

The Role of Coaching in the Development of Mental Toughness in Athletes

---

A Synthesis Project

Presented to the

Department of Kinesiology, Sports Studies, and Physical Education

State University of New York, Brockport

---

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

(Athletic Administration)

---

by

Cody Mooney

May 9, 2023

STATE UNIVERSITY OF NEW YORK

BROCKPORT, NEW YORK

Department of Kinesiology, Sport Studies, and Physical Education

The Role of Coaching in the Development of Mental Toughness in Athletes

---

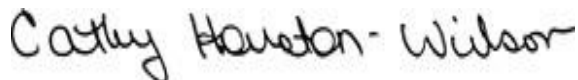


May 17, 2023

Instructor Approval

Date

Accepted by the Department of Kinesiology, Sport Studies, and Physical Education, State University of New York, Brockport, in partial fulfillment of the requirements for the degree Master of Science in Education (Physical Education).



May 18, 2023

Chairperson Approval

Date

### **Acknowledgements**

First, I would like to thank my father, Christopher, for always being there, supporting me, and pushing me to succeed. Without him, I would not be anywhere near where I am today. I would like to thank my Aunt Karin, Aunt Pam, and Uncle Guillermo for always supporting and loving me, and motivating me when I needed it the most. I also want to thank my family, friends, teammates, and coaches for all the support they have shown me throughout the years. I want to thank my professors for always supporting me and pushing me to succeed. Next, I want to thank my peers in this synthesis class, who helped me discuss issues and bounce ideas off. Finally, I want to thank Dr. Christopher Williams for helping guide me through this synthesis project. So many more people have helped me along the way, and I am forever grateful to each one.

**Table of Contents**

Title Page.....	1
Signature Page.....	2
Acknowledgements.....	3
Table of Contents.....	4
Abstract.....	5
Chapter 1.....	6
Chapter 2.....	10
Chapter 3.....	14
Chapter 4.....	21
References.....	26
Appendix.....	30

### **Abstract**

Mental toughness is an important emotional skill that can help push athletes through stressful or intense periods of competition. In an athletic setting, athletes spend the most time with their coaches, learn from their coaches, and are affected by their coaches. Coaches can help develop mental toughness in athletes by focusing on building specific elements and behaviors. Coaching strategies for developing mental toughness can be as simple as talking about experiences, to as complex as implementing specific strategies into practice. Currently, coaches understand what mental toughness is, but do not go out of their way to develop it. The strategies that coaches use to develop mental toughness can have both positive and negative effects on athletes, putting importance on the understanding of specific strategies. The purpose of this synthesis is to explore how coaches and coaching can develop and build mental toughness in athletes. This literature review concludes that developing mental toughness in athletes is simple to implement in training, and not time-consuming. Developing mental toughness in athletes will allow for athletes to succeed, inside and outside of the athletic world.

**Key Words:** Mental Toughness, Resilience, Cognition, Psychological Skills

## Chapter 1 – Introduction

Simply put, cognition is all aspects of how a human processes information (Bayne et al., 2019). Humans are constantly processing information, determining how to think, perform, handle, or absorb that information. However, a cognitive effect can be positive or negative, deriving from newly processed information and how an individual cognitively manages it. An example of a cognitive effect is mental toughness.

Mental health currently has a stigma, specifically when relating to athletes, with mental toughness being a sign of an athlete's mental well-being (Bird et al., 2021). As a concept, mental toughness focuses on an individual's personal aspirations and how intense, high-expectation, periods can impact that individual's journey to achieving those personal aspirations (Crampton, 2014). Mental toughness includes how an individual can push through adverse periods in pursuit of achieving specific goals. And to help maintain emotional stability during strenuous athletic periods, mental toughness is an emotion that athletes need to control.

Mental toughness is a combination of multiple skills and traits that lead to the success of achieving an individual's goal. Athletes lacking mental toughness are typically lacking specific skills that allow for mental toughness (Crampton, 2014), such as emotional regulation, resilience, self-confidence, attention regulation, self-motivation, optimism, self-denial, work discipline, tolerance to fatigue and pain, competitiveness, self-improvement, and pragmatism (Silva et al., 2018). All of these emotional skills contribute to mental toughness. Furthermore, mental toughness is an emotional skill useful in other aspects of life, allowing one to push through stressful or intense moments of competition, or being calm before a competition (Silva et al., 2018).

When an athlete can control their emotions, they then can become mentally tough in competitive situations. However, many athletes display behaviors that hinder mental toughness, such as talking negatively and visibly appearing frustrated (Houwer et al., 2017). Many athletes currently lack mental toughness, or the skills required to develop mental toughness. Developing these skills is a role that should be employed by their coach (Cowden et al., 2014). And coaches can have a positive role in developing an athlete's mental toughness (Cowden et al., 2014; Nicholls et al., 2016; Philippe et al., 2016).

### **Statement of the Problem**

Mental toughness is an emotional trait that needs to be nurtured and developed by coaches and the athletes. There are likely multiple methods that coaches can use to develop mental toughness, such as sport psychology, sharing personal experiences, visualization sessions (imagery), among other methods (Philippe et al., 2016; Sullivan, 2015). Yet, athletes may not be developing the necessary skills required for mental toughness. Additionally, athletes often exhibit negative behaviors that diminish mental toughness, indicating an athlete's emotional stability and mental health.

### **Purpose of the Study**

The purpose of this synthesis is to explore how coaches and coaching can develop and build mental toughness in athletes.

