MJSS

Akdeniz Spor Bilimleri Dergisi

Mediterranean Journal of Sport Science

ISSN 2667-5463

# The Effect of Imagery Ability on Mental Toughness and Sportive Confidence Level in Athletes

İlimdar YALÇIN[1], Cihan AYHAN[2], Gamze YILDIRIM ARAZ[1], Alican BAYRAM[1], Mehmet Cüneyt BİRKOK[3]

DOI: https://doi.org/10.38021asbid.1210993

**ORIGINAL ARTICLE**

[1]Bingöl Üniversitesi, Spor Bilimleri Fakültesi, Bingöl/Türkiye

[2]Sakarya Uygulamalı Bilimler Üniversitesi, Spor Bilimleri Fakültesi, Sakarya/Türkiye

[3]Sakarya Üniversitesi, Eğitim Fakültesi, Sakarya/Türkiye

**Corresponding Author:**
İlimdar YALÇIN
ilimdaryalcin@gmail.com

Received:
28.11.2022

Accepted:
16.12.2022

Online Publishing:
23.12.2022

**Abstract**

The aim of this study was to determine the effect of the imagery abilities of the athletes on their mental toughness and sportive confidence levels. 627 individual and team sports athletes that were active sports and licensed participated in the study in the Eastern Anatolia region of Turkey. In the study, the sports imagery scale developed by Hall et al., (1998) adapted to Turkish by Kızıldağ (2007) was used with the aim of determining the types of imagery of athletes, Mental toughness scale in sports developed by Sheard et al. (2009) adapted to Turkish by Altıntaş and Koruç (2016) was used to determine the level of mental toughness in the sports events and Sportive continuous self-confidence scale developed by Vealey (1986) and adapted to Turkish by Yıldırım (2013) was used to determine athletes' sportive confidence. In collecting data, face to face survey method was preferred. The Pearson Correlation and Linear Regression analysis were used in the analysis of the data obtained through the SPSS package program. According to the results of the analysis, it was found that there were significant relationships between the imagery ability in athletes and the lower dimensions of mental toughness and sportive confidence. According to this result, it was shown that the ability of imagery in athletes is an important factor in their mental toughness and sportive confidence levels.

***Keywords:*** Athlete, Imagery, Mental Toughness, Sportive Confidence

# Sporcularda İmgeleme Yeteneğinin Zihinsel Dayanıklılık ve Sportif Güven Üzerine Etkisi

**Özet**

Bu çalışmada, sporcuların imgeleme yeteneklerinin zihinsel dayanıklılık ve sportif güven üzerine etkisinin belirlenmesi amaçlanmıştır. Araştırmaya, Türkiye'nin Doğu Anadolu Bölgesi'nde bireysel ve takım sporlarda lisanslı olarak aktif spor yapan 627 gönüllü sporcu katılmıştır. Çalışmada, sporcuların imgeleme biçimlerini belirlemek amacıyla Hall vd. (1998) tarafından geliştirilen Kızıldağ (2007) tarafından Türkçe'ye adaptasyonu yapılan sporda imgeleme ölçeği, spor ortamındaki zihinsel dayanıklılık seviyesini belirlemek için Sheard vd. (2009) tarafından geliştirilen Altıntaş ve Koruç (2016) tarafından Türkçe'ye adaptasyonu yapılan sporda zihinsel dayanıklılık ölçeği ve sporcuların sportif güvenlerini belirlemek amacıyla Vealey (1986) tarafından geliştirilen Yıldırım (2013) tarafından Türkçe'ye adaptasyonu yapılan sportif sürekli kendine güven ölçeği kullanılmıştır. Verilerin toplanmasında ise yüz yüze anket yöntemi tercih edilmiştir. Elde edilen verilerin analizinde SPSS paket programı aracılığıyla Pearson Korelasyon ve Regresyon analizi kullanılmıştır. Analiz sonuçlarına göre, sporcularda imgeleme yeteneği ile zihinsel dayanıklılık ve sportif güven alt boyutları arasında anlamlı ilişkiler olduğu tespit edilmiştir. Buna göre, imgeleme yeteneğinin sporcuların zihinsel dayanıklıkları ve sportif güven düzeyleri üzerinde önemli bir etken olduğu sonucuna ulaşılmıştır.

