International Journal of Contemporary Educational Studies (IntJCES)
December 2024 :10 (2)
ISSN : 2458-9373
Doi : 10.61087/IntJCES.2024.17

The effect of psychological skills training on anxiety, motivation, attention and service scores in tennis players

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Türü: Araştırma Makalesi (Alındı: 19.07.2024 - Kabul: 16.11.2024)

Abstract

Times This study was to examine the impact of 12 weeks psychological skills training program which included goal setting, imagery, self-talk, pre-performance routine, concentration and self-monitoring on the anxiety, motivation, attention and serve scores in tennis players. The sample of the study 30 players selected by the appropriate sampling method participated in the research. In comparisons between groups, t-test analysis was applied in Independent Groups. The difference between the pretest-posttest values of the groups was recorded as the development value, and whether there was a significant difference between these development values was tested with t-test analysis in independent groups. Accordingly, the groups were formed homogeneously according to all sub-dimensions. In the comparison of the posttest values of the experimental and control groups, only a significant difference was found between the service scores and the somatic anxiety mean scores between the groups. To the improvement score between attention, service score, anxiety and motivation pretest and posttest values, there is a significant development in favor of the experimental group in attention and service scores. It can be said that psychological skill training has a highly significant effect on attention and service scores in tennis players. It is recommended to use qualitative methods together with quantitative methods for future studies. In studies on the anxiety level of athletes, cognitive and physical techniques are used together and more frequently to reduce the anxiety level.

Keywords: Anxiety, motivation, attention, service scores, psychological skills training, tennis players

Introduction

Many researchers have stated that mental training should be done as well as physical training, technical and tactical training to achieve high levels of success in sports (Brewer, 2009: 4; Weinberg & Gould, 2015: 553). They state that preparation should be done for athletes to reach performance (Blumenstein & Orbach, 2012). All mental studies related to the concept in psychological preparation have an important place for performance (Eklund & Tenenbaum, 2014). It is the attempt of the athlete to develop more than one psychological skill, thus creating their weak areas and trying to develop and maintain their strengths such as commitment, concentration/attention and motivation (Hardyetal, 2001: 472; Weinberg & Gould, 2011: 555).

Athletes aiming to improve their psychological skills use mental training techniques (Vealey, 2007: 287). Psychological skills training helps athletes improve their psychological skills, increase their performance, improve their physical skills, get more satisfaction from sports and provide personal development (Horn, Bloom, Berglund, & Packard, 2011).

In a study conducted with riders, they concluded that psychological skills training increased the riders' performance (Blakeslee & Goff, 2007: 289). Bois, Sarrazin, Southon and Boiche (2009) stated in their study with professional golfers that using emotion control, imagery, self-talk, relaxation and concentration techniques is associated with high performance. It has been conducted in studies using imagery, mental rehearsal, awareness raising, goal setting, cognitive restructuring, thought stopping, autogenic relaxation exercises, self-talk, pre-performance routine and other cognitive-behavioral therapy techniques as psychological skill training (Whelan, Mahoney, & Meyers, 1991: 310; Vealey, 1994; Ryska, 1998: 610; Theodorakis, Chroni, Laparidis, Bebetsos, and Douma, 2001: 310; Behncke, 2004: 10; Shaw, Gorely, and Corban, 2005; Zaichkowsky, 2006: 3; Kingston and Wilson, 2009: 80; Hemmings and Holder, 2013; Weinberg and Gould, 2015: 556; Slimani, Bragazzi, Tod, Dellal, Hue, Cheour, Taylor, & Chamari, 2016: 144).

Tennis is an individual sport in which the intensity of psychological factors should be high. Tennis players may experience different emotional states during the match. Anxiety, attention and motivation are discussed in terms of affecting the performance of the athletes in terms of being willing and interested during the competition (Yanar et al., 2017: 70). One of the conditions required for athletes to perform well in competitions is to know the factors that will count the motivation of those athletes. In the motivation process, both mental and emotional factors are effective, supporting the view that it is more of a mental process. There is also a reciprocal relationship between motivation and emotional factors, and emotional reactions occur depending on the successful or unsuccessful result of the activity, which is formed by the influence of the motives, on the other hand, emotions direct our behavior (Ikizler, 1993).

