation between playing with seven players and gaining a 7-m penalty (16).

Another finding of this study is that positive or negative outcomes of implementing the additional field player strategy do not change according to game periods. However, a change could be expected in the way the tactic is used, hence in its outcomes, towards the end of the game. Nevertheless, Beiztegui-Casado et al. (2019) found that the implementation of this tactic decreased significantly in the last 10 minutes of games (3). This can be explained with the fact that teams take the risk to use this tactic when there is a significant difference in the scoreboard, but choose to play safe when the scores of both teams are close. In our study, we analyzed only the games with a high level of competition where two teams scored relatively close. This might lead to different results compared to other the findings of other studies. According to the results of this study, as this tactic is implemented towards the end of the game, positive outcomes could not be achieved and the parameters such as high-intensity activity, running at high speeds and over big distances leading to exhaustion after the game could be reduced (7, 13, 21). Study findings show that using the tactic of additional field player at the level of national teams in women's handball does not increase attack effectiveness, but taking the risk of attacking with an empty net does not bring any negative outcomes, either. The results presented herein are limited to women's handball and the study does not include an analysis of the physical, physiological, and technical-tactical differences between male and female athletes. Another limitation of this study is that the game results of national teams are obtained by analysis due to their shorter preparation times. Further studies are needed to investigate the outcomes of this tactical practice at the level of elite clubs. In addition, further studies should be planned considering that coaches will develop different solutions and different ways to use this tactic more widely.

Consequently, turning the rule of additional field player into a tactical move is expected to bring along the advantage of attacking with seven players in the missing periods and bring together innovative sets of attacks where new possibilities are explored. This may change handball as an ordinary branch of sport and create a more attractive and spectacular game. However, during the implementation of this strategy, the total sprint distance and the physical load of the players in the goalkeeper position are also bound to be affected since the substitution is faster than normal to ensure goalkeeper's return to the field.1.

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A Football Player's Insider View: Inspiring the Success Story of the Turkey Amputee Football National Team

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Abstract

Turkey wins the European Amputee Football Federation (EAFF) championship after beating England 2-1 in the final held at Istanbul. The aim of this research was to explore, conceptualize and explain the success story of Turkey Amputee Football National Team. Thus, the goal was to present a map of success. One football player was interviewed using open-ended questions. The data were analyzed using thematic analysis. Analysis resulted in a synthesis of the various ways Turkey National Amputee Football Team experienced success: (a) Determination and Team Spirit, (b) Self-sacrifice, (c) Challenging to Limitations, Restrictions and Barriers, and (d) Dependent Images and Expectations. The results are consistent with the building blocks (Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment) of flourishing and well-being suggested by PERMA Theory.

Key Words: Amputee football, success story, thematic analysis, PERMA theory

INTRODUCTION

Achievement is a concept repeating in human movement as sports, exercise or recreation. Since the first days of life, human beings have tried to feel effective in their interactions arising with the nature and due to the fact that this need has been prevented throughout life, 'well-being' or 'flourishing' of human beings have been endangered (1–3). Despite of distinct universality of achievement motivation, there are obvious differences between pursuing achievement by human beings (4). Achievement motivation theories tries to explain the processes starting achievement behavior, directing and maintaining it. Achievement motivations are relatively steady individual differences affecting motivations of human beings while seeking achievement. This introduction defines achievement motives, presents a general overview regarding they are developed, examines implicit and clear measures of motives and summarizes documented results of achievement motives (1–5).

Achievement reasons of human beings are explained based on either moving towards achievement-based inducements while seeking achievement or moving away from it. Motive to approach to achievement (sometimes it is also named achievement hope) defines individual differences of human beings in tendency to experiencing expectation pride while pursuing achievement (1,2). Motive to prevent failure explains individual differences tendency to experience embarrassment be expected while pursuing achievement by human beings. Over time, these motives have been named as achievement and failure fear. Pride and embarrassment anticipated regarding motives, are effective in activating and directing achievement behavior (1,2,4). For instance, pride promotes persistency for seeking aim and increasing participation, long-term achievement,

stimulates interpersonal expression, participates flexible social behaviors and makes contribution to improving social capital in time. On the other hand, embarrassment motives stand back Based on how human beings regulate their embarrassment, it can promote calm down or being aggressive (4). In terms of motivating achievement, it undermines persistency and rise difficulties to reach long-term aims. In their achievement motivation theory (3), assert that motivation of a person is affected by a tendency away from achievement tendency and failure. Each of these tendencies, is represented as value of perception (or being failure) possibility and achievement reward (or failure penalty) and production of motives of a person. For this reason, reasons are suggested to correct basic expectation-values estimations and to detail interpersonal behavior variety. Over time, independence of approach and avoidance motive has arisen and the idea that attitude and avoidance tendencies produce only one result motivation tendency, has been deserted. In contemporary researches, achievement motives based on approach and avoidance regarding motivation are typically taken into consideration as independent determiners and their direct effects on the results regarding motivation, expectations and interaction with values attract more attention (3,5).

In final match of 2017 EAFF European Championship hosted by Turkey, Turkish national team became champion in EAFF Europe Amputee Football Championship by 2-1 winning against England national team. Story of experiences forming the source of this achievement, meaning social reality or phenomenon that is wanted to examine, indicates the importance of the nature of the subject that is wanted to research. The research aims to explore, conceptualize and explain success story of Amputee Football National Team. Thus, it is aimed to present a success map to readers. In the research, it has been tried to bring a rich "subjective' approach deep for the question "what are the reasons of success of Turkey Amputee Football National Team?'

The concept of subjectivity is a difficult concept, it is connected with human requests, needs, desires and also dynamic interpretations of events and memories accumulated in human memory. Subjectivity researches are holistic reviews of human experiences ensuring opportunity to understand inner opinions about experiences and to understand contents of these inner opinions expected to arise. Researching subjectivity can make researchers get close to very special experiences in life stories of others. In this context, experiences those are embedded in life stories; can be constructed perceptibly via process, chronology, reasoning and imagination (6). In scientific researches those have close relation with subjectivity, 'reflexivity' concept comes into prominence as an approach (7). Reflexivity that is defined in many ways, can be defined as a process to bring an approach regarding how behaviors of individuals about the subject of the research will be formed by other individuals and social world.

Amputation is defined as not having an organ or a part of body, it is generally lower or upper extremity or both. Amputation of an organ, can cause some problems such as compensative movements, changing the center of gravity, walking, decreasing running or ability to run, higher energy consumption, high heart rate and low oxygen consumption (8–11). However, it does not mean that challenging is impossible, since being disturbed is a part of learning and experience challenge promotes growing.

Amputee football is a type of traditional football where sportsmen are divided into classes: A2 / A4 (lower extremity amputee) and A 6 / A 8 (upper extremity amputee). A2 / A4 and A6 / A8 classes where sportsmen play on the ground, can play only as goalkeepers. A goalkeeper has two legs, but one of his upper organs is amputee. Thus, goalkeeper is not allowed to go out of post area, since he has normal mechanics for movement. Outer field players (A2 / A4 classes), use crutches for movement ability ensuring functional movement ability with upper body weight pass (9,12). For amputee players, these crutches are adjustable and hold on both sides (13). This sports can be played on natural or synthetic turf in minimum 60 x 30 m sizes and maximum 70 x 55 m. A team consists of seven players and one goalkeeper. A match is divided into two intervals in 25 minutes and there is a rest break taking 10 minutes in between (13). In a tactical function, a player, by being positioned on the pitch to realize a challenging action and to protect himself, is exposed to a peer of body, mind and spirit connection (10,14,15).

The factors (ontology and epistemology) those are effective in success of Amputee Football Turkish National Team, indicate the scope of this research. To generalize the research to wider masses, it is

required to examine the phenomenon taken into consideration, with different approaches (quantitative or quantitative + qualitative).

METHOD

Methodological approach

Qualitative research is based on a textual analysis to understand social facts based on human experiences (16). The purpose of the research is to find mutual subjects of the stories those are effective in success of Turkey Amputee Football National Team. In order to do it, qualitative interview technic that was not structured as 'data collection technic', was adopted (17). Interview questions were not determined before, however, they are formulated in situ based on answers of participant (18). For this reason, epistemological effects of the research were based on natural research tradition (19–21). Moreover, Carter and Little theorize that just as epistemology justifies methodology, methodology justifies the methods of use. Grounded in our epistemological intentions, we adopted a qualitative descriptive research design, a methodology that originates from a participant's "narrative, life history, testimonio" (22). Due to epistemological approach, 'objective fact' assertion was not climed; rather (23,24), Epistemological approach complies with a flexibility where both basic and constructive paradigm are valid (25,26). Besides, Braun and Clarke divide thematic analyses into two as inductive and deductive or theoretically. Due to the fact that a code frame that is existed before based on theory, is not used and data is processed as raw data given in data analysis section, Inductive Thematic Analysis was accepted. Creating themes presented in the results, is based on to theorize experiences of goalkeeper after Turkey won against England in 2017 EAFF European Championship.

Participant

In order to explore success story of Amputee Turkish National Team (sometimes spectacular, sometimes ordinary life fact) who became champion in 2017 EAFF European Championship hosted by Turkey, one of the players of the team was included into the research after he declared his voluntary participation. Based on the purpose of the research, using an epistemological approach in a naturalist inquiry, was suitable and related with the subject (20,21). It became possible to obtain rich definitions of phenomenon after deep interview and it was accepted significant after data set is reviewed (19,26–29). It is not asserted that data is saturated. If more participants were involved into the research, it would be possible to find new themes. For this reason, it is accepted that more researches are need certainly. Even though sample size is small, sample size in quantitative research is not prioritized, since relevance level validates significance of data (30). Data reliability is based on high quality in interviews. Characteristics are referred such as high quality sound, printing word by word, change in data in terms of variety in a condition and samples (19,20). Besides, by using thematic analysis by Braun and Clarke, data has been analyzed deeply. It tries to find experiences in participant narratives, not for quantification of thematic analysis data (25). On this basis, participant discourses were represented with narrations from data, this is also an important matter to increase reliability in qualitative studies (20).

Data collection

This research was supported by Inonu University Scientific Research Projects Unit with project number TSA-2017-813. Before the research, an application was sent to Inonu University Ethic Review Council and this council convinced that there was no ethic obstacle for performing this research [2018/4-6]. The participant was informed about Helsinki Declaration about the study and voluntary aspects in written and verbal formats and also that he has right of withdrawal by not having no result and effect in his live in future. By collecting data, the participant gave informed consent. While submitting findings, personal information of the participant was not shared with any persons to ensure security and nicknames were used. Interview was made by asking open ended questions. An author of the research made interview with a participant. There is no relation between the interviewer and interviewee. In order to establish a comfortable ambient, the meeting began with a short conversation. Even though it is not a standard (18), interviewer started with a triggering question 'Could you please tell success story of Turkish National Team that became champion in EAFF European Championship?' Afterward, in order to encourage a participant to discourse specific subjects or ideas, chasing questions were asked based on his answers (30). For example, 'Could you please provide more information about that?' or 'How was that?'

Data analysis

A six-step thematic analysis that was clarified by Braun and Clarke was used (26). The purpose of thematic analysis, was to find patterns related with data and the analysis was made as follows: Phase one (being familiar with data): Decrypted data is read repeatedly and first opinions are noted. Phase two (producing beginning codes): Throughout the whole data set, interesting characteristics of data is coded systematically and collected below each code related with data. Phase three (searching theme): All data and codes were gathered below themes possibly related with potential themes. Phase four (reviewing themes): It was ensured to control compliance of coded data content of themes (1. Level) and all data sets (2. Level) and (28,29) to prepare thematic 'map' of the analysis. Phase five (defining and naming themes): To refine details of each theme, analysis was proceeded and clear description and naming of all themes and story that was told, were made. Phase six (preparing report): In this section which is the last opportunity for the analysis, direct citations with concrete, striking and persuasive sample, were selected. Coded data particles were analyzed for the last time. Analysis results were associated with the research questions and the body of literature and the results were reported with an academic language.

FINDINGS

The findings present success story of Turkish National Team that became champion in 2017 EAFF European Championship in 2017 hosted by Turkey. Table 1 demonstrates profiles of football players in Turkey Amputee Football National Team. As a result of the analyses, four themes were revealed for success reasons of Amputee Football National Team: (a) Determination and Team Spirit, (b) Self-sacrifice, (c) Challenging to Limitations, Restrictions Barriers, and (d) Dependent Images and Expectations.

Determination and team spirit

In the interviews, it was understood that determination of players is helpful to define their aims and to reach achievement in order to see those obtained aims. On the other hand, discourses stressing importance of relations and social connections, emphasize requirement of understanding in-team friendship and team spirit for consistency in achievement. "Really, no achievement incidentally happens. When we first started the camp, there were around 27-28 persons and 5 goalkeepers. But the numbers started to decrease over time during camps. Trainings passed in a competitive and friendly ambient. Our training system was such: We did training in 37-38-degree temperatures. We woke up at 5 am. Bu we knew that when we become a single heart, when we learn to move together as a team, we will be achievementful. We made all our works in that way and we made all our discourses in that way. Sometimes, the things we made on the pitch, were not enough and we did indoor works and chats. We prepared each other mentally. Maybe, we could not receive much psychological support in that process and we had many deficits in professional sense. We tried to remove those deficits with our friendship. As a result, we were 18 persons and, 13 players and 5 persons as technical team, but we were a whole."

Self-sacrifice

In discourses mentioning that sportsmen are self-sacrificing persons naturally, even though most of sports steps serve themselves, it is believed that achievement cannot be reached without making sacrifice from social life or actual physical well-being. According to research findings, sportsmen who understand this, generally have potential to create the best team.

"If I need to say the simplest thing, we could not see our families. In fact, no one there saw their families. For instance, our coach did not see his children. But, the most interesting thing is that we had friends who came to camp at the second day after he had a child. There were friends who had child and came to camp. I know my teammates remained away from home in that process, their children, even a friend who recently married joined camp a day after his marriage. The biggest advantages of ours was to be one. In that sense, the most important thing is family but we left our families at the second row for our country.''

Challenging to limitations, restrictions and barriers

In discourses, it is noted that big bodily, mentally and spiritually challenges are required in order to commit achievement by overcoming various limitations, constraints and obstacles. Besides, it is understood from discourses that challenges test skills and abilities of football players and support them for a flowing experience.

"We could easily get through first matches, anyway we were at the top of the list but we draw a very disastrous lot. When we matched with Russia in quarter final, it was highly interesting and

tragicomic thing since two seeding teams matched. We had a meeting at that day. I said this very few places. We said, no matter what, whoever we match, we will beat any team and we will make our country champion in this tournament. There was no other way for us, the matter was sportsmen for us at that day. We had a meeting in a room, we were angry since it was supposed to happen. In my opinion, there were wrong things happening. But, regardless these wrong things, no matter what, we became one at that day, we caused to groan at that day with our voices in National Team facilities in Riva at that day. I think everyone should strive based on his skills. Train yourself based on your skill and take your place on the stage. Nothing can stop you. Just want it. My dream was to play in front of crowd, I reached that aim at the age of 39. What is your lack comparing to me? I just say, come and take your place in life."

Dependent images and expectations

Research findings demonstrate that being in an expectation by dreaming and forming positive thoughts for the future, has an important effect on achievement of football players.

"If it is required to be realistic, we believed that our lives will change at least a little bit after being champion. And this was a very big effect on reaching achievement for us. We were fabulously impressed to have favour of people filling the stadium, people watching us on television and especially top government officials. We want to remove the obstacles in front of sports. As a sportsman, we will have work about that and we will make new achievement initiatives."

Table 1. Profile of football players

Football player	Stories about disability element
Safter	He pressed on mine while performing national service and lost his left leg below his knee.
Merih	He has not one leg congenitally.
Hulusi	He had a car crush when he was playing football on a street on 23 April 1993 and lost lower part of his right leg.
Özcan	He lost his right foot as a result of a traffic accident.
Yalçın	He was born with a shorter one leg.
Cemil	His right leg is congenitally disabled.
Kerim	He has not one leg congenitally.
Niyazi	He lost his left leg in a motorbike accident.
Nazif	He lost his left arm as a result of an electric shock when he was a child.
Nusret	One of his arms is shorter congenitally.
Şerif	While watching destruction a construction with his friends in neighborhood with his friends, earth digger fell on him.
Alihan	He suffered a seizure when he was a baby and his left leg have not grown.
Şamil	His foot was seized by chaff-cutter on field when he was a boy.

INTERPRETATIONS AND DRAWING CONCLUSIONS

The research aims to explore, conceptualize and explain success story of Amputee Football Turkish National Team. The analyses were resulted with very wide synthesis of success experiences of Amputee Football Turkish National Team: (a) Determination and Team Spirit, (b) Self-sacrifice, (c) Challenging to Limitations, Restrictions and Barriers, and (d) Dependent Images and Expectations.