***Anahtar kelimeler:*** Sporcu, İmgeleme, Zihinsel Dayanıklılık, Sportif Güven

## Introduction

In a sports events where competition reaches a higher level every day, athletes have to develop their psychological aspects (skills) as well as their basic motoric characteristics in order to reflect their highest performance on the field. Some of the psychological factors that can affect athletes' performance are their ability to imagery, mental toughness and the level of self-confidence. Imagination is the process of bringing the experiences experienced in the past into memory to the best point or animating them before learning an unknown action. In order for the imagery to take place, there should be sufficient storage of information on the subject in the subconscious. The individual animate the movements in the mind through different methods and follows the right way for himself by using that information store. In this way, the individual benefits the cognitive success of the movements that he or she intends or will perform (Yalçın, 2018). With or without real experiences, imageries of flavors, smells, and sounds can be experienced and movements can be felt while imaging. Imagery can be realized not only by animating the mind but also by experiencing an event with all the sense organs (smell, touch, hearing, vision, taste) (Hall, 2001). Imagery, which is part of our thought system, can be used as a preliminary preparation in order to perform well (Weinberg and Gould, 1995). In sports, imagery is one of the methods used on athletes to decrease their anxiety levels, increase their performance and improve their self-confidence (Akkarpart, 2014). The ability of the athlete to imagery depends on his ability to control, to animating clear imageries and his individual skills. In particular, individual differences are the most important factors for imagery skills (Cockreil, 2007).

The sports events, which can contain concepts such as problems, stress and even failure, can cause many difficulties, especially for athletes. For this reason, athletes must keep their mental toughness at the highest as possible level in order to be able to recover quickly or to achieve success. Mental toughness has a versatile structure and should not be regarded only as a necessary concept for negative situations (Crust, 2008; Jones, Hanton and Connaughton, 2007; Sheard, 2013).

Jones (2002) mental toughness has defined as an advanced psychological power in general, athletes' mental needs in training, competition or some other conditions to cope better with their competitors, in addition to that, in particular, it is defined as athletes more confident than their competitors, more focused on duties and to be able to maintain the situation as controlled under pressure.

Gucciardi et al. (2009) defined mental toughness as an ability of athletes to respond to positive and negative pressures and difficulties, in addition to a combination of athlete's experiences and sports values, which may include individual attitudes, cognitions, and emotions that affect an athlete's behavior. The values and perceptions that the athlete acquires interact with each other and mental toughness can have a positive or negative effect on an athlete's goals.

Luszki (1982) emphasized that a successful performance consists of four basic elements such as experience, skill, physical well-being, and mental toughness, and these elements work together during the performance. Mental toughness is shown among the characteristics that elite athletes should possess, and it is stated in researches that athletes who do not have mental toughness may be mentally uncontrolled and weak during the performance (Cox, 2012).

Self-confidence is a subjective phenomenon that emerges from the individual's self-assessment and can cause satisfaction or dissatisfaction with herself/himself. High or low self-confidence, which can change as a result of individual differences, can affect an individual's behavior and emotions in different ways (Soner, 1995). Self-confidence can be defined as the trust of the individual that he/she can perform an activity successfully, trusting the decisions he/she has made thanks to his/her talent and power (Feltz, 1998). Self-confidence in sport can be characterized by the expectation of success at the highest level. Sports Psychology-focused studies have highlighted the belief that athletes with sportive confidence have the physical and mental skills to achieve success (Yıldırım, 2013).

