International Journal of Sport Culture and Science
March 2024 : 12(1)
ISSN : 2148-1148
Doi : 10.14486/IntJSCS.2024.696

Examination of Mental Resilience Levels in Veteran Tennis Players

Yasin DEMİRCAN[1], Vedat AYAN[2], Selami YÜKSEK[3]

[1] Trabzon University, Trabzon, Türkiye
https://orcid.org/0000-0001-8062-8014
[2] Trabzon University, Trabzon, Türkiye
https://orcid.org/0000-0003-1887-5334
[3] Trabzon University, Trabzon, Türkiye
https://orcid.org/0000-0002-2162-8660

Email: yasin_demircan20@trabzon.edu.tr, vayan@trabzon.edu.tr, salami.yuksek@trabzon.edu.tr

Type: Research Article (Received: 24.10.2023 - Accepted: 14.03.2024)

Abstract

This research aimed to explore the disparities in mental resilience levels among veteran tennis players concerning age, gender, and weekly training frequency. The survey method was employed, utilizing a survey technique as part of the screening process. The study involved 358 volunteer veteran tennis players, with 85 females and 273 males, who completed the mental resilience scale. The "Sports Mental Resilience Scale" and a researcher-prepared personal information form were used. The scale showed good reliability with Cronbach's Alpha coefficients of 0.81 for Confidence, 0.74 for Persistence, and 0.71 for Control. Statistical analysis was conducted using SPSS 26.0. Normal distribution was confirmed through Skewness, Kurtosis values, and the Levene Test. Parametric tests, such as Independent Sample T Test and One Way ANOVA, were used when significant differences emerged between groups. The Scheffe test was applied to identify the sources of differences. Results revealed no statistically significant difference in average mental resilience scores based on gender ($p>0.05$). However, significant differences were found in Confidence and Persistence sub-dimensions based on age ($p<0.05$), as well as in the Confidence sub-dimension and total scores based on weekly training frequency ($p<0.05$). In summary, this study investigated the relationship between mental resilience levels and variables like gender, age, and weekly training frequency among veteran tennis players. It found that these factors indeed impact the mental resilience of veteran tennis players, contributing new insights to the field and future research.

Keywords: Veteran, Tennis, Mental Resilience

Introduction

Sport is a tool that facilitates the physical, mental, emotional and social development of individuals and enhancing their knowledge, skills and leadership abilities. Sports assist individuals in self-discipline and overcoming psychological and physiological challenges they may encounter. Furthermore, sports contribute positively to international friendship, peace and the national economy. In contemporary times, the approach to sports by both the media and the efforts of individuals to relieve stress, maintain their physical fitness and above all, the international successes achieved in sports have become highly significant in daily life and morale, thereby giving sports an additional dimension (Sunay, Saracaloğlu, 2003).

Tennis, a sport followed with interest worldwide, is a popular sport that can be played in all age groups. Matches are played according to the rules set by the International Tennis Federation (ITF). Competitions range from grand slam tournaments played at the highest level to tournaments for children, seniors and even wheelchair athletes (Fernandez, Mendez-Villanueva & Pluim, 2006). Tennis is a dynamic game that combines aerobic and anaerobic loads, involving repetitive strokes that require excellent biomotor skills (Gelen, Mengütay & Karahan, 2009; O'Donoghue & Ingram, 2001).

In tennis, as in all sports, it is well known that mental factors influence performance, alongside physical development. Weinberg and Gould (2015) have stated that in situations where athletes' skill levels are roughly equal, mental resilience is one of the most important factors determining victory. Graham, Hanton and Connaughton (2002) have defined mental resilience as the ability to cope with or manage stress, difficult situation or pressure. Jones and colleagues (2007) have described mental resilience in sports as the ability to enjoy stress and pressure, to recover and maintain confidence when faced with adversity and to sustain performance at the highest level under all circumstances.