What is human flourishing and what enables it? PERMA Theory in positive psychology that was asserted by Dr. Martin Seligman in 2011, has been an attempt to answer these basic questions. According to that theory, there are five building blocks ensuring development and well-being: Positive Emotions, Engagement, Relationships, Meaning and Achievement (31). The research results demonstrate consistency with these building blocks asserted by PERMA Theory.

Positive Emotion is hedonist (32) and increases positive emotion related with the past within the limits (for instance, gratitude and forgivingness) positive emotion about today (for instance, physical pleasures and awareness) and positive emotion related with the future (for instance, hope, positive expectation, imagining or optimism) (33–35). The analyses those are made on voice recording interviews, demonstrate that having an expectation by imagining and creating positive thoughts for the future, had great effect on success of Turkey Amputee Football National Team. "If it is required to be realistic, we believed that our lives will change at least a little bit after being champion. And this was a very big effect on reaching success for us. We

were fabulously impressed to have favour of people filling the stadium, people watching us on television and especially top government officials." According to research results, it can be mentioned that positive emotion about the future, affect success.

Engagament is an experience where a person demonstrates his/her skills and strong sides or where a person focuses all attention for a challenging task. In engagement, an experience named 'flow' is created (36) and when skills of one are enough for a challenging activity, progress for chasing a clear aim and for an specific goal, is experienced with a feedback almost immediately (37–39).

Turkish Amputee Football National Team believes that in order to commit success by overcoming various limitations, constraints and barriers, a big bodily, mentally and spiritually challenges are required. As a result of this challenge, it is understood that the team is passed to flow status. "We could easily get through first matches, anyway we were at the top of the list but we draw a very disastrous lot. When we matched with Russia in quarter final, it was highly interesting and tragicomic thing since two seeding teams matched. We had a meeting at that day. I said this very few places. We said, no matter what, whoever we match, we will beat any team and we will make our country champion in this tournament."

Relationships are very important for meaningful lives. An individual makes progress, upon relations promoting love, interaction and a strong emotional and physical interaction with other individuals (31). Positive relations with family, sibling, peer, spouse or friends, is basic component of a general well-being. Strong relations also provides support in difficult times required durability (40). Discourses stressing importance of relations and social connections, emphasize requirement of understanding in-team friendship and team spirit for consistency in success. "Really, no success incidentally happens. When we first started the camp, there were around 27-28 persons and 5 goalkeepers. But, the numbers started to decrease over time during camps. Trainings passed in a competitive and friendly ambient. Our training system was such: We did training in 37-38-degree temperatures. We woke up at 5 am. Bu we knew that when we become a single heart, when we learn to move together as a team, we will be successful."

Meaning can be derived from being belonged to a bigger thing than self and devotedly serve for it and well-being can be experienced in such case (31,40,41). Research results demonstrate that even though sports universe serves itself, success cannot be achieved without making sacrifice from social life and actual physical well-being. "If I need to say the simplest thing, we could not see our families. In fact, no one there saw their families. For instance, our coach did not see his children. But, the most interesting thing is that we had friends who came to camp at the second day after he had a child. There were friends who had child and came to camp. I know my teammates remained away from home in that process, their children, even a friend who recently married joined camp a day after his marriage. The biggest advantages of ours was to be one. In that sense, the most important thing is family but we left our families at the second row for our country. As a result, sacrifices demonstrated with meaning and aim feeling, can positively affect success in sports.

Success, creates focus of well-being and based on this building blocks, even if human beings make out that their experiences will not be resulted with positive emotions, meaning or relations, they go after success, competence, acquisition and mastership (31). The most essential results of success motives, consist of success aims. Human beings those have strong need for a success, are tendency to adopt suitable success aims such as mastership approach (focused on learning and development) and performance approach (focused on making better performance than others) (2–5). In interviews, it has been seen that determination of Turkey Amputee Football National Team is effective on defining aims and achieving success with those determined aims.

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Play Therapy in Children with Autism Diagnosis: An Investigation into the Trainers' Opinions

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Abstract

This study aims to investigate the situations related to the effect of play therapy as a therapeutic recreational activity on individuals with autism. Accordingly, the opinions of 15 therapist trainers working at the Special Education and Rehabilitation Centers in Şırnak province were received. The research is based on a "phenomenology" model, which is one of the qualitative research patterns, and sampling was selected by using the "criterion sampling". In the research, a semi-structured interview technique was used as a data collection method. A personal information form and a semi-structured interview form consisting of five questions were applied to determine the opinions of the trainers about the effect of play therapy. The Nvivo program was used to evaluate the data obtained. The data were analyzed by the inductive analysis method. As a result of analyzing the research data, it was determined that the effect of play therapies for children with autism was in five categories such as "applied activities, effects, acquisitions, problems, and suggestions". According to the research findings, it was observed in practices that children experienced various tantrums, attention deficit and communication gap, had anxiety in a crowded environment as well as were socially and psychologically affected and failed to adapt. Through the play therapy was a crucial element in the process of integrating into life by providing children with autism many positive acquisitions such as improving attention and concentration, ensuring cognitive, physical, emotional and multiple developments, acquiring communication skills, reducing problematic behavior, increasing focus, and socializing through an increase in social interaction features such as contributing to establish eye contact. In addition, it is very important to cooperate with families ensuring that they also actively participate in the education process to continue education in a coordinated manner.

Keywords: Autism, Play Therapy, Therapeutic Recreation

INTRODUCTION

"Autism spectrum disorder (ASD) is a complex developmental condition that involves persistent challenges in social interaction, speech, and nonverbal communication, and restricted/repetitive behaviors" (3). Initial signs and symptoms typically are apparent in the early developmental period; however, social deficits and behavioral patterns might not be recognized as symptoms of ASD until a child is unable to meet social, educational, occupational, or other important life stage demands. Functional limitations vary among persons with ASD and might develop over time (6). This neurodevelopment condition has a frequency of one in 110 children in the USA and one in 625 children in Malaysia (21).

Negative symptoms in ASD are characterized by difficulty with common social behaviors in typical individuals, such as eye contact, flexibility of thinking, social involvement, name response, facial and verbal expression (13). Individuals suffering from autism often lack basic life skills. In other words, they lack significant self-care, daily life, social, communicative, and academic skills. In addition, individuals with autism who lack social emotions, experience social shyness and communication disorders, and prefer loneliness are likely to have a negative interaction with the society

as they grow (11). In this context, therapeutic practices help or reduce the functional limitations that prevent the individual from increasing their leisure awareness, knowledge, skills, abilities, and participation in activities (18). Also, therapeutic interventions based on a variety of approaches attempt to help children on the spectrum improve physiological and cognitive aspects; enhance their social, linguistic, and communication skills (25); and promote their optimal development and well-being (32). In addition, such practices contribute to the acquisition of basic skills such as self-care, hand-face washing, and other advanced skills such as social and emotional skills (4).

Traditional therapy methods are often dull for individuals with autism. They also have various challenges in their practices. However, therapy with sports activities offers an alternative as it contains creative, entertaining, and playful aspects. In addition, recreational sports activities, which increase the quality of life, develop the ability to live more independently, provide effective socialization, control stress and gain the power to use their physical abilities more functionally, can also be regarded as an alternative form of therapy (18). In this respect, recreation is the most natural and active learning environment for children as it prepares them for life. Recreation plays a crucial role in educating, recognizing, and communicating with children as well as in enhancing the level of skills and knowledge especially in early childhood (5).

Yavuzer (34) defines recreation as "an activity that is pursued for purposes of pleasure rather than for result-based purposes". According to Freud, recreation helps children freshen up by ensuring the release of negative emotions caused by traumatic events or personal conflicts (24).

The effects of recreations and pursuing recreational activities on the development of children's mental, cognitive, physical, social, emotional, and self-care skills have been supported by studies (26). In addition, one may notice that the therapeutic recreation helps individuals express emotions and unwanted motives by reducing tension and stress. It also facilitates the transmission of fears and requests through non-verbal communication (19). In this respect, the main goal of the study is to examine the situations related to the effect of the therapeutic play activity, as part of recreational therapy, on individuals with autism.

METHOD AND MATERIAL

Information on the analysis of the data obtained is included in this section.

Study Group

This research was carried out through the participation of 15 therapist trainers working at Special Education and Rehabilitation Centers in Şırnak province. Before the interview, the trainers were first briefly informed about the study and subsequently, the interviews were held. These interviews took about 45 minutes. The data of the study group of the research have been presented in Table 1.

Tablo 1. Information About The Trainers

Participant	Gender	Age	Professional Seniority	Field of Study
K1	Female	25	2	Special Education Teacher
K2	Male	24	1	Preschool Teacher
K3	Female	25	2	Mentally Handicapped Teacher
K4	Female	25	2	Mentally Handicapped Teacher
K5	Male	30	3	Philosophy Teacher (with pedagogic-guidance certificate)
K6	Female	23	1	Preschool Teacher
K7	Female	29	10	Preschool Teacher
K8	Male	33	6	Class Teacher
K9	Male	37	15	Physical Education Teacher
K10	Male	24	2	Class Teacher
K11	Male	28	4	Psychological Counselling and Guidance Teacher
K12	Male	28	3	Mentally Handicapped Teacher
K13	Male	24	1	Preschool Teacher
K14	Male	32	6	Special Education Teacher
K15	Female	26	3	Special Education Teacher

Table 1 shows that therapist trainers participating in the research have a professional seniority of 1 to 15 years. The study group consists of 15 therapist trainers (f: 6, m: 9). The study consists of 3 special education teachers, 4 preschool teachers, 3 mentally handicapped teachers, 1 philosophy teacher with a pedagogical guidance certificate, 2 class teachers with a certificate of mentally handicapped teaching, 1 physical education teacher, and 1 psychological counselling and guidance (PDR) teacher ranging between 23 and 37 years old.

Research Design

The research is based on a "Phenomenological" model. Phenomena occur in the form of events, perceptions, experiences, trends, etc. in the world we live in. Accordingly, the relevant design was used to determine the effects of play therapy on children diagnosed with autism based on the opinions of therapist trainers. The sample was selected via the "criterion sampling" method, which is a variant of the sampling method for sampling purposes.

Data Collection Tools

In the study, the semi-structured interview technique was used as a data collection method. To determine the effects of play therapy on the lives of children with autism based on the opinions of therapist trainers, face-to-face and in-depth interviews were held with 15 trainers. Within this scope, semi-structured questions (5 questions) were asked and in-depth interviews were conducted to determine the opinions of trainers on the process.

"Semi- Structured İnterview Form"

The semi-structured interview form consists of questions to determine the effects of play therapies on children with autism.

The questions in the form are as follows:

1. Can you give information about the activities for children with autism in your institution? What kind of activities do you pursue?

2. What are the effects of the activities on the development of children? Can you illustrate them?

3. What do you think about the areas of play therapies that may infleunce children with autism?

4. What are the effects of play therapies on children with autism? Can you name one of its positive or negative effects?

5. What do you suggest to get a high level of efficiency from education? What can be done?

Analysis of Data

The data obtained in the research were transferred to the Nvivo software program and analysed by the inductive analysis method. From the data transferred to the Nvivo program, a coding table and a theme frame was created. These themes and codings were formed after being supported by the statements of the trainers.

RESULTS

This section covers the interpretation of the findings regarding the effect of play therapies on the education of children with autism.

Information about the themes formed as a result of interviews with the trainers has been presented in Figure 1. In total, 5 themes were created regarding the effects of play therapies on children with autism.

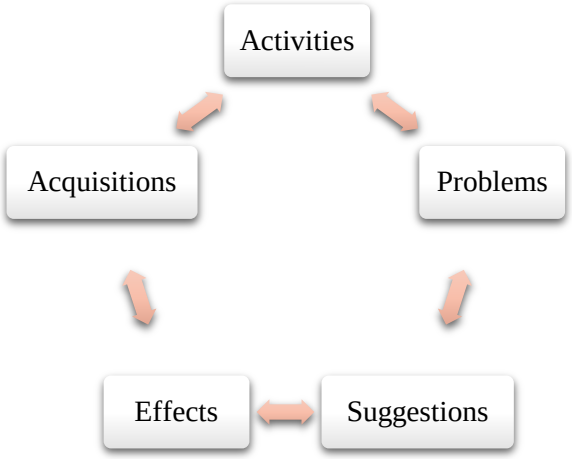

Figure 1: Themes regarding trainers' views

APPLIED ACTIVITIES	In-class Recreation-based Playing ball Latch Setting up a tent Bubble Foam Potato print Swimming on the ground Glass Cushion Attention-grabbing Hand-eye coordination Language and communication Short-term activities
EFFECTS	Cognitive development Muscle development Multiple development Language development Motor skills Emotional Physical Decrease in problematic behavior Motivation Communication Psychological Attention
ACQUISITIONS	Concentration Self-expression Exploring Interaction Feeling comfortable Focusing Social interaction Solving problems Small problem behavior Socialization Fusion Permanent learning Eye contact Friendship relationship
PROBLEMS	Increased problematic behavior Limited activities Events do not affect development Lack of attention The emergence of social and psychological effects Temper tantrums Being affected by the crowded environment Strong reactions Communication gap Failing to adapt
SUGGESTIONS	Cooperation with families / Informing Families / Responsibility / Continuing work at home / Parents' involvement/ Increase in Training Hours / Increase in Social Activities Patience / Coordinated work / Getting to know the student Loving the student / Planning / Help / Early treatment Sports education / Music education Specialist teacher Continuity in education Activities with materials Controlled use of devices Discipline Confidence Believing Optional activities

Figure 2. Report 1: Report results on trainers' views

As a result of the analysis of the data obtained, five themes were created after interviews were conducted with 15 therapist trainers. Given the first theme, the trainers performed practices to strengthen attention, hand-eye coordination, language, and communication within the scope of recreation-based activities besides activities such as ball, latch, and swimming. Therapist practices based on the second theme had positive effects on children's cognitive, muscle, and language development as well as on their motor skills, communication, and psychology, etc. Practices based on the third theme helped children gain acquisitions such as socialization, focus, concentration, self-expression, socialization, social interaction, etc. Based on the fourth theme, children experienced temper tantrums, attention deficit, communication gap, problems in adapting as well as encountered various problems such as failing to get enough efficiency from the activities throughout activities. Finally, therapist trainers offered various suggestions such as contact with the family, increase in social activities, making use of sports and music during activities, showing patience, loving and recognizing the student, and ensuring continuity in education based on the fifth theme.

Some of the responses of therapist trainers are as follows:

APPLIED ACTIVITIES:

K7: "Short-term activities should be preferred without causing boringness. For, half of the children with autism are expected to very active while the other half of them to be very quiet. The latch game (separating the colored latches according to their colors), stringing the beads, bubbling foam, setting up tents, building the potato print etc. may be pursued as activities."

EFFECTS:

K8: "By means of the role modeling method, children develop motor skills such as speech. Dialogues and roles may help children develop socially. Activities may allow children to able to think in detail and comprehensively, and the decision-making ability contributes to the development of the children psychologically and emotionally."

ACQUISITIONS:

K13: "I think activities help children feel better socially, emotionally, and psychologically and communicate better with his/her peers as well as interact with his/her circle more."

PROBLEMS:

K12: "When children play activities to a great extent, these activities may return to the environment and the parent as a backlash."

SUGGESTIONS:

K6: "Humbly, I can say that first of all, we need the patience to get a high level of efficiency. This is not something that will happen only by means of the teacher. Perhaps this situation may be harder than most of the other obstacles. But we do have the luxury to say that we cannot do this or that just because it is not too hard. Apart from that, our target behaviors should be at the level of the student we are interested in and "appropriate for him/her." In general, the activities targeted for children with autism should be a little further away from the perception such as "I should do only these things", and we should get to know our student better and do activities that are fitted for his/her interests and wishes. And the most important thing is the contribution of the family as parents undertake a crucial and humanitarian task here. Love them, approve them, trust them, and know them. You should be the ones who know and trust most. Patience is what families and teachers should take as a mission and what children need most."

DISCUSSIONS AND CONCLUSIONS

In light of the findings obtained in this study, the following interpretations were included.

The questions were asked to the trainers about common activities in their institutions, how these activities inclunce the development of children as well as about their opinions and suggestions regarding acquiring higher efficiency in education.

Based on the trainers' responses, 5 different themes including "applied activities, effects, acquisitions, problems, and suggestions" emerged along with an evaluation within the framework of these themes (Report 1).