### **Operational Definitions**

1. Mental Toughness – “A quality of mind or intellect characterized by, among other things, a refusal to be intimidated, a determination to finish a contest even when things are going badly, and an ability to control emotions and remain highly focused when under the pressure of intense competition” (Oxford Reference, 2023).
2. Resilience – “The process and outcome of successfully adapting to difficult or challenging life experiences, especially through mental, emotional, and behavioral flexibility and adjustment to external and internal demands” (American Psychological Association, 2023).
3. Cognition – “Includes all conscious and unconscious processes by which knowledge is accumulated, such as perceiving, recognizing, conceiving, and reasoning” (Britannica, 2023).
4. Psychological Skills – “Are tools for the mind. This includes skills like positive self-talk, enhancing confidence, goal setting, and achieving the most productive mindset, among many other skills” (CALE Learning Enhancement, 2023).

### **Research Questions**

1. How do coaching strategies improve mental toughness?
2. What roles do coaches play in developing an athlete’s mental toughness?

### **Delimitations**

1. All articles used in this research relate to mental toughness
2. All articles used in this research involve athletes that participate in athletic competition



3. Articles used in this research synthesis were all peer-reviewed and between 2013 and 2023.

## Chapter 2 – Methods

The purpose of this chapter is to describe how articles were selected to be included in this study. Articles were selected based on how they related to coaching strategies, affected mental toughness, and roles that coaches play in developing an athlete's mental toughness.

The studies obtained for this synthesis were collected from the SUNY Brockport Drake Memorial Library website. Within the library's website, the EBSCO database was utilized. From the EBSCO database, the following databases were searched: EBSCO Open Dissertations, SPORTDiscus, Google Scholar, the Sports Medicine & Education Index, and ERIC. Additionally, articles from the databases were analyzed, using the ancestry method. From these sources, eight unique searches were conducted.

The first search that was conducted for this paper was on EBSCO Open Dissertations. First, the keywords, "mental toughness" and "coaches" were entered into the search bar. These keywords resulted in 23 articles. Next, these articles were limited to "full text available". Adding this limitation excluded no articles. Following this, limiting the articles to the years "2013 - 2023" resulted in 8 articles. After analyzing these eight articles, two were selected based on their relation the research questions in this study.

The second search that was conducted for this paper was on SPORTDiscus. First, the keywords, "coaching" and "mental toughness" were entered into the search bars. Entering these keywords resulted in 125 articles. Next, the limitation of "full text available" was added, resulting in 66 results. The years of the articles were then limited to "2013 – 2023", resulting in 35 results. After analyzing all 35 articles, three were selected based on their relation the research questions in this study.

The third search was conducted on SPORTDiscus. Initially, the keywords, “develop or developing or development” and “mental toughness” were entered, resulting in 227 results. Next, the articles were limited to “full text” only, reducing the number of articles to 138. Limiting the years to the previous ten, “2013 – 2023”, reduced the number to 73 articles. Finally, limiting to “academic journals” only and “English only” reduced the number of articles to 51. After analyzing all 51 articles, one was selected based on its relation the research questions in this study.

The fourth search that was utilized for this paper was on Google Scholar. First, the keywords, “coaching strategies” and “mental toughness” were entered. These keywords resulted in 373 results. Limiting the years to “2013 – 2023” resulted in 278 results. Next, two more keywords were added, “qualitative” or “quantitative”, resulting in 186 articles. After analyzing all 186 articles, one was selected based on its relation the research questions in this study.

The fifth search involved using the Sports Medicine & Education Index. On this database, the keywords, “coaching” and “mental toughness” were entered, resulting in 202 results. The limitation of “peer-reviewed decreased the number of articles to 121. The language of articles limited to “English only”, resulted in 119 articles. And limiting the document type to “articles” only resulted in 111 results. After analyzing all 111 articles, one was selected based on its relation the research questions in this study.

The sixth search utilized the ERIC database. First, the keywords, “mental toughness” were entered. These keywords resulted in only 42 articles. The limitation of “full text” only resulted in 30 articles. Limiting the articles to “peer-reviewed only”, reduced the number of articles to 27. The final limitation that was used for this search was the limiting of articles to the

previous ten years, “2013-2023”, reduced the number of articles remaining to 24. After analyzing all 24 articles, one was selected based on its relation the research questions in this study.

The seventh search of this study utilized the ancestry method, analyzing the reference section of, “Evaluation of a psychological skill training program on mental toughness and psychological wellbeing for professional soccer players” (Micoogullari & Ekmekci, 2017). Analyzing the reference section of this article, 61 articles were revealed. Going through and limiting the years of the articles to the previous ten, “2013 – 2023”, ten articles were left. After analyzing all 10 articles, one was selected based on its relation the research questions in this study.

The final search of this study used the ancestry method with, “Conceptualizing, measuring, and training mental toughness in sport: Perspectives of master strength and conditioning coaches” (Stamatis et al., 2023). Analyzing the reference section of this study, 89 articles were identified. Limiting the years of the articles to the previous ten, “2013 – 2023”, 71 articles were remaining. After analyzing all 71 articles, one was selected based on its relation the research questions in this study.

Selected articles came from a range of academic journals. The journals include: *Theses and Dissertations*, *International Journal of Coaching Science*, *Journal of Sport & Exercise Psychology*, *Sport, Exercise, and Performance Psychology*, *Qualitative Research in Sport, Exercise and Health*, *International Journal of Sports Science & Coaching*, *Sports, Psychology*, *Universal Journal of Educational Research*, and *Journal for the Study of Sports and Athletes in Education*. One article was found on EBSCO Open Dissertation.

