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RESEARCH ARTICLE

Investigation of Anthropometrıc and Phsycıal Fıtness Parameters af University Students Who Perform Sports as Licensed

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Abstract

The aim of this study is to examine some anthropometric and physical fitness parameters of the students who are studying at the School of Physical Education and Sports and who do not have any license with the students who are licensed in different sports branches. The mean age of this study was 20,3 ± 0,76 for females and 19,7 ± 0,78 for female, 22,0 ± 0,71 for male and 22,9 ± 0,78 for female students. . The age, height and body weight of the athletes were measured and body mass index (BMI) was calculated. The athletes were given 20 m speed, long jump, flexibility, flamingo balance and vertical jump test. After the data were entered into SPSS program, paired t-test was used to determine the differences between some anthropometric and physical fitness characteristics of licensed and unlicensed students. While anthropometric measurements showed a significant difference in height and body weight ($p < 0.05$; $p < 0.01$), BMI was not significantly different between groups ($p < 0.05$). Physical fitness parameters of 20 m speed, stop long jump, flexibility, flamingo balance, double arm push and vertical jump test results of the licensed groups were not significantly different than the unlicensed ($p < 0.05$, $p < 0.01$). As a result, some anthropometric and physical fitness parameters of the athletes who are licensed in different sports branches are determined. It can be argued that these differences are caused by the different physical characteristics and training programs of the students.

Keywords
Licensed, Physical Fitness, Anthropometry

INTRODUCTION

One of the most important factors affecting the success in sports is the fact that the athletes have the characteristics that are appropriate for that sports branch (Çolak and Kolukısa, 2017; Eler 2018). It is known that there are big differences in physical structure of athletes in different sports branches (Koç et al., 2011). It is not possible to reveal the performance exactly unless the feature of the bodily structure is suitable for the applied sports branch (Aydos, 1991). The physical structure affecting the performance, in other words the physical properties, affects the introduction of the physiological capacities. Physical structure; it is one of the basic elements of an athlete's ability to perform at a high level. Strength, strength, flexibility, speed, endurance and speediness, such as the ability to combine with the engineer to affect the performance of the athlete (Ayan et al., 2011).

All sporting activities are activities that require different levels of skill during both the application and learning. People who have acquired the skill during these activities either transfer the other skills they have in the past to the time they are in, or learn the original movement patterns by creating a new structure (motor program) (Aydos and Kürkçü, 1997). Age, height, gender, body composition, conditional and coordinative characteristics are the individual

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factors affecting skill acquisition (Ölçücü et al., 2010). For example, the development of some skills (coordinative) in time plays an important role in success. The acquisition of skills in the elderly is slower than in younger individuals. Every person has the ability to move, but the ability to develop this ability varies from person to person. The measure of this development determines the quality of the person's senso-motoric structure. It can be used synonymously with resourceful coordination. Conditional and coordinative features, strength, speed, durability, flexibility, agility, coordination, reaction time, orientation, movement sensitivity, rhythm, balance, fluency and movement of the movement (Güvel et al., 1997). Ideal body components vary in different sports branches. However, the main purpose is based on low fat and better performance. A high body fat ratio can also result in reduced strength, agility, speed and flexibility, as well as loss of energy. Body weight means the speed, durability and strength of the athletes; Whereas the body composition can affect the athlete's power, appearance and agility (Akın et al., 2004; Demirci and Toptaş Demirci, 2018).

Research shows that having certain body measurements in sports has an advantage in making certain skills and there is a close relationship between sportive performance and body type (Kurudirek, 1998; Taşucu, 2002). The aim of this study is to examine some anthropometric and physical fitness parameters of the students who are studying in the School of Physical Education and Sports and who do not have any license with the students who are licensed in different sports branches.

MATERIALS AND METHODS

Participants and Procedures

Undergraduate and unlicensed men and women athletes who are voluntarily selected from the students of Mersin University Physical Education and Sports College participated in the study. The measurements of the study were performed at Mersin University Physical Education and Sports College facilities. Before starting the study, the rules to be followed were explained to the individuals in detail and an informed consent form was signed. The mean age of this study was Licensed male 20,3 ± 0,76 and female 19,7 ± 0,78 years. and 47 women and 72 men, unlicensed (n = 60). Participants were selected among the licensed and unlicensed students.

Data Collection Tools

Height

Height measurements were made using a tape measure with a precision of 0.01 m. While measuring the height of the athlete, it was noted that the shorts and t-shirts were dressed, on a flat floor, their feet were in a bare and upright position and recorded in cm.