Trainers indicated in-class activities, recreation-based activities, playing ball, latch, setting up tents, bubble foam, potato prints, swimming on the ground, cups, mattresses, attention-enhancing activities, activities that provide hand-eye coordination, activities to improve language and communication skills as activities carried out in their institutions as short-term activities. These themes were coded as "Applied Activities". Children with autism spectrum disorders have limited recreation skills from an early age. They perform at a lower level in their symbolic recreation skills, especially compared to their peers with normal development and children with developmental retardation. For this reason, it was seen that the problems of children with autism may have a crucial role in language development due to the relationship between language and symbolic recreation skills (23). Children with autism often have poor motor skills. Thus, applied programs should focus on basic motor skills, developmental activities that may improve individual recreation, sports, and physical activity (35). Recreations are vital in the lives of children with special needs. They ensure that children focus on a particular thing through fun and gain advantage in terms of hand-eye coordination development. In addition to visual-spatial competencies, recreations also contribute to positive behavioral developments (14). In a study conducted by Harbin (16), children with autism underwent an embedded physical activity for 2-3 minutes. After this activity, there was an increase in the participation of children with autism in apartment-based games and independent activities. Chiang (9) investigated the importance of social interaction within the scope of physical activity with therapeutic recreation practices of children with autism. In this context, by making physical activities more entertaining, they achieved the desired goal more easily. However, it was stated that social interaction may increase resulting in a decrease in feelings of loneliness for children with autism.

The themes including cognitive development, muscle development, multiple development, language development, motor skills, emotional development, physical development, decrease in problematic behaviors, motivation, communication, psychological and attention themes were indicated under the code of "Effects", while the themes including concentration, self-expression, exploring, interaction, comfortable behavior focus, social interaction, solution of problems, decrease in problematic behavior, socialization, permanent learning, eye contact, and friendship relationship were indicated under the code "Acquisitions". Therapeutic recreation practices include activities that help individuals with autism relax and have fun despite some obstacles and weaknesses (18). It was determined that individuals with a diagnosis of autism spectrum disorder show less problematic behaviors in parallel with sports. Considering rough and fine motor skills, it was observed that these skills were better in the sports group (20). In the study of Yilmaz et al. (35), balance, agility, speed, and power scores increased with the exercise. In addition to the increased grip, an increase in muscle strength and cardiovascular endurance was also observed in the lower and upper extremities. In another study, the stereotypical behavior of children decreased with the applied program. Besides, there was an increase in motor performance. It was also observed that it improves physical fitness (33). Another effect is its positive effect on loco-motor and object control (12). In a study by Celik (10), the psychological symptoms of children decreased after the experiential play therapy. Similarly, play therapy was found to be higly effective in reducing trauma symptoms in children (22, 27).

In another study, the effect of play therapy on attention and language skills was examined. It was determined that play activities have a positive effect on attention skills (15). Similarly, play therapy was shown to have a positive influence on attention (2). As recreation sessions of children increased, their language and social skill levels increased (7). Play therapies may also be considered as an effective method in the therapy of somatic symptoms (30). In his research, Tural (31) stated that play therapy is an effective factor in reducing anxiety levels of children. In a study in which child-centered play therapy was performed, positive effects were observed in the case of a child with excessive avoidance behavior such as decreased tension, more agility in their behavior, increased verbal communication and progress of social interaction (8). In their study, He et al. (17) found that children participating in therapeutic recreation practices had

a significant decrease in their anxiety, pain, and negative thinking scores compared to the control group. In another study, the social, emotional, and behavioral skills of children increased positively with play therapy (28). In addition, play activities increased children's academic success. They also contributed psychologically to their well-being, reduced depression and anxiety, increased self-esteem, and made the children more assertive. It was also emphasized that children live at peace and in harmony with other individuals thanks to the effect of the recreation on socialization (1). In another study, therapy was applied to a girl living in bad home environment with negative and aggressive attitudes. After the relevant child-centered play therapy, the child learned to control her anger and to establish a relationship with her environment and found that she is loved and accepted by her circle (8). According to Karakucuk (18), through the "physical dimension" of the therapeutic recreation, there is an increase in coordination, endurance, mobility, strength, and hand-eye coordination while through the "cognitive dimension", memory, orientation attention range, reading ability, and ability to comply with directions improve. Besides, it was stated that through the "emotional dimension", anger control, emotional control, and emotional expression ability improve while through the "social dimension", basic behaviors that meet social expectations improve, albeit minimally (developing a sense of avoiding behaviors such as shouting, biting, kicking, spitting and caressing others).

Increased problematic behaviors, limited activities, failure to affect development, lack of attention, social and psychological effects, temper tantrums, exposure to the crowded environment, severe reactions, communication gap and failure to adapt themes were indicated under the code "Problems". Children with autism cannot play with toys or are prone to using toys unusually. While playing the toys, they obsessively play with certain parts of the toys. Their interests are limited and obsessive-compulsive disorders are common. In addition, they rotate objects, rotate in their environment, wave their hands by clapping, and often do some meaningless and repetitive movements. They do not accept changes and show resistance. In addition to experiencing panic when faced with a new situation, they may also have a tantrum (29). Some of the therapist trainers' comments about these themes are given below.

"If done unplanned and haphazard, there is an increase in the child's behavior problems." (K4)

"This is an undesirable situation for most children with autism, as there is often a lot of physical interaction in recreations. Since the child experiences some kind of discharge, this situation can sometimes cause negative effects on him/her. After that period, it is difficult to get them to focus their attention on what is desired, so play therapy can be interrupted most of the time and the child can, unfortunately, shut off. "(K6)

"They can have temper tantrums, be affected by the crowded and noisy environment very quickly and because they lead a routine life, they can react violently to external interventions." (K8)

Cooperation between families and trainers, informing families, responsibility, continuing work at home, repetition of the behavior, participation of families, increasing training hours and social activities, showing patience, coordinated work, learning and loving the student, planning, assistance, early treatment, sports education, music education, expert teacher, continuity in education, activities with materials, controlled use of devices, discipline, trust, belief and optional activities were indicated with the code "Suggestions". The suggestions of some therapist trainers are given below regarding the relevant themes given in this context.

"Works taking into consideration the needs of the child should be focused on. The family also needs to take responsibility for the work done. The family should be informed and act together with trainers in order to continue the work at home." (K2)

"Parent cooperation must certainly be done. If necessary, the family should personally participate in play therapies and educational environments. It should be ensured that every taught behavior continues at home." (K4)

"The only inevitable measure of efficiency in education consists of a triple cycle of teachers, students and of course family. Activities have shown that the efficiency graph in education has increased with the awareness of the family. Recommendations for the highest level of efficiency are: 1- To Increase hours of education based on continuity in education 2- To increase activities in all

areas of social life 3- to ensure the coordination of families and teacher and to continue a planned education by the parties 4- To prepare the child for every stage of life with play therapies by adopting lifelong education as a principle 5 "I think that it is necessary to make the individual and the families feel special and different, and to give the necessary importance to the place and time. 6- To periodically monitor the validity and reliability of all the works and activities, 7- I think that it is necessary to give the individual responsibility and not to be isolated from society." (K5)

"I think that for these children who cannot think abstractly, the most permanent learning will be ensured through experience. Permanent learning can be provided for the child by being a role model. Particularly, by participating in lessons, active participation can be achieved and learning can be made permanent. Families should be informed about their children in all matters as their child's most important and primary teacher is family. Knowing what the child needs, the family can approach the child more consciously in this regard. " (K8)

"The causes of autism have been researched worldwide and it seems that autism has not been diagnosed so far. It is important to raise the awareness of families about the binary screening test. The therapy of children with autism should be started at an early age and they should definitely receive special education. Especially sports and music should definitely be used in therapy." (K9)

"Training for educational purposes is very important. It makes the given training more vivid. Making activities with creative drama games and materials is also very important for obtaining high level of education." (K12)

"Children should be given more opportunities to express themselves better and develop their self-confidence skills. Also, the interaction of children with electronic (phone, TV and tablet) devices should be controlled." (K13)

"Recreation is the most important dream world where children reflect themselves. The recreation is an important tool that also contributes to the child's overall development process. It contributes to the advancement of cognitive development, social-emotional development, language development, and motor development, based on fun rather than teaching." (K15)

In light of the research findings, the opinions of therapist trainers on the effect of play therapy on individuals with autism were examined. In this context, trainers indicated the effects and acquisitions of play therapy as key elements that ensure cognitive, physical, emotional, muscular, language and multiple development, motor skills, reduce problematic behaviors, strengthen motivation, positively affect communication skills, increase attention and concentration, help gain an ability of self-expression, contribute to social interaction by providing social interaction, play an active role in establishing eye contact, enable them to socialize by strengthening friendship relations, provide permanent learning, reduce the problem of focusing and facilitate their integration into life. In addition, traines suggested that the role of the family in children's education is vital. In order to enhance the permanence and obtain high efficiency, activities should be followed at home. The role of play activities in improving the quality of life of children is an undeniable fact. It can be concluded that the research is expected to contribute to the existing literature.

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Concretization of Integral Reality Theory with the Video Assistant Referee System: Analysis of The Football Competitions of Metropolitan Municipality Erzurumspor, One of The Sportoto Super League Teams, within The Season 2018-2019.

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Abstract

Video assistant referee system is the name of a system which the referee is warned in doubtful situations by other referees who watch the game from various technological cameras during a football game. In this system video assistant referees warn the referee with headphone after analysing the position in detail with high-tech cameras and the referee analyses the position (if he wants) by watching on a monitor on the touchline and decides. Jean Baudrillard, one of the most significant thinkers of the twentieth century, thinks that the system produces various technologies on behalf of goodness with integral reality discourse which has a theoretical qualification and these technologies are seemingly useful for the people however in reality the system patronizes everything, and humanitarian qualifications are destroyed. This study aims to contribute to a better understanding of integral reality which contains abstract discourses with video assistant referee system which contains concrete perspectives. Within this scope, football competitions in which Metropolitan Municipality Erzurumspor one of the Sportoto Super League teams played in 2018-2019 season, in Turkey has been examined.

Key words: Integral reality, Illusion, Video Assistant Referee, Metropolitan Municipality Erzurumspor.

INTRODUCTION

Jean Baudrillard, known worldwide by his simulation theory, claimed that after classifying reality at various levels, everything would surrender to integral reality in the final stage. The thinker who sees symbolism, secret, face to face communication, nothingness, local and illusion as particularly valuable, considers integral reality, mass media, virtuality and the things reaching global scale, as extremely dangerous for humanity. While writing, the thinker (20) who produces abstract discourses rather than an experimental sociologist, has no concern for intelligibility. Considering that even existing sciences serve the reproducibility of the system, Baudrillard was highly sceptical in the way that the new capitalist system put forward the integral reality and its associated components.

Technological developments are viewed as inevitable transformations either by critical or by the logic of technological determinism. Baudrillard, on the other hand, considered technological developments from an ironic point of view beyond an optimistic/pessimistic point of view; he stood against these technologies with a unique challenge. The existing system and all components of the system are programmed to eliminate the human value system (culture, morality and so on) and its inherent features (the most important is the illusion) by producing various technologies. Camera and camera systems (for example video assistant referee application) have been revealed with the discourse that it will help the benefit and well-being of the general and prevent injustice but the illusion, criticism, excitement, questioning, image, challenge,

dream, communication, desire and spiritual characteristics that exist in human nature have been ignored. The new world system, which has taken the good-evil, right-wrong, useful-useless, etc, with its own codes can play with these contradictions at any time and manage humanity in its own way.

Baudrillard, while presenting the discourse of integral reality, associated various leitmotifs with each other; that is, the discourse of integral reality is not a spontaneous discourse and it has a close relationship with illusion, simulation, mass communication, globality, digitalization, culture, etc. Baudrillard, who created cross-components using ultra formulas, the independent leitmotifs of the dream world, created imaginary ornamental spaces in the discourse of integral reality. The point here is to know the meanings that the thinker loads, not that the system imposes on leitmotifs. Baudrillard, who developed the discourse of integral reality with intrinsic discourses far from the external discourses, claims that the system of image, illusion, culture, contradiction and symbolism was destroyed by the system in a mere world order.

The system aims to keep all areas of life under control. Social, political, economic and cultural areas under the global influence of the new world system that intervenes in all sub-components (communication, culture, sport, art, health, etc.) of these areas, has brought mind and goodness to the forefront. According to the thinker, this mind and goodness is a useful mind and goodness that can be benefited by those who benefit from the system rather than a useful mind that concerns the generality of the humanity. For him believing that the existing system works for the good of all humanity is a sign of stupidity.

The illusion in the present world has been massacred by the system. In this world in which illusion is massacred, humanity, which is completely delivered to reality, simultaneously decides whether something is right or wrong, good or bad, useful or useless, important or unimportant according to the desire of the system (15). What he tries to do in reality is that the effort to tell the system its hypocrisy in opposition to the familiar reference codes. According to him, it is necessary to re-activate the illusion against the discourse of goodness which includes the ready–made form meaning and interpretations that the system tries to direct. Within this scope, video assistant referee application which serves to integral reality, has eliminated the illusion. What needs to be done is to activate the illusion by retrieving the humanity dimension to reality.

Those who read about Baudrillard may make false inferences when they concentrate only on one side. The reason for this is the difference in the meanings that it imposes on the concepts and the sub-disciplines of each other by drawing new inferences. The thinker has made inferences by examining all aspects of the system created by contemporary capitalism under the auspices of communication, power, culture, society, advertising, fashion, technology, signs and morals. According to him, capitalism is far beyond the usual meanings, and therefore it is impossible to analyse existing capitalism with familiar thought patterns and concepts. The concepts could be used to explain events in certain period of history and historical situations, but these concepts and ways of thinking are expired. To understand current capitalism, non-system concepts must be used (26). Within this context, the thinker used concepts other than the concepts used by the system. Even if he used these concepts, he put different meanings on these concepts. For instance, for him the integral reality concept which provides a theoretical basis for video referee application, means that the elimination of the humanity part of reality and the hegemony of the technological part of reality. 1

According to the thinker's understanding, everything does not have to have absolute positive qualities such as intelligence, moral, usefulness, goodness and etc. (8). Everything in the world must be irrational/immoral/harmful/evil to the some extend. In the same logic to make everything absolutely visible and obscene disrupts the natural beauty of privacy and secret. People sometimes should not see, hear, feel, be mistaken, forget and not reach everything absolute. Human being is an incomplete creature by nature. The only being that is absolute is God. The system that tries to reach the absolute claims to be equivalent to God since everything that is absolute (power, morality, knowledge, mind, goodness, etc.) is in God. As it is known, 17th and 18th century Western ontology, based on humanism and enlightenment thought,

[1] For example, while the concept of "reproduction" means rearranging of production conditions in state centric case (Marx, 2015: 711), Baudrillard used this concept as constantly running of everything for the progression of system and consumption system which takes place of the production system.

rejected metaphysics and directed to absolute reason and this love for absolute mind overturned human values. As a result of reaching the absolute effort the position of God and religious changed from the determining to be determined. The system, which loves to cross the God with the absolute mind, believes that it has accomplished this with the technology it has developed. If that can be said, video referee application attemps to be identical with God, making everything absolutely visible.

According to the thinker, the main reason why people invent intelligent technologies (machines, robots, cameras, computers, etc) is because they give up hopes from their own minds or are crushed under their frightening and unnecessary minds (8). The system wants goodness to dominate the world through these technologies, but the world is a place of goodness as much as badness. Therefore, trying to disrupt the natural balance of the world, that is to destroy evil, causes goodness to lose its meaning. All world understandings that try to dominate reason and goodness can face disasters at any time.

It is not illusion but integral reality that drives humanity to disaster. In the same logic, while it is possible to find solutions to the uncertainties caused by deficiencies, it is not possible to correct the uncertainties due to redundancy (24). In the current situation excessive eating, excessive multiplicity, extreme reality, excessive disclosure, excessive freedom, lack of privacy, technological imagery, loss of thought and transcendence of identity are all around us. While previous societies were happy with poverty and slavery, we are unhappy in the liberal world where everything is abundant (4). However, this abundance and liberal logic put people into coma; it contains and understanding of abundance and logic without reality. While humanity could resist the dominant structure and exploitation in times of reality, it can indulge in abundance and technologies that have taken over human responsibilities. Although technological advances in the world have emerged with the discourse of making good prevail, these technologies bring exclusion. If the abstract discourse is adapted, the number of unemployed people in this sector will increase as the cameras become more technologically perfect.

The system that has taken everything under the protection of economic, social, cultural and technological sense, presents all the actions taken against the order it has formed with the label of terrorist act. The concept of terrorism has exceeded its known meaning. The actual terrorist acts have decreased, but the technical failures resulting from external interventions have been called terrorist acts. All obstacles that disrupt the sustainability of the system in any sport event, are considered terrorist activities. It is demonstrated as a huge disaster that video assistant referee application has failed to do duties during a football game and demonstrated as a terrorist act that the system functioning is hindered by external interventions.