Each article used a wide range of participants and number of participants. Stamatis et al., (2023) focus on Master Strength and Conditioning Coaches, using 99 participants in total. Micoogullari & Ekmekci (2017) focus their study on male soccer players, with 26 participants participating. Golby & Wood (2016) analyze a team of student-athletes rowers, with 16 participants total. Stamatis et al., (2022) also focus on strength and conditioning coaches, analyzing 636 participants, throughout their study. Nicholls et al., (2016) study 290 athletes in their study. In the next study, Cook et al., (2014) interviewed eight staff members within an English Premier League soccer academy. In their study, Kegelaers et al., (2020) interview nine elite-level coaches. Mahoney et al., (2014) study youth cross-country runners, with 221 participants partaking in the study. In Philippe et al., (2016) study, 17 professional rugby players were interviewed. Sullivan's (2015) study involves competitive youth figure skaters, with 42 participants in total. In the final study, McIvor (2018) interviews nine professional rugby players and eight professional coaches. Within all of the studies, 720 athletes, 653 coaches, and eight staff members were included, for a total of 1,381 participants.

### **Chapter 3 – Review of Literature**

The purpose of chapter three is to provide a review of literature on how athletic coaches can understand and develop mental toughness in athletes. After examining 11 articles exploring mental toughness, four topics were determined to be the main themes. These topics include the importance of developing mental toughness in athletes, perceptions of mental toughness by coaches, coaching strategies for developing and improving mental toughness in athletes, and the effects of mental toughness training on athletes.

#### **Importance of Developing Mental Toughness in Athletes**

Many athletes currently lack mental toughness, are unaware of the importance of mental toughness, and have never been taught how to develop or improve their mental toughness. With coaches being influential to athletes, mental toughness can likely be developed and taught by coaches. In an athletic setting, coaches more than anyone are in a position to look for signs of an athlete's mental toughness.

Mahoney et al. (2014) examine how mental toughness and motivational variables are connected by self-determination theory, objective sport performance, and psychological health. The quantitative study examines 221 cross-country runners through the utilization of questionnaires and race times. The questionnaire included multiple measures, including demographics, mental toughness, sport climate, basic needs satisfaction in sport, psychological needs thwarting, controlling coach behaviors, psychological health, and performance. Using a path analysis with a Bayesian estimator, findings determined that autonomy-supportive environments and psychological needs satisfaction are positively associated. Additionally, findings revealed that controlling environments are negatively associated with psychological needs. When developing mental toughness in athletes, controlling environments, specifically by

coaches, need to be avoided, in order for mental toughness to properly develop. Allowing for autonomy in athletes helps athletes build or develop mental toughness. It was reputed that psychological needs satisfaction and mental toughness positively relate, while psychological needs thwarting and mental toughness negatively relate.

Similarly, Nicholls et al. (2016) explored how mental toughness, motivational climate, and coach behavior relate. The researchers sampled 290 athletes using questionnaires that examined the following: athlete's perceptions of coaching behaviors, perceived motivational climate in sport, and mental toughness. After analyzing the results using confirmatory factor analyses, bivariate correlations, and structural equation modelling, findings revealed that there is a positive correlation between supportive coaching, task-involving climate, and mental toughness. Additionally, findings revealed that supportive coaching behaviors lead to a positive task-involved climate, which, in turn, lead to positive mental toughness. Discussion of the study further emphasize that there is a positive connection between motivational climate and developing mental toughness.

### **Perceptions of Mental Toughness by Coaches**

When developing and improving mental toughness in athletes, importance needs to be put on coaches to understand what mental toughness is, and how athletes can benefit from mental toughness. Additionally, coaches need to be aware of strategies or behaviors that can negatively affect an athlete's mental toughness. Informing coaches about what mental toughness is and how it can be properly developed in an athlete is essential for that athlete's growing success.

Cook et al. (2014) performed a study that examined coaches' and support staff's perceptions of mental toughness, and how it is developed in English Premier League soccer

players. In their study, the researchers interviewed eight staff members of an English Premier League soccer academy. Through interviews, mental toughness attributes and mental toughness development in athletes were addressed. Using a thematic content analysis, results revealed four themes associated with mental toughness: resilience, mindset, competitiveness with self and others, and personal responsibility. Additionally, findings revealed that competitiveness with self and others was the most important theme across all eight participants. Staff members indicated that the most successful players have a combination of motivation to achieve and are committed to excellence. The authors emphasized that coaches and staff members viewed the mentally toughest players as the athletes who are truly passionate and committed to the sport.

In addition, Stamatis et al. (2023) examine the perceptions of master strength and conditioning coaches on three mental toughness categories; conceptualization, measurement, and training. In their study, the researchers conduct a multiphase mixed-method design that samples 99 master strength and conditioning coaches. Between both phases, the researchers surveyed participants on a mental toughness questionnaire and the stronger than average mentality questionnaire, both of which involved open and closed-ended questions. After analyzing the data using a thematic analysis, results revealed that all participants believe that mental toughness exists in sport and that mental toughness can be developed. Additionally, a common definition for mental toughness was developed as an athlete's perseverance leading to the achievement of a task. Not surprisingly, master strength and conditioning coaches affirm that athletes who lack mental toughness typically have a weak mindset. When discussing the study as a whole, the authors concluded that mental toughness is valid, influences an athlete's sport performance, and supports that athletes can benefit from mental toughness training.