Despite studies affecting physiological processes for a successful performance (Turgut et al. 2019; Rus et al., 2019), concepts of imagery ability, mental toughness and sportive confidence, which can affect psychological processes for a successful performance, are frequently encountered in researches in the field of sports sciences, it has not found any studies that discuss these three concepts together. In this context, determining the effect of the imagery abilities of the athletes on the levels of mental toughness and sportive confidence and revealing the positive and negative effects of these concepts on athletes will provide important contributions to sports science.

## Method

### *Research Model*

The research was conducted based on a quantitative research design. In a universe consisting of a large number of elements, in order to make a general judgment about the universe, the general screening model, in which the screening is performed on the entire universe or a sample to be taken from it, was applied (Karasar, 2012).

### *Research Group*

627 (Age= 21.52±3.15) individual and team sports athletes that were active sports and licensed participated in the study in the Eastern Anatolia region of Turkey. A total of 850 surveys were conducted using the face-to-face survey method during the data collection process, and 223 surveys that were incomplete or inaccurate were not included in the study.

### *Data Collection Tools*

*The Imagery Scale in Sports*

The sports imagery scale developed by Hall et al., (1998) adapted to Turkish by Kızıldağ (2007) was used with the aim of determining the types of imagery of athletes. The 7-point Likert (1 = Rarely ..… 7 = Often) scale consists of 21 items and 4 sub-dimensions (Cognitive imagery, Motivational specific imagery, Motivational general arousal, and Motivational general mastery). For the original of the scale, the general Cronbach's alpha coefficient was determined as .86. When the sub-dimensions were examined, Cronbach's alpha coefficients were determined as .81, .80, .71, .59, for cognitive imagery, motivational special imagery, Motivational general arousal and motivational general mastery, respectively. For the current study, the general Cronbach's alpha coefficient of the scale was determined as .86. When the sub-dimensions were examined, Cronbach's alpha coefficients were determined as .81, .80, .71, .59, for cognitive imagery, motivational special imagery, Motivational general arousal and motivational general mastery, respectively.

*The Mental Toughness Scale in Sports*

Mental toughness scale in sports developed by Sheard et al. (2009) adapted to Turkish by Altıntaş and Koruç (2016) was used to determine the level of mental toughness in sports events. The 4-point Likert (1 = Completely Wrong… .. 4 = Completely Correct) scale consists of 14 items and 3 sub-dimensions (Confidence, control and continuity). The lower dimensions of the original scale were Cronbach's alpha coefficients for Confidence, Control, and Continuity respectively .84, .79, .51, designated as. In the current study, Cronbach's alpha coefficients for Confidence, Control, and Continuity respectively found as .76, .71, .47.

*Sportive Continuous Self-Confidence Scale*

Sportive continuous self-confidence scale developed by Vealey (1986) and adapted to Turkish by Yıldırım (2013) was used to determine athletes' sportive confidence in sports events. The scale is one-dimensional and consists of 13 items in total. In addition, the scale was Likert type and items were listed from 1 to 9. 1-3 indicates the low score, 4-6 indicates the middle score, and 7-9 indicates the high score. Cronbach's alpha coefficient for the original form of the scale designated .89. In the current study, it was found to be .76.

### *Data Analysis*

SPSS software was used to analyze the data obtained in the research. Skewness and kurtosis values were checked to determine whether the data showed normal distribution. These values have

been checked and evaluated between +2 and -2 (George and Mallery, 2003). As a result of this evaluation, it was seen that the data showed normal distribution. Accordingly, Pearson Correlation and Linear Regression analysis were used. Durbin-Watson coefficient values for the regression model to determine whether there were multiple connections in the data set to be used in analysis, bilateral correlations (binary r <0.80), tolerance values (1-R2> 0.20), variance magnification factor (VIF = [1 / (1-R2)] <10), and the highest state index value (CI <30) were examined and it was found that there was no autocorrelation problem between variables (Altunışık et al., 2012; Büyüköztürk, 2016).

## Findings

The relation between imagery, mental toughness, and sportive confidence variables and the effects of analysis based on impact were given in the tables below.