Desire for global hegemony, keeping the technology and communication under control, the system has acted with the promise of developing other societies and it has done things incompatible with goodness. Western Civilization, which acts with the discourse of development, carried not only technology but also its ideology to the places where it founded its hegemony. Baudrillard made the analogy of democratic decay to all that the West put forth in the name of goodness; in fact, it is within the meaning of evil (7). Video referee application is a technology that carries a holistic reality ideology in the background of the subject produced by the system under the name of goodness. In this technology in which the deconstruction of human qualities is aimed, it is said that everything is done in the name of goodness; the illusion in human nature is being tried to be destroyed. The elimination of illusion simultaneously means the disappearance of human qualities such as thought, imagination, image, temptation, fantasy, thought and etc.

The path to integral reality:

Baudrillard's reference to the truth and truth itself, man, nature, reason and world time reached a certain period of time, which is not definite, but the truth and references had already gone away. The image of illusion was part of human life in times of natural balance of speed and time (5). However, the reference systems first began to change slowly and then rapidly. Copying, industrialization, simulation and ultimate integral reality; it has made humanity accept a system which it desires by disabling imagination, conflict, desire, coincidence, stage, fantasy, image and illusion.

We can express the appearances presented by simulation as reality as simulacra. According to Baudrillard, simulacra object-free model-free appearance that does not correspond to any model and object; image and object that finds its objectivity

in virtuality; is the view that is the truth itself (5). We have come across four different simulacra stages from enlightenment to the present days. These stages are as following:

"-Replicating the shape of the classical period from Renaissance to the Industrial Revolution

-Dominant form of industrial production

-Dominant form simulation in the current period determined by the code

-Integral reality that breaks all connection with reality" (23).

The copying/replication period refers to the law of naturel value, the production period refers to the law of commercial value, the simulation period refers to the law of structural value, whereas the integral reality period does not refer any law of value. Objects that differ from their reality in the copying phase; mass production in the production phase; mass media and technological tools where codes are dominant during the simulation phase; In the integral reality phase, there is virtual and digital reproduction of communication tools and technologies. In this virtual and digital reproduction, the whole relationship of reality to illusion has vanished, and the system has made cyclical absolute validity everywhere (8). In the period of integral reality, where codes, indicators, and models spread continuously in series, technology pushed the image out of the picture by fractal and viral spread. Baudrillard thinks that the death of illusion did not occur in the simulation period but in the integral reality period.

Baudrillard describes the image as perceiving, evaluating, and interpreting an event by sense organs without any direction (14). If the image of classical value is considered to be two-dimensional, it should be known that there is illusion in such images. The massacre of the image is the work of adding the new dimensions to the image by disrupting the illusionary quality of the image. According to Baudrillard to make new additions to something does not mean that something becomes perfect and good on the contrary, it harms its nature (3). Although the replication period distorted the nature of the image, it was denied in the production and simulation period in which the third dimension was added to the image and eventually in the period of integral reality the image was completely destroyed. In the fourth phase (integral reality phase) there are digital images, which are formed more real than their realities, presented by screens and cameras and all dimensions of the image have disappeared. Video assistant referee application invalidated the illusion and revitalization feature of the image and it also took people's thinking will under their direction and exposed people to technological orientations. Since cameras and monitoring screens become digital images, the relationship between the mind and the image disappears.

The images that do not allow illusion are artificial images. These artificial images are images that require the need to focus on even the smallest detail, referring to different fields with numerical codes, where there is no negativity and the transparency of everything is absolute. Artificial images must be transparent, visible and absolute. The fact that the image is transparent, visible and absolute means the deterioration of its reality. The technology that disables the illusion and make everything transparent, visible and absolute is the most important propulsion of this system (17). We can see the absolute validity of the artificial image in the smallest detail. Even if such an image is divided into an infinite number, it shows the existence of integral reality.

Illusion

A reality of true value has a close relationship with the illusion. When people try to kill the illusion, they actually kill the truth. The elimination of the illusion inherent in reality means killing values such as; inexplicable, contradiction, reflection, undiscovered, denial, destiny, symbolism, reversibility, dichotomy, lack, rebellion, temptation, challenge, nothingness, imagination, fantasy, spirit, unconsciousness, dream, morality, etc. The system aims to achieve absolute and integral reality by doing everything in its power and destroying things that have the value of illusion. In a reality that contains illusions the destruction of reality cannot be possible, taking reality to the integral level means destroying the illusion (9). After slaughtering the reality of illusions, the system makes a great effort to ensure that such a reality is not resurrected. It was expected that reality would carry value when absolute perfection was added to reality but to be flawed is one of the pieces of value that regulates natural balance. If we want to accurately evaluate a real person, nature and the universe in general, what we need to do is to know how to break with the integral facts. Baudrillard has always considered it

worthwhile to show the superiority of the deadly, symbolic and radical illusion of the present world over reality (22).

For Baudrillard, the perfect murder is to separate people, nature, the world, and the things that are on the development line in their natural ways. It is the cruellest of perfect murder to have all technological advances connected to a single principle in the view of goodness. The system aims to dominate its own integrity by associating dream, force, desire, image, conflict, illusion, and coincidence with evil. It is a conscious discourse of the system to reconcile everything that opposes the system with evil. Before the video referee application, we can evaluate the association of the referee illusions with evil and the video assistant referee application with goodness in this context.

The reciprocity value of obscenity was out of question in times of illusion, obscene used to be a concept that did not refer to anything other than itself in its specific field. However, with the change of meaning of transparency, it has become beyond-obscene and hyper- referring to many areas and has lost its meaning. We can see that obscenity is representative of the present world of integral reality (4). As all we know the obscene is the opposite of secret and integral reality is the opposite of illusion. Now everything must be experienced in front of everyone; the secret must be lost, everything should be shown with the help of technology; the illusion should be destroyed, everything should be done under the appearance of goodness; evil must be destroyed, there should be nothing hidden, everything should be made transparent. However, when you make everything visible, the imagery-dependent image will disappear, instead the digital images that determine our imagination will come into play. The system perceives secrets, privacy, illusion, and symbolism as the principles of evil and sees their engagement very dangerous. Our current world is a world in which dialectical logic2 comes to an end, where the logic of probability is dominated, global ideology is accepted instead of local ideologies, illusion is ignored by giving importance to reality in the relationship of reality and illusion, meaning and originality are slaughtered (18).

Simulation (Hyper-reality):

According to the thinker, reality had a very close connection with illusion. Both had an absolute value, balance and validity. Neither could have had a concern of superiority because they both (reality and illusion) knew that value and reality would only be valid if both were present. But after a while reality forgot about the illusion and began to feel an interest to the simulation which has actually more real beauty than reality has but devoid of substance. After that reality began to nauseate and became unbearable. When reality began to relate to simulation, it disappeared. Reality was gone yes, but the real thing we had to worry about was the disappearance of the illusion (21). Baudrillard considered the disappearance of the illusion to be catastrophic.

Baudrillard described the simulation as the derivation of reality by means of models that lacks an origin or reality (15). Terminologically, the production of a machine, tool, system and phenomenon-specific way of operation by means of a tool and computer program for the purpose of examination, demonstration or explanation is called simulation (31). In connection with reality; the components that make up the system are renewed in accordance with the conditions and form a world model based on truth is called simulation/hyperreality (19). Simulation is one of the bridge pillars that provides the ideological continuity of the modern system that precedes the integral reality comes after the illusion. The simulation that plays with the nature of everything such as economics, politics, law, sociology, art and so on, disables the illusionary realities of things and transmits the dominant codes of the system to people through communication, fashion, advertising and technology. The simulation that puts an end to the conventional motion and to the dialectical order in which the illusion exists, makes the reality short circuit and reproduces itself in close relationship with the indicators (12). In the simulation, the reality is derived by models, and these models really look more real than real. The connection of such reality with dream, illusion, image and fantasy has diminished. In the simulation, where the model can be determined by the system long ago, media,

[2] Baudrillard used the Logic of Probability in analysing ideologies. According to him, the opposition of capitalist understanding and socialist understanding is dominated by the system, and of course dialectic logic destroyed. Two ideologies that were different in the current world were mixed together. (See: Jean Baudrillard/Metinler ve Söyleşiler 9-10).

technology, code, indicator and meaning are the means to spread reality determined by the system.

The concept of stimulation is not only a reference to the realm of reality, but also includes economic, cultural, social, political and technological aspects of life as a whole. In the world of ideologies there were sociological and economic structures. There were realities that contained a certain functioning of the production system, value judgements, and illusions associated with it. While culture, morality, politics, art and law have close ties to the illusion (1) the essence of reality has been changed by moving away from illusions in the simulation world. Now reality become hyper and has spread all the way in a constantly controlled manner.

Integral Reality:

Integral reality is a form of reality that involves everything present in the contemporary world to take part in a project of the system, absolute disclosure, transparency, speech, absolute validity of a result, acceptance of the desired meanings. Integral reality for Baudrillard is digital and virtual realities produced by communication technologies, computers, media, cybernetics, information systems, mechatronics, information innovations, telematics, networks, currents, closed circuit systems (3). There can be no relation of such realities to dreams, images, subjectivity, contradiction and illusion. These realities are in close relationship with information, digitality, machinery, computers, cameras and technology. In the hyperreality/simulation world when the reality was divided into pieces a little illusion could be found. However, there is no illusion in the parts that make up the integral reality; we can directly see the integral reality itself.

The system no longer worries that it can go back to the reality where the illusion exists. The new world system which holds all the components such as, science, technology, culture, society, communication, economics, morality, politics etc. at its will, has become so objective that it is impossible for the illusion to reborn. Ideologies, philosophy, theory and utopias related to illusion disappeared. Now integral reality itself has become an ideology. For some reason, humanity does not worry about the disappearance of illusion and the hegemony of integral reality (9).

In the simulation, it is possible to come across a little bit of illusion. However, the period that completely ruptures from the illusion coincides with the period of integral reality. In this reality, which is detached from the view of the truth and its illusion, the reality is completely about to die. What needs to be done is an urgent heart transplantation and this heart must be the illusion. The system that wants to make a fully real world, has also prepared the end of the truth (4). In integral reality everything has become digital, genuine appearances have vanished, screen reality has dominated, communication has virtualized, emotions have become artificial and fractal, exponential, unstable world has been passed.

In integral reality, it is not possible to visualize any person, event, situation or world because there is no view and distance to allow imagination in such reality. In the video assistant referee application, direct digital images and screen embedding can be in camera images. It can be said digital images and codes are solved by image repetitions. With the camera screen the original reinterpretation of the image has been lost. On such screens, the image is disconnected from the brain; eye looks/dives directly at the screen. On the video screen, the referee can look at the light, montage and image waves in detail, watch the images over and over and evaluate them from different angles. In this kind of monitoring dream, contradiction, randomness, fantasy and imagination disappear. Since the video screen presents the images continuously, it is not possible to think and make decisions, consecutive sequences make the illusion impossible and thus short-circuit between the image and the brain; that is, viewing without seeing, monitoring without reasoning.

The images that have become integral reality have destroyed their own mirrors and have lost their unique confidences with illusion. According to Baudrillard, the images that have become independent are progressing as fast as they can with their obscene and transparent forms devoid of secrets. What we call image now continues to develop in a digitally friendly way from camera to camera, screen to screen, and network to network. The most spectacular of the developments (computer, screen, network, web, software, combinatorial, mass media, connection, camera, closed circuit broadcasting) in information and informatic technologies are special effects (16). An operational look can be created to everything by using special effects and software; an image magnification, angle change, perception space, motion, stream, vision, light can be integrated with

such changes; and of course, the illusion, the image, and the symbolic disappear (29).

Video Assistant Referee Application

The video assistant referee application, which was used for the first time in FIFA 2018 World Cup struggle, is an application with the discourse of 'minimum intervention maximum goodness'(28). The system also known as VAR (abbreviation of the initials of the words in English) is used in football matches in many countries of the world. The system was completely used in Turkey in 2018-2019 season in Super League, Champions Super Cup, Ziraat Turkey Cup in quarter final, semi-final and final competitions with sport Toto 1. League. The system is also applied in Australia, Belgium, Brazil, Czech Republic, China, England, France, Germany, Italy, South Korea, Netherlands, Poland, Portugal, Qatar, Spain and USA. (30). In the system, when there is following disputes in the competition the referee is to go to watch the camera review given and makes the final decision:

Goal (examining whether the goal is invalid before the goal, foul, offside, etc.)

Penalty (whether the penalty decision is made correctly)

Cards (whether the red card given to the player as a penalty is correct or given to the correct player).

Method of the Study

While the theoretical basis of the study was made, literature review was applied. In the study, intensive observation method was used in the stadium and football match was watched on television to see how video assistant referee application is made. In the 2018-2019 season, all the matches played in the field of Metropolitan Municipality Erzurumspor, one of the Sports Toto Super League teams, were watched from the stadium by observation method and all the matches away were watched on television to see how the application was used. The operation of the video assistant referee application was analysed in 34 football matches played by Metropolitan Municipality Erzurumspor.

The Universe, Sample and Sampling of the Study

The universe of the study is all football leagues in which football matches are played with video assistant referee application. In our study sample is Turkey Sports Toto Super League and the sampling of the study is all the football matches that Metropolitan Municipality Erzurumspor played both in the internal and external fields.

The Samples of Observation and Examination

Examining whether the goal is valid or invalid before the goal;

In the 4th week of the Sports Toto Super League, in the football match which Metropolitan Municipality Erzurumspor played with İstanbul Başakşehir in its field the match referee (Bülent Yıldırım) decided a goal in favour of İstanbul Başakşehir in the 20th minute of the match but the referees in the monitoring room advised the referee of the match to watch the position from the monitor. After checking the position from the monitor, the referee decided that the position was offside and cancelled the goal.

In the 9th week of the Sports Toto Super League, in the football match which Metropolitan Municipality Erzurumspor played with Trabzonspor in away field the match referee (Koray Gençerler) decided a goal in favour of Metropolitan Municipality Erzurumspor in the 6th minute of the match but the referees in the monitoring room advised the referee of the match to watch the position from the monitor. After checking the position from the monitor, the referee decided that the position was offside and cancelled the goal.

In the 19th week of the Sports Toto Super League, in the football match which Metropolitan Municipality Erzurumspor played with Çaykur Rizespor in its field the match referee (Özgür Yankaya) decided a goal in favour of Metropolitan Municipality Erzurumspor in the 43th minute of the match but the referees in the monitoring room advised the referee of the match to watch the position from the monitor. After checking the position from the monitor, the referee decided that the position was foul and cancelled the goal.

In the 25th week of the Sports Toto Super League, in the football match which Metropolitan Municipality Erzurumspor played with Alanyaspor in away field the match referee (Mete Kalkavan) decided a goal in favour of Alanyaspor in the 9th minute of the match but the referees in the monitoring room advised the referee of the match to watch the position from the monitor. After checking the position from the monitor, the referee decided that the position was offside and cancelled the goal.

In the 26th week of the Sports Toto Super League, in the football match which Metropolitan Municipality Erzurumspor played with Trabzonspor in its field the match referee (Ali Palabıyık) decided a goal in favour of Metropolitan Municipality Erzurumspor in the 78th minute of the match but the referees in the monitoring room advised the referee of the match to watch the position from the monitor. After checking the position from the monitor, the referee decided that the position was offside and cancelled the goal.

In the 30th week of the Sports Toto Super League, in the football match which Metropolitan Municipality Erzurumspor played with Antalyaspor in away field, Antalyaspor scored a goal but the match referee (Süleyman Özay) cancelled the goal because it was offside in the 6th minute of the match but the referees in the monitoring room advised the referee of the match to watch the position from the monitor. After checking the position from the monitor, the referee decided that the position was not offside and scored the goal in favour of Antalyaspor.

In the 32th week of the Sports Toto Super League, in the football match which Metropolitan Municipality Erzurumspor played with Yeni Malatyaspor in away field, Erzurumspor scored a goal in the 52th minute of the match but the referees in the monitoring room advised the referee of the match (Kemal Uğurlu) to watch the position from the monitor. After checking the position from the monitor, the referee cancelled the goal because of the handball.

Penalty;

In the 14th week of the Sports Toto Super League, in the football match which Metropolitan Municipality Erzurumspor played with Yeni Malatyaspor in its home, the match referee (Halil Umut Meler) decided to continue the match in a fight within the penalty area of Yeni Malatyaspor in the 44th minute of the match but the referees in the monitoring room advised the referee of the match to watch the position from the monitor. After checking the position from the monitor, the referee gave penalty in favour of Metropolitan Municipality Erzurumspor .

In the 22th week of the Sports Toto Super League, in the football match which Metropolitan Municipality Erzurumspor played with Sivasspor in its home, the match referee (Bülent Yıldırım) decided to continue the match in a fight within the penalty area of Sivasspor in the 2th minute of the match but the referees in the monitoring room advised the referee of the match to watch the position from the monitor. After checking the position from the monitor, the referee gave penalty in favour of Metropolitan Municipality Erzurumspor.