### **Coaching Strategies for Developing and Improving Mental Toughness in Athletes**



Multiple strategies exist that coaches can utilize to develop and improve mental toughness in athletes. Understanding what a specific strategy does for an athlete, and how that athlete can benefit from that strategy, is important for that athlete's success. Kegelaers et al. (2020) examined a variety of planned disruptions that high-performance coaches use. The researchers interviewed nine talent development and elite-level coaches. In semi-structured interviews, the following topics were addressed: background information, planned disruption, and follow-up questions based on the types of planned disruptions used. Analyzing the data through an inductive thematic analysis, the following types of planned disruptions were identified; location, competition simulation, punishment and rewards, physical strain, stronger competition, distractions, unfairness, restrictions, and outside the box. Considered the most important, all nine coaches utilized competition simulation, which included competition between players under competitive conditions. The authors determined that coaches use planned disruptions to familiarize athletes with pressure and stress to create awareness in athletes to promote development of personal resources, and to promote team processes.

Alternatively, McIvor (2018) explored how mental toughness, in rugby, improved team performance during games. The author interviewed eight rugby coaches and nine professional rugby players, and the following topics were addressed: how mentally tough performance is created in specific environments, mental toughness in rugby players, mental toughness of a rugby team, the creation and limitation of mental toughness, how a rugby environment creates mentally tough performances, how coaches create mentally tough performances in teams, and any remaining strategies that participants believe affect mentally tough performances. Using an inductive content analysis, three themes were discovered for creating mental toughness; coaching and team processes, player-specific processes, and group identity and influence. Additionally,

five themes were discovered for shaping group identity and performance: fostering togetherness and respect, challenging group standards, aligning formal leaders, harnessing mentally tough leaders, and sending messages via media. The author emphasized that mental toughness is derived from a team dynamic.

Philippe et al. (2016) explored how elite rugby players perceive their coaches contribute to the development of mental toughness. In this study, the authors used a qualitative method that sampled 17 elite rugby players. Utilizing three-part interviews, the following topics were addressed: background and demographical information, development of mental toughness, and the maintenance of mental toughness. Three dimensions of a coach's role were discovered: expertise, instruction, and development. Additionally, findings revealed that players believe that coaches positively contribute to an athlete's mental toughness. The authors discussed that interactions between athletes and coaches can impact, positively or negatively, an athlete's level of mental toughness.

Stamatis et al. (2022) examined a controversial method for developing mental toughness, using NCAA via military-style training. Utilizing a three-phase, mixed-method study, the researchers interviewed a total of 636 strength and conditioning coaches, and addressed the following topics: how strength and conditioning programs create military-style training, demographics, incorporation of military-style trainings, leadership development, mental development, physical development, team development, inexperienced coaches, media bias, uninformed outsiders, initiators of military-style training, teamwork and communication, and discipline. After analyzing the data using a thematic analysis, results uncovered that most NCAA teams do not visit military facilities or incorporate military members. Results indicated that the head coach typically makes the decision to send their team to military facilities, but military-

style training is not popular in the NCAA. Additionally, participants believe that the military profession has suffered after recent media backlash.

Alternatively, Sullivan (2015) examined both mental toughness and the use of imagery. Using questionnaires with 42 competitive adolescent figure skaters, the following topics were addressed: imagery use, imagery ability, and mental toughness. Results revealed that participants regularly used imagery, and found the process easy to perform. Additionally, results revealed that participants use imagery as a means of motivating. Figure skaters who used imagery typically displayed higher levels of mental toughness.

### **The Effects of Mental Toughness Training on Athletes**

Specific strategies and methods can have both positive and negative effects on athletes. Understanding how athletes are affected by mental toughness training is essential for an athlete's psychological well-being. Strategies that negatively affect an athlete's psychological well-being and hinder their mental toughness need to be avoided or redesigned. As more strategies for developing mental toughness in athletes are discovered, coaches need to analyze strategies that they believe will best benefit their athletes.

Golby & Wood (2016) explored the effects of psychological skills training on mental toughness and psychological well-being for female student rowers throughout an entire season. Utilizing a mixed-method designs approach, the researchers examine 16 student rowers by hosting training sessions, and using questionnaires. The following topics were addressed: mental toughness, positive psychological well-being, psychological performance, self-esteem, perceived self-efficacy, dispositional optimism, and positive affect. After analyzing the data using Pearson's moment correlation and a two-way multivariate analysis of variance, results revealed that mental

toughness was significantly related to dispositional optimism, perceived self-efficacy, and positive affect. The authors indicated that the psychological skills training significantly increased mental toughness, as well as other psychological measures.

Similarly, Micoogullari & Ekmekci (2017) examined the effectiveness of psychological skills training on increasing mental toughness in a Turkish soccer team. In their quantitative study, the authors sampled 26 Turkish soccer players utilizing questionnaires. Within these questionnaires, the following topics were addressed: sport mental toughness, psychological well-being, goal setting, imagery, self-talk, and arousal regulation. Results revealed that positive correlations existed between mental toughness and self-acceptance. The authors reported that mental toughness improves with an athlete, as an athlete reaches optimal performance.

Understanding the importance of mental toughness, how mental toughness is perceived by coaches, strategies for developing and improving mental toughness, and the effects of mental toughness training on athletes are all essential for the psychological well-being of an athlete. Coaches need to understand mental health and mental toughness in athletes, be able to recognize when athletes may be lacking, and understand how they can improve mental toughness. With the integration of mental toughness development into programs, both coaches and athletes will benefit.