Human beings are biological, psychological, social entities and sport performance is one of the actions they can perform. Sport performance can be achieved by having all four fundamental elements mentioned above together and working systematically with the necessary plan and program (Graham, Hanton & Connaughton, 2002). According to Loehr (1982), mentally strong athletes possess various reactions that enable them to remain emotionally relaxed, strong and calm. Similarly, Gibson (1998) strongly emphasizes that mental resilience is related to an internal locus of control and self-efficacy.

The European Federation of Sport Psychology (FEPSAC) states that sport psychology concerns the psychological bases, processes and consequences of the psychological regulation of movement activities of one or more individuals involved in sport. This definition suggests that sport psychology helps improve performance helps athletes concentrate better, cope effectively with competitive stress, and perform more efficiently. In addition, sport psychology seeks to understand the impact of long-term sports participation on the personal resources of athletes and attempts to understand the potential effects of systematic participation in competitive sports environments. Applied sport psychology aims to solve specific practical problems by enhancing athletic performance, thus helping athletes realize their potential in sports settings (Brewer, 2009).

Studies have defined mental resilience in various ways. It can involve believing in oneself, focusing on achieving set goals, controlling the environment and persisting in the face of pressure, regardless of whether individuals are positive, negative, or good-natured (Mack & Ragan, 2008). In another definition, individuals are described as regularly demonstrating their

best abilities regardless of the situations they face. In the light of this definition, researchers often observe a continuum of mental resilience, from low to high (Gucciardi & Gordon, 2011).

Mentally strong athletes tend to be more competitive, determined, capable of self-motivation under pressure and able to maintain and increase their self-belief even after failures (Crust & Clough, 2011). Being mentally resilient means feeling determined to overcome the toughest situations, sustaining emotions under stress and pressure and rejecting what is easy to achieve superiority. Athletes accustomed to mentally challenging struggles may view defeat and failure as feedback and opportunities for improvement.

In recent years, the field of sports psychology has made significant advancements and mental resilience holds a crucial place in it. Athletes, coaches and sports psychologists have often referred to mental resilience as one of the most important characteristics related to results and success in elite sports (Jones, Hanton & Connaughton, 2007). Mental resilience is one of the most widely used terms in sports psychology. However, due to the lack of sufficient research related to veteran tennis players in the literature, it is believed that the findings of this research will provide a different perspective to the relevant literature and researchers. Therefore, the aim of this study is to examine the levels of mental resilience of veteran tennis players in terms of various variables.

Material and Method

Research Design

This research has been designed within the framework of a survey (descriptive) model. Survey studies are generally larger-scale research projects where participants' opinions or characteristics, such as interests, skills, abilities, attitudes, etc., related to a subject or event, are determined, compared to other types of research (Büyüköztürk, Çakmak, Akgün, Karadeniz, Demirel, 2009).

Study Group

In this study, a convenient and easily accessible sampling method was utilized due to its practicality and cost-effectiveness. This method involves forming the research group from individuals who are close and readily available (Yıldırım, Şimşek, 2016). A total of 358 volunteer veteran tennis players, consisting of 85 females and 273 males, participated in the research and ethical approval was obtained for our study.

Data Collection Tools

In this research, two data collection instruments were used: the "Personal Information Form" and the "Sport Mental Toughness Questionnaire."

Personal Information Form: This form was created by the researchers and was designed to gather information such as the participants' gender, age and weekly tennis playing frequency.

Sport Mental Toughness Questionnaire: To determine the mental toughness levels of athletes, the "Sport Mental Toughness Questionnaire" (SMTQ-14), developed by Sheard, Golby and Van Wersch (2009), was employed. This questionnaire consists of a total of 14 items. In addition to assessing overall mental toughness, the scale comprises three sub-dimensions (confidence, persistence, and control) and uses a four-point likert scale. The Cronbach's Alpha values for the sub-dimensions of the scale are as follows: confidence ($\alpha = 0.81$), persistence ($\alpha = 0.74$) and control ($\alpha = 0.71$). The overall internal consistency coefficient is $\alpha = 0.81$ (Sheard et al., 2009). The adaptation of the scale to Turkish was conducted by Altıntaş and

Koruç (2016). Confirmatory Factor Analysis (CFA) revealed that all fit indices were at a "good fit" level, t-values for all items were significant at the 0.01 level and the model demonstrated a good fit. The scale consists of 14 items and three sub-dimensions: Confidence (Items 1, 5, 6, 11, 13, 14); Control (Items 2, 4, 7, 9); Persistence (Items 3, 8, 10, 12). It is important to note that items 2, 4, 7, 8, 9 and 10 in the Sport Mental Toughness Questionnaire are reverse-scored.