In the 25th week of the Sports Toto Super League, in the football match which Metropolitan Municipality Erzurumspor played with Alanyaspor in away field, the match referee (Mete Kalkavan) decided to continue the match in a fight within the penalty area of Metropolitan Municipality Erzurumspor in the 48th minute of the match but the referees in the monitoring room advised the referee of the match to watch the position from the monitor. After checking the position from the monitor, the referee gave penalty on the grounds of handball in favour of Alanyaspor.

In the 30th week of the Sports Toto Super League, in the football match which Metropolitan Municipality Erzurumspor played with Antalyaspor in away field, the match referee (Fırat Aydınus) decided to continue the match in a position that the guest team's footballer (Emrah Başsan) stayed in field in a fight within the penalty area of Metropolitan Municipality Erzurumspor in the 50th minute of the match but the referees in the monitoring room advised the referee of the match to watch the position from the monitor. After checking the position from the monitor, the referee gave penalty.

In the 33th week of the Sports Toto Super League, in the football match which Metropolitan Municipality Erzurumspor played with Fenerbahçe in its home, the match referee (Suat Arslanboğa) decided to continue the match in a fight within the penalty area of Metropolitan Municipality Erzurumspor in the 55th minute of the match but the referees in the monitoring room advised the referee of the match to watch the position from the monitor. After checking the position from the monitor, the referee gave penalty in favour of Fenerbahçe.

Card;

In the 6th week of the Sports Toto Super League, in the football match which Metropolitan Municipality Erzurumspor played with MKE Ankaragücü in its home, the match referee (Serkan Çınar) decided to continue the match in a fight within the midfield in the 6th minute of the match

but when the match stopped the referees in the monitoring room advised the referee of the match to watch the position from the monitor. After checking the position from the monitor, the referee gave red card to MKE Ankaragücü footballer Bakary Kone.

In the 10th week of the Sports Toto Super League, in the football match which Metropolitan Municipality Erzurumspor played with Kasımpaşa in its home, the match referee (Arda Kardeşler) gave penalty in favour of Kasımpaşa in the 76th minute of the match but the referees in the central monitoring room advised the referee of the match to watch the position from the monitor. After checking the position from the monitor, the referee both confirmed the penalty decision and gave red card to Metropolitan Municipality Erzurumspor footballer Egemen Korkmaz.

Video Assistant Referee Application Technology

In the video assistant referee application, the referees who are not in the stadiums but in the central monitoring room, watch the games in detail with cameras with various technological features. The referees in this room quickly check the position and warn the referee of the game by a headset when there is a situation (such as; offside, foul, red card) may affect the outcome of the game or when they think the referee of the game makes wrong decision. If the referee of the match finds it appropriate, he checks the position from a technological screen located on the edge of the stadium and communicates with the referees in the monitoring room via headset. The decision of eligibility and cancellation is solely at the discretion of the referee of the game.

In order to minimize the mistakes of the referee, the video assistant referee application has been developed by integrating several technological components. High resolution cameras, processors that process images, software that formats/decodes images, a fibre optic network system for transferring and returning images to the centre, intelligent software that processes received images, communication configurations that allow simultaneous monitoring of multiple terminals, and all of hardware and software.

CONCLUSION

Although the technological advances surrounding our lives in their present form are extremely dangerous to humanity, it is not impossible for the world to be as beautiful as it was in such a bad situation (6). It is so important to create awareness in people. Therefore, the thinker opposes the pessimistic approach directed at him and claims that he has a very optimistic perspective (15). The system seizes the general structure such as economy, culture, politics, society, art and also controls the sub-components of such structures as sports, health, science, technology and communication. Video assistant referee application which the system presents, in reality is a technology presented in order to eliminate human values.

In the world of classical value judgements, criticism and negative discourse were worthwhile but in the world of hegemony nothing is acceptable expect what the system wants, and the concept of goodness is the good that the system determines. In the world of integral reality, the reference of goodness is virtual goodness. Criticism of virtual goodness is strictly prohibited. Dream, force, desire, image, contradiction, opposing pole, conflict and coincidence disappeared, absolute speed, closed circuit, code, fractal reality and determined performance were introduced as virtual goodness references. In the present world of goodness, there is no power that can take place at the opposite pole of the system. Video assistant referee application is a form of reality which is presented by the system in the scope of virtual goodness. This kind of goodness is essentially very far away from the real goodness and the values referenced by this goodness.

According to the thinker, the effort to complete the missing parts of the world and give it a perfect image means the destruction of the world, which is nothing but perfect murder (2). Societies that have illusions and do not take absolute integral reality seriously have known to respect evil and illusion. The system attemps to make everything perfect and real in holistic meaning. Baudrillard who has the struggle to relate everything to reality, has become the obsession of the system, thinks that this will bring disasters to the system. The thinker considers the illusion precious and takes a negative attitude towards the absolute validity of everything. Nietzsche's view of the absolute supremacy of illusion and ambiguity and decay of reality (23) is very important for Baudrillard. He used the vital illusion as a front to reality in the world of integral reality and developed his theoretical analysis from an insightful perspective. In his value world, the video assistant referee application and throughout

the technology is nothing more than the perfect murder because it eliminates the illusion.

Familiar means of communication have changed meaning through technological means (computers, mass media, robots, cameras, etc.), and instead the communicative domination of the digital has emerged (13). This form of sovereignty and the emerging digital technologies are the extreme reality of the more real, that is, the integral reality. In these technologies, people are expected to adapt to everything. This form of adaptation is hyper-compliance, which includes excessive compliance. However, in the background, it is important to remember that the system can use all value judgements as right and wrong as it desires. According to Baudrillard, digital technologies in their current form are the main tools, system servants, and reproduction forms in the sustainability of the system.

The screens that monitor the camera image have replaced the image itself. Henceforth, the natural image that allows to see, think, revitalize, mental interpretation, and illusion has been replaced by the digital image directly presented to us by the screens. A world beyond what appears in the natural image; there is a mental process in which illusion, meaning, imagination, bias, deficiency, coincidence and interpretation, etc. are disabled (26). People used to act beyond their visions in their natural imagination and knew how to criticize their mental preoccupations, but technological camera screens have separated image and thought; the image is drowned in technical details and the essence of the illusion has been destroyed to render integral reality absolutely valid. On technological camera screens, everything can be seen to the smallest detail (microscopically). As a result of technological developments, images can be viewed again, angles of images can be changed, digital additions can be added to the image; in short, it can be played with every aspect of the image. The problem with humanity is not the manipulation of the image (virtual, digital and integral), but the fact that such images are now desirable (2). People do not even need the image, the illusion inherent in the image and the revitalization resulting from the illusion, as they are strictly subject to the screen and value the screen in absolute terms. In this context, at the final point of technology, the image has been delivered to integral reality and the connection with human thought has been broken, the thought has become insignificant and the digital has become desirable.

For Baudrillard, good and bad are strictly linked. Goodness and evil, which are interconnected and form the basis of the reality of the world, are two different elements of the same origin (14). They are like the two different scales of the same scale. The system shows everything that it has developed technologically as good and everything that contradicts technological developments is labelled as evil. Information technologies, digital software, comprehensive cameras, virtual realities, mass communication and robots etc. are directly related to the sub-components of the system that interfere with human life, but these components actually eliminate some of the features that exist in the structures of man and the world. Cameras, robots, intelligent software, telecommunications, mechatronic technologies, including virtual innovations, computers, electronics and mechanics, and all communication technologies, including those between each other, actually claim equivalence. These technologies are not meant to resemble or compare to human beings; technologies designed to change reality by ignoring people (11). In order to survive, the system strives to keep the fact that there is no illusion by keeping a fractal and integral reality in circulation.

There is a hypocritical order in the background of technologies, but the system is constantly spreading the rhetoric that these technologies are developed to serve people (9). In fact, there is a system that wants to rule the world and a logic of technocracy that tries to keep people under sovereignty. According to the thinker, we must consider the destruction of values in the world where human values are destroyed, not as a side effect of technology, but as the direct targeting of the system to kill these values. The thinker believes that with the transition to digitalization the apocalypse is happening and that there will be no real apocalypse anymore (10). As a result, the thinker did not look at all technological developments as a simple transformation, but as a systematic and planned sanction.

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The Relationship Between Exercise Addiction And Beliefs İn Sports Nutritional Supplements

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Abstract

Purpose: In this study, it was aimed to investigate the relationship between exercise addiction levels and attitudes of athletes against nutritional supplements. Material: A total of 257 students, 62.8% (n = 161) male and 37.4% (n = 115) female, studying in the sports science faculty of Çanakkale Onsekiz Mart University, constituted the research group. "Exercise Addiction Scale" and "Belief in Sports Nutritional Supplements Scale" were used as data collection tools. The relational screening method was used in the research. The relationship between exercise addiction and belief in sports supplements was investigated using Pearson correlation and structural equation model. Results: It was observed that the dimension of the "Postponement of Individual-Social Needs and Conflict" affects positively and significantly (β = .366, p≤ .05) the "Sport Nutritional Supplements Belief" and was statistically significant. It was found that "Tolerance Development and Passion" "Sport Nutritional Supplements Belief", which is one of the sub-dimensions of exercise addiction, positively and significantly (β = .217, p≤ .05). According to the model, it was determined that exercise addiction affects Sport Nutritional Supplements Belief by 20.8% (R2 = .208). Conclusions: According to the research results, it was concluded that exercise addiction predicted belief in sports supplements at a positive and significant level. Considering that the students of the sports sciences will work in the field as a sports scientist in the future, it is considered important to have sufficient knowledge and equipment about exercise addiction and sports nutritional supplements.

Keywords: Exercise Addiction, Supplements, Nutrition

INTRODUCTION

Today, it is possible to say that nutritional supplements are used a lot in their sedentary, apart from elite athletes. In studies, it has been stated that the use of dietary supplements is increasing (1, 2), this rate varies between 40% and 80% in athletes (3, 4). In fact, in the USA, almost half of the population has been stated to take nutritional supplements at least once (1). The most commonly used nutritional supplements are multivitamins, minerals, vitamin C, proteins, amino acids, creatine, glutamine, sports drinks and sports bars (5). Athletes use their nutritional supplements to increase speed, strength, quickness, and muscle volumes (6). In the nutrition of athletes, not only the energy spent during the competition period or during the training, but also the lost liquid and micronutrients must be met (7). Therefore, athletes need to take nutritional supplements in cases where normal diets are inadequate. It is seen that the use of sports nutrition supplements is not only in athletes but also in individuals who go to gyms (gym) and exercise regularly. In a study, it was found that 43.8% of those who went to the gym took nutritional supplements (8).

The increasing use of sports supplements caused this sector to grow steadily. The health of the products used in this sector is controversial. In their study, Geyer et al. (9) found 15% of the 634 nutritional supplements they examined, containing anabolic steroids and doping. There are many opinions that it is useful and harmful in the use of sports supplements. Some athlete's nutritional supplements contain substances that cause side effects, causing sleep disorders and cardiovascular problems (10). Pascale et al (11) stated that 25% of

sports supplements are more than acceptable estrogenic values, while 50% of these supplements contain melamine, a non-protein nitrogen source. It has been stated that people who do not have anemia problems or who are not genetically predisposed may have side effects such as using iron supplements such as hemochromatosis and organ toxicity (12). In addition to studies defending the view that it is harmful and has side effects, there are also studies indicating that dietary supplements are not harmful. In a study on rats, it was reported that there was no adverse effect on kidney and liver in the protein-supplemented group, and that there was an improvement in the liver compared to rats in the protein-free group (13). Many studies have suggested that whey protein can benefit cancer patients (14). Individuals' needs and genetic structure should be taken into consideration in the use of sports supplements.

It can be stated that it is important to investigate the reasons that push individuals to use sports supplements. It is a known fact that physical activity and exercise have physical and psychological positive effects. It is possible that if the exercise passes to the level of addiction, it will affect the daily life of the person. While exercise addiction was previously considered a positive addiction, subsequent research focused on its harmful effects (15, 16). In people with exercise addiction, although there are injuries, effects such as the continuation of exercise, obsessive exercise, and affecting personal life are observed (17, 18). It has been stated that people who are addicted to exercise experience stress, depression, and sleep problems when they do not exercise (19). Exercise is fun at first, but later becomes a necessity (20). Some findings show that regular exercise and sports are effective on exercise addiction (21). In a study, it was determined that the exercise addiction level of sports science students was 6.9% (22). In a study conducted in Turkey, compared to elite athletes with sports science faculty students it was found to have more exercise addiction (21).

One of the triggers of exercise addiction may be the dissatisfaction of the person's own body shape and weight dissatisfaction (17, 23). Many studies are showing that there is a relationship between exercise addiction and eating disorder in studies conducted (19, 24, 25). In his research, Shroff et al. (23) stated that the majority of patients with nutritional deficiency exercise excessively. Research suggests that exercisers do not have enough information about dietary supplements (26, 27). The fact that addiction has an incentive to use substances and the ones who do not have enough information about nutrition may cause undesirable situations. In such cases, exercise addiction is likely to trigger the use of dietary supplements. Lichtenstein et al (28) reported that the group that went to fitness centers and has symptoms of exercise addiction is the group that uses sports supplements more than others. In this study, it was aimed to examine the relationship between exercise addiction levels and attitudes of athletes to dietary supplements of students studying in the faculty of sports sciences.

MATERIAL AND METHOD

Research pattern

In this study, a relational screening method was used to investigate the relationship between exercise addiction levels and nutritional supplements attitudes of students studying in the faculty of sports sciences. The relational screening method was chosen to give an idea about the cause-effect relationship between exercise addiction and attitude to nutritional supplements (29).

Research group

A total of 257 students, 62.8% (n = 161) male, and 37.4% (n = 115) female, studying in the sports science faculty of Çanakkale Onsekiz Mart University, constituted the research group. The average age of the participants was found to be 20.99 ± 2.47.

Data collection tools

Exercise Addiction Scale: The exercise addiction scale developed by Tekkurşun-Demir, Hazar, and Cicioğlu (2018 30) was used. Scale; It consists of 17 items: "Excessive Focus and Emotion Change" (7 items), "Postponement of Individual-Social Needs and Conflict" (6 items), and "Tolerance Development and Passion" (4 items). Confirmatory factor analysis (CFA) was performed to test the construct validity of the exercise addiction scale for this study. As a result of DFA analysis, 1 item in “Excessive Focus and Emotion Change” dimension and 2 items in “Postponement of Individual-Social Needs and Conflict” dimension with low factor load were removed from the dataset. After these operations, the data set has been found to reach acceptable values ($\chi 2$ / sd = 3.255, GFI = .922, CFI = .899, IFI = .902, RMSEA = .079). The Cronbach's alpha value of the scale's "Excessive Focus and Emotion Change" dimension was .836, “Postponement of Individual-

Social Needs and Conflict" dimension was .752 and finally "Postponement of Individual-Social Needs and Conflict" dimension was .702.

Belief in Nutritional Supplements Scale: Karafil, Ulaş, and Atay (31) developed the scale. The scale consists of one dimension and 6 items. It was determined that the scale reached acceptable values after two modifications made in DFA analysis for construct validity ($\chi 2$ / sd = 2.174, GFI = .935, CFI = .927, IFI = .914, RMSEA = .068). The Cronbach's alpha value of the scale was found to be .910. With these results, it can be stated that it is suitable for this research in two scales.

Data Analysis

The relationship between exercise addiction and beliefs of nutritional supplements of the Faculty of Sport Sciences students was tested with the structural equation model. SEM has been preferred because it is one of the strong analysis methods for developing theory among variables. Determination of extreme values z scores were examined and 6 data with extreme values were extracted and analyzes were done with 336 datasets. Then skewness kurtosis values were examined to check whether the data were normally distributed. Parametric tests were preferred because the values were between +1 and -1 (32). Since there is a multiple linearity problem, VIF value is examined. After understanding that there was no multiple linearity problem, the relationship between exercise addiction and levels of belief in dietary supplements was tested with Pearson correlation and SEM analysis. While SPSS 23 was used for descriptive statistics and Pearson correlation analysis, AMOS 23 was used in DFA and SEM analysis. An2 / sd, GFI, CFI, IFI, and RMSEA values were examined to test the SEM model. The significance value was based on $p < 0.05$.

