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# Tackling Mental Health: A Pre-Post Study of College Athletes' Wellbeing

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## Abstract

The current study was a pre-post survey of 15 student athletes, two male and 13 females, representing eight sports regarding their mental resiliency and mental health perceptions. The baseline survey was completed during the athlete's pre-season and the follow up survey during their post-season. Between testing sessions athletes completed mental toughness training with an outside consultant, *Thru the Game*, *Mental Health Support for Athletes*. For the purpose of this study, data collection focused on anxiety, depression, and burnout. Significant improvements were found in anxiety, but not depression or burnout.

## Keywords

Mental Health, Athletes, Resiliency, Depression, Anxiety, Athlete Burnout, Mental Toughness

## 1. Introduction

According to the National Collegiate Athletic Association, there are approximately a half-million college student-athletes across 100 athletic conferences. In this high-pressure environment where athletic performance and success are often prioritized, it was only recently that mental health and resiliency of these athletes has been examined and prioritized (Mack et al., 2023). Weber et al. (2023) found 23% of college athletes were at risk for depression, and 12.5% for anxiety, with female athletes at a greater risk for anxiety. Mental toughness is a key attribute that has been correlated with an athlete's ability to cope with pressure, rebound from failure, and be mentally resilient (Cowden, 2017). These findings suggest that mental toughness is a psychological construct that plays a pivotal role in mental health.

This paper examined the impact of mental toughness training on the mental health, resiliency and academic success of collegiate athletes.

### 1.1. Mental Health in Collegiate Athletes

It was once thought that college athletes were at a lower risk for mental health issues, like depression and anxiety compared to non-college athletes, but research suggests these rates are in fact comparable (Proctor & Boan-Lenzo, 2010; Wolanin et al., 2015). Weber et al. (2023) examined the prevalence of the risk of depression and anxiety in collegiate athletes and found them to range between 15.6% to 33.2% and 12.1% to 35.4%, respectively, varying by individual sports compared to team sports, sex, and academic classification. In a meta-analysis of 60 studies, Rice et al. (2016) found that the constant demand to succeed, combined with high expectations from coaches and teammates can escalate anxiety levels. Additionally, college athletes often experience heightened anxiety and depression due to the pressure of maintaining both academic and athletic achievements.

College athletes are at risk for depression due to the unique pressures they face. Injuries, performance slumps, and the balancing act between academics and sports can lead to feelings of isolation and hopelessness. During COVID, a quarter of the 37,000 university student athletes who completed the *NCAA* student well-being survey, reported feeling a sadness and a sense of loss and one out of 10 student athletes reported feeling so depressed that they were unable to function constantly (NCAA, 2024).

Gulliver et al. (2012) reported in an early study that elite athletes were less likely to seek out mental health care compared to non-athletes because of the added vulnerability and stigma attached to getting care, as well as lack of knowledge of the relationship between mental health and athletic performance. Rice et al. (2016) found there to be limited rigorous studies examining the prevalence of eating disorders, substance use, and stress and coping problems by athletes.

More current research suggests that athletes are more likely to seek out help for psychological issues and the NCAA also recognizes the need for mental health support for student athletes as referred to in their constitution which states that intercollegiate athletics should protect, support and enhance mental and physical health of student athletes. Anxiety and depression are two areas of focus in the Mental *Health Best Practices* report and the relationship with athlete burnout.

Different studies found correlations among elevated anxiety and depression with increased pain and incidence of injury in athletes (Yang et al., 2007; Li et al., 2017). Additionally, poor mental health can put athletes at a greater risk for alcohol and drug abuse, loss of sleep, overtraining or undertraining, and eating disorders (Armstrong & Oomen-Early, 2009). When left untreated, this mental burden, may escalate into clinical depression, further affecting an athlete's ability to perform, or focus on self-care, academics, and relationships (Armstrong & Oomen-Early, 2009; NIH, 2024).

Burnout is defined as a psychological syndrome that involves chronic physical and emotional exhaustion, reduced sense of accomplishment, and sport devaluation (Gustafsson et al., 2008). In college athletes, burnout is often the result of excessive training, overwhelming pressure to succeed, and a lack of balance between sports, academics, and personal life. The constant cycle of practices, competitions, and academic responsibilities can leave athletes feeling exhausted and disengaged, both physically and mentally (Gustafsson et al., 2008). Burnout not only affects performance but also increases the risk of long-term psychological issues if not addressed (NIH, 2024). Yang et al. (2024) found that an increased competitive anxiety and inability to concentrate is related to burnout in athletes, but these effects can be mitigated by the development of competence and autonomy, and other factors related to mental toughness.

