# Grit, Athlete Burnout, and Well-Being in Female Collegiate Student-Athletes

Haleigh M. Gray, PhD, ATC\*; Ryan N. Moran, PhD, ATC†; Elizabeth Elder, PhD, ATC†; Amanda Wilkerson, PhD, CHES†; Elizabeth Chaney, PhD, MCHES†; Ginger Gilmore-Childress, DBH, ATC†; Jessica Wallace, PhD, ATC†

\*Charleston Southern University, SC; †The University of Alabama, Tuscaloosa

**Context:** Collegiate student-athletes are faced with significant athletic and academic demands, causing a substantial amount of stress, which can lead to athlete burnout. Problematically, little research has been done to find ways to prevent or mitigate the effect of athlete burnout in collegiate student-athletes. Grit is one characteristic that they could use as a coping mechanism to reduce the effects of burnout and to improve overall well-being.

**Objective:** To determine if grit had a main or buffering effect on well-being and athlete burnout in female collegiate student-athletes.

Design: Cross-sectional study.

**Setting:** National Collegiate Athletics Association Division I institution.

*Patients or Other Participants:* A total of 174 female collegiate student-athletes.

Main Outcome Measure(s): The Grit Scale, Athlete Burnout Questionnaire, and Warwick Edinburgh Mental Well-Being Scale were used to assess grit, athlete burnout, and wellbeing.

**Results:** Grit was a significant negative predictor for physical and emotional exhaustion ( $F_{1,172} = 28.25$ , P < .001), a reduced sense of accomplishment ( $F_{1,172} = 20.40$ , P < .001), and sport devaluation ( $F_{1,172} = 40.32$ , P < .001). Additionally, grit was a significant positive predictor of well-being ( $F_{1,172} = 29.68$ , P < .001). The moderated regression with grit did not reveal significant results.

**Conclusions:** We provide new information on considerations for reducing athlete burnout and improving well-being in female collegiate student-athletes. Athletic trainers and sports medicine stakeholders should consider intervention strategies for improving grit to mitigate athlete burnout and diminished well-being while continuing to explore their effectiveness.

Key Words: personality, mental skills, stressors, psychological concerns

#### **Key Points**

- Grit significantly predicted athlete burnout and well-being in female collegiate student-athletes.
- Improving grit through strategies such as process-oriented goal setting could mitigate the effects of athlete burnout and enhance overall well-being.

ollegiate student-athletes spend an average of 30 hours per week on sport-related activities, such as practicing, watching film, and competing.<sup>1,2</sup> Due to the demands of participating in sports, athletes can experience pressure from coaches, teammates, and loved ones to perform at the highest level.<sup>2–4</sup> Along with the demanding athletic schedule, collegiate student-athletes must carry a typical college course load of approximately 12 to 15 hours per week.<sup>4</sup> During competition season, student-athletes may have to complete their coursework while traveling or via hybrid learning. Athletic and academic demands create extraordinary stress for collegiate student-athletes in addition to other personal and social responsibilities.<sup>1,2</sup>

Collegiate student-athletes typically spend 4 years enduring this cycle of demands, and thus, stress becomes an inevitable part of their daily routine. As stress develops into a chronic condition, concerns of athlete burnout may arise.<sup>2,3</sup> *Athlete burnout* is a multidimensional syndrome consisting of physical and emotional exhaustion, a reduced sense of accomplishment, and sport devaluation.<sup>2,3</sup> Approximately 2% to 6% of male and 1% to 9% of female student-athletes of ages 16 to 21 years reported high levels of burnout symptoms.<sup>3</sup> Furthermore, females experienced double the burnout of males.<sup>4</sup> Notably, females may be more likely to discuss their feelings and emotions and report mental health problems than their male counterparts.<sup>5</sup> This difference has been largely dependent on the perceived public stigma surrounding mental health problems.<sup>5</sup> In the general population of college students, males experienced more stigma and pressure to present a masculine self-image, causing them to be less likely to disclose mental health-related information.<sup>5</sup> These findings could reflect females suffering from more mental health-related challenges associated with a lack of social support or financial implications related to a lack of scholarship opportunities<sup>3,4</sup>; however, female studentathletes may experience extra performance and appearancebased pressure as part of sport participation.<sup>6,7</sup>