## **Chapter 4 – Discussion, Conclusion, and Recommendations**

The purpose of chapter four is to convey the results of this study, which investigated how coaches can better develop mental toughness in athletes. Specifically, this chapter looks to examine how the review of literature answered both of the research questions in this study. This chapter will further convey how coaching strategies improve mental toughness, as well as emphasize the roles that coaches play in developing an athlete's mental toughness.

The results indicate that coaches can develop and build mental toughness in athletes. Specifically, the review of literature revealed multiple coaching strategies that can improve mental toughness in athletes, and identified the roles that coaches play in developing an athlete's mental toughness. Multiple strategies for developing and improving mental toughness were discussed, including planned disruptions, team dynamics, interactions between athletes and coaches, military-style training, psychological skills training, and imagery. Additionally, coaches provide a number of roles for developing an athlete's mental toughness, such as providing a positive environment, being supportive and utilizing proper strategies. Coaches play multiple roles in an athlete's mental health, and level of mental toughness, and growth and success of an athlete. However, each team, coach, and athlete are different, requiring that different strategies for different teams.

### **Interpretations**

Two research questions were explored in this literature review. The first research question asked how coaching strategies improve mental toughness. In the review of literature, results reveal that multiple strategies exist that coaches can use to develop and improve mental toughness in an athlete, such as planned disruptions to familiarize athletes with pressure and

stress (Kegelaers et al., 2020). Furthermore, mental toughness is obtained through a team dynamic, requiring coaches to use strategies that develop mental toughness for the team as a whole (McIvor, 2018). A strategy for developing mental toughness can be as simple as having coaches interact with athletes (Philippe et al., 2016). On the other hand, multiple studies indicated that psychological skills training drastically improves mental toughness in athletes, as well as positively impacting their psychological well-being (Golby & Wood, 2016; Micoogullari & Ekmekci, 2017). In fact, utilizing imagery can be particularly motivating for athletes, as athletes that use imagery have higher levels of mental toughness (Sullivan, 2015). On the other hand, military-style training has been known to overwork athletes, hindering mental toughness as a result (Stamatis et al., 2022).

The second research question asked what roles do coaches play in developing an athlete's mental toughness. Results of the review of literature indicate that coaches play multiple roles in developing an athlete's mental toughness. For example, controlling environments can hinder mental toughness in athletes; while autonomy in athletes can help that athlete improve mental toughness (Mahoney et al., 2014). To develop mental toughness, coaches need to let athletes have some control. In addition, supportive coaching behaviors and a supportive environment can lead to an athlete positively developing mental toughness (Nicholls et al., 2016). The literature revealed three dimensions of a coach's role - expertise, instruction, and development – which relates to a coach's knowledge, how a coach guides practice and training for athletic competition, and how coaches prepare and execute strategies that will prepare an athlete (Philippe et al., 2016)

Both questions were answered in the review of literature, with reviewed articles providing multiple strategies that improve mental toughness in athletes, as well as providing multiple roles that coaches play in developing an athlete's mental toughness. Previous reviewed

research and theories tend to indicate that mental toughness development is extremely important, emphasizing the coach's role in creating and molding mental toughness in athletes.

Unexpectedly, Stamatis et al., (2022) reviewed the controversial mental toughness development strategy of military-style training. Mental toughness training in athletes can be seen as controversial due to the expectations that mental toughness may lead an athlete to continue through pain during competition, and result in injury.

### **Implications**

Multiple implications exist that both coaches and athletes can utilize. Coaches can understand the specific roles that they play in development, learning what strategies may work better than others. Perspectives from coaches and athletes provide methods and strategies that coaches can incorporate into their daily or weekly training. Coaches, athletes, and the general public can all benefit from the implications of this study, focusing on how mental toughness development can improve psychological well-being.

The conclusions of this article agree with previous research. Mental toughness development is a form of psychological skills training that can take months to learn and develop. Coaches need to learn what strategies may or may not work with their specific teams and athletes. The findings of this study agree with previous findings that report the benefits of mental toughness development, and provided specific methods that coaches can utilize within their own programs. Existing theories indicate that mental toughness development is important and helpful for the psychological well-being of athletes, provided it is conducted in a supportive and nourishing environment.

Multiple strategies can be utilized by coaches to create the proper environment to develop mental toughness in athletes, such as planned disruptions, developing mental toughness in a team dynamic, interaction between coaches and athletes, imagery sessions, and psychological skills training (Golby & Wood, 2016; Kegelaers et al., 2022; McIvor, 2018; Philippe et al., 2016; Sullivan, 2015). Additionally, practical implications exist for providing the roles that coaches play in developing an athlete's mental toughness, such as avoiding controlling environments, allowing for autonomy within athletes, displaying supportive coaching behaviors, and providing expertise, instruction, and development of mental toughness (Mahoney et al., 2014; Nicholls et al., 2016; Philippe et al., 2016). With the utilization of these strategies and coaching roles, coaches will be able to better understand how mental toughness development can improve an athlete.

### **Limitations**

A limitation in this study is that methods of developing mental toughness in athletes were broad. In Nicholls et al. (2016), supportive coaching behaviors were indicated as a coaching method of improving mental toughness in athletes. However, the study does not provide further detail on what supportive coaching behaviors entail. In addition, only one study examines the disadvantages, or improper methods, of specific mental toughness strategies.