RESULTS

Table 1. Correlation Values and Descriptive Statistics of the Relationship Between Belief in Exercise Addiction and Sports Nutritional Supplements

Variables	Mean	Sd.	Skew.	Kurt.	1	2	3	4
1. SNSBS	4.69	1.15	-.605	-,104	1			
2. EFEC	4.49	.46	-.719	-,051	-.051	1		
3. PISNC	3.34	.92	.396	-,731	.421**	.120**	1	
4. TDP	3.77	.82	.003	-,877	.312**	.356**	. 544**	1

1.SNSBS= Sport Nutritional Supplements Belief Scale 2. EFEC = Excessive Focus and Emotion Change, 3. PISNC= Postponement of Individual-Social Needs and Conflict, 4. TDP = Tolerance Development and Passion

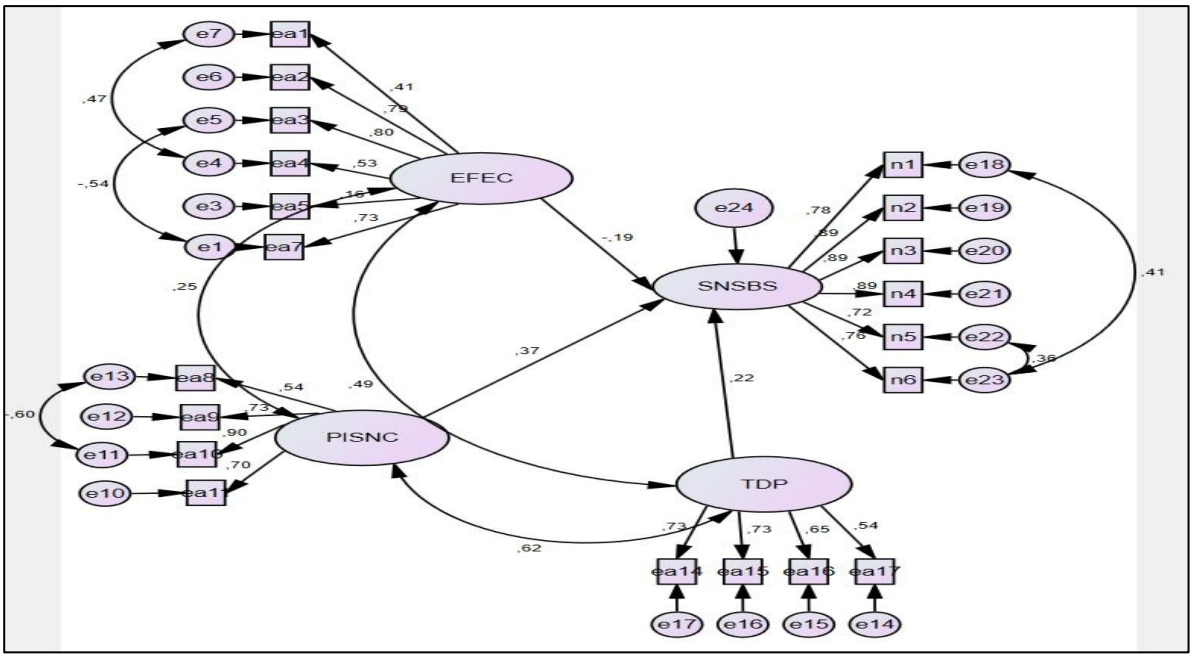

Figure 1. Path Analysis for the Relationship Between Belief in Exercise Addiction and Sports Nutritional Supplements

It was observed that the fit indexes of the model, which examines the effect of exercise addiction sub-dimensions on belief in sports nutritional supplements, meet the necessary fit criteria. ($\chi 2$ / sd = 3.292, GFI = .905, CFI = .91, IFI = .911 and RMSEA = .080). According to these results, it was seen that the model reached acceptable reference values and the model was confirmed (33-34). The path model showing the relationship between exercise addiction and belief in sports supplements is shown in table 2.

Table 2. Standardized Regression Results Regarding the Effect of Exercise Addiction on Sports Nutritional Supplements

Path	Path coefficient (β)	Standardized estimate (Estimate)	Standard Error (S.E)	Critical Ratio (C.R)	Significance Value (p)
EFEC → SNSBS	-.190	-.302	.124	-2,436	,075
PISNC → SNSBS	.366	.696	.188	3,699	***
TDP → SNSBS	.217	.292	.148	1,973	,049

SNSBS= Sport Nutritional Supplements Belief Scale, EFEC = Excessive Focus and Emotion Change, PISNC= Postponement of Individual-Social Needs and Conflict, TDP = Tolerance Development and Passion

According to Table 2, it was observed that the Postponement of Individual-Social Needs and Conflict dimension, which is one of the sub-dimensions of exercise addiction, positively and significantly (β = .366, p≤ .05) and it was statistically significant. It was found that "Tolerance Development and Passion" "Sport Nutritional Supplements Belief", which is one of the sub-dimensions of exercise addiction, positively and significantly (β = .217, p≤ .05). It was found that exercise addiction "Excessive Focus and Emotion Change" dimension did not statistically affect "Sport Nutritional Supplements Belief". According to the model, it was determined that exercise addiction affects Sport Nutritional Supplements Belief by 20.8% (R2 = .208).

DISCUSSION

In this study, which aims to examine the relationship between exercise addiction and beliefs of sports nutritional supplements of students studying in the faculty of sports sciences, it was concluded that they positively and significantly affect the Postponement of Individual-Social Needs and Conflict and Sport Nutritional Supplements Belief. It is concluded that exercise addiction affects belief in sports nutritional supplements by 20.8%.

There are many reasons for individuals' desire to exercise excessively, such as social, cultural, and health. One of them is maintaining body weight, having a lean body, and having a beautiful postural appearance by increasing muscle mass (35). The desire to look beautiful and exercise addiction can cause individuals to make wrong choices about nutrition. In his research, Shroff et al. (23) stated that eating disorder patients have their appearance as a reason for exercising. Today, it can be stated that the appearance of the exterior and the support of the media also lead individuals to eating disorders and excessive exercise. Studies are showing that there is a relationship between excessive exercise and eating disorder (18, 19, 35). The important thing is the effect of exercise addiction on the belief in sports nutrition supplements, positive or negative results. It can be stated that controlled and supervised intake may benefit or side effects may be seen in excessive intake.

Research has revealed that those who exercise do not have enough information about nutrition (26, 27). When combined with exercise addiction and insufficient information, some health problems are likely to occur. Although addiction knows that the individual is harmful to himself, it can be expressed as an unavoidable desire for a certain substance, person, or service and when they do not feel well (36). In this case, the anxiety of exercise addicts about their body appearance as well as their desire to exercise can cause them to perceive that they are malnourished. It can be stated that exercise addicts are more uncontrolled and close to misuse than those who are not addicted to sports supplements. Sports nutritional supplements are one of the options that stand in front of people who are addicted to exercise with substance use. The important thing is to use these nutritional supplements correctly. As in bigorexia, the individual's dislike of his / her body shape and the lack of muscle ratio in his body cause the person to lift big weights, overprotect high protein foods, take nutritional supplements or even use anabolic steroids (37). In addition to the belief that they are insufficient training, exercise addicts can form the

thought of malnutrition over time. This thought may lead them to an intake of extreme sports supplements. The existence of studies showing that sports supplements have some side effects (10-12) makes it clear that caution should be taken in this regard. In the study of Geyer et al. (9) Supplement Anabolic steroid and doping containing substances in 15% make the choice of sports supplements and dosage even more important. Hurst et al. (38) reported that users of sports supplements that believed that sports supplements were effective were more likely to use doping. Considering the effect of addiction on sports supplements, it can be stated that it poses some risks that can lead up to the use of doping.

CONCLUSIONS

As a result of this research, it has been revealed that exercise addiction is a positive and significant predictor of sports nutritional supplements. Although it is known that exercise has many benefits, it should be emphasized that the risks of exercise addiction should be revealed, as in any addiction. Users should be informed about sports nutritional supplements. It is thought that it is important for the students of the faculty of sports to reach a sufficient level of equipment and knowledge about exercise addiction and sports nutritional supplements. In this context, it may be suggested to increase the content and place of these subjects in the undergraduate programs.

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The Effects of Sport on Coexistence And Globalization

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Abstract

Globalization covers the whole world with the flow of goods, services, people, capital, information and culture. Within this process, connection and movement has intensified among people. Facilities of transportation and communication have increased and got easier. Communication and information technology has developed. Physical and digital multicultural coexistence area has expanded between people and societies. People from various countries come together at television due to sports events. Sport especially football has a very important place in globalization and coexistence culture. Hereby television, internet and social media have included sport among global trends (2). Many people from various parts of the world share common thought, feeling and behavior on any team, player, match and position. Globalization's developing coexistence culture and expanding the area of coexistence via sports has many benefits. However, global system has made sports an industry (2). Everything is built on earnings. The commercialization and commodification of sports, players and spectators weakens human values. Besides, it causes many damages and negative developments. While sports provide coexistence in the globalization process, it may also lead to polarization. However, integration of humanity on common values is necessary for the global society. It is possible for Turkey and Turkish nation to improve coexistence culture via sport in the globalization process, to enrich it and to contribute to humanity. In terms of its history and values, Turkish society can be a global pioneer in sport's developing coexistence culture (9). In addition, diversification of sports, protection of developer and traditional sports are necessary in the global process. That people maintain a healthy and fit life is important for the next generations. Protection of basic social values by humanity in the global process is possible with physically and mentally healthy people. Sport widens coexistence area. Communication and information technology supplies many opportunities in this respect. In the globalization process that communication and interaction is gradually increasing, humanitarian and social values have gained more importance. Globalization means the variety and wealth of coexistence by protecting obligation, responsibility and values.

Keywords: Globalization, Sports, Coexistence, Multiculturalism, Obligation, Responsibility.

INTRODUCTION

In 1960s Canadian scientist Marshall McLuchan foresaw that the world would turn into a global village with the development of communication tools (10). He believed that people would share the same thoughts thanks to communication tools.

Globalization began in the second half of 20th century in the economy area; since the beginning of 21st century, it has influenced all areas related to human beings from trade to education, from health to food-beverage, from sports to entertainment industry with communication technologies and digitalization. It also reflected in social life (30). When we look back at globalization from 2020 year, it is seen that McLuchan's forecasts have become reality and humanity has passed to more advanced stages.

According to Anthony Giddens, globalization is broadly synonymous with the concept of modernity. In the new era, "the intensity of social relationships worldwide" is higher than in the previous periods. It is necessary to understand globalization by investigating the powers affecting modernity (19). According to Giddens the globalization of social activity is a process of development of connections around the world, the connections related to global nation-state system or international business division. Globalization is understood as convergence in terms of time-space (17). David Held and Anthony McGrew expressed that with the globalization, transitions and networks among

continents or regions emerged and a transformation in the organization of social relations occurred (19). Prof. Dr. Roland Robertson states that the localization of the global and the globalization of the local emerged in this process. The differentiation and dedifferentiation continuing mutually between global and local make each other possible." (22). Robertson puts socio-cultural processes to forefront; especially in the last years this case has become very important. Robertson says that the globalization is not independent from social, cultural and economic processes. Globalization means that international capital's economic policy, culture and ideology establish their sovereignty over the political administration and management policies, ideology and cultures of societies and develop it (16). Globalization is the contraction of time and space. It is the world's getting more integrated in the political, economic, social and cultural areas. According to George Modelski, "Globalization is the history of increasing connection among the big civilizations of the world." According to Modelski, "Globalization is a concept that covers the historical process of expansion and deepening of general solidarity between nations, civilizations and political communities." Modelski says: "In the beginning of globalization, around 1000 A.D., Islamic World was the closest formation to the political order in a world-scale." (19). He points out that it is necessary to start the globalization from Islamic States in that period. The success of Islamic States can be expressed with their care and loyalty to knowledge, mind, wisdom, law, human and basic social values.

Globalization started to be pronounced after 1980, it began with economy and continued with politics, it covered social and cultural life with communication and interaction being supplied by technology; it also determined the processes of coexistence and living together. Thanks to the communication technology, media and social media tools resulted in that cultures are encountered, known, affected and changed. In the world, societies live together in every aspect. The apparent feature of globalization is interaction and dependency. The interdependence and the interaction of countries and societies in trade, politics, education, sports and social relationships are at a high ratio. In addition, USA companies, actors of globalization, have undertaken global leadership with movies, games, animations, programs, software, applications and contents. Foods and beverages, their styles, brand goods, chain stores, AVM (shopping mall), music, sports events affect the social and cultural life directly. The movement of production and consumption networks among countries, their settlement, personnel flow, commercial places, offices, companies, stores provided the coexistence and living area to reach an advanced level. The mobility of science, technique and sportsmen has increased between countries. Beliefs, thoughts, value judgments, entertainment, relaxation, sports preferences have become globalized. Education, trade methods, city plans, structures, museums, stadiums, bazaars, markets and streets have become similar to each other. Neighborhood, friendship, teacher-student relationship, employee-employer relationship are also under the effect of globalization. Humanity is willingly or unwillingly under the regular or irregular global enforcements, effects and developments. People live together and coexist with their new lifestyles. People and societies are within the scope of globalization in every aspect. Economy has become globalized before communication in advancing process. The economy has surrounded the world with the strong capital structures and financing tools of multinational companies. Global companies have monopolized the production, marketing, advertising, distribution and consumption mechanisms. Multinational companies have begun to control labor markets. Global values are very effective thanks to communication technology (8). The companies which have made high investments in technology have reached the top with communication and information technology. They have surrounded the world with internet, social media, digital tools and channels; their effects are increasing day by day (4). With mobile technology they have developed information, communication, shopping, thought, belief, entertainment applications including daily life practices. In the globalization process, sports, players, teams, clubs and matches are in the interest of global companies. People, society, state and international relationships have been loaded to internet-based rapid communication and information digital system. Rich, strong databases can be quickly transferred. With low-cost applications that provide information about every subject of daily life and meet the needs, E-Systems, social media and mobile technology have been introduced. People can be directly reached and they can get whatever they want without intermediaries. Social media is extremely addictive (18).

All of the companies, businesses, institutions, organizations, states, central and local governments, international transactions and relationships have

been included in the system. Everything from economy to politics, from education to tourism, from culture to art, from health to human resources, from sports to music is on digital systems. A network society which provides communication and interaction from village to city, from house to factory, from employee to the president, from women to men, from the student to the rector, from Chinese to Turkish, from one point of the world to one another has been established. This network society is under the control of a big monopoly, multinational companies (23). The priority of these companies is the earning. Their thoughts and preferences conflict with the ancient social and cultural structures of humanity. Digital foci can directly reach people from every age for twenty four hours. People are moving away from traditional, social and cultural values and structures. People are increasingly getting disconnected from deep-rooted belongings and ties are weakening. Values and principles like religion, belief, morals, family, environment, friendship, homeland, nation ties (27). Individuals have become placeless, monotype, far from society, poor in existence, ignorant in a very informative environment (21).

In this context, globalization flattens sociocultural values of the whole humanity with neoliberal thought and understanding. It draws the world to a mono/single culture ground. Many intellectuals state that globalization causes some societies to develop and some to decline (28).

Globalization and coexistence is compulsory, but also problematic. Globalization is also a responsibility for every human being, society and state. A society or a country is not independent from one another; because damage may reach to everyone and dangers may be potential threats for everyone. In the globalization process, devastation and erosion of social and cultural values and the conflicts involve bigger problems and potential threats. Capitalism based on neoliberal thought destroys sociocultural values and structures to maintain its sovereignty(1). When ancient structures are destroyed, everyone may stay under them. It is compulsory to live together with the values that keep humanity together and provide its continuity. When faith/religion, mind, life, generation/family are worn out, destroyed, abused and they lose their functions, the earth will be in trouble. In the globalization process, social and cultural developments, changes may have a butterfly effect. Thus, the effect of the black citizen who was killed by police violence in the USA spread to the whole USA and the world in a trice; demonstrations resulted in serious concerns. Based on these, humanity should benefit from the surrounding and inclusive power and effect of sports in the globalization process. An understanding which does not cause polarization must be settled. Sports must be kept away from the context of industrial profit, investment and earnings. Sport is not only a physical event; it addresses a continuous and comprehensive fan base in channels like youtube, facebook, twitter. It has a belonging ground where the widest and different elements of the world unite. Sport is an important element of multicultural structures and the coexistence with differences. People who come together on this occasion have integrative effects in the global society with virtues based on ethics, love, solidarity; this can be achieved through sports. In the history and today, Turkey is at the head of countries who successfully manage multicultural coexistence in the society.

Globalization, Sports And The Reality Of Coexistence

Globalization is a reality, coexistence is also a reality. It is important that possibilities, opportunities and facilities which globalization supplies via transportation and communication broaden the coexistence and living together area in digital channels. On this occasion, an increase of recognition and meeting among people and societies increases the sense of belonging. These developments will contribute to the peace of humanity. They will strengthen the love and peace environment of the earth. Wealth and diversity are the accumulation of the humanity. Thanks to communication technology, people can have the opportunity to arrive at every point of the world, to know and to meet. On this occasion, interest and love areas also broaden.