Although burnout is not a health concern specifically discussed within the athletic population, it is often associated with changes in attitude toward sport participation.<sup>4</sup> Yet negative changes in attitude, specifically about a key component of an athlete's identity, can have detrimental implications for other areas of life.<sup>4</sup> Athlete burnout has been linked to diminished well-being, which can have short- and long-term effects on other aspects of the individual's life, affecting academic success and personal relationships. Negative effects range from poor mood to symptoms or a diagnosis of mental health disorder.<sup>1,7–10</sup> Additionally, these effects can spread throughout an entire team, creating a toxic environment and limiting overall success.<sup>1,8,9</sup>

Previous researchers<sup>6–13</sup> have explored how various individual and environmental factors may prevent or mitigate these negative effects. Personality traits are one of the main individual factors discussed in burnout or well-being.14 Traits such as resilience, grit, self-compassion, and hope have been identified as influential.<sup>6,10–14</sup> Grit is defined as "perseverance and passion towards long-term goals."15,16 Grit is considered an internal characteristic in which the individual is not easily swayed or deterred from achieving a particular goal.<sup>15,16</sup> Two constructs of grit have been described: perseverance of effort and consistency of interest.<sup>15,16</sup> Earlier authors<sup>11,12</sup> found that athletes with higher levels of grit were more engaged with their sport, displayed greater commitment and motivation, and reported positive well-being. Although grit is viewed as a personality trait, it is not stagnant and can be developed over time.<sup>14,15</sup>

Stress has been deemed an inevitable part of sport participation at the collegiate level, so identifying ways to prevent and mitigate the development of athlete burnout and to improve well-being is essential to the continued growth and success of individuals, teams, and athletic departments. Therefore, the purpose of our study was to determine if grit had a main or buffering effect on athlete burnout and well-being in female collegiate student-athletes. Understanding an individual's level of grit and its effect on athlete burnout and well-being will help inform athletic trainers and sports medicine stakeholders on how to create an environment that will allow female collegiate studentathletes to thrive.

# **METHODS**

# **Study Design**

We distributed a web-based survey using a cross-sectional design to recruit participants from a National Collegiate Athletics Association (NCAA) Division I university in the southeast. For volunteers to be included, they needed to be (1) a current NCAA Division I collegiate student-athlete, (2) female, and (3) at least 18 years old. The exclusion criteria consisted of any student-athlete using a medical redshirt or experiencing ineligibility, such as for not meeting the required grade point average. These exclusions were implemented because their athletic demands would differ from those of a fully eligible studentathlete. The response rate for the sample was 67.4% of the student-athlete population.

# Procedures

Before data collection, institutional review board approval was obtained. Information regarding the study was presented to coaches, student-athletes, and athletic trainers before the survey was shared. The emailing system used by the behavioral medicine department within the athletic department distributed the web-based Qualtrics survey to each student-athlete at the institution. An informed consent document was presented at the beginning of the survey, which participants were instructed to read. By continuing to the next step of the survey, they agreed to complete the anonymous survey. However, they could decline to continue at any time. To evaluate athlete burnout accurately, we collected data during midsemester in fall 2021, when collegiate student-athletes were experiencing a full athletic and academic load.

### **Participants**

A total of 174 NCAA Division I female collegiate studentathletes participated in the study. Of the sample, 79.9% (n = 139) identified as White and 93.7% (n = 163) as non-Hispanic or Latino. Freshmen represented 29.3% (n = 51) of the sample. The racial demographic breakdown was comparable with that in the 2021 NCAA demographic report,<sup>17</sup> in which 10.8% identified as African American or Black, 21.4% as other, and 67.9% as White.<sup>17</sup> Their mean  $\pm$  SD age was 19.6  $\pm$  1.47 years old, ranging from age 18 to 27. Most of the female collegiate student-athletes indicated they were not currently injured (87.9%, n = 153) and had not been diagnosed with a mental health condition (73.6%, n = 128). Full demographic data can be found in Table 1.