Table 1

Correlation Analysis Results Regarding Sub-Dimensions of Imagery, Mental toughness, and Sportive Confidence Variables

| **Sub-Dimensions** | | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** |
|---|---|---|---|---|---|---|---|---|---|
| **Cognitive imagery (1)** | **r** | 1 | | | | | | | |
| | **p** | | | | | | | | |
| **Motivational specific imagery (2)** | **r** | .799** | 1 | | | | | | |
| | **p** | .000 | | | | | | | |
| **Motivational general arousal (3)** | **r** | .471** | .468** | 1 | | | | | |
| | **p** | .000 | .000 | | | | | | |
| **Motivational general mastery (4)** | **r** | .698** | .686** | .416** | 1 | | | | |
| | **p** | .000 | .000 | .000 | | | | | |
| **Confidence (5)** | **r** | .439** | .372** | .120** | .355** | 1 | | | |
| | **p** | .000 | .000 | .003 | .000 | | | | |
| **Continuation (6)** | **r** | .191** | .188** | .035 | .218** | .337** | 1 | | |
| | **p** | .000 | .000 | .378 | .000 | .000 | | | |
| **Control (7)** | **r** | .115** | .145** | .177** | .075 | .109** | .207** | 1 | |
| | **p** | .004 | .000 | .000 | .059 | .006 | .000 | | |
| **Sportive confidence (8)** | **r** | .169** | .152** | .168** | .191** | .200** | -.001 | .005 | 1 |
| | **p** | .000 | .000 | .000 | .000 | .000 | .987 | .905 | |

n=627; **p< .01

When the results were analyzed, it was determined that there was a positive significant relationship between all sub-dimensions of imagination and sportive confidence (p< .01). In addition, it was determined that there was a positive correlation between the cognitive imagery and motivational specific sub-dimensions of the imagery and all sub-dimensions of mental toughness. Moreover, there was a positive correlation between the motivational general arousal and confidence and control sub-dimensions of the mental toughness. Lastly, there was a positive correlation

between motivational general mastery and sportive confidence and continuity sub-dimensions (p< .01).

Table 2

The Impact of the Imagery Sub-Dimensions on Sportive Confidence

| **Dependent Variable:** Sportive Confidence | | | | | |
|---|---|---|---|---|---|
| **Variables** | **B** | **Standard Error** | **β** | **t** | **p** |
| **(Constant)** | 4.349 | .227 | | 19.166 | .000 |
| **Motivational specific imagery** | -.024 | .061 | -.027 | -.391 | .696 |
| **Motivational general arousal** | .083 | .037 | .102 | 2.248 | .025 |
| **Motivational general mastery** | .119 | .052 | .133 | 2.308 | .021 |
| **Cognitive imagery** | .048 | .067 | .050 | .711 | .477 |
| $R^2$= .047, $_{adj.}R^2$= .041 | | | | | |
| F= 7.629, p=.01 | | | | **Method:** Enter | |

When the results of table 2 were examined, it was determined that the motivational general arousal and motivational general mastery sub-dimensions of the imagery predicted the sportive confidence variable by approximately 4% ($_{adj.}R^2$ = .041). In addition, it was determined that the motivational general mastery (β = .133; p< .05) had the highest effect on sportive confidence and this variable was followed by the motivational general arousal (β = .102; p< .05). On the other hand, it was determined that Motivational specific imagery and cognitive imagery did not have a significant effect on the model (p> .05).