In the globalization process, coexistence occurs physically. Many practices of life and digital coexistence can be experienced due to communication technology, TV and internet. Trade, politics, sports, entertainment, scientific, cultural and artistic activities take place in digital environment. In the globalization process, the most intense coexistence period of the history is experienced. Globalization surrounds sports as in every field (25). Sport is the most comprehensive part of especially TV, newspaper, social media and digital channels and it is the one which is mostly followed. People from all over the world can meet in

a common ground thanks to sports. In sports, especially football is a global sector. (Şahin 2011:16). It is an activity that provides the widest coexistence area of the world.

Various branches of sports are moved to TV and internet environments; so, it can find fans from all over the world and attract attention. Variety and wealth increase in making sports. Television is a common platform among people (3). Olympics, matches, competitions are broadcasted on TV. All records are stored and archived in digital networks, youtube channels, and internet environment. The possibilities to watch again the records and to move them have become easier. The history and accumulation of the sports can be reached. It is possible to reach teams, players, managers, coaches and to get information.

Sports that are carried out as individual or team from all over the world are shared digitally. People can be active participants.

Virtual fan communities are established; common shares like information, support, reactions are made instantly and quickly. Youtubers and bloggers related to sports emerge. Sport is the widest interaction area of globalization process (26). It is the widest field where differences come together and multicultural structures, faiths, understandings meet.

The effects of globalization on sports can be clearly seen. Information and communication technology developing during globalization process have carried the sports to every point of the earth. People from all over the world can get information about team, player, club, coach via TV and internet. They can watch sports matches and competitions. They have the opportunity to follow the developments without time and place restrictions. Sports also affect the area of belonging of individuals and societies. The number of the fans who feel the sense of belonging to a sportsman, club or club owner company from his own country, nation, religion, and continent has increased. There are also some people who feel this sense of belonging to the same sportsman or club due to a different reason. For example, when a Brazilian footballer plays in Liverpool, Brazilians are interested. The same player is the favorite of the English because he is in an English team. Liverpool fans living in English, the fans having different ethnic, religion and culture love this player. The same player is also followed by a Liverpool fan who lives in a different part of the world. The sense of belonging to a star footballer may be directed to a different team when this player is transferred to there. The sense of belonging is the meeting point of different people from different points of the world (11).

For example, there are many domestic-foreign people in different geographies who are fans of Brazilian, German, English, Dutch and Turkish teams. There are also Arabs who feel belonging to clubs that have been purchased by Qatar and Saudi Arabia. There are common points among fans from every nation in football, basketball, volleyball and car racings. People experience a type of coexistence on this occasion. People who feel themselves close to sportsmen competing in many sports branches like wrestler, boxer, and athlete and support them come together in feeling and excitement. The number of people who feel favor and closeness to a team or player despite different faith, understanding, thought, age, gender, nation, religion, culture, social layer and geography is increasing (7). Thus, living area among people is widening thanks to sports. This expansion area occurs among different people internationally, within the country and within the same city. Fans of a national team or a city team may exist in different social status. Their thoughts and understandings are not the same; they have different ideologies and political views. However, they meet in a common point thanks to sports. They live the joy, sadness and excitement together. To coexist, to think, to be sorry and to be happy is important for humanity's meeting and stability. The people, societies and nations that cannot come together in normal conditions and even are rivals and enemies to each other share the same place, time and feelings thanks to sports, teams, players and matches. Polarization and fanaticism in mass sports is a social phenomenon. Partisanship and belonging broadening via communication tools decreases the level of polarization and fanaticism.

In the globalization process that people meet face to face and in digital platforms, it is possible for sports to contribute to the development, wealth and varieties of the humanity more. Sport has a direct connection to democracy and social development (14). For this reason, this is necessary for the peace of the earth.

Globalization And Sports Industry

Sport has become a sector with its every aspect. It has incorporated organization, services and production (5). Sport is a continuous value and a part of people individually and massively. (29) The

globalization process has effects on industrialization of sports. The global companies dominating capital, technology, communication and information channels have industrialized sports and this has positive and negative sides. Sport takes place within daily life. It has become a wide potential within globalization process. Global companies see the sports as an industrial field (20).

Industry gives priority to profit and money. Preferences are away from human relationship. In this case, the unifying and integrative feature of sports is weakening. Mechanic, economic and capitalist understanding that sees the fans as consumers and the sportsmen, the clubs as producers/machine/device has dominated sports (12). In this case, the feature of belonging and coexistence also changes. In football stadiums, tickets in different classes are sold. There occur layers and status among people. There exist the units like five star hotels. Companies rent lodges. Brands dominate sports equipment and tools. Television is an important means that industrializes the sports (6). The important matches on TV can be only watched through paid channels. To buy a new uniform for every term has become a psychological pressure reason. The commercialization of sports is a result of globalization's commercializing the people and everything that belongs to people. In general, it can be said that the people from all over the world cannot benefit from equal sports services in an equal manner (24).

The players and the teams should always win. The one who wins is the one who is acceptable (12). AVMs (shopping malls) lead people to consumption culture and madness. Sports store exist in these shopping malls. The needs are not natural but have become artificial. When it comes to sports equipment, certain brands are featured. Tracksuit, shoe and uniform are in the brand monopoly of some companies. In addition to the sales of sports equipment, sport also addresses to a wide employment area (12).

Global system has turned every sector into industry and made them monopoly. Professional sports have come under the control of global system as an economic field. Global companies have seen the sports as a tool of earning, advertisement and introduction. Many applications that would bring income have been produced in sports. The institutionalization of clubs, their entrance to stock exchange, sponsorships, broadcasting prices, the income of advertisement, promotion, product and uniform, players' taking place in advertisements reflect the sports industry. The countries and companies which make investment on clubs, teams, matches and players gain benefits. The big football clubs have become competitive with the strong capital companies. Teams have started to be bought and sold. There is a wide equipment sector including various tools, devices and products beginning from fitness equipment in sports field (13). The quality of sports products and services has increased. Advertisement revenue that televisions earn from matches is sometimes very high. Many sectors like tourism, transportation, construction, food, fast-food and banking have revenues coming from sports. This sector bringing revenue to the teams and players has completely commercialized the sports. The budget of sportsmen and clubs has increased (15).

In global system, companies invest huge amount of money to the sports. They see the teams, clubs and players as an investment tool. So, companies use the communication tools like TV, newspaper, internet and social media very well. They provide interaction among people. Sportsmen have become magazine subjects. The commercialization of sports, sportsmen, teams and clubs is against the nature of sport. The differentiation and being monotonous of sport is not convenient for wealth and variety. The unique sport habits of every community and geography in the world should be protected.

Sports And Global Sensitivities

The sensitivities of sports community against various events in the world being experienced in the global level resonate nationwide and worldwide. Sports community shows sensitivities to the subjects like oppression, occupation, genocide and natural disaster and this has an effect. Cheers, posters and explanations made by players, clubs and fans in the stadiums and social channels with the supports of TV and communication channels are also very effective. For example, the teams from various countries drew attention by posters to the occupation in Gaza, Palestine and the children killed there; they also condemned these events. In the same way, support messages were given by European, Iranian and various Arabic countries sportsmen for Turkey's peace operations in Syria. Support messages for George Floyd who was killed by police violence in the USA were given by important sportsmen. Ronaldo's aid to Palestine and his financial support to the hospitals during corona

process resonated widely. Undoubtedly, Mohammed Ali is one of the greatest sportsmen of the history. He was against the Vietnam War; this and his attitude about the persecution against the black people became very effective. This effect still continues. Fan groups of the clubs opened posters for our Prophet (pbuh) "We love you without seeing you, oh our dear Prophet!" in holy birth weeks. Many fan groups, especially Çarşı which is one of the most important and effective fan groups of Turkey made similar expansions. Especially the comprehensive message of a fan group –protest Çarşı- known with its opposite attitude against everything won general approval from society.

Turkey provided humanitarian aid to some countries and the teams of these countries opened posters to thank Turkey before matches. In national matches, country teams open support posters to draw attention to the problems of the other countries. Aid and donations of known players are appreciated and set an example. The news that African footballer playing in Turkey gave financial support to their countries and to the poor draws attention.

Multiculturalism, Differences, Coexistence And Turkey

Sport puts multicultural people and societies and differences together (24). The world has become a global society; in many countries, multicultural, multi belonging identities have been formed. This is a reality. It is necessary to develop solidarity, love, helping each other, sensibility and collaboration among societies, cultures and countries. The globalization supplies opportunity to plans, programs and studies which will provide this environment and develop coexistence. It is a fact that Turkish nation lived in peace with different cultures in its state and civilization history. It has a successful past as multicultural. After accepting Islam as religion, Turks established many states in Transoxania, India, Anatolia, Caucasus, Iraq, Khorasan, Middle East, Balkans and Africa. Multicultural communities lived together in peace in the states of Karakhanids, Ghaznavids, Timurogullari, Baburs, the Great Seljuks, Ottoman, Anatolian Seljuk, Mamluks. Muslim Turks managed the differences in peace with cultural wisdom and intelligence. Today, Turkey is still a good example of multicultural coexistence in peace with differences. In this field, it contributes to the world. It opens its gates in the cases of wars and immigrations. It sends humanitarian aid to all over the world. It gives a special importance to Turks and relative communities in the dual nationality, work, education and residential permits. It helps every oppressed people and communities as much as possible. It has an understanding far away from racism, discrimination, otherization. It behaves everyone as a human being. It set an example to the world in corona pandemic with its policy and aid. It gained thanks from all over the world due to its hospitable, helpful and humanitarian behaviors with its state, human, society, STK (non-governmental organizations) and companies. In its all aspects, Turkey is a model country in terms of multicultural coexistence with differences in the globalization process.

CONCLUSION

The globalization has increased the connections between societies, states and cultures. In this process, the area of coexistence has also broadened. In physical and digital environments, the fans can have short-term but continuous associations. Excitement, belonging, love, interest and feelings compose a common area thanks to sports. Mass sports are the most common ground where the connections among people are established and excitements and interests are felt together. With programs and studies that will be made on sports, it can be supplied that different people can think, feel and act together and behave constructively and peacefully.

The globalization has surrounded and affected the sports with its economic power, capital and technology support. Global companies see the sports as an introduction and advertisement element that brings profit. However, sports are very important for the health and sociocultural balance of the society both individually and massively. The features and contributions of sports which bring the differences together and provide multicultural coexistence should be improved. In the globalization process, useful expansions can be carried out in the world through sports. Turkey has also many things to do in this field.

The globalization changes lifestyles, thoughts, faiths and cultures with its common, dominant, strong and quick tools; it takes them under its control and makes a bidirectional effect. On one hand, innovations and information can be reached and developments and progresses occur; on the other hand, faith, thought, value, local culture and structures are changed via internet based contents. Therefore, these progresses cause conflicts and

polarizations. The resistance mechanisms of people, societies and states with their own faiths, thoughts and sociocultural values are not enough against the contents produced in social media. However, an expanding living space can be improved with the collaboration of the whole humanity, their common mind and solidarity; permanent and continuous favors can be established. Sports have a big importance in this sense.

The monopoly of global companies over sports should be restricted and prevented with global right and law regulations. Teams and players should be removed from being only companies which bring profits. It should be purified from the effect of cultural imperialism.

Humanity needs more solidarity and common mind. Plans, programs and applications which will improve coexistence and multiculturalism on the society should be developed via mass sports. Contributions and attendances from all over the world and every community should be provided.

Communication channels should present sports teams and players as not only profitable tools but also as values which establish bridges among societies.

Sports teams and players should be removed from focusing on earning, advertisement and consumption culture. Sports should be a tool which improves the people and societies. Sports should provide the health of society and sociocultural balance; it should strengthen the relationships. The ground of coexistence should be broadened through sports.

Turkey can contribute to the world in sports by using its history, position and power and it can be a model. It can develop programs and applications which will eliminate the negative effects of sports in the globalization process and will improve and submit the positive effects.

People can easily connect to each other thanks to communication and transportation opportunities and the existence of digital networks in every field of the life; this increases the common areas and belongings. On this occasion, the common mind and collaboration is needed more. Sports submit extensive opportunities and occasions; it also opens new areas. Within globalization process, the coexistence is a compulsion and responsibility. To fulfill the responsibility to humanity is a duty for every person and country. Turkey has the accumulation and ability to fulfill this duty properly.

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Determination Of The Motor Development Levels Of 9-10 Years Old Children *

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** Measurement Of The Basıc Motorıcal Characterıstıcs Of 9-10 Year Old Chıldren In Ankara Çankaya Dıstrıct, Aksaray Unıversıty Socıal Scıences Instıtute Physıcal Educatıon And Sports Department, Master thesıs, March 2018*
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Abstract

The aim of this research was to observe the level of motor development of a group of students aged 9-10. Ninety-three students (42 girls, 51 boys) from the TAF Mehmetcik Foundation Hafize İhsan Payaza Primary School have voluntarily attended the research from Çankaya District in Ankara, Turkey. The children who were in the experimental group had the sub-tests of Test of Gross Motor Development-2 (TGMD-2); Manipulative skills and object control skill tests and each of them was graded. For each activity of the tests, 1 point was given if the students were successful and 0 points if not. At the end of the grading of each trial, total grades ached for each activity. Total grades were calculated for each skill and the status was defined. The result of this study will be useful for the students who have completed the basic Movement period of Psycho-motor development phases and who are in the last phase of sportive Movements period of Specific activity skills aged 7-10 years to define their basic motor features and to be guided to the correct sport branches. On one hand, it is aimed to help develop the normative values for the Turkish children using the TGMD-2 which was adapted from the test which is widely used in scientific researches while on the other hand, the development of basic motor properties based on anthropometric characteristics will be able to observe.

Keywords: Motor Skills, Child, Motor Performance, Motor Development, Muscle Development

INTRODUCTION

It is stated that understanding the motor development of a child is to understand the whole development of that child (19). There are several parameters that contribute to the development of a physically active lifestyle (physical self-perception, motivation, self-efficacy) for children and adolescents (1,23). One of these parameters is motor skill ability. (7,24,20). Motor skill ability is defined as the coordination, control, and movement quality that form the basis of certain motor skills as well as performance in many motor skill movements (6).

Gross motor skills are identified as an important element in children's environmental communication by developing object control and locomotor skills that primarily involve manipulating and reflecting objects with hands and feet (31). Motor skills are said to be the basis for many activities, both in early childhood and in childhood. (27). Ulrich (31) states that gross motor skills include locomotor skills in children's daily lives (such as holding, gripping) or in participating in various physical activities (such as running, jumping). Gross motor skills are considered the basic skills of movement and the basis for more complex motor skill development,

including the special skills required to participate in sporting events (2). The short and long-term benefits of physical activity for mental, emotional, and social, physical health for children and adolescents have been extensively demonstrated. However, it is stated that people who regularly participate in exercise programs less likely to experience obesity and cardiovascular disorders (26).

Identifying Motor-delayed children "allows timely guidance for developmental interventions as well as diagnostic assessments and treatment planning" and can reduce the negative impact on the development of sub-sequent skills. Physical fitness is associated with cognitive development and motor coordination, and proper motor coordination is essential for psychological development and well-being and health for people (16). According to Coe et al., the fact that the physical fitness level is above affects psychological well-being, health, and also academic success significantly. It is stated that the factor that enables children to participate in any physical activity or succeed in physical activity is the child's motor ability and the children who do not have sufficient motor qualifications will experience a lack of confidence and motivation in their participation in physical activity (21,14). Stodden et al. (25) emphasized that children who do not have sufficient motor ability decrease their perceptions of success and entertainment in various activities and this situation may cause activity or athlete to leave over time. Noritz et al. stated that determining children at the motor skill level will reduce the negative impact on the development of skills as well as determining and improving the negative effects during the period of development. In this context, the purpose of this study was to determine the motor skill levels of children between the ages of 9-10.

Method

Research model

In this research, the screening model, which is one of the experimental design models, was used to determine the levels of gross motor skills of 9-10 years old children.

Participants

The random sampling method was used to determine the research sample. The measurements were collected in the fall semester of the 2016-2017 academic year. The sample of the research consists of 93 (42 girls and 51 boys) students aged 9-10 who study at the TSK Mehmetçik Foundation Hafize İhsan Payaza Primary School in Çankaya District of Ankara.

Table 1. Descriptive statistics of the study sample

Variables		N	%
Gender	Boys	51	54,8
	Girls	42	45,2
Age	9 years old	22	23,7
	10 years old	71	76,3
Pre-School Education	Yes	76	81,7
	No	17	18,3
Body Height	93	140.67	6.396
Body Weight	93	36.47	7.717
Dominant Hand	Right hand	93	100,0
	Left hand	-	-
Dominant Foot	Right Foot	84	90,3
	Left Foot	9	9,7

Measures

In the research, The BMMDT-2, adapted by Boz (4), was used to measure the motor development levels of children.