# Measures

Each person completed a 44-item questionnaire consisting of scales measuring athlete burnout (15), well-being (14), grit (8), and demographic information (7). Demographic questions addressed age, race or ethnicity, sport, and year in school. Additional questions asked about injury status and diagnosis of a mental health condition.

Athlete Burnout. The Athlete Burnout Questionnaire was used to assess athlete burnout.<sup>18</sup> The self-report questionnaire includes 15 items that evaluate the 3 constructs of athlete burnout, namely, emotional or physical exhaustion, a reduced sense of accomplishment, and sport devaluation.<sup>18</sup> Each item is rated on a 5-point Likert scale ranging from almost never (1) to almost always (5). A guiding question for each statement is provided: "How often do you feel this way?" An example from the questionnaire states, "I am not performing up to my ability in my sport." Items 1 and 14 are reverse coded because they are negatively worded. To calculate average scores for each construct of athlete burnout, subscale scores were summed individually and divided by 5. Higher scores indicate higher burnout levels.<sup>18</sup> The internal consistency for the scale and subscales ranged from 0.89 to 0.94.

**Well-Being.** The Warwick Edinburgh Mental Well-Being Scale was used to examine well-being.<sup>19</sup> This scale consists of 14 items that assess both subjective and psychological well-being using a 5-point Likert scale.<sup>19</sup> Responses range from *none of the time* to *all of the time*, based on frequency in the last 2 weeks. One example is "I've been thinking clearly." Items are positively worded, so reverse coding is

Table 1. Sample Characteristics

Characteristic	No. (%) <sup>a</sup>
Race	
African American or Black	18 (10.3)
American Indian or Alaska Native	1 (0.6)
Asian	1 (0.6)
Other	15 (8.6)
White	139 (79.9)
Ethnicity	
Hispanic or Latino	10 (5.7)
Non-Hispanic or Latino	163 (93.7)
Class status	
Freshman	51 (29.3)
Sophomore	44 (25.3)
Junior	32 (18.4)
Senior	36 (20.7)
Graduate student	11 (6.3)
Sport	
Basketball	12 (6.9)
Golf	5 (2.9)
Gymnastics	15 (8.6)
Rowing	41 (23.6)
Soccer	23 (13.2)
Softball	19 (10.9)
Swimming and diving	19 (10.9)
Tennis	3 (1.7)
Track and field	23 (13.2)
Volleyball	8 (4.6)
Injury status	
Not injured	153 (87.9)
Currently injured	21 (12.1)
Mental health condition	
Not diagnosed	128 (73.6)
Previously diagnosed	34 (19.5)
Prefer not to answer	12 (6.9)

<sup>a</sup> Includes valid responses only.

not required. Scores were summed, with totals ranging from 14 to 70; higher scores indicate more positive well-being. The internal consistency for this scale was 0.92.

Grit. The Grit Scale, originally developed by Duckworth et al,<sup>15</sup> is a validated measurement scale used to examine grit and its associated constructs, perseverance of effort, and consistency of interest. We chose the short version of the Grit Scale (GS-S) because it was a more efficient and psychometrically sound measure for grit than the original Grit Scale.<sup>16</sup> The GS-S consists of 8 items divided evenly into the 2 grit constructs. Each item is rated on a 5-point Likert scale ranging from very much like me to not at all like me. Items 1, 3, 5, and 6 are reverse coded for negatively worded statements. A total grit score is calculated by summing the ratings and dividing them by 8, with greater scores (ie, closer to 5) reflecting higher levels of grit. The GS-S has been validated in a variety of adult and child samples.<sup>11,12,15,16</sup> Internal consistency for the full GS-S, as well as the subscale, ranged from 0.63 to 0.89 in the current study.