Data Analysis

The statistical analysis of the research data was performed using the SPSS 26.0 package program. The normality distribution of the data was examined through Skewness and Kurtosis (Skewness-Kurtosis) values and the Levene Test. It was determined that the Skewness and Kurtosis values of the data fell within the range of -1.5 to +1.5. In the literature, Skewness and Kurtosis values between -1.5 and +1.5 (Tabachnick; Fidell, Ullman, 2013) or -2.0 to +2.0 (George, Mellery, 2016) are considered indicative of normal data distribution. Within this context, it was observed that the research data exhibited a normal distribution, allowing the use of parametric test methods, including Independent Sample T Test and One Way ANOVA. In cases where significant differences emerged between groups, the Scheffe test was employed to determine the source of the differences. The significance level (α) for all statistical methods was set at 0.05.

Data Collection Process

Data collection from the participants took place during sessions conducted at specific dates and times. Participants were supported by a supervising observer while filling out the questionnaires, and explanations were provided when necessary. Prior to the research, approval was obtained from the Trabzon University Social and Human Sciences Scientific Research and Ethics Board (No: E-81614018-000-2300049779). The confidentiality and rights of the participants were protected.

Findings

Table 1. Descriptive statistics for mental toughness scores of veteran tennis players

	n	Min.	Max.	$\bar{X}$±S	Skewness	Kurtosis
Confidence	358	1,00	4,00	2,91±0,43	0,034	0,866
Control	358	1,00	4,00	2,63±0,58	0,076	-0,255
Persistence	358	1,00	4,00	3,15±0,42	0,032	-0,155
Total Mental Toughness Score	358	14,00	56,00	40,65±0,14	0,327	0,233

Table 1 presents the descriptive statistics for the levels of mental toughness and its subscales among veteran tennis players who participated in the research. The table includes the minimum and maximum values, mean scores with standard deviations, as well as skewness and kurtosis coefficients for each subscale.

Table 2. T-Test results for gender variable

		n	$\bar{X}$	Ss	t	p
Confidence	male	273	2,94	0,413	1,825	0,070
	female	85	2,83	0,486		
Control	male	273	2,65	0,565	0,599	0,549
	female	85	2,60	0,648		
Persistence	male	273	3,16	0,417	0,154	0,877
	female	85	3,15	0,465		
Total Mental Toughness Score	male	273	40,86	4,828	1,325	0,186
	female	85	40,01	6,031		

As observed in Table 2, there was no statistically significant difference in the confidence, control, persistence sub-dimensions and the total mental toughness score of veteran tennis players based on gender (p>0.05).

Table 3. ANOVA test results for age variable

			n	$\bar{X}$	Ss	Sd	F	p	Significant Difference
Mental Toughness Levels in Sports	Confidence	30-39 years	125	3,00	0,46	354	2,854	.037*	1>2
		40-49 years	122	2,86	0,46				
		50-59 years	62	2,88	0,34				
		60 and over	49	2,87	0,35				
	Control	30-39 years	125	2,62	0,57	354	1,635	.181	
		40-49 years	122	2,64	0,63				
		50-59 years	62	2,75	0,49				
		60 and over	49	2,51	0,62				
	Persistence	30-39 years	125	3,27	0,42	354	4,194	.006*	1>2 1>3
		40-49 years	122	3,11	0,43				
		50-59 years	62	3,08	0,37				
		60 and over	49	3,10	0,47				
	Total Mental Toughness Score	30-39 years	125	41,57	5,57	354	2,374	.070	
		40-49 years	122	40,17	5,13				
		50-59 years	62	40,56	4,03				
		60 and over	49	39,63	5,05				