The concepts of anxiety, motivation and attention are discussed in this study. It is of great importance to develop skills such as anxiety, motivation and attention in studies to be conducted with athletes and especially young athletes (Brewer, 2009: 5). Weinberg and Gould (2015) state that studies aimed at reducing anxiety and preventing burnout, especially in children's sports, should be addressed as a priority. With this research, increased their motivation levels and improved their attention levels, as well as improved their service scores is intended to increase. It is thought that it can be an exemplary and guiding study in applied sports psychology studies to be carried out with athletes, as well as it will guide the scientific studies to be done later.

Materials and Methods

Sample

The sample of the study consists of tennis players aged 14-12, 30 players selected by the appropriate sampling method participated in the research and 15 of the players were determined as the experimental group and 15 as the control group. It has been considered that tennis players have played licensed tennis for at least 5 years and trained at least 4 days a week. Participants were informed about the study, and then they voluntarily participated in the study after obtaining their consent. The study was conducted with the approval of the institutional ethics committee.

This study was conducted according to the Declaration of Helsinki and was approved by Pamukkale University Research and Ethics Committee (E-60116787-020-217441) Denizli, Turkey. To collect data in the study, Sports Anxiety Scale 2 (SAS-2), Sports Motivation Scale-II (SMS-II), D2 Attention Test and International Tennis Federation (ITF) ITN test were used.

Measurements and procedures

The measurement tools were applied within the scope of the pre-test one week before the psychological skill training program started, and within the scope of the post-test one week after the application ended.

Psychological Skills Training Program

The psychological skills training program was planned as 1 session per week, 60 minutes, and 12 weeks. Mental training techniques such as motivation, anxiety, attention and tennis service scores of the athletes, goal setting, imagery, self-talk, routine, self-monitoring techniques and concentration-enhancing studies were carried out. When the psychological skills training with athletes are examined between 4-8 sessions (Sheard & Golby, 2006: 153; Zetou, Vernadakis, Bebetos, & Makrari, 2012: 798). Due to the high number of skills to be developed within the scope of this research (anxiety, motivation, self-confidence, attention, shooting performance), it was decided to hold 12 sessions. In addition, a 12-week psychological skills training program was appropriate as both informative and practical sessions were planned for each technique. During the 12-week practice, tennis players actively participated in the competitions. Coaches did not participate in the sessions and the practices were actively carried out under the supervision of a sports psychologist. During the planning of the sessions, the support of an expert and experienced sports psychologist was taken.

Psychological Skills Training Program

Week	Training	Contents
1	Goal Setting 1	Promotion, Rules, Confidentiality, Psychological assessment and development
2	Goal Setting 2	Self-awareness and how much improvement in skills
3	Imagination 1	How imagery is done, its importance and benefits
4	Imagination 2	Information about the mental game plan, its benefits, how it is applied
5	Inner Conversation 1	Information and sample videos on the effects of self-talk
6	Inner Conversation 2	How they self-talk and how they cope in adverse situations
7	Routine 1	How will the routines affect the situations in which they are used in competitions

8	Routine 2	Applying the routine that each athlete has determined to be the same
9	Concentration 1	How concentration comes into play in matches
10	Concentration 2	Inner speech and routine work to ensure concentration
11	Self-Monitoring 1	Their experiences and experiences from the first session to this session
12	Self-Monitoring 2	Questions were asked to the athletes about which applications they would use

Data collection tools

Anxiety Scale in Sports 2 (SAS-2)

The Sports Anxiety Scale, developed by Smith, Smoll, and Schutz in 1990, was revised in 2006 by Smith, Smoll, Cumming, and Grossbard. The scale is a 4-point Likert type; It consists of a total of 15 items, each of which includes 3 sub-dimensions and consists of 5 items. The subscales are somatic anxiety, worry and concentration disorder. In the original study of the scale, both explanatory and values for anxiety, somatic anxiety, and concentration disorder subscales are .84, .82, and .75, respectively (Smith et al., 2006). It was adapted into Turkish for Turkish children and youth by Karadag and Asci (2015).