Table 3

The Effect of Imagery Sub-Dimensions on Mental toughness's Sub-Dimension of Confidence

| **Dependent Variable:** Confidence | | | | | |
|---|---|---|---|---|---|
| **Variable** | **B** | **Standard Error** | **β** | **t** | **p** |
| **(Constant)** | 2.228 | .084 | | 26.562 | .000 |
| **Motivational specific imagery** | .020 | .022 | .055 | .881 | .378 |
| **Motivational general arousal** | -.043 | .014 | -.130 | -3.160 | .002 |
| **Motivational general mastery** | .038 | .019 | .104 | 1.987 | .047 |
| **Cognitive imagery** | .150 | .025 | .383 | 6.018 | .000 |
| $R^2$= .210, $_{adj.}R^2$= .205 | | | | | |
| F= 41.397, p= .01 | | | | **Method:** Enter | |

When the results of table 3 were examined, it was determined that the sub-dimensions of imagery (motivational general arousal, motivational general mastery and cognitive imagery) predicted the confidence variable by approximately 21% ($_{adj.}R^2$ = .205). In addition, cognitive imaging (β= .383; p< .05) variable has the highest effect on the Confidence sub-dimension and this

variable was determined to follow by motivational general arousal (β= -.130; p< .05), and motivational general mastery (β= .104; p< .05). On the other hand, it has been determined that motivational specific imagery does not have a significant effect on the model (p> .05).

Table 4

The Impact of the Imagery Sub-Dimensions on the Continuity Sub-Dimension of Mental Toughness

| **Dependent Variable:** Continuity | | | | | |
|---|---|---|---|---|---|
| **Variable** | **B** | **Standard Error** | **β** | **t** | **p** |
| **(Constant)** | 2.735 | .093 | | 29.503 | .000 |
| **Motivational specific imagery** | .023 | .025 | .062 | .911 | .363 |
| **Motivational general arousal** | -.032 | .015 | -.096 | -2.139 | .033 |
| **Motivational general mastery** | .061 | .021 | .166 | 2.909 | .004 |
| **Cognitive imagery** | .028 | .028 | .070 | 1.010 | .313 |
| $R^2$= .058, $_{adj.}R^2$= .052 | | | | | |
| F= 9.580, p= .01 | | | | **Method:** Enter | |

When the results of table 4 were examined, it was determined that the imagery's motivational general arousal and motivational general mastery sub-dimensions predict the continuity variable by approximately 5% ($_{adj.}R^2$= .052). Additionally, it was determined that the variable motivational general mastery (β= .166; p< .05) had the highest effect on the continuity sub-dimension, followed by the variable motivational general arousal (β= -.096; p< .05). On the other hand, it was determined that Motivational specific imagery and cognitive imagery did not have a significant effect on the model (p> .05).

Table 5

The Effect of Imagery Sub-Dimensions on the Control Sub-Dimension of Mental Toughness

| **Dependent Variable:** Control | | | | | |
|---|---|---|---|---|---|
| **Variable** | **B** | **Standard Error** | **β** | **t** | **p** |
| **(Constant)** | 2.756 | .089 | | 30.934 | .000 |
| **Motivational specific imagery** | .045 | .024 | .132 | 1.911 | .056 |
| **Motivational general arousal** | .048 | .014 | .150 | 3.299 | .001 |
| **Motivational general mastery** | -.024 | .020 | -.068 | -1.175 | .240 |
| **Cognitive imagery** | -.005 | .026 | -.014 | -.198 | .843 |
| $R^2$= .039, $_{adj.}R^2$= .033 | | | | | |
| F= 6.298, p= .01 | | | | **Method:** Enter | |

When the results of table 2 were examined, the control variable of the motivational general arousal sub-dimension of the imagery was found to predict approximately 3% ($_{adj.}R^2$= .033). On the

other hand, motivational general mastery, motivational specific imagery, and cognitive imagery have been found to have no meaningful effect on the model (p> .05).