### 1.2. Mental Toughness in Sports

Powell & Myers (2017) describe mental toughness as a psychological concept often related to perseverance and success that can help athletes overcome physical or mental setbacks. It is agreed that mental toughness can help an athlete perform at an optimal level despite failure or obstacles (Hardy et al., 2014).

Anthony et al. (2016) identified the importance of using challenging environmental factors to aid in the development of mental toughness, for example creating discomfort and challenges, and moving athletes out of their comfort zones. Cook et al. (2014) examined mental toughness in young soccer players after providing a challenging but supportive environment. When examining the development of the players they found four mental toughness dimensions emerged, including competitiveness with self and others, mindset, resilience, and personal responsibility.

Although there is some debate over the specific nature of mental toughness, it has been associated with several positive outcomes for athletes, including improved performance (Cowden, 2017), thriving (Anthony et al., 2016), and coping with adversity (Swann et al., 2017).

According to Kristjánsdóttir et al. (2018) they found anxiety was lower in athletes who were higher in mental toughness, while Gordon et al. (2017) found the greater mental toughness was related to greater effectiveness when dealing with stressful situations. Lin et al. (2017) found that mental toughness correlated with academic success over a three-year period and was related to a higher income. Mental toughness also increases with age, suggesting that life events may help to develop this construct.

### 1.3. Mental Health and Mental Toughness

Mental toughness is an important psychological construct for college athletes to develop because of the demands of the sports environment but these characteristics can carry over to help in other areas (Cook et al., 2014). Self-efficacy and locus of control can also help with subjective mental illness recovery (Ramshaw & St

Clair-Thompson, 2021). An internal locus of control may increase the work a person may put into recovery because they understand that they are in control.

There are some concerns that athletes who are mentally tough, especially with the characteristics of perseverance and overcoming adversity, may not seek out mental health support (Bird et al., 2021). Bauman (2016) suggests that mental health and mental toughness may be contradictory concepts, and elite athletes are less likely to seek out mental health care for fear of being treated unfairly.

There needs to be a balance between developing mental toughness and encouraging college athletes to seek out mental health care. When there is a public stigma surrounding getting mental health care it can be a strong barrier against a student athlete seeking out help. However, research findings suggest that developing mental toughness can help an athlete cope with pressure, rebound from failure, and be more mentally resilient (Cowden, 2017), therefore possibly offsetting depression and anxiety issues.

The current pre-post study examined self-report changes in depression, anxiety, and burnout in college athletes after receiving mental toughness training from an outside company.

## 2. Methods

### 2.1. Participants

A final sample size of 15 athletes; two male and 13 females, representing eight sports was used for the current study. Of the sports represented, six of them were considered individual sports and nine were considered group sports. There were three freshman, three sophomore, two junior, and seven seniors and ages ranged from 18 - 22 years. All participants were treated in an ethical manner according to APA guidelines.

### 2.2. Materials

***Beck Depression Inventory*** (BDI; Beck et al., 1961) is a 21-item, self-report measure where participants choose one statement from a group of four statements that best reflects their feelings in the past few days. This instrument can be used for those ages 13 - 80. Validity and reliability have been tested across different populations. Internal consistency of the questions ranges from 0.73 to 0.92 with non-psychiatric patients (Beck et al., 1996).

***Beck Anxiety Inventory*** (BAI; Beck et al., 1988) measured physical and cognitive anxiety symptoms in the past seven days. There are 21 questions on a 4-point scale, with total scores ranging from 0 - 63. It is a valid and reliable measure used both in and out of clinical settings.

***Athlete Burnout Scale*** (ABS; Raedeke & Smith, 2001) is a 21-question self-report measure of different dimensions of athlete burnout, including, emotional/physical exhaustion, reduced sense of accomplishment, and sport devaluation. Each question is answered on a 5-pt Likert scale and is one of the most widely used to measure athlete burnout symptoms. Reliability and validity have been

found across different athletes and ages and the questions show good internal consistency.

***Dispositional Resilience Scale*-15** (DRS-15; Bartone, 2007) is a 15-question shortened version of the original 45-item measure of hardiness, or resiliency, with a 3-week test-retest reliability coefficient of 0.78. The three subscales include control, commitment, and challenge. Athletes completed the DRS-15 at the beginning and end of the study to measure changes in hardiness that may have come after the intervention.