Sports Motivation Scale-II (SMS-II)

Pelletier et al. (2013) developed by Yildiz et al. (2019), according to the confirmatory factor analysis results of the scale, whose psychometric properties were examined, the fit index values of the 18-item model of the scale (x2/sd=4.23, IFI=0.86, TLI=0.79, CFI=0.85, RMSEA=0.09); The fit index values of the 16-item (without items 3 and 7) model were found to be (x2/sd=2.61, IFI=0.94, TLI=0.91, CFI=0.94, and RMSEA=0.06). The factor loads obtained vary between 0.43 (introjected regulation) and 0.84 (external regulation) for the 16-item model. In addition, because of the concurrent validity analysis, a significant relationship was found between all sub-dimension scores of the Sports Motivation Scale $p>0.05$.

D2 Attention Test

The D2 attention test was developed by Brickenkamp in 1962 and has been revised many times (Caglar & Koruc, 2006). The test basically measures selective attention based on duration. The speed of doing the task, obeying the rules and performance quality are the sub-features measured (Yayci, 2013). Because of these properties, TM (Total number of marked items), H (total error), H% (error percentage), TM-H (total item-error), KP (concentration performance) and DO (fluctuation rate) values appear because of the test. The Turkish adaptation and norm formation study of the scale was carried out by Toker (1988). Toker (1988) also tested the validity and reliability of the test in the 11-14 age group with this study. According to the results of the reliability analysis of the test made with the test-retest method with an interval of three months; It was found that r=0.71 for TM, r=0.61 for H, r=0.66 for H%, and r=0.77 for TM-H. For the validity analysis of the scale, the correlation value between the Password Subtest of 40 Wechsler tests was checked. r=0.42 for TM and r=0.44 for TM-H. Caglar and Koruc (2006) tested the validity and reliability of the test on Turkish athletes. The validity and reliability studies are examined, it is seen that the D2 attention test is a valid and reliable test for measuring attention. Within the scope of this research, selective attention, concentration scores of the athletes and the norm table created by Toker (1988) were used $p>0.05$.

International Tennis Number (ITN) Test

It is a test applied to determine the beginning and development levels of tennis players, developed by the International Tennis Federation (ITF). Tennis players should warm up and prepare well before taking the test. Each player is given 4 tries per test segment (forehand, backhand, volley, serve). The player has the right to reject the ball fed before the kick. If there is physical contact with the ball, it is taken into consideration. The evaluator's authority is valid and the final decision-making authority rests with the evaluator. Points are recorded after each hit. The test evaluation form is signed by the evaluator and the athlete after the evaluation is over. A copy of the test form is given to the tennis player.

Analysis of Data

To determine the effect of psychological skill training on anxiety, motivation, attention and service scores in tennis players, all data were expressed with mean and standard deviation values, and the normality of the data was tested with the Skewness- Kurtosis and Levene Test. Since the normal distribution was determined, all data were tested at the 0.05 significance level. In the pretest-posttest comparisons within the Experimental and Control Groups, t-test analysis was applied to the dependent groups. In comparisons between groups, t-test analysis was applied in Independent Groups.

The difference between the pre-posttest values of the groups was recorded as the development value and whether there was a significant difference between these development values was tested with t-test analysis in independent groups.

Results

Table 1. Descriptive Statistics of Subjects' Dependent Variables

	N	Mean	Sd	Skewness	Kurtosis	Levene Test
Somatic Anxiety	30	7,47	1,83	0,62	0,09	0,86
Anxiety	30	9,37	3,63	1,00	0,33	0,86
Concentration Disorder	30	7,87	2,40	0,52	-0,60	0,46
Total Anxiety	30	24,70	6,37	1,24	1,08	0,26
Intrinsic Motivation	30	18,10	3,00	-1,53	3,10	0,37
Extrinsic Motivation	30	56,93	10,55	-0,63	0,67	0,16
Lack of Motivation	30	17,40	3,40	-1,12	0,40	0,07
Motivation Total	30	80,53	12,56	-1,13	1,44	0,42
Attention	30	74,90	9,31	-0,46	-0,37	0,28
Service Score	30	30,67	16,08	1,33	2,68	0,07