Table 3 indicates that there is a statistically significant difference in the confidence sub-dimension of veteran tennis players concerning the age variable (F=2.854, p=0.037). Post-hoc

comparisons revealed that the significant difference is between the age range of 30-39 and 40-49, favoring the 30-39 age group. Similarly, there is a statistically significant difference in the persistence sub-dimension (F=4.194, p=0.006). Post-hoc comparisons showed that the significant difference is between the age range of 30-39 and both 40-49 and 50-59, favoring the 30-39 age group. However no statistically significant difference was found in the control sub-dimension and total mental toughness score (p>0.05).

Table 4. ANOVA results of test based on weekly tennis playing frequency

			n	$\bar{X}$	Ss	Sd	F	p	Significant Difference
Mental Toughness Levels in Sports	Confidence	1-2 times	126	2,82	0,46	355	2,854	.037*	1<2 1<3
		3-4 times	104	2,87	0,46				
		5 and above	128	3,02	0,34				
	Control	1-2 times	126	2,62	0,57	355	1,635	.181	
		3-4 times	104	2,61	0,63				
		5 and above	128	2,66	0,49				
	Persistence	1-2 times	126	3,14	0,42	355	4,194	.006*	
		3-4 times	104	3,10	0,43				
		5 and above	128	3,21	0,37				
	Total Mental Toughness Score	1-2 times	126	40,05	4,80	355	3,895	.021*	1<2 1<3
		3-4 times	104	40,14	5,13				
		5 and above	128	41,66	5,34				

When examining Table 4, statistically significant differences were found among veteran tennis players in terms of the frequency of weekly tennis playing in the confidence sub-dimension (F=2.854, p=0.037) and the total mental toughness score (F=3.895, p=0.021). In the post-hoc comparisons to determine the source of this difference, it was determined that the difference favored veteran tennis players who play tennis 5 times or more per week compared to those who play 1-2 and 3-4 times a week in both the confidence sub-dimension and the total mental toughness score. However no statistically significant differences were found in the control and persistence sub-dimensions (p>0.05).

Discussion and Conclusion

In our study, although there was no statistically significant difference in the level of mental toughness of veteran tennis players in terms of the gender variable, it can be said that male veteran tennis players have higher average scores of mental toughness compared to female veteran tennis players. When the relevant literature is examined Kalkavan, Acet and Çakır (2017) conducted a study to examine the level of mental toughness of athletes participating in the Turkish Table Tennis Championship and reported that there was no significant difference in the level of mental toughness of athletes by gender. Similarly, studies conducted by Bektaş and Özben (2016), İlhan (2015), Bayrakdaroğlu (2014), Gökmen (2014), Karaırmak and Güloğlu (2014) and Yalçın (2013) also did not report significant gender differences in mental

toughness scores. The results from the reviewed literature align with the findings of our study. On the other hand, Yarayan, Yıldız and Gülşen (2018) stated that the levels of mental toughness differed statistically according to the gender variable. Juan and Lopez (2015), Masum (2014), Nicholls, Levy, Polman and Crust (2009) also found in their studies that the levels of mental toughness showed statistically significant differences by gender. The results from the reviewed literature do not parallel the findings of our study. Based on the obtained data, it is believed that gender can influence mental toughness in conjunction with social and psychological dynamics. Furthermore, gender differences can be shaped not only by biological factors but also by societal expectations, cultural norms and individual experiences. In conclusion our research did not find a statistically significant difference in the level of mental toughness of veteran tennis players by gender, although male veteran tennis players tended to have higher average scores in mental toughness. The variability in findings in the literature suggests that mental toughness is a complex construct influenced by various factors and gender alone may not be a decisive factor. This study contributes to the existing body of knowledge regarding mental toughness in sports and highlights the importance of considering multiple factors when studying psychological attributes in athletes. Further research could explore other variables that might interact with gender to influence mental toughness in sports.