### **Recommendations**

Future research is needed to establish more specific methods that increase an athlete's mental toughness. Existing research provides broad themes for developing mental toughness, such as developing mental toughness through a psychological skills training. Future studies should explore more specific themes within these topics. Future studies should also investigate



practical implications, by comparing coaching strategies to the athlete's perceptions of mental toughness training by coaches. Focusing on what coaches are doing right and wrong can further emphasize how mental toughness development can physically and mentally improve an athlete. Finally, future research should examine the possible disadvantages and barriers of mental toughness development, which can identify what coaches should avoid and recognize signs when mental toughness development is not working.

### References

- American Psychological Association. (2023). *American Psychological Association*. Retrieved April 15, 2023, from <https://www.apa.org/>
- Bayne, T. (2019). What is cognition? *Current Biology*, 29, 603-622.  
<https://doi.org/10.1016/j.cub.2019.05.044>
- Bird, M. D., Simons, E. E., & Jackman, P. C. (2021). Mental toughness, sport-related well-being, and mental health stigma among national collegiate athletic association division I student-athletes. *Journal of Clinical Sport Psychology*, 15(4), 306-322.  
<https://doi.org/10.1123/jcsp.2020-0043>
- Britannica. (2023). *Britannica*. Retrieved April 15, 2023, from <https://www.britannica.com/>
- CALE Learning Enhancement. (2023). Psychological skills. *Eastern Washington University*.  
<https://inside.ewu.edu/calelearning/psychological-skills/#:~:text=What%20are%20psychological%20skills%3F%20Psychological%20skills%2C%20or%20mental,the%20most%20productive%20mindset%2C%20among%20many%20other%20skills.>
- Cook, C., Crust, L., Littlewood, M., Nesti, M., & Allen-Collinson, J. (2014). 'What it takes': Perceptions of mental toughness and its development in an English Premier League soccer academy. *Qualitative Research in Sport, Exercise and Health*, 6(3), 329-347.  
<http://dx.doi.org/10.1080/2159676X.2013.857708>
- Cooper, K. B., Wilson, M. R., & Jones, M. I. (2018). A 3000-mile tour of mental toughness: An autoethnographic exploration of mental toughness intra-individual variability in

endurance sport. *International Journal of Sport and Exercise Psychology*, 18(5), 607-621.

<https://doi.org/10.1080/1612197X.2018.1549583>

Cowden, R. G., Anshel, M. H., & Fuller, D. K. (2014). Comparing athletes' and their coaches' perceptions of athletes' mental toughness among elite tennis players. *Journal of Sport Behavior*, 37(3), 221-235.

[link.gale.com/apps/doc/A378247830/AONE?u=brockport&sid=bookmark-](http://link.gale.com/apps/doc/A378247830/AONE?u=brockport&sid=bookmark-AONE&xid=dc0435d7)

[AONE&xid=dc0435d7](http://link.gale.com/apps/doc/A378247830/AONE?u=brockport&sid=bookmark-AONE&xid=dc0435d7)

Crampton, S. G. D. (2014). *The construct of mental toughness: The development and validation of a new conceptualisation and measure* [Doctoral thesis, University of Roehampton].

<https://ethos.bl.uk/OrderDetails.do?uin=uk.bl.ethos.684980#:~:text=In%20pursuit%20of%20a%20new%20definition%20and%20conceptualisation,alongside%20eight%20conceptually%20distinct%20components%20of%20mental%20toughness.>

Golby, J., & Wood, P. (2016). The effects of psychological skills training on mental toughness and psychological well-being of student-athletes. *Psychology*, 7, 901-913.

<http://dx.doi.org/10.4236/psych.2016.76092>

Houwer, R., Kramer, T., Hartigh, R., Kolman, N., Elferink-Gemser, M., & Huijgen, B. (2017).

Mental toughness in talented youth tennis players: A comparison between on-court observations and a self-reported measure. *Journal of Human Kinetics*, 55, 139-148.

<https://doi.org/10.1515/hukin-2017-0013>

Kegelaers, J., Wylleman, P., & Oudejans, R. R. D. (2020). A coach perspective on the use of planned disruptions in high-performance sports. *Sport, Exercise, and Performance Psychology*, 9(1), 29-44. <https://doi.org/10.1037/spy0000167>

Mahoney, J. W., Gucciardi, D. F., Ntoumanis, N., & Mallet, C. J. (2014). Mental toughness in sport: Motivational antecedents and associations with performance and psychological health. *Journal of Sport & Exercise Psychology, 36*(3), 281–292.

<https://doi.org/10.1123/jsep.2013-0260>

McIvor, S. (2018). *Mentally tough teams in professional rugby union: Important factors, processes and mechanisms*. [Doctoral dissertation, University of Central Lancashire]. EBSCO Open Dissertations.

Micoogullari, B. O., & Ekmekci, R. (2017). Evaluation of a psychological skill training program on mental toughness and psychological wellbeing for professional soccer players.

*Universal Journal of Educational Research, 5*(12), 2312-2319.

<https://doi.org/10.13189/ujer.2017.051222>

Nicholls, A. R., Morley, D., & Perry, J. L. (2016). Mentally tough athletes are more aware of unsupportive coaching behaviours: Perceptions of coach behaviour, motivational climate, and mental toughness in sport. *International Journal of Sports Science & Coaching, 11*(2), 172-181.

<https://doi.org/10.1177/1747954116636714>

Oxford Reference. (2023). *Oxford Reference*. Retrieved March 30, 2023, from

<https://www.oxfordreference.com/>

Philippe, R. A., Sagar, S. S., Gerber, M., & Hauw, D. (2016). Players' perceptions of coaches' contributions to their mental toughness. *International Journal of Coaching Science, 10*(1), 37-51.