Table 2. Pretest-Posttest Values of the Experimental Group Dependent T-test Analyze Table

		Mean	Sd	t	p
Attention	Pretest	73,07	9,32	-5,19	**0,00***
	Posttest	77,13	9,73		

Service Score	Pretest	36,20	19,94	-9,24	**0,00***
	Posttest	71,80	14,55		
Somatic Anxiety	Pretest	7,00	1,85	0,86	0,40
	Posttest	6,67	1,11		
Anxiety	Pretest	8,40	3,16	0,91	0,38
	Posttest	7,80	2,48		
Concentration	Pretest	7,93	1,91	-0,25	0,80
	Posttest	8,07	2,34		
Anxiety Total	Pretest	23,33	5,31	0,73	0,48
	Posttest	22,73	5,12		
Intrinsic Motivation	Pretest	18,87	2,03	1,98	0,07
	Posttest	17,00	3,98		
Extrinsic Motivation	Pretest	57,93	11,35	1,50	0,16
	Posttest	52,53	13,85		
Lack of Motivation	Pretest	18,20	2,96	10,91	**0,00***
	Posttest	6,00	2,95		
Motivation Total	Pretest	81,73	12,81	1,74	0,10
	Posttest	74,60	15,90		

According to the results of the t-test analysis, a significant difference was found between the sub-dimensions of attention, service score and non-motivation of all variables belonging to the experimental group in the pretest-posttest dependent groups.

Although there is no significant difference in other sub-dimensions, it is seen that the posttest values are better than the pretest values.

Table 3. Pretest-Posttest Values of the Control Group Dependent T-test Analyze Table

		Mean	**Sd**	**t**	**p**
Attention	Pretest	76,73	9,25	-0,51	0,62
	Posttest	77,00	9,59		
Service Score	Pretest	25,13	8,48	-4,57	**0,00***
	Posttest	30,93	9,79		
Somatic Anxiety	Pretest	7,93	1,75	0,00	1,00
	Posttest	7,93	1,91		
Anxiety	Pretest	10,33	3,92	0,66	0,52
	Posttest	10,00	3,74		
Concentration	Pretest	7,80	2,88	-2,36	**0,03***
	Posttest	8,73	2,49		
Anxiety Total	Pretest	26,07	7,20	-0,53	0,60
	Posttest	26,47	6,61		
Intrinsic Motivation	Pretest	17,33	3,64	0,97	0,35
	Posttest	16,80	4,30		
Extrinsic Motivation	Pretest	55,93	9,97	2,02	0,06
	Posttest	52,73	9,95		
Lack of Motivation	Pretest	16,60	3,72	4,53	**0,00***
	Posttest	7,47	5,14		
Motivation Total	Pretest	79,33	12,62	1,85	0,09
	Posttest	75,67	13,38		

According to the t-test analysis results of all variables of the control group, a significant difference was found between the service score, concentration disorder sub-dimension and amotivation sub-dimension values in the pretest-posttest dependent groups.

It is seen that the values in other sub-dimensions are close to each other.

Table 4. Pretest Values of Experiment and Control Group Independent Sample t-test Analyze

	Group	Mean	Sd	t	p
Attention	experiment	73,07	9,32	-1,08	0,29
	control	76,73	9,25		
Service Score	experiment	36,20	19,94	1,98	0,08
	control	25,13	8,48		
Somatic Anxiety	experiment	7,00	1,85	-1,42	0,17
	control	7,93	1,75		
Anxiety Pretest	experiment	8,40	3,16	-1,49	0,15
	control	10,33	3,92		
Concentration Pretest	experiment	7,93	1,91	0,15	0,88
	control	7,80	2,88		
Anxiety Total Pretest	experiment	23,33	5,31	-1,18	0,25
	control	26,07	7,20		
Intrinsic Motivation Pretest	experiment	18,87	2,03	1,43	0,17
	control	17,33	3,64		
Extrinsic Motivation Pretest	experiment	57,93	11,35	0,51	0,61
	control	55,93	9,97		
Lack of Motivation Pretest	experiment	18,20	2,96	1,30	0,20
	control	16,60	3,72		
Motivation Total Pretest	experiment	81,73	12,81	0,52	0,61
	control	79,33	12,62		