20 m Speed Test

The subjects were run at maximal velocity for 20 m with the exit sign on the starting line. The time between the start and end was determined by the photocell (New Test 2000). 2 attempts were made, adequate rest period between trials were given and the best result was recorded.

Vertical Splash Test

Subjects were asked to jump upward vertically on the splash stand, and the best grades from the two trials were recorded in m. The spatial distances obtained were then determined by P = (m4.9 x Weight x PD) Lewis formula and the anaerobic power (P) values of each subject were determined in kgm / s (Mackenzie, 2005).

Sit-Down test

Resilience measurements of the subjects were performed by sit-reach test using the flexibility table. Subjects were asked to perform two trials and their best grades were recorded in cm (Mackenzie, 2005).

Long Jump

Test The athletes were taken to the jump line in order that the feet were open at the shoulder width and the toes did not cross the jump line. Participants were asked to bend their knees and take their arms backwards. After the athlete jump, the distance between the heel of the most back foot contacting the ground and the jump line was measured in cm. The test was applied to all subjects twice. The best grade was accepted as the score (Tamer, 2000).

Flamingo balance test

Volunteer, 50 cm. length, 4 cm. height and 3 cm. the balance tries to stay in balance for 1 minute, resting on the preferred foot of the platform, pulling the other foot bent from the knee, pulling it towards the hip and holding it with the hand on the same side. The time is stopped when the balance is broken (when the bent foot touches the ground or comes out of the balance platform).

When the subject re-enters the equilibrium platform, the balance is resumed. When the period balance is counted (after falling) and recorded as the participant's score (Tamer, 2000).

Double Arm Push

The test measures the force around the shoulder-chest muscles and flexor muscles. Subjects move the ball from the fixed distance to the front with two hands by moving the arms backwards from a fixed distance. Result in cm. is determined.

Statistical Analysis

All statistical analyzes were performed with SPSS version 20.0. P value of less than 0.05 was considered significant. Differences is completed, the participant's attempt to achieve

betweenlicensed and unlicensed groups pretest and posttest were analyzed T test.

RESULTS

Tables 1 and 2 There was a significant difference ($p < 0.01$; $p < 0.05$) between age, height, vertical jump, double arm push, flamingo balance test and 20 meter sprint performance measurements when compared with licensed and unlicensed women students. However, no statistically significant difference was detected in the other parameters (Tables 1 and 2).

Table 1: Comparison of Performance Measurements Changes of Licensed and Unlicensed Physical Education and Sports College Women Students

Parametres	Group	N	X ± SS	F	Asymp. Sig
Age (Years)	Licensed Group	20	19,7 ±0,78	1,530	**.001**
	Unlicensed Group	27	22,9 ±0,78		
Body Height (cm)	Licensed Group	20	1,70 ±0,05	9,016	**.001**
	Unlicensed Group	27	1,64 ±0,02		
Body Weight (kg)	Licensed Group	20	57,4 ±6,30	1,123	.070
	Unlicensed Group	27	54,5 ±4,65		
Body Mass Indeks (BMI)	Licensed Group	20	21,8 ±1,8	0,257	.080
	Unlicensed Group	27	22,1 ±2,7		

*P<0.05, **P<0.01, ***p<0.001

Table 2: Comparison of Performance Measurements Changes of Licensed and Unlicensed Physical Education and Sports High School Women Students

Parametres	Group	N	X ± SS	F	Asymp. Sig
Long Jump	Licensed Group	20	1,87 ±0,18	5,414	.080
	Unlicensed Group	27	1,80 ±0,10		
Vertical Bounce	Licensed Group	20	36,7 ±6,07	0,005	**.001**
	Unlicensed Group	27	43,0 ±6,29		
Double Arm Push	Licensed Group	20	4,56 ±0,57	0,015	**.002**
	Unlicensed Group	27	3,86 ±0,48		
Sit Down Test	Licensed Group	20	38,3 ±9,84	18,518	.270
	Unlicensed Group	27	36,0 ±3,83		
Flamingo Balance Test	Licensed Group	20	11.35 ±3.2	3.470	**.001**
	Unlicensed Group	27	9.15 ±2.56		
20 M Speed Run	Licensed Group	20	3,56 ±0,24	0,066	**.004**
	Unlicensed Group	27	3,73 ±0,32		

*P<0.05, **P<0.01, ***p<0.001

When the age, weight, double arm push, flamingo balance test and 20 m sprint results of the licensed and unlicensed male students were compared (p <0.001; p <0.05), a significant difference was found. However, no statistical significance was found in other parameters (Tables 3 and 4).