**Discussion and Conclusion**

In this study that is made to determine the effect of the imagery abilities of the athletes on the level of mental toughness and sportive confidence, it was determined that there is a positive and meaningful relationship between imagery and sportive confidence. There was a positive and meaningful relationship between the cognitive imagery and motivational special imagery sub-dimensions and all the sub-dimensions of mental toughness, and between the motivational general arousal and the sub-dimensions of sportive confidence and control. In addition, it has been determined that there is a positive relationship between motivational general mastery and sportive confidence and attendance subscales. It is concluded that as the more imagery levels of athletes increase, the more their self-confidence increases. In line with these results, it is thought that imagery increases sportive confidence and mental toughness and with these increase athletes' strategies and performances in the game will be more successful. When the literature was examined, Vurgun (2010) reported that there was a positive and significant relationship between imagery and sportive self-confidence, and athletes' confidence increases as the levels of imagery increase. Enderlin-Lampe (2002) emphasized that increased sportive confidence was a major factor in athletes' mental toughness. Erdoğan and Erhan (2019), reported that athletes' can increase their self-confidence by imagery. Many studies have reported that there was a significant relationship between the use of imagery and mental toughness, and at the same time, the strongest relationship is between the motivational sub-dimension of the imagery and mental toughness (Geikie, 2016; Guerin et al., 2014; Mattie and Munroe-Chandler, 2012).

When the results of the regression analysis related to imagery and sportive confidence were examined, it was found that the sub-dimensions of the motivational general arousal and motivational general mastery predicted the sportive confidence variable by approximately 4%. Athletes 'ability to the correct and perfect application of the imagery skills, developing appropriate strategies, correcting their mistakes and having positive thoughts may increase the self-confidence of the athletes. When the literature is examined, it has been reported that the use of imagery is a strategy that can be used in competition by playing an active role in controlling cognitive processes and that increases sportive confidence (Strachan and Munroe-Chandler, 2006). In another study, it has been determined that imagery in acrobatic gymnasts increases sportive confidence and does not affect anxiety and sportive success (Marshall and Gibson, 2017). Additionally, a study on athletes participating in the Roller Skating Championships it was reported that the use of imagery contributes to reducing competition anxiety, which increases sportive confidence Vadoa et al.,

(1997). In addition, it has been concluded that the imagery method is used to increase the self-confidence of athletes (Mattie and Munroe-Chandler, 2012; Munroe et al., 2000; Weinberg et al., 2003; Mamassis and Doganis, 2004; Jones, 2002).

When the results of regression analysis on imagery and mental toughness were examined, it was determined that the motivational general arousal, motivational general mastery and cognitive imagery sub-dimensions of the confidence variable were predicted by approximately 21%. Motivational general arousal and motivational general mastery sub-dimensions were found to predict the control variable by approximately 5% and motivational general arousal sub-dimension by approximately 3%. Athletes should use imagery to overcome the psychological difficulties they face during training and competitions, so they can control themselves and ensure their ideal self-confidence. In sports, athletes who make positive mental animations can also predict how any action they make will result. When the studies in the literature are examined, Guerin et al. (2014) found that the use of imagery significantly predicts mental toughness. He also reported that in line with his results, he used imaging as a potential strategy to develop or increase mental toughness not only for talented athletes but also for athletes with disabilities. Vealey and Greenleaf (2006) see imagination as a highly effective tool to accustom to a sports situation or skill. Therefore, athletes who use imagery to recognize a task, event, or adversity should be well equipped to deal with specific events and challenges, which will help them cope with these situations (Middleton et al, 2004).

As a result, imagery can enable athletes to have mental toughness in the face of difficulty and failure in sports events and increase the concentration of athletes. Thus, sportive performance of the athletes can show positive improvement and can cause an increase in sportive confidence levels.

## Conflict Statement

There was no statement of conflict between the authors regarding the research.

## References

Akkarpart, İ. (2014). *Farklı yaş gruplarında basketbolda imgelemenin serbest atış performansı, öz güven ve kaygı üzerine etkisi.* Yüksek Lisans Tezi, Hacettepe Üniversitesi, Sağlık Bilimleri Enstitüsü, Ankara.

Altıntaş, A., & Koruç, P. B. (2016). Sporda zihinsel dayanıklılık envanteri'nin psikometrik özelliklerinin incelenmesi (SZDE). *Spor Bilimleri Dergisi*, *27*(4), 163-171. Doi: 10.17644/sbd.311985

Altunışık, R., Coşkun, R., Bayraktaroğlu, S., & Yıldırım, E. (2012). *Sosyal bilimlerde araştırma yöntemleri: SPSS uygulamalı.* Sakarya Kitabevi: Sakarya.