There was no significant difference between the groups in the comparison of the pretest values of the experimental and control groups. Accordingly, it can be said that the groups were formed homogeneously according to all sub-dimensions.

Table 5. Posttest Values of Experimental and Control Groups Independent Sample t-test Analyze

	Group	Mean	Sd	t	p
Attention	experiment	77,13	9,73	0,04	0,97
	control	77,00	9,59		
Service Score	experiment	71,80	14,55	9,02	**0,00***
	control	30,93	9,79		
Somatic Anxiety	experiment	6,67	1,11	-2,22	**0,03***
	control	7,93	1,91		
Anxiety Pretest	experiment	7,80	2,48	-1,90	0,07
	control	10,00	3,74		

Concentration Pretest	experiment	8,07	2,34	-0,75	0,46
	control	8,73	2,49		
Anxiety Total Pretest	experiment	22,73	5,12	-1,73	0,09
	control	26,47	6,61		
Intrinsic Motivation Pretest	experiment	17,00	3,98	0,13	0,90
	control	16,80	4,30		
Extrinsic Motivation Pretest	experiment	52,53	13,85	-0,05	0,96
	control	52,73	9,95		
Lack of Motivation Pretest	experiment	6,00	2,95	-0,96	0,35
	control	7,47	5,14		
Motivation Total Pretest	experiment	74,60	15,90	-0,20	0,84
	control	75,67	13,38		

In the comparison of the posttest values of the experimental and control groups, only a significant difference was found between the Service scores and the somatic anxiety mean scores between the groups. Accordingly, it can be said that psychological skill training has a highly significant effect on the service score.

Table 6. T-test table of improvement scores in dependent variables in independent groups between experimental and control groups

	Group	**Mean**	**Sd**	**t**	**p**
Attention Development	experiment	4,07	3,03	4,04	**0,00***
	control	0,27	2,02		
Service Score Development	experiment	35,60	14,92	7,35	**0,00***
	control	5,80	4,92		
Anxiety Somatic Development	experiment	-0,33	1,50	-0,72	0,48
	control	0,00	1,00		
Anxiety Development	experiment	-0,60	2,56	-0,32	0,75
	control	-0,33	1,95		
Concentration Development	experiment	0,13	2,03	-1,22	0,23
	control	0,93	1,53		
Anxiety Total Development	experiment	-0,60	3,20	-0,90	0,38
	control	0,40	2,90		
Intrinsic Motivation Development	experiment	-1,87	3,64	-1,22	0,23
	control	-0,53	2,13		
Extrinsic Motivation Development	experiment	-5,40	13,99	-0,56	0,58
	control	-3,20	6,14		
Lack of Motivation Development	experiment	-12,20	4,33	-1,33	0,19
	control	-9,13	7,81		
Motivation Total Development	experiment	-7,13	15,91	-0,76	0,45
	control	-3,67	7,68		

According to the development score between Attention, Service Score, Anxiety and Motivation Pretest and Posttest Values, there is a significant improvement in attention and service score in favor of the experimental group. There was no significant difference between the groups in anxiety and motivation development values. However, it can be said by looking at the averages that the developmental values of the experimental group are better than the control group in all dimensions.

Discussion

The aim of the 12-week psychological skill training program for tennis players is to reduce their anxiety levels, increase their motivation levels and improve their attention levels, as well as increase their service scores.