*Thru the Game* (2024). *Thru the Game*: *Mental Health Support for Athletes* was a program provided by a company outside of the university. Coaches were asked to completed surveys to determine the areas of concern for their athletes. This program was designed to build meaningfulness and personal growth in small session groups. The company collected data on athletes both before and after the training to determine any areas of concern and then later for growth.

### 2.3. Procedure

The pre-survey was completed during pre-season of each athlete's sport. The intervention of *Thru the Game*, Mental Health Support for Athletes, was provided by the university in between data collection sessions. The *Thru the Game* staff had two meetings lasting 1.5 hours with the university coaching staff of each team, during which, the university coaches provided areas they believed their teams needed specific improvement. *Thru the Game* representatives then met with each team and provided training in Mental Toughness and Individual Approaches for each team based on coach feedback. The post-survey was completed during post-season of each athlete's sport.

## 3. Results

### Statistical Analysis

To test whether there were significant decreases in depression, anxiety, and burnout in athletes in the post testing sessions compared to the pretesting sessions, three dependent samples t-test were performed because assumptions of normality and homogeneity of variance were met for all measures. Only anxiety significantly decreased, $t(14) = 1.52$, $p = 0.047$, $r = 0.14$, going from an average of 12.73 ($SD = 14.76$) to 8.27 ($SD = 10.29$) (See Table 1).

**Table 1.** Pre- and post-test scores on the beck depression inventory, beck anxiety inventory, and athlete burnout scale.

| | Pre | | Post | | sig |
|---|---|---|---|---|---|
| **Variables** | *M* | *SD* | *M* | *SD* | |
| Anxiety | 12.73 | 14.76 | 8.27 | 10.29 | 0.047* |
| Burnout | 42.73 | 15.63 | 43.27 | 17.83 | ns |
| Depression | 5.27 | 4.30 | 5.53 | 6.24 | ns |

*$p < 0.05$, ns = not significant.

Additionally, Pearson correlations were performed between current institutional GPA and depression, $r = -0.66$ and GPA and anxiety, $r = -0.60$. The correlation between anxiety and depression was also significant, $r = 82$. All correlations were significant at the $p < 0.05$ level. Hardiness scored significantly improved, $t(14) = 2.90$, $p = 0.006$, increasing to 30.93 ($SD = 5.95$) from a pre-test mean score of 27.80 ($SD = 6.83$).

## 4. Discussion

The current study examined changes in depression, anxiety, and burnout in college athletes after mental toughness training. Self-reported anxiety improved after the intervention along with hardiness, but depression and burnout remained stable. These finding suggest that athletes developed resiliency which may have offset their anxiety. Additionally, depression and burnout may need more time to improve or more training sessions to bring about changes in these areas.

Depression and anxiety were strongly related to each other in this study, and both were negatively related to GPA, meaning that both constructs can impair academic success. Anxiety that is left unmanaged can lead to depression, suggesting that changes in anxiety come first followed by mood and behavioral changes.

### 4.1. Limitations & Future Research

Within this study, some limitations were identified that can be improved for future studies. The biggest limitation was the number of participants who completed both the pre-season and the post-season survey. A total of 110 student-athletes completed the pre-season survey and 85 completed the post-season survey, however only 15 student-athletes completed both, limiting the power of the study. Timing of the survey completion varied by sport since athletic seasons vary by sport.

Also, anxiety may have decreased during post study data collection for other reasons and not as a direct function of the workshop and the mental toughness training. Since short-term measurements of reductions in anxiety may not be reflective of long-term changes, researchers have considered testing in three or six months as a way of determining personal growth and learning. Additionally, further research could be conducted with similar mental toughness training on non-athletes to see if the possible benefits are general to college students or specifically athletes. Also, research on the effects of mental toughness training on athlete burnout is limited and should be studied further to determine if there are areas in athletics that may be more resistant to short term changes (Pires Alvarez, 2024). Behavioral measures of burnout could also be measured in addition to self-report.

Another limitation was the underrepresentation of male student-athletes, as compared to female student-athletes. Of the 15 participants, only two of those were males. Research suggests that female athletes are more influenced by mental health interventions and seek out mental health care more readily than their male counterparts when it comes to anxiety, depression, and eating disorders (Kew et

al., 2024).