Büyüköztürk, Ş. (2016). *Sosyal bilimler için veri analizi el kitabı.* (22. Baskı), Pegem Akademi: Ankara.

Cockreill, I. (2007). *Solution in sport psychology.* (2nd. Edition) London: Thomson.

Cox, R. H. (2012). *Sport psychology. Concepts and applications*. 7th ed. (p. 297-298). New York: McGraw-Hill.

Crust, L. (2008). A review and conceptual reexamination of mental toughness: Implications for future researchers. *Personality and Individual Differences, 45*(7), 576-583. Doi: 10.1016/j.paid.2008.07.005

Erdoğan, N. G., & Erhan, S. E. (2019). Kış sporları ile ilgilenen sporcuların sporda imgeleme ile sportif güven arasındaki ilişkinin incelenmesi. *Uluslararası Egzersiz Psikolojisi Dergisi, 1*(2), 14-22.

Feltz, D. L. (1998). Self-confidence and sports performance. *Exercise and Sport Sciences Reviews, 16*, 423-57.

Geiki, T. L., (2016). *The relationship between young athletes' ımagery use and mental toughness.* Master Thesis, University of Windsor, Faculty of Human Kinetics, Canada.

George D., & Mallery M. (2003). *Using SPSS for windows step by step: A simple guide and reference.* (4th Edition), Allyn & Bacon: Boston.

Gucciardi, D. F., Gordon, S., & Dimmock, J. A. (2009). Advancing mental toughness research and theory using personal construct psychology. *International Review of Sport and Exercise Psychology, 2*(1), 54-72. Doi: 10.1080/17509840802705938

Guerin, E. A., Munroe-Chandler, K. J., & Loughead, T. M. (2014). The relationship between imagery use and mental toughness in athletes with a disability. *Journal of Exercise, Movement, and Sport, 46*(1), 140-140.

Hall, C. R. (2001*). Imagery in sport and exercise. In: handbook of research on sport psychology*. RN Singer, HA Hausenblas (Eds), 2nd ed, New York, John Wiley and Sons.

Hall, C. R., Mack, D. E., Paivio, A., & Hausenblas, H. A. (1998). Imagery use by athletes: Development of the sport imagery questionnaire. *International Journal of Sport Psychology, 29*(1), 73–89.

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

Jones, G. (2002). What is this thing called mental toughness? An investigation of elite sport performers. *Journal of Applied Sport Psychology, 14*(3), 205-218. Doi: 10.1080/10413200290103509

Karasar, N. (2012). *Bilimsel araştırma yöntemleri.* (24. baskı), Nobel Yayınevi: Ankara.

Kızıldağ, E., & Tiryaki, M. Ş. (2012). Sporda imgeleme envanterinin Türk sporcular için uyarlanması. *Spor Bilimleri Dergisi, 23*(1), 13-23.

Luszki, W. A. (1982). *Winning tennis through mental toughness.* 1st ed. (p. 23). New York: Everest House.

Mamassis, G., & Doganis, G. (2004). The effects of a mental training program on juniors pre-competitive anxiety, self-confidence, and tennis performance. *Journal of Applied Sport Psychology, 16*(2), 118-137. Doi: 10.1080/10413200490437903

Marshall, E. A., & Gibson, A. M. (2017). The effect of an imagery training intervention on self-confidence, anxiety and performance in acrobatic gymnastics–a pilot study. *Journal of Imagery Research in Sport and Physical Activity, 12*(1), 2-45. Doi: 10.1515/jirspa-2016-0009

Mattie, P., & Munroe-Chandler, K. J. (2012). Examining the relationship between mental toughness and imagery use. *Journal of Applied Sport Psychology, 24*(2), 144-156. Doi: 10.1080/10413200.2011.605422

Middleton, S. C., Marsh, H. W., Martin, A. J., Richards, G. E., & Perry, C. (2004). *Discovering mental toughness: A qualitative study of mental toughness in elite athletes.* Paper presented at the 3rd International Biennial SELF Research Conference, Berlin, Germany.