The pretest-posttest results of the experimental group, a significant difference was found between the attention, service score and non-motivation sub-dimension values. Although there is no significant difference in other variables, it is seen that the posttest values are better than the pretest values (Table 2). To the pretest-posttest results of the control group, a significant difference was found between the service score, concentration disorder sub-dimension and non-motivation sub-dimension. In other sub-dimensions are close to each other (Table 3). We can say that the athletes in the experimental group developed more in the sub-dimensions of attention, service score and motivation compared to the athletes in the control group. The results obtained in the studies of Hanrahan (1995), Sheard and Golby (2006), Noh, Morris and Andersen (2007) and Guast (2013) support the results of this research. Hanrahan (1995) observed an increase in the concentration levels of the athletes in her study with wheelchair amputee athletes, the athletes showed an increase in their attention skills and improved many psychological characteristics such as energy control, resilience, and self-esteem. Noh et al. (2007), on the other hand, found a significant increase in the concentration levels of dancers after a 12-week psychological skills training program with dancers. Guast et al. (2013) also observed an increase in the attention concentration skills of the athletes in the psychological skills training performed with wheelchair water skiers. Within the scope of this research, many activities aimed at improving the athletes' mental training techniques such as attention, concentration, imagery, self-talk, routine were used. Moran (2004b) also recommends target setting, using pre-performance routines, using trigger words, and imagery to improve attention. These techniques suggested by Moran (2004b) were used in the 12-week psychological skills training with athletes, and as a result, a significant increase in the selective attention of the athletes was observed. It is thought that all these studies increase the selective attention levels of athletes. It can be said that the increase in the attention level of the athletes in the experimental group and the psychological skill training were also very effective on the service scores. There are studies that directly investigate the effect of psychological skill training on hitting performance, such as this research. Thelwell et al. (2006) increased the performance of the players (first touch/control percentage, pass percentage, post-fight ball possession percentage) in his study on football players, Boroujeni and Shahbazi (2011) increased their passing skill (accuracy and speed of the pass) in their study with basketball players, Zetou, Vernadakis, Bebetos, and Makrari, (2012) observed an increase in the serving skills of the athletes in their study with volleyball players.

No significant comparison of the pretest values of the experimental and control groups. Accordingly, it can be said that the groups were formed homogeneously according to all sub-dimensions (Table 4). In the comparison of the posttest values of the experimental and control groups, only a significant difference was found between the Service scores and the somatic

anxiety mean scores between the groups. Accordingly, it can be said that psychological skill training has a highly significant effect on the service score (Table 5). Perkos et al (2002), Johnson et al. (2004) and Theodorakis et al. (2001) examined the effect of the psychological skill training program on the hit rate, as in this study. When all these studies (Johnson et al., 2004; Shambrook and Bull, 1996; Theodorakis et al., 2001) were examined, it was investigated that only one mental training technique, such as internal speech and imagery, was used to improve hitting performance, and that this technique was regulated only for performance. The findings show that this method improves hitting performance. According to the improvement score between attention, service score, anxiety and motivation pretest and posttest values, there is a significant development in favor of the experimental group in attention and service scores. No significant groups in anxiety and motivation development values. However, it can be said by looking at the averages that the developmental values of the experimental group are better than the control group in all dimensions (Table 6).

Limitations And Recommendations

The first limitation of the study is that the experimental group of the study consisted of tennis players aged 14-12. It is suggested that future studies should be planned in such a way as to consider athletes from different branches and different age groups. The second limitation of the study is that the data on the anxiety, motivation, attention and tennis service scores of the athletes are limited to the data obtained from the measurement tools used in this study. It is recommended to use qualitative methods together with quantitative methods for future studies.

In studies on the anxiety level of athletes, it is recommended that cognitive and physical techniques be used together and more frequently to reduce the anxiety level. That the studies to be carried out with the motivation levels of the athletes should be planned with fewer groups and for a longer period. It is recommended that the studies on the tennis service performance of the athletes should be longer.

Conclusion

It can be said that psychological skill training has a highly significant effect on attention and service scores in the Experimental Group tennis players. With this study, although there is no significant difference in other sub-dimensions in the experimental group, there is a development between the pretest and posttest values. In the comparison of the posttest values of the experimental and control groups, only a significant difference was found between the Service scores and the somatic anxiety mean scores between the groups. Accordingly, psychological skill training has a highly significant effect on attention and service scores.