In our study, statistically significant differences were detected in the confidence and continuity sub-dimensions of mental toughness of veteran tennis players based on the age variable at a significance level of α=0.05. When the literature on this topic is examined, Parlak (2023) stated in their research that there was a statistically significant difference between the level of mental toughness of amateur athletes and the age variable. Ulaş (2022) reported that there was a statistically significant difference between the level of mental toughness of individuals engaged in sports and the age variable. Similarly, Koç and Gençay (2021) mentioned in their research that there was a statistically significant difference between the mental toughness levels of badminton players and the age variable. Şahinler and Beşler (2021) also stated in their research that there was a significant difference between the level of mental toughness of individuals participating in team and combat sports and the age variable. Similarly, Connaughton, Wadey, Hanton and Jones (2008) reported in their research that there was a statistically significant difference between the level of mental toughness of athletes and the age variable. The results from the reviewed literature align with the findings of our study. On the other hand, Kılınç and Gürer (2019) did not find a statistically significant difference between the level of mental toughness of individuals engaged in outdoor sports and the age variable in their research. The results from the reviewed literature do not parallel the findings of our study. Based on the obtained data, it is suggested that as the ages of veteran tennis players increase, their belief in their abilities, which is one of the fundamental attributes required to achieve common goals under challenging conditions, decreases. This situation can negatively affect motivation and make it difficult to sustain efforts towards the goal. Additionally, it is believed that the difficulties and obstacles in reaching goals are not only related to individuals' beliefs in their abilities and their beliefs in surpassing their competitors but also closely related to their abilities to positively utilize factors such as working together, taking responsibility and coping in the environment. The combination of these qualities may open a path for individuals to achieve their common goals even under challenging conditions. Therefore, in the study, it is observed that the average scores of the confidence and continuity sub-dimensions of veteran tennis players aged 30-39 are higher compared to other age groups.

In our study, statistically significant differences were detected in the confidence sub-dimension of mental toughness of veteran tennis players based on the variable of weekly tennis playing frequency at a significance level of α=0.05. When the literature on this topic is examined, Sarı, Sağ and Pınar Demir (2020) stated in their research that there was a statistically significant difference between the level of mental toughness of taekwondo athletes and the number of weekly training sessions. Şahinler and Beşler (2021) also mentioned in their research that there was a significant difference between the level of mental toughness of individuals participating in team and combat sports and the number of weekly training sessions. The results from the reviewed literature align with the findings of our study. On the other hand, Kalkavan, Özdilek and Çakır (2020) stated in their research that there was no statistically significant difference between the level of mental toughness of mountain bikers and the number of weekly training sessions. İlhan (2015) also reported in their research that there was no statistically significant difference between tennis players and the number of weekly training sessions. The results from the reviewed literature do not parallel the findings of our study. Based on the obtained data, it is suggested that individuals who regularly participate in tennis activities tend to have a positive effect on their confidence in their own abilities and the skills required by the sport. This increased sense of confidence can lead individuals to increase their interest and commitment to tennis, encouraging them to take to the court more frequently and regularly. Additionally, individuals who play tennis regularly can benefit from advantages such as staying physically fit, improving their coordination, and nurturing their competitive spirit. These positive outcomes, along with the sense of confidence, can create a positive cycle, strengthening individuals' belief in their abilities and the advantages provided by the sport, ultimately helping individuals increase their weekly tennis playing frequency and continue to engage in the sport more actively.

As a result, this study examined the relationship between the level of mental resilience in veteran tennis players and variables such as gender, age and the frequency of weekly training sessions. The findings indicate that factors such as gender, age and training frequency have an impact on the mental resilience of veteran tennis players. These results support the idea that coaches and athletes should take these factors into account when developing strategies to enhance mental resilience. Future research in this area may provide a deeper understanding of these relationships and contribute to the development of more effective methods for optimizing athlete performance.

REFERENCES

Altıntaş, A. & Koruç, P. B. (2016). Sporda zihinsel dayanıklılık envanteri'nin psikometrik özelliklerinin incelenmesi (SZDE). *Spor Bilimleri Dergisi*, 27(4), 163-171.