Munroe, K. J., Giacobbi Jr., P. R., Hall, C. R., & Weinberg, R. (2000). The four ws of imagery use: where, when, why, and what. *The Sport Psychologist, 14*(2), 119-137. Doi: 10.1123/tsp.14.2.119

Rus, C.M., Talaghir, L-G., Iconomescu T.M., & Petrea, R.G. (2019). Curriculum changes in secondary school physical education and sport subject in the Romanian education system. *Revista de Cercetare si Interventie Sociala, 66*,342-363. Doi: 10.33788/rcis.66.20

Sheard, M. (2013). *Mental toughness: The mindset behind sporting achievement.* 2nd Edition, Hove, East Sussex: Routledge.

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*(3), 186-193. Doi: 10.1027/1015-5759.25.3.186

Soner, O. (1995). *Aile uyumu, öğrenci öz güveni ve akademik başarı arasındaki ilişkiler.* Doktora Tezi, Marmara Üniversitesi, Sosyal Bilimler Enstitüsü, İstanbul.

Strachan, L., & Munroe-Chandler, K. (2006). Using imagery to predick self-confidence and anxiety in young elite athletes. *Journal of Imagery Research in Sport and Physical Activity*, *1*(1), 1-19. Doi: 10.2202/1932-0191.1004.

Turgut, M, Bagir, S, Bozkus, T, Talaghir, L-G., & Sarikaya, M. (2019). The effect of 8 week resistance exercises on blood lipids and blood sugar levels in sedentary women. *Human Sport Medicine*, *19*(S1),94-98. Doi: 10.14529/hsm19s112

Vadoa, E. A., Hall, C. R., & Moritz, S. E. (1997). The relationship between competitive anxiety and imagery use. *Journal of Applied Sport Psychology*, *9*(2), 241-253.

Vealey, R. S. (1986). Conceptualization of sport-confidence and competitive orientation: Preliminary investigation and instrument development. *Journal of Sport and Exercise Psychology*, *8*(3), 221-246.

Vealey, R. S., & Greenleaf, C. A. (2006). *Seeing is believing: Understanding and using imagery in sport.* In J. M. Williams (Ed.), Applied sport psychology: Personal growth to peak performance (pp. 306–348). New York: McGraw-Hill.

Vurgun, N. (2010). *Sporda imgeleme anketinin Türkçeye uyarlanması ve sporda imgelemenin yarışma kaygısı ile sportif güven üzerindeki etkisi.* Doktora tezi, Ege Üniversitesi, Sağlık Bilimleri Enstitüsü, İzmir.

Weinberg, R. S., & Gould, D. (2015). *Spor ve egzersiz psikolojisinin temelleri.* (Çev.M. Şahin ve Z. Koruç.). Ankara: Nobel Akademik Yayıncılık.

Weinberg, R., Butt, J., Knight, B., Burke, K. L., & Jackson, A. (2003). The relationship between the use and effectiveness of imagery: an exploratory investigation. *Journal of Applied Sport Psychology*, *15*(1), 26-40. Doi: 10.1080/10413200305398

Yalçın, İ. (2018). *Profesyonel futbolcularda zihinde canlandırma ile öz güven arasındaki ilişkinin araştırılması.* Doktora Tezi, Sakarya Üniversitesi, Eğitim Bilimleri Enstitüsü, Sakarya.

Yıldırım, F. (2013). *Sportif sürekli kendine güven alt ölçeğinin uyarlanması ve ortaöğretim kurumlarındaki öğrencilerde sportif sürekli kendine güvenin çeşitli değişkenler açısından incelenmesi.* Yüksek Lisans Tezi, Mersin Üniversitesi, Eğitim Bilimleri Enstitüsü, Mersin.