[https://search-ebsohost-](https://search-ebsohost-com.brockport.idm.oclc.org/login.aspx?direct=true&db=s3h&AN=112950381&site=ehost-live)

[com.brockport.idm.oclc.org/login.aspx?direct=true&db=s3h&AN=112950381&site=ehost-](https://search-ebsohost-com.brockport.idm.oclc.org/login.aspx?direct=true&db=s3h&AN=112950381&site=ehost-live)

[live](https://search-ebsohost-com.brockport.idm.oclc.org/login.aspx?direct=true&db=s3h&AN=112950381&site=ehost-live)

- Silva, V., Dias, C., Corte-Real, N., & Fonseca, A. (2018). Mental toughness in Judo: Perceptions of athletes. *Cuadernos de Psicología del Deporte*, 18(3), 86-101. <https://web-s-ebscohost-com.brockport.idm.oclc.org/ehost/pdfviewer/pdfviewer?vid=0&sid=5a8f3d2d-eea4-48de-9abf-a3266b690eb1%40redis>
- Stamatis, A., Morgan, G. B., Cowden, R. G., & Koutakis, P. (2023). Conceptualizing, measuring, and training mental toughness in sport: Perspectives of master strength and conditioning coaches. *Journal for the Study of Sports and Athletes in Education*, 17(1), 1-28. <https://doi.org/10.1080/19357397.2021.1989278>
- Stamatis, A., Morgan, G. B., Nyamaruze, P., & Koutakis, P. (2022). Mental toughness development via military-style training in the NCAA: A three-phase, mixed-method study of the perspectives of strength and conditioning coaches. *Sports*, 10(92), 1-24. <https://doi.org/10.3390/sports10060092>
- Sullivan, M. M. (2015). The relationships among imagery use, imagery ability and mental toughness in adolescent figure skaters. [Master's thesis, University of North Dakota]. EBSCO Open Dissertations.
- Zeiger, J. S., & Zeiger, R. S. (2018). Mental toughness latent profiles in endurance athletes. *PLoS ONE*, 13(2). <https://doi.org/10.1371/journal.pone.0193071>

## Appendix

Author	Title	Source	Purpose	Methods & Procedures	Analysis	Findings	Discussion/ Limitations/ Recommendations
Cook, C., Crust, L., Littlewood, M., Nesti, M., & Allen-Collinson, J. (2014)	'What it takes': Perceptions of mental toughness and its development in an English Premier League soccer academy	<i>Qualitative Research in Sport, Exercise and Health</i>	Examine coaches' and support staff's perceptions of mental toughness and how it is developed in an English Premier League soccer academy.	Qualitative study sampling eight staff members of an English Premier League Soccer Academy, utilizing interviews.	Thematic content analysis.	Four themes of mental toughness were discovered: resilience, mindset, competitiveness with self and others, and personal responsibility.	Coaches viewed the mentally toughest players as the one's who were truly passionate and committed to the sport.  Limitations included; only one team was researched, only singular interviews were conducted, and the perceptions were only from the staff members. Future studies should involve more than one team and involve the views of players and coaches.
Golby, J., & Wood, P. (2016)	The effects of psychological skills training on	<i>Psychology</i>	Explore the effects of psychological	A mixed-method designs approach examining 16	Pearson's moment correlation as	Mental toughness was discovered to	The psychological skills training significantly

	mental toughness and psychological well-being of student-athletes		skills training on mental toughness and psychological well-being for female student rowers throughout a season.	student rowers by hosting sessions, as well as passing out questionnaires	well as a two-way multivariate analysis of variance.	be significantly related to dispositional optimism, perceived self-efficacy, and positive affect.	increased mental toughness, as well as other psychological measures.  Limitations include an athlete's imaging ability and boat allocation, halfway through the intervention.  Future studies should sample a male population, as well as measures that control variables.
Kegelaers, J., Wylleman, P., & Oudejans, R. D. (2020)	A coach perspective on the use of planned disruptions in high-performance sports	<i>Sport, Exercise, and Performance Psychology</i>	To examine the variety of planned disruptions that high-performance coaches use, as well as the outcomes that were desired.	Qualitative study interviewing nine talent development and elite-level coaches.	Data was analyzed utilizing inductive thematic analysis.	Types of planned disruptions were identified; location, competition simulation, punishment and rewards, physical strain, stronger competition, distractions, unfairness,	Coaches use planned disruptions to familiarize athletes with pressure/stress, create awareness, promote development of personal resources, and promote team processes.  Limitations include coaches'

						restrictions, and outside the box.	<p>perspectives only and not exploring frequency of planned disruptions.</p> <p>Future studies should look at frequency of planned disruptions and the transferability outside of an athlete's sport.</p>
<p>Mahoney, J. W., Gucciardi, D. F., Ntoumanis, N., &amp; Mallet, C. F. (2014)</p>	<p>Mental toughness in sport: Motivational antecedents and associations with performance and psychological health</p>	<p><i>Journal of Sport &amp; Exercise Psychology</i></p>	<p>Discover how mental toughness and motivational variables are connected by self-determination theory, objective sport performance, and psychological health.</p>	<p>Quantitative study examining 221 cross-country runners through questionnaires and race times.</p>	<p>Path analysis with a Bayesian estimator.</p>	<p>Autonomy-supportive environments and psychological needs satisfaction positively associated. Controlling environments negatively associated with psychological needs association.</p>	<p>Psychological needs satisfaction and mental toughness positively relate, while psychological needs thwarting and mental toughness negatively relate.</p> <p>Limited to using a cross-sectional methodology. Another limitation was focusing only on coaching environments.</p>