Table 3: Comparison of Performance Measurements Changes of Licensed and Unlicensed Physical Education and Sports College Male Students

Parametres	Group	N	X ± SS	F	Asymp. Sig
Age (Years)	Licensed Group	39	20,3 ±0,76	34,907	**.001**
	Unlicensed Group	33	22,0 ±0,71		
Body Height (cm)	Licensed Group	39	1,81 ±0,71	5,767	.080
	Unlicensed Group	33	1,78 ±0,39		
Body Weight (kg)	Licensed Group	39	74,0 ±9,07	10,159	**.050**
	Unlicensed Group	33	74,8 ±5,53		
Body Mass Indeks (BMI)	Licensed Group	39	22,4 ±1,7	0,364	.070
	Unlicensed Group	33	23,1 ±2,1		

Table 4: Comparison of Performance Measurements Changes of Licensed and Unlicensed Physical Education and Sports High School Students

Parametres	Group	N	X ± SS	F	Asymp. Sig
Long Jump	Licensed Group	39	2,43 ±0,17	0,270	.081
	Unlicensed Group	33	2,42 ±0,21		
Vertical Bounce	Licensed Group	39	55,8 ±6,70	11,042	.960
	Unlicensed Group	33	55,7 ±10,5		
Double Arm Push	Licensed Group	39	4,97 ±0,61	0,757	**.002**
	Unlicensed Group	33	5,33 ±0,71		
Sit Down Test	Licensed Group	39	41,5 ±9,46	3,909	.760
	Unlicensed Group	33	42,0 ±5,99		
Flamingo Balance Test	Licensed Group	20	12.25 ±4.12	2.290	**.001**
	Unlicensed Group	27	10.50 ± 3.20		
20 M Speed Run	Licensed Group	39	3,12 ±0,17	0,944	**.001**
	Unlicensed Group	33	3,10 ±0,22		

*P<0.05, **P<0.01, ***p<0.001

DISCUSSION AND CONCLUSION

One of the most effective criteria for determining the performance in sports is to have an athlete license. As in every sport, players with good conditional characteristics are more advantageous than their competitors. Some athletes move faster than their competitors, they can think faster, they recover faster, they get less tired and the risk of injury is less. In other words, the difference between winning and losing depends on the condition, strength, endurance, and speed (Öl çüc ü et al., 2010). In a study, the height and body weights of the athletes were 174,4 ± 5,1 cm and 67,1 ± 4,7 kg for the football group, 184,2 ± 7,22 cm for the basketball group and 76,8 ± 8,9 kg for the bocce. 171.8 ± 6.5 and 68.6 ± 11.9 in the handball group and 184.0 ± 4.5 cm and 77.1 ± 8.1 kg in the handball group, 177.9 ± 5.1 cm and 69.8 ± 5,0kg' in the table tennis group. The average of

the basketball and handball group is significantly higher than the other groups and there is no difference between the two groups (Reilly et al 1990).

Age, height, vertical jump, double arm push, flamingo balance test and 20 meter sprint performance measurements were compared between the undergraduate and the unlicensed students ($p < 0.001$; $p < 0.05$). No statistically significant difference was observed in other parameters. Age, weight, double arm push, flamingo balance and 20 m sprint results of the male students of the School of Physical Education and Sports Measurement Results According to the comparison between licensed and unlicensed students ($p < 0.001$; $p < 0.05$) while determining significant differences in the level, statistical significance in other parameters not detected.

Anthropometric measurements are important in predicting physical and physiological performances. It is generally accepted that different anthropometric and performance characteristics should be successful in different sports, with recent research focused on identifying features useful for referral to specific sports (Young et al., 2005). Some studies conducted; Aouichaoui (2014) on the prepuberto period athletes in their work with vertical jump performance and body weight, height and BMI, Moncef et al. (2012) found a significant negative correlation with body weight and splash performance.

As a result; Differences were determined in some anthropometric and physical fitness parameters of male and female students engaged in sports licensed and Unlicensed. It was determined that the anthropometric and physical fitness parameters of licensed female and male athletes students were close to each other. However, the anthropometric and physical fitness parameters of unlicensed female and male athletes were lower than those of licensed athletes. There are differences in some anthropometric and physical fitness parameters of athletes who are licensed in different sports branches. It can be argued that these differences are caused by the different physical characteristics and training programs of the students.

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