Financial Resource

In this study, equipment and material support was not received from any company or official institution in a material and moral way.

Conflict of Interest

There is no possible conflict of interest with any board membership, company or individuals related to this study.

REFERENCE

Blakeslee ML, Goff DM. (2007). The effects of a mental skills training package on equestrians. *The Sport Psychologist,* 21(3): 288-301.

Blumenstein B, Orbach I. (2012). Psychological Skills in Sport: Training and Application. Nova Science Publisher's, Incorporated.

Bois JE, Sarrazin PG, Southon J, & Boiché JC. (2009). Psychological characteristics and their relation to performance in professional golfers. *The Sport Psychologist,* 23(2): 252-270.

Boroujeni ST, Shahbazi M. (2011). The effect of instructional and motivational self-talk on performance of basketball's motor skill. Procedia-Social and Behavioral Sciences, 15: 3113-3117.

Brewer BW. (2009). Handbook of Sports Medicine and Science, Sport Psychology. John Wiley and Sons, 1-6.

Brickenkamp, R. (1962). Attention Load Test (Test d2). 1st ed. Gottingen: Hogrefe.

Caglar E, Koruc Z. (2006). Reliability and validity of D2 attention test in athletes. *Journal of Sport Sciences*, 17(2): 58-80.

Cetinkalp ZC, Asci FH, Altintas A. (2012). The validity and reliability study of the adolescent version of the Sports Motivation Scale. 2nd International Social Sciences in Physical Education and Sport Congress, Ankara, Turkey.

De Guast VDB, Golby J, Van Wersch A., & d'Arripe-Longueville F. (2013). Psychological skills training of an elite wheelchair water-skiing athlete: A single-case study. *Adapted Physical Activity Quarterly*, 30(4): 351-372.

Eklund RC, Tenenbaum G. (2014). Encyclopedia of Sport and Exercise Psychology. Sage Publications.

Hanrahan SJ. (1995). Psychological skills training for competitive wheelchair and amputee athletes. *Australian Psychologist*, 30(2): 96-101.

Hardy, J., Hall, C. R., & Alexander, M. R. (2001). Exploring self-talk and affective states in sport. *Journal of Sports Sciences*, 19: 469-475

Hemmings B, Holder T. (2013). Applied sport psychology: A case-based approach. John Wiley and Sons.

Horn TS, Bloom P, Berglund KM., & Packard S. (2011). Relationship between collegiate athletes' psychological characteristics and their preferences for different types of coaching behavior. *The Sport Psychologist,* 25(2): 190-211.

International Tennis Federation (2004). Available at: http://www.tennisplayandstay.com/media/131803/131803. pdf; accessed on 24.12.2019

Ikizler, C. (1993). The Psychology of Success in Sports. 1st Edition, Alfa Printing Publishing Distribution, Istanbul.

Johnson JJ, Hrycaiko DW, Johnson GV, Halas JM. (2004) Self-talk and female youth soccer performance. *The Sport Psychologist,* 18(1): 44-59.

Karadag D, Asci FH. (2015). Reliability and Validity of the Sports Anxiety Scale-2 in Adolescent Athletes. 3rd International Exercise and Sport Psychology Congress, Marmara University, Istanbul, Turkey.

Kingston KM, Wilson KM. (2009). The application of goal setting in sport. In: Mellalieu S, Hanton S, eds. *Advances in Applied Sport Psychology*: A review. Routledge, 75-123.

Moran A. (2004b). Attention and Concentration Training in Sport. Encyclopedia of Applied Psychology, (1): 209- 214.

Noh YE, Morris T., & Andersen MB. (2007). Psychological intervention programs for reduction of injury in ballet dancers. *Research in Sports Medicine*, 15(1): 13-32.

Official Web Site of International Tennis Federation 2013.

Pelletier, L. G., Rocchi, M. A., Vallerand, R. J. (2013). Validation of the revised sport motivation scale (SMS-II). *Psychol Sport Exerc*, 14, 329-41.