							Future studies should explore perceptions of injured athletes. Additionally, explore how parents and peers affect mental toughness.
McIvor, S. (2018)	Mentally tough teams in professional rugby union: Important factors, processes and mechanisms	EBSCO Open Dissertation	Explore how mental toughness, in rugby, is promoted, in order to improve team performances during games.	Qualitative study interviewing eight rugby coaches and nine rugby professional players.	Inductive content analysis	Three themes were discovered for creating mental toughness and five themes were discovered for shaping group identity and performance.	<p>Mental toughness is derived from a team dynamic.</p> <p>Limited to accuracy of data by poor recollection from participants, as well as few coaches were interviewed.</p> <p>Future studies should assess how successful coaching interventions are for building mental toughness. Additionally, they should see how messages from significant others can influence mental toughness.</p>

Micoogullari, B. O., & Ekmekci, R. (2017)	Evaluation of a psychological skill training program on mental toughness and psychological wellbeing for professional soccer players	<i>Universal Journal of Educational Research.</i>	To examine the effectiveness of psychological skills training on increasing mental toughness in a Turkish soccer team.	Quantitative study sampling 26 Turkish soccer players, utilizing questionnaires.	Analyzed using SPSS 21.0 and Pearson's moment-correlation.	Between mental toughness and psychological well-being, positive correlations existed between mental toughness and self-acceptance.	Mental toughness improves with an athlete, reaching optimal performance when an athlete does.  *Can not find limitations*  Recommendations include that soccer players should receive psychological skill training programs.
Nicholls, A. R., Morley, D., & Perry, J. L. (2016)	Mentally tough athletes are more aware of unsupportive coaching behaviours: Perceptions of coach behaviour, motivational climate, and mental toughness in sport	<i>International Journal of Sports Science &amp; Coaching</i>	Test a priori model that has mental toughness, motivational climate, and coach behavior.	Quantitative study sampling 290 athletes.	Confirmatory factor analyses, bivariate correlations, and structural equation modelling.	Positive correlation between supportive coaching, task-involving climate, and mental toughness.	There is a connection between motivational climate and building mental toughness.  Limitations include not measuring time spent with sports per athlete and the study being very male-centric study.  Future studies should examine a

							greater sample of females.
Philippe, R. A., Sagar, S. S., Gerber, M., & Hauw, D. (2016)	Players' perceptions of coaches' contributions to their mental toughness	<i>International Journal of Coaching Science</i>	Explores how elite rugby players think that their coaches contribute to the development of the athlete's mental toughness.	Qualitative study sampling 17 elite rugby players.	Meaning units were identified that were then coded and organized.	Three dimensions of a coaches' role were discovered; expertise, instruction, and development. Overall, the coaches positively contribute to an athlete's mental toughness.	Interactions between athletes and coaches can impact an athlete's level of mental toughness.  Limitations include not examining coaches' perceptions and examining mental toughness, globally.  Future studies should explore coaches' perceptions.
Stamatis, A., Morgan, G. B., Cowden, R. G., & Koutakis, P. (2023)	Conceptualizing, measuring, and training mental toughness in sport: Perspectives of master strength and conditioning coaches	<i>Journal for the Study of Sports and Athletes in Education</i>	To examine the perceptions of master strength and conditioning coaches on mental toughness categories; conceptualization, measurement, and training.	A mixed-method design sampling 99 master strength and conditioning coaches.	Thematic analysis was utilized	All participants believe in mental toughness in sport. Definition of mental toughness was created. Mental toughness can be developed.	Concluded that mental toughness is valid, influences sport performance, as well as athletes benefit from mental toughness training.  Limitations include self-reported data, social desirability, and reliability of results.

							Future studies should further explore training, conceptualizing, and measurement of mental toughness.
Stamatis, A., Morgan, G. B., Nyamaruze, P., & Koutakis, P. (2022)	Mental toughness development via military-style training in the NCAA: A three-phase, mixed-method study of the perspectives of strength and conditioning coaches	<i>Sports</i>	To contribute to the best cultural practices in sport.	Mixed-method study sampling 636 strength and conditioning coaches.	Thematic analysis was utilized.	Most teams do not visit military facilities or incorporate military members. Additionally, participants believe their profession suffered after recent media backlash. Thirdly, it is usually the head coaches decision to visit military facilities.	It was discovered that military-style training is not popular in the NCAA, at all.  Limitations include: data being collected from questionnaires, characteristics of strength coaches were not obtained, a low response rate, and researcher bias.  Future studies should include strength coaches from other organizations, take place in different settings, and why head coaches utilize

							military-style training.
Sullivan, M. M. (2015)	The relationships among imagery use, imagery ability and mental toughness in adolescent figure skaters	<i>Theses and Dissertations</i>	To examine both mental toughness and imagery with a group that has never been examined in this aspect, figure skaters.	Quantitative study examining 42 competitive adolescent figure skaters utilizing questionnaires.	Analysis of variance, stepwise multiple regression analyses, and analyses of variance and multivariate analyses of variance.	Participants regularly used imagery, as well as they found the process easy to do.	Figure skaters who used imagery displayed higher levels of mental toughness.  Limitations include combining scales of MIQ-C into one, raising Alpha value to acceptable level.  Future studies should utilize imagery, when looking to change mental toughness during psychological skills training interventions.