Bayrakdaroğlu, S. (2014). Taekwondocuların psikolojik sağlamlık ve öz-anlayış düzeylerinin takım sporcularıyla karşılaştırılması. Yayımlanmamış yüksek lisans tezi. Muğla Sıtkı Koçman Üniversitesi, Muğla.

Bektaş, M. & Özben, Ş. (2016). Evli bireylerin psikolojik dayanıklılık düzeylerinin bazı sosyo-demografik değişkenler açısından incelenmesi. *Celal Bayar Üniversitesi Sosyal Bilimler Dergisi*, 14(1). 216-240

Brewer, B. W. (2009). *International olympic committee handbook of sports medicine and science*. United Kingdom: John Wiley & Sons Ltd.

Connaughton, D., Wadey, R., Hanton, S. & Jones, G. (2008). The development and maintenance of mental toughness: perceptions of elite performers. *Journal of sports sciences*, *26*(1), 83–95. https://doi.org/10.1080/02640410701310958

Crust, L. & Clough, P. (2011). Developing mental toughness: from research to practice. *Journal of Sport Psychology in Action*, 2 (1), 21-32.

Fernandez, J., Mendez-Villanueva, A. & Pluim, B. M. (2006). Intensity of tennis match play. *British journal of sports medicine*, *40*(5), 387–391. https://doi.org/10.1136/bjsm.2005.023168.

Gelen, E., Mengütay, S. & Karahan, M. (2009). Teniste servis performansını belirleyen fiziksel uygunluk ve biyomekaniksel faktörlerin incelenmesi. *Uluslararası İnsan Bilimleri Dergisi*, 6(2):668.

Gibson, A. (1998). Mental Toughness. New York: Vantage Press.

Gökmen, B. (2014). Özel eğitim okulu yöneticilerinin psikolojik dayanıklılık ve iş doyumları arasındaki ilişkinin incelenmesi (İstanbul örneği). Yayınlanmamış yüksek lisans tezi. İstanbul Aydın Üniversitesi, Sosyal Bilimler Enstitüsü, İstanbul.

Gucciardi, D. F. & Gordon, S. (2011). *Mental toughness in sport: developments in theory and research*. United Kingdom: Routledge.

İlhan, A. (2015). Tenis oyuncularının zihinsel dayanıklılık düzeyleri. *Journal of Global Sport and Education Research, III (2):28-35.*

Jones, G., Hanton, S. & Connaughton, D. (2002). What is this thing called mental toughness? An Investigation of elite sport performers. *Journal of Applied Sport Psychology*, 14, 205-218. http://dx.doi.org/10.1080/10413200290103509.

Jones, G., Hanton, S. & Connaughton, D. (2007). A framework of mental toughness in the world's best performers. *The Sport Psychologist, 21*(2), 243–264. https://doi.org/10.1123/tsp.21.2.243.

Juan, M. V T. & Lopez, A. (2015). Mental Toughness of Scholar Athletes. *Researchers World*, 6(3), 22.

Kalkavan, A., Acet, M. & Çakır G. (2017). Investigation of the mental endurance levels of the athletes participating in the table tennis championship of universities in Turkey. *International Journal of Science Culture and Sport*, 5(4), 356-363.

Kalkavan, A. , Özdilek, Ç. & Çakır, G. (2020). Dağ bisikletçilerinin zihinsel dayanıklılık düzeylerinin araştırılması. *Beden Eğitimi ve Spor Bilimleri Dergisi*, 22 (2) , 31-43. Retrieved from https://dergipark.org.tr/tr/pub/ataunibesyo/issue/55659/745773

Karaırmak, Ö. & Güloğlu, B. (2014). Deprem deneyimi yaşamış yetişkinlerde bağlanma modeline göre psikolojik sağlamlığın açıklanması. *Çukurova Üniversitesi Eğitim Fakültesi Dergisi*, 43 (2), 01-18

Kılınç, Z. & Gürer, B. (2019). Doğa sporları yapanların temel psikolojik ihtiyaçlarının zihinsel dayanıklılığa etkisi. *CBÜ Beden Eğitimi ve Spor Bilimleri Dergisi*, 14 (2) , 222-233. DOI: 10.33459/cbubesbd.576242.