In future studies, going to the team meetings to have the surveys completed on paper, as opposed to email and online, may produce a higher number of completed surveys. Also, having the surveys filled out in person could also ensure that the surveys are completed in a timely manner. Also, an additional testing session may be added to examine latent changes in depression and possibly burnout.

### 4.2. Conclusion

Self-reported anxiety improved in this pre-post study of collegiate athletes after mental toughness training, while depression and burnout remained stable. Hardiness scores also improved after the intervention, suggesting that anxiety may be offset with mental toughness training. Depression and anxiety were positively correlated and both factors negatively impacted GPA, also suggesting that further research on the impact of mental toughness training on mental health and academic success should be studied.

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## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

## References

Alvarez Pires, D., Isoard-Gautheur, S., Madigan, D. J., Smith, A. L., & Gustafsson, H. (2024). Five Unsolved Issues Concerning Burnout in Athletes: An Expert Perspective. *Sports Psychiatry, 3,* 39-46. https://doi.org/10.1024/2674-0052/a000074

Anthony, D. R., Gucciardi, D. F., & Gordon, S. (2016). A Meta-Study of Qualitative Research on Mental Toughness Development. *International Review of Sport and Exercise Psychology, 9,* 160-190. https://doi.org/10.1080/1750984x.2016.1146787

Armstrong, S., & Oomen-Early, J. (2009). Social Connectedness, Self-Esteem, and Depression Symptomatology among Collegiate Athletes versus Nonathletes. *Journal of American College Health, 57,* 521-526. https://doi.org/10.3200/jach.57.5.521-526

Bartone, P. T. (2007). Test-Retest Reliability of the Dispositional Resilience Scale-15, a Brief Hardiness Scale. *Psychological Reports, 101,* 943-944. https://doi.org/10.2466/pr0.101.3.943-944

Bauman, N. J. (2016). The Stigma of Mental Health in Athletes: Are Mental Toughness and Mental Health Seen as Contradictory in Elite Sport? *British Journal of Sports Medicine, 50,* 135-136. https://doi.org/10.1136/bjsports-2015-095570

Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An Inventory for Measuring Clinical Anxiety: Psychometric Properties. *Journal of Consulting and Clinical Psychology, 56,* 893-897. https://doi.org/10.1037//0022-006x.56.6.893

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the Beck Depression Inventory-II.* Psychological Corporation.

Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An Inventory for

Measuring Depression. *Archives of General Psychiatry, 4,* 561-571. https://doi.org/10.1001/archpsyc.1961.01710120031004

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,* 306-322. https://doi.org/10.1123/jcsp.2020-0043

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,* 329-347. https://doi.org/10.1080/2159676x.2013.857708

Cowden, R. G. (2017). Mental Toughness and Success in Sport: A Review and Prospect. *The Open Sports Sciences Journal, 10,* 1-14. https://doi.org/10.2174/1875399x01710010001

Gordon, S., Anthony, D. R., & Gucciardi, D. F. (2017). A Case Study of Strengths-Based Coaching of Mental Toughness in Cricket. *International Journal of Sport Psychology, 48,* 223-245. http://www.danielgucciardi.com.au/uploads/9/7/3/6/9736343/gordon_et_al._in_press_.pdf

Gulliver, A., Griffiths, K. M., & Christensen, H. (2012). Barriers and Facilitators to Mental Health Help-Seeking for Young Elite Athletes: A Qualitative Study. *BMC Psychiatry, 12,* Article No. 157. https://doi.org/10.1186/1471-244x-12-157

Gustafsson, H., Hassmén, P., Kenttä, G., & Johansson, M. (2008). A Qualitative Analysis of Burnout in Elite Swedish Athletes. *Psychology of Sport and Exercise, 9,* 800-816. https://doi.org/10.1016/j.psychsport.2007.11.004

Hardy, L., Bell, J., & Beattie, S. (2014). A Neuropsychological Model of Mentally Tough Behavior. *Journal of Personality, 82,* 69-81. https://doi.org/10.1111/jopy.12034

Kew, M. E., Dave, U., Marmor, W., Olsen, R., Jivanelli, B., Tsai, S. H. L. et al. (2024). Sex Differences in Mental Health Symptoms in Elite Athletes: A Systematic Review and Meta-analysis. *Sports Health: A Multidisciplinary Approach*. https://doi.org/10.1177/19417381241264491