# Data Analysis

Before analysis, imputation was conducted using the mean of the existing observations to address item nonresponse missing data. We performed the imputation and statistical analyses using SPSS (version 27; IBM Corp). The

 
 Table 2.
 Linear Regression Results With Grit as the Predictor of Components of Athlete Burnout

Grit	R <sup>2</sup> Value	F Statistic	$\beta$ Level	P Value
Physical and emotional exhaustion	0.141	28.25	-0.376	<.001
Reduced sense of accomplishment	0.106	20.396	-0.326	<.001
Sport devaluation	0.190	40.12	-0.436	<.001

Replace Missing Values function in SPSS was used to calculate the missing values.<sup>20</sup> The new variables for athlete burnout, well-being, and grit were calculated by averaging items or using the sum of scores as previously discussed. Normality was evaluated using the Kolmogorov-Smirnov test as well as visual inspection via histograms and Q-Q plots. Regression analyses were used to examine relationships between athlete burnout and grit as well as between well-being and grit. For regression analyses, backward elimination was applied in each model to identify which constructs of grit were the most meaningful. We conducted a moderated regression analysis to assess the potential buffering effect of grit on the relationship between athlete burnout and well-being.

# RESULTS

The overall sample reported a mean  $\pm$  SD total well-being score of 47.2  $\pm$  8.83 out of 70. Participants expressed moderate levels of athlete burnout, with the average overall athlete burnout score being 2.51  $\pm$  0.79 out of 5. Individual components of athlete burnout were calculated. Of possible scores of 5, physical and emotional exhaustion received 2.96  $\pm$  0.99, a reduced sense of accomplishment received 2.62  $\pm$  0.82, and sport devaluation received 1.94  $\pm$  0.94. The mean grit score was 3.68  $\pm$  0.60, with perseverance of effort averaging 4.10  $\pm$  0.52 and consistency of interest averaging 3.25  $\pm$  0.88, all out of 5.

Grit explained 14.1% of the variance in physical and emotional exhaustion, 10.6% of reduced sense of accomplishment, and 19% of sport devaluation (Table 2). The regression for physical and emotional exhaustion was statistically significant ( $F_{1,172} = 28.25, P < .001$ ), with grit being a significant predictor. At higher levels of grit ( $\beta =$ -0.376, P < .001), lower levels of physical and emotional exhaustion were seen. The regression for a reduced sense of accomplishment was statistically significant ( $F_{1,712}$  = 20.40, P < .001), with grit being a significant predictor. With higher levels of grit ( $\beta = -0.326$ , P < .001), lower levels of a reduced sense of accomplishment were present. The regression for sport devaluation was also significant  $(F_{1,172} = 40.32, P < .001)$ , with grit being a significant predictor. At higher levels of grit ( $\beta = -0.436$ , P < .001), lower levels of sport devaluation were evident.

For a reduced sense of accomplishment, the initial model with both constructs of grit was significant ( $F_{2,171} = 18.17$ , P < .001), explaining 17.5% of the variance. In the final model, consistency of interest was removed, and perseverance of effort was a significant predictor explaining 17.5% of the variance in a reduced sense of accomplishment ( $F_{1,172} = 36.48$ , P < .001). As higher levels of perseverance of effort ( $\beta = -0.418$ , P < .001) were expressed,

 
 Table 3.
 Linear Regression Model With Backward Elimination for Grit Predicting Well-Being

M S	odel: Average Grit cale Score	R <sup>2</sup> Value	F Statistic	β Level	<i>P</i> Value
1		0.205	22.091		
	Perseverance of effort			0.413	<.001
	Consistency of interest			0.080	.294
2		0.200	43.047		
	Perseverance of effort			0.447	<.001

lower levels of a reduced sense of accomplishment were reported. The regression analyses evaluating physical and emotional exhaustion and sport devaluation did not remove either construct from the model. The model for physical and emotional exhaustion was statistically significant ( $F_{2,171} = 14.07$ , P < .001) and explained 14.1% of the variance. At higher levels of perseverance of effort ( $\beta = -0.117$ , P = .026) and consistency of interest ( $\beta = -0.263$ , P < .001), lower levels of physical and emotional exhaustion were expressed. The model for sport devaluation was statistically significant ( $F_{2,171} = 20.79$ , P < .001) and explained 19.6% of the variance. At higher levels of perseverance of effort ( $\beta = -0.266$ , P < .001) and consistency of interest ( $\beta = -0.266$ , P < .001) and consistency of interest ( $\beta = -0.256$ , P < .001), lower levels of sport devaluation were demonstrated.