Koç, İ. & Gençay, Ö. A. (2021). Badminton sporcularının zihinsel dayanıklılık düzeylerinin çeşitli değişkenlere göre incelenmesi. *Beden Eğitimi ve Spor Bilimleri Dergisi*, 15 (1) , 110-124 . Retrieved from https://dergipark. org.tr/en/pub/bsd/issue/60685/873849

Loehr, J. E. (1982). *Athletic excellence: Mental toughness training for sport*. New York: Plume.

Mack, M. G. & Ragan, B. G. (2008). Development of the mental, emotional, and bodily toughness inventory in collegiate athletes and nonathletes. *Journal of athletic training*, *43*(2), 125–132. https://doi.org/10.4085/1062-6050-43.2.125.

Masum, R. (2014). A mixed method analysis of mental toughness in elite and sub-elite male and female tennis players in Pakistan. *Advances in Social Sciences Research Journal*, 1,110-122.

Nicholls, A. R., Levy, A. R., Polman, R. C. & Crust, L. (2011). Mental toughness, coping self-efficacy, and coping effectiveness among athletes. *International Journal of Sport psychology*, 42(6), 513-524.

O' Donoghue, P. & Ingram, B. (2001). A notational analysis of elite tennis strategy. *Journal of sports sciences*, *19*(2), 107–115. https://doi.org/10.1080/026404101300036299.

Parlak, N. (2023). Amatör futbolcularda zihinsel antrenmanın zihinsel dayanıklılığa etkisinin incelenmesi. *Adnan Menderes Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 10* (1) , 83-100. DOI: 10.30803/adusobed.1233266

Sarı, İ., Sağ, S. & Pınar Demir, A. (2020). Sporda zihinsel dayanıklılık: Taekwondo sporcularında bir inceleme . *Beden Eğitimi ve Spor Bilimleri Dergisi*, 22 (4) , 131-147 . Retrieved from https://dergipark.org.tr/tr/pub/ataunibesyo/issue/59137/820265

Sheard. M, Golby. J. & Van Wersch, A. (2009). Progress towards construct validation of the Sports Mental Toughness Questionnaire (SMTQ). *European Journal of Psychological Assessment*, 25, 186-193.

Sunay, H. & Saracaloğlu, A. S., (2003). Türk Sporcusunun Spordan beklentileri ile Spora Yönelten Unsurlar. *Spormetre Beden Eğitimi ve Spor Bilimleri Dergisi*, vol.1, no.1, 43-48.

Şahinler, Y. & Beşler, H. K. (2021). Takım ve mücadele sporları yapan bireylerin zihinsel dayanıklılık düzeylerinin incelenmesi. *Kilis 7 Aralık Üniversitesi Beden Eğitimi ve Spor Bilimleri Dergisi*, 5 (2) , 134-144. Retrieved from https://dergipark.org.tr/en/pub/besbid/issue/67297/1005657

Ulaş, T. (2022). Spor yapan bireylerin psikolojik iyi oluş düzeyleri ile zihinsel dayanıklılık düzeyleri arasındaki ilişki. KMÜ, Sosyal Bilimler Enstitüsü, Beden Eğitimi ve Spor Ana Bilim Dalı

Weinberg, R. S. & Gould, D. (2015). Foundations of Sport and Exercise Psychology (6th ed.). Champaign, IL: Human Kinetics.

Yalçın, S. (2013). İlköğretim okulu öğretmenlerinin mesleki tükenmişlik düzeyleri ile stres, psikolojik dayanıklılık ve akademik iyimserlik arasındaki ilişki. Yüksek lisans tezi. Gazi Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara.

Yarayan, Y. E., Yıldız, A. B. & Gülşen, D. B. A. (2018). Elit düzeyde bireysel ve takım sporu yapan sporcuların zihinsel dayanıklılık düzeylerinin çeşitli değişkenlere göre incelenmesi. *Uluslararası Sosyal Araştırmalar Dergisi*, 11(57), 1307-9581.