Kristjánsdóttir, H., Erlingsdóttir, A. V., Sveinsson, G., & Saavedra, J. M. (2018). Psychological Skills, Mental Toughness and Anxiety in Elite Handball Players. *Personality and Individual Differences, 134,* 125-130. https://doi.org/10.1016/j.paid.2018.06.011

Li, H., Moreland, J. J., Peek-Asa, C., & Yang, J. (2017). Preseason Anxiety and Depressive Symptoms and Prospective Injury Risk in Collegiate Athletes. *The American Journal of Sports Medicine, 45,* 2148-2155. https://doi.org/10.1177/0363546517702847

Lin, Y., Clough, P. J., Welch, J., & Papageorgiou, K. A. (2017). Mental Toughness and Individual Differences in Learning, Educational and Work Performance, Psychological Well-Being, and Personality: A Systematic Review. *Personal and Individual Differences, 113,* 178-183.

Mack, A. A., Baron, D., & Reinert, J. (2023). The Role of Mental Health Care in Reaching Optimal Performance in Sports. *Sports Psychiatry,* 2, 121-123. https://doi.org/10.1024/2674-0052/a000050

National Institutes of Health NIH (2024). *Depression: Learn More—What Is Burnout*? https://www.ncbi.nlm.nih.gov/books/NBK279286/

NCAA (2024). *Mental Health Best Practices: Understanding and Supporting Student-Athlete Mental Health* (2nd ed.).

Powell, A. J., & Myers, T. D. (2017). Developing Mental Toughness: Lessons from Paralympians. *Frontiers in Psychology, 8,* Article No. 1270.

https://doi.org/10.3389/fpsyg.2017.01270

Proctor, S. L., & Boan-Lenzo, C. (2010). Prevalence of Depressive Symptoms in Male Intercollegiate Student-Athletes and Nonathletes. *Journal of Clinical Sport Psychology, 4,* 204-220. https://doi.org/10.1123/jcsp.4.3.204

Raedeke, T. D., & Smith, A. L. (2001). *Athlete Burnout Questionnaire (ABQ)* [Database Record]. APA PsycTests. https://doi.org/10.1037/t00804-000

Ramshaw, G., & St Clair-Thompson, H. (2021). The Relationship between Mental Toughness and Subjective Mental Illness Recovery. *New Ideas in Psychology, 63,* Article ID: 100881. https://doi.org/10.1016/j.newideapsych.2021.100881

Rice, S. M., Purcell, R., De Silva, S., Mawren, D., McGorry, P. D., & Parker, A. G. (2016). The Mental Health of Elite Athletes: A Narrative Systematic Review. *Sports Medicine, 46,* 1333-1353. https://doi.org/10.1007/s40279-016-0492-2

Swann, C., Crust, L., Jackman, P., Vella, S. A., Allen, M. S., & Keegan, R. (2017). Performing under Pressure: Exploring the Psychological State Underlying Clutch Performance in Sport. *Journal of Sports Sciences, 35,* 2272-2280. https://doi.org/10.1080/02640414.2016.1265661

Thru the Game (2024). *Athlete Mental Toughness Workshop*. https://www.thruthegame.com/programs

Weber, S. R., Winkelmann, Z. K., Monsma, E. V., Arent, S. M., & Torres-McGehee, T. M. (2023). An Examination of Depression, Anxiety, and Self-Esteem in Collegiate Student-athletes. *International Journal of Environmental Research and Public Health, 20,* Article No. 1211. https://doi.org/10.3390/ijerph20021211

Wolanin, A., Gross, M., & Hong, E. (2015). Depression in Athletes: Prevalence and Risk Factors. *Current Sports Medicine Reports, 14,* 56-60. https://doi.org/10.1249/jsr.0000000000000123

Yang, J., Peek-Asa, C., Corlette, J. D., Cheng, G., Foster, D. T., & Albright, J. (2007). Prevalence of and Risk Factors Associated with Symptoms of Depression in Competitive Collegiate Student Athletes. *Clinical Journal of Sport Medicine, 17,* 481-487. https://doi.org/10.1097/jsm.0b013e31815aed6b

Yang, L., Zhang, Z., Zhang, J., & Veloo, A. (2024). The Relationship between Competitive Anxiety and Athlete Burnout in College Athlete: The Mediating Roles of Competence and Autonomy. *BMC Psychology, 12,* Article No. 396. https://doi.org/10.1186/s40359-024-01888-2