Perkos S. Theodorakis Y., & Chroni S. (2002). Enhancing performance and skill acquisition in novice basketball players with instructional self-talk. *The Sport Psychologist*, 6(4): 368-383.

Ryska TA. (1998). Cognitive-behavioral strategies and precompetitive anxiety among recreational athletes. The Psychological Record, 48(4): 697-708.

Shambrook CJ, Bull SJ. (1996). The use of a single-case research design to investigate the efficacy of imagery training. *Journal of Applied Sport Psychology*, 8(1): 27- 43.

Shaw D, Gorely T, Corban R. (2005). Sport and Exercise Psychology. Garland Science.

Sheard M, Golby J. (2006). Effect of a psychological skills training program on swimming performance and positive psychological development. *International Journal of Sport and Exercise Psychology*, 4(2): 149-169.

Slimani M, Chéour F. (2016). Effects of cognitive training strategies on muscular force and psychological skills in healthy striking combat sports practitioners. *Sport Sciences for Health,* 12(2): 141-149.

Smith AL, Ullrich-French S, Walker E, Hurley KS. (2006). Peer relationship profiles and motivation in youth sport. *Journal of Sport and Exercise Psychology*, 28(3): 362-382.

Smith RE, Smoll FL, Cumming SP., & Grossbard JR. (2006). Measurement of multidimensional sport performance anxiety in children and adults: The Sport Anxiety Scale-2. *Journal of Sport and Exercise Psychology*, 28(4): 479-501.

Smith RE, Smoll FL., & Schutz RW. (1990). Measurement and correlates of sport-specific cognitive and somatic trait anxiety: The Sport Anxiety Scale. *Anxiety Research*, 2(4): 263-280.

Thelwell RC, Greenlees IA, Weston NJ. (2006). Using psychological skills training to develop soccer performance. *Journal of Applied Sport Psychology*, 18(3): 254- 270.

Theodorakis Y, Chroni S, Laparidis K, Bebetsos V, Douma I. (2001). Self-talk in a basketball-shooting task. Perceptual and Motor Skills, 92(1): 309-315.

Toker, M.Z. (1998). Standardization of the Visual Attention Test d2 on a Turkish Sample. Bogazici University, Master Thesis, Istanbul.

Vealey R. (2007). Mental Skills Training in Sport. In: Tenenbaum G, Eklund RC, eds. Handbook of Sport Psychology. John Wiley and Sons, 287-309.

Vealey RS. (1994). Current status and prominent issues in sport psychology interventions. Medicine and Science in Sports and Exercise, 26(4): 495-502.

Weinberg R, Gould D. (2015). Foundation of Sport Exercise Psychology Çeviren: Şahin M, Koruç Z. Spor ve Egzersiz Psikolojisinin Temelleri. Ankara: Nobel Yayınevi, 553-567.

Weinberg, R. S., & Gould, D. (2011). Foundations of sport and exercise psychology. 5thed. Stanningley: Human Kinetics.

Whelan JP, Mahoney MJ, Meyers AW. (1991). Performance enhancement in sport: A cognitive behavioral domain. Behavior Therapy, 22(3): 307-327

Yanar S., Kirandi O., & Cimen K. (2017). Investigation of the Relationship between Achievement Motivation and Optimal Performance Mood in Tennis Players, Journal of Sports Education, 1(1), 69-75.

Yayci L. (2013). The validity and reliability study of the D2 attention test. Kalem Journal of Education and Human Sciences, 3(1): 43-80.

Yildiz, A., Altintas, A., Elmas, S., & Asci, F. H. (2019). Investigating the psychometric properties of Sport Motivation Scale-II. *Journal of Sports Medicine*,54(1), 33-44. doi: 10.5152/tjsm.2019.114

Zaichkowsky L. (2006). Sport psychology: A primer for educators. *The Journal of Education,* 187(1): 1-8.

Zetou E, Vernadakis N, Bebetsos E., & Makrari E. (2012). The effect of self-talk in learning the volleyball service skill and self-efficacy improvement. *Journal of Human Sport and Exercise*, 7(4): 794-805.