Test of Gross Motor Development Test-2 (TGMD-2): Ulrich and Sanford (26) developed the Test of Gross Motor Development (TGMD) test to evaluate the motor development of children between the ages of 3-10. Later, Ulrich revised this test and developed TGMD-2. The adaptation study of the "Test of Gross Motor Development- Second Edition (TGMD-2)" standard, which was standardized by Ulrich (31) according to American norm values, was made within the scope of the research. Boz and Güngör Aytar (5) conducted an adaptation of the test to Turkish children, and the original test was aimed at measuring the gross motor development of children aged 3-10 years. The reliability of the test was found to be α = .92 for 5 years old and α = .91 for 6 years old. The TGMD-2 consists of two subtests: Manipulative and object control skills.

The manipulative skills (Run, Gallop, Leap, Hop, Horizontal Jump, Slide) includes a total of 6 skills and object control skills (Stationary Dribble, Catch, Kick, Overhand Throw, Underhand Roll, and Striking a stationary ball) consists of a total of 6 skills. The TGMD-2 was a test that includes 12 skills in total. Each motor skill consists of skill movement analysis consisting of three or five items.

For each item contained in each skill, 1 point is given if the child does the movement correctly, 0 points if the child cannot do it correctly. As a result of scoring each of the trials, the total score is reached for each item. The total score cannot be greater than

two points. The highest score from the manipulative skills is 48, and the highest score from the object control skills is 38 points.

Procedures

Before the data were collected, the researcher and his assistants (two hours of theoretical and two hours of practical education were given by the researcher to the six trainers and teachers who graduated from the School of Physical Education and Sports) and prepared the test setup by working in the field where the test will be applied. The conditions specified in the TGMD-2 were prepared for the application of each skill. The materials to be used in the test were also prepared in accordance with the conditions of the original test.

For the TGMD-2 test application, a separate station was established for each skill, and a trainer was assigned to each station. During the application, the children participated in the application one by one and since the beginning of the application, the trainers who were assigned separately were taken to all stations, respectively, and the application was carried out. It is evaluated that the trainer assigned for each station in practice and remained constant until the end of the application contributes to the reliability of the application.

Data Analysis

The data obtained in the research were transferred to SPSS 23.0 program. Descriptive statistical analysis (mean, standard deviation, frequency, and percentage) was performed to define the characteristics of the research group in the analysis of the data. The independent-Sample t-test was used to compare data between groups. The statistical significance level was taken as $p < 0.05$.

Results

In the result section, the findings of the research group were given.

Table 2. The TGMD-2 results of students according to gender

Variables	Gender	N	*M*	SD	Df	t	p
Run	Boys	51	7,64	,795	91	5.827	**.00***
	Girls	42	6,21	1,522			
Gallop	Boys	51	6,70	1,025		5.519	**.00***
	Girls	42	4,92	2,004			
Leap	Boys	51	9,68	,812		6.433	**.00***
	Girls	42	8,02	1,615			
Hop	Boys	51	5,11	,992		4.144	**.00***
	Girls	42	4,11	1,328			
Horizontal Jump	Boys	51	7,62	,999		5.399	**.00***
	Girls	42	6,02	1,814			
Slide	Boys	51	7,56	,984		4.308	**.00***
	Girls	42	6,02	2,321			
Manipulative Skills Total Scores	Boys	51	44,35	2,965		10.282	**.00***
	Girls	42	35,33	5,349			
Stationary Dribble	Boys	51	6,41	1,512		-,357	.722
	Girls	42	6,52	1,501			
Catch	Boys	51	5,86	,400		2,354	**.02***
	Girls	42	5,47	1,087			
Kick	Boys	51	7,15	1,347		2,033	**.04***
	Girls	42	6,52	1,656			
Overhand Throw	Boys	51	6,23	1,945		-1,176	.24
	Girls	42	6,71	1,966			
Underhand Roll	Boys	51	7,35	1,425		-,251	.80
	Girls	42	7,42	1,467			
Striking a stationary ball	Boys	51	7,31	1,805		1,420	.15
	Girls	42	6,76	1,935			
Object Control Total Scores	Boys	51	40,41	5,056		,883	.38
	Girls	42	39,42	5,678			
TGMD-2	Boys	51	84.76	,993		6.089	**.00***
	Girls	42	74.75	1,350			

p<0.05

When Table 2 was examined; Run (Mboys = 7.64 ± 0.79; Mgirls = 6.21 ± 1.52), Gallop (Mboys = 6.70 ± 1.02; Mgirls = 4.92 ± 2.00), Leap (Mboys = 9.68 ± 0.81; Mgirls = 8.02 ± 1.61), Hop (Mboys = 5.11 ± 0.99;

Mgirls = 4.11 ± 1.32), Horizontal Jump (Mboys = 7.62 ± 0.99; Mgirls = 6.02 ± 1.81), Slide (Mboys = 7.56 ± 0.98; Mgirls = 6.02 ± 2.32) and manipulative skills total scores (Mboys = 44.35 ± 2.96; Mgirls = 35.33 ± 5.34) differences were detected. Accordingly, it was observed that the average score of male students was higher than female students depending on gender (p <0.05). Again, according to gender, a significant difference was found in favor of male students in terms of Catch (Mboys=5.86±0,40; Mgirls=5.47±1,08) and Kick (Mboys=7.15±1,34; Mgirls=6.52±1,65) from the object control total scores and hitting the ball with feet. Moreover, there was a statistically significant difference in TGMD-2 Total Scores (Mboys = 84.76 ± 0.99; Mgirls= 74.75±1.35) depending on gender. According these results, male students' TGMD-2 total scores were higher than female students depending on gender (p <0.05).

Table 3. The TGMD-2 results of students according to age

Variables	Age	N	*M*	SD	Df	t	p
Run	9 years old	22	6,90	1,540	91	-,353	.72
	10 years old	71	7,02	1,330			
Gallop	9 years old	22	6,40	1,053		1,541	.12
	10 years old	71	5,74	1,925			
Leap	9 years old	22	8,59	1,680		-1,247	.21
	10 years old	71	9,04	1,418			
Hop	9 years old	22	4,36	1,364		-1,302	.19
	10 years old	71	4,76	1,212			
Horizontal Jump	9 years old	22	6,68	1,701		-,728	.46
	10 years old	71	6,97	1,612			
Slide	9 years old	22	7,18	1,789		,888	.37
	10 years old	71	6,77	1,906			
Manipulative Skills Total Scores	9 years old	22	40,13	5,083		-,124	.90
	10 years old	71	40,32	6,484			
Stationary Dribble	9 years old	22	6,09	1,570		-1,335	.18
	10 years old	71	6,57	1,470			
Catch	9 years old	22	5,72	,631		,259	.79
	10 years old	71	5,67	,858			
Kick	9 years old	22	6,54	1,870		-1,152	.25
	10 years old	71	6,97	1,393			
Overhand Throw	9 years old	22	6,00	2,047		-1,241	.21
	10 years old	71	6,59	1,924			
Underhand Roll	9 years old	22	6,09	2,388		-5,577	**.00***
	10 years old	71	7,78	,558			
Striking a stationary ball	9 years old	22	6,59	1,436		-1,362	.17
	10 years old	71	7,21	1,977			
Object Control Total Scores	9 years old	22	37,22	6,603		-2,861	**.00***
	10 years old	71	40,81	4,614			
TGMD-2	9 years old	22	77,36	10,284		-1,680	.09
	10 years old	71	81,14	8,864			

p<0.05

When Table 3 was examined, it was found that there was no statistically significant difference in the Run(M9 years old =6,90±1,54; M10 years old =7,02±1,33), Gallop (M9 years old =6,40±1,05; M10 years old =5,74±1,92), Leap (M9 years old =8,59±1,68; M10 years old =9,04±1,41), Hop (M9 years old = 4,36±1,36; M10 years old =4,76±1,21), Horizontal Jump (M9 years old = 6,68±1,70; M10 years old =6,97±1,61), Slide (M9 years old = 7,18±1,78; M10 years old =6,77±1,90), and manipulative skills total points (M9 years old =40,13±5,08; M10 years old =40,32±6,48) of students according to age (p> 0.05). Depending on the age, a statistically significant difference was found in the Underhand Roll (M9 years old =6,09±2,388; M10 years old =7,78±0,55) from Object Control Skills and Object Control Total Scores (M9 years old =37,22±6,603; M10 years old =40,81±4,61) of the students. Accordingly, the average score of 10-year-old students was found to be higher compared to 9-year-old students (p <0.05).

Table 4. The TGMD-2 results of students according to take a pre-school education

Variables	Pre-School Education	N	*M*	SD	Df	t	p
Run	Yes	76	6,98	1,331	91	-,194	,84
	No	17	7,05	1,599			
Gallop	Yes	76	5,86	1,927		-,398	,69
	No	17	6,05	,826			
Leap	Yes	76	9,00	1,469		,883	,37
	No	17	8,64	1,578			
Hop	Yes	76	4,73	1,247		1,143	,25
	No	17	4,35	1,271			
Horizontal Jump	Yes	76	6,92	1,555		,222	,82
	No	17	6,82	1,975			
Slide	Yes	76	6,81	1,866		-,597	,55
	No	17	7,11	1,964			
Manipulative Skills Total Scores	Yes	76	40,32	6,304		,163	,87
	No	17	40,05	5,617			
Stationary Dribble	Yes	76	6,63	1,486		2,356	**,02***
	No	17	5,70	1,358			
Catch	Yes	76	5,61	,878		-1,782	,07
	No	17	6,00	,000			
Kick	Yes	76	6,88	1,441		,142	,88
	No	17	6,82	1,878			
Overhand Throw	Yes	76	6,63	1,853		1,900	,06
	No	17	5,64	2,262			
Underhand Roll	Yes	76	7,61	,863		3,473	**,00***
	No	17	6,35	2,644			
Striking a stationary ball	Yes	76	7,13	1,913		,727	,46
	No	17	6,76	1,714			
Object Control Total Scores	Yes	76	40,51	4,745		2,122	**,03***
	No	17	37,52	7,116			
TGMD-2	Yes	76	80,84	8,463		1,309	,19
	No	17	77,58	12,354			

p<0.05

When Table 4 was analyzed, a statistically significant difference was found in the stationary dribble (Myes =6.63±1,48; Mno =5.70±1,35), and Underhand Roll (Myes =7.61±0,86; Mno =6.35±2,64) from the Object Control Skills and Object Control Skills (Myes =40.51±4,74; Mno =37.52±7,11) total scores on the students taken the pre-school education. Accordingly, it was observed that the mean scores of the students who take pre-school education were higher than those who did not take pre-school education (p <0.05).

Discussions and Conclusions

Sports should enter the child's life at an early age, as it will play an important role in the child's growth, maturation, and cognitive development (20). A statistically significant difference was found between the running motor skills and gender variables, which are among the Manipulative Skills of the students participating in the research. Accordingly, it was observed that the average score of male students was higher than female students depending on gender. Again, depending on gender, a significant difference was found in favor of male students in terms of catching and kicking from the object control skills.

A statistically significant difference was found in Test of Gross Motor Development-2 total scores depending on gender. Accordingly, it was observed that the average score of male students was higher than female students depending on gender. Tavşan (29) stated that there is an increase in motor skill performance with age, but gender also affects performance. Research on motor skills shows that boys' performances are better than girls, these differences are minimal in early childhood and increases in adolescence (12, 13). It is stated that the motor skill scores of boys were higher than that of girls. Lorson and Goodway (17) stated that basic movement skills may differ according to gender, and socio-cultural changes (different from what is

expected from the child). According to Blakemore, Berenbaum, and Liben (3), both physical development and application opportunities affect gender differences in motor skills (biological factors and social learning) in childhood. In the study which Valentini and Rudisil (34) examined whether boys and girls with low motor performance between 5-6 years of age to examine whether boys and girls differ in terms of motor skill, there is no significant difference between boys and girls in terms of locomotor skills, while object control skills are compared with boys who have higher scores.

Cleland and Gallahue (8) stated that after their study with 40 children (4, 6, 8 years), experience and age explained 45% of children's movement skills scores. In this study, statistically significant differences were found in the students' total scores of underhand roll and object control from object control skills and object control, and depending on the age the average score of 10-year-old students was higher than 9-year-old students. Also, Tepeli (28) stated that age affects the development of movement skills in the standardization study of the TGMD-2. Ulrich (31) emphasized that age affects performance in TGMD-2 original test and there is a significant difference between age and Manipulative Skills, object control, gross motor skills. Sevimay (22) applied the motor performance evaluation test to examine the motor performances of 205 preschool children in the age of 3-6. As a result of the research; Apart from the differences in the balance performance of the 5-6 age group children, the difference between the performance of 5-6 age group children and 3-4 age group children was found to be statistically significant. In their study with 191 children, Zachopoulou and Makri (35) examined the effect of age and gender variables on the movement skills of preschool and primary school children. As a result, a significant difference was determined for the motor fluency and flexibility factor in age groups. Williams et al. (33) stated that in their study on 80 children aged 3 years and 118 children aged 4 years of age, the locomotor and object control skill levels of children aged 3 years were lower than that of children aged 4 years.

In the research group; a statistically significant difference was found in the total scores of the Object Control Skills, Stationary Dribble, Ball, and Object Control Skill depending on the students ' attendance to a pre-school education institution. Accordingly, it was observed that the average scores of the students who received preschool education were higher than the students who did not receive pre-school education. Clelandand and Gallahue (8) in their study to examine the relationship of age, gender, movement experiences and gross motor development in different movements (performing and performing gross motor motion models) of 40 girls and boys aged 4,6, and 8, it has been determined that the difference in movements occurs at the age of four or eight, and out-of-school experiences are of great importance in the ability of young children to move, and gender is not effective in different movement abilities of the child in contrast to the age and experience. In the study of Goodway and Rudisill (13), it was applied a 12-week motor skill development program on pre-school African American children, it was found that physical capacity improved better than the control group. Similarly, Valentini and Rudisil (2000), in their study to investigate the effect of motivational education practice on 67 girls and boys with low motor performance in the 5-6 age range, 38 children participated in 12 weeks of motivating education and 29 children were treated as control groups. Both locomotor and object control skill posttest scores measured by Test of Gross Motor Development-TGMD were determined to be significantly higher than the control group. This result shows that motivational education practices increase the sense of physical ability and motor skill performance in kindergarten children with low motor performance level.

Deli, Bakle, and Zachopoulou (9) stated in their study that the manipulative skill scores of children participating in practices organized in different ways differ significantly from the scores of children participating in free play activities, so the practices organized in different ways positively affect their displacement skills. Similarly, Derri, Tsapakidou, Zachopoulou ve Kioumourtzoğlou (2001), as a result of the music and movement program applications for 4-6 year-old children, the manipulative skills scores of the experimental and control groups differed significantly, and the average of the skill scores of the children in the experimental group was significantly found high. They stated that the complex manipulative skills of the children developed with the music and movement program. In his study in Boz (4), stated that there is a significant difference between the pre-post and post-test average scores of children who participate in the

basic movement education program and that this difference is because of the basic movement training program applied. However, it is emphasized that the basic movement training program had a significant impact on gross motor development. In other words, it has been revealed that the basic movement training program can be effective in the acquisition and development of manipulative skills, object control skills, and thus in the acquisition and development of gross motor skills. Wang (32) stated that the children in the experimental group who participated in the creative movement training showed a significant difference from the scores of the children in the control group. However, he stated that there was a significant difference between the manipulative skill scores of both groups, but he noted that the difference between groups was not observed for object control skills.

Karagöz (15) stated that in his study conducted to measure the motor skill levels of eight-year-old children, the locomotor skill levels of students who do regular sports developed more than students who do not sport. In addition, he reported that the TGMD-2 object control skill levels of students who do regular sports were higher. Total motor skill scores support other subtest findings, and students who do regular sports were found to have higher total scores than those who do not sport.

Especially the 7-10 age period seems to be very important in terms of reinforcing these skills and using them effectively in their future lives. Besides the willingness of children to various sports branches, it is also important to choose those who have some special features and talent for some sports branches and to achieve national and international success in sports. For this reason, it is important to identify the students who are trained in sports starting age in line with their abilities and direct them to the appropriate sports branch.

Psychomotor tests are important to determine motor skill levels in children 9-10 years old (especially in the period of starting sports). Pre-school education has a positive effect on the development of psychomotor skills. For this reason, children should be able to continue pre-school education within the scope of opportunities and exercise programs to be implemented in this education should be designed in a way that will directly and positively affect psychomotor development within the framework of scientific methods. In this period, with the right planning, educators and families should help increase the motor mobility of children through various activities, and it should be ensured that the child is directed to the sports branch in which the child is prone. In the right branch to be directed, carrying out branch-specific studies will be important in achieving sporting success both individually and/or as a team, by directly affecting the development of the talent. Since the physical conditions (number of open spaces and parks where children can play etc.) in the region where the application is performing, economic conditions, environmental and social factors directly affect motor development according to age and gender. For this reason, the differences in motor development according to the region where the application is performing should be taken into consideration.

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