Grit was a significant predictor of well-being ( $F_{1,172} = 29.68$ , P < .001) and explained 14.7% of the variance (Table 3). At higher levels of grit ( $\beta = 0.384$ , P < .001), more positive well-being was found (Figure). The initial model with both constructs was significant ( $F_{2,171} = 22.09$ , P < .001) and explained 20.5% of the variance in well-being. In the final model, consistency of interest was eliminated, leaving perseverance of effort. The model was significant ( $F_{1,172} = 43.05$ , P < .001) and explained 20% of the variance in well-being. At higher levels of perseverance of effort ( $\beta = 0.477$ , P < .001), more positive well-being was reported. The interaction effects with physical and emotional exhaustion ( $F_{1,172} = 1.632$ , P = .203), a reduced sense of accomplishment ( $F_{1,172} = 0.264$ , P = .608), and sport

Table 4. Moderated Regression With Grit

Factor	R <sup>2</sup> Value	F Statistic	$\beta$ Level	P Value
Emotional and physical exhaustion	0.009	1.632	-0.097	.203
Reduced sense of accomplishment Sport devaluation	0.002 0.004	0.264 0.776	-0.039 0.067	.608 .380

Outcome: well-being. Predictors: all 3 factors.

devaluation ( $F_{1,172} = 0.776$ , P = .380) were not significantly moderated by grit (Table 4).

#### DISCUSSION

A female collegiate student-athlete with higher levels of grit experienced lower levels of athlete burnout and had more positive overall well-being. It is important to consider the raw scores for athlete burnout, well-being, and grit before further discussing the results of the various data analyses. We found positive overall well-being and high levels of grit when athlete burnout levels were moderate.

Grit was a significant predictor for each component of athlete burnout, explaining the most variance in sport devaluation ( $R^2 = 0.19$ ). Grit could play a specific role in sport devaluation because student-athletes who continue to be interested in and desire to put effort into the sport would be more likely to see the value in participating. When examining the 2 constructs of grit, perseverance of effort and consistency of interest, we found that both were significant predictors of physical and emotional exhaustion and sport devaluation, whereas a reduced sense of accomplishment was influenced mostly by perseverance of effort. Being driven to put effort toward a task typically results in accomplishing that task, which in turn would closely relate to a greater sense of accomplishment. These results are unique and meaningful as previous researchers did not directly examine the effects of grit on athlete burnout in an athlete population.<sup>21–23</sup> The authors<sup>21</sup> of only 1 previous



Figure. Scatterplot of grit and well-being. Abbreviations: Avg\_GS, average Grit Scale-Short score; Total\_WB, total Warwick Edinburgh Mental Well-Being Scale score.

study that evaluated grit and burnout in emergency medicine residents observed similar results, concluding that athletes with high grit scores were less likely to experience burnout. Notably, in the current study, participants reported an average grit score of 3.68 out of 5, whereas other investigators<sup>22</sup> assessing college-aged students described lower grit scores ranging from 3.0 to 3.3. This outcome could suggest that athletes who participate in sports have higher levels of grit, specifically when considering the positive correlation seen between deliberate practice and grit.<sup>23</sup> High levels of grit could already be present in student-athletes, but they may be unaware of how to channel these into a coping mechanism.

Although we identified grit as a significant predictor of athlete burnout, earlier researchers studying coaches and adolescents did not find the same results.<sup>14,24</sup> Even though grit and burnout did not have a strong relationship, Tang et al<sup>24</sup> indicated that more grit reduced depressive symptoms in adolescents. The findings may be due to grit being both protective against and predictive of burnout.<sup>14</sup>

With our results, grit was a significant predictor, explaining 14.7% of the variance in well-being. The construct of perseverance of effort primarily influenced well-being. Athletes who scored higher on grit also reported having better overall well-being. These findings add value to our understanding of grit and its influence, as previous literature on grit and well-being in the athletic population was limited. Despite the minimal investigations of grit and well-being, similar outcomes have occurred in studies of other target populations, including university students, coaches, and emergency medicine residents.13,14,21 These authors identified grit as being positively related to wellbeing, and those with lower levels of grit described diminished well-being.<sup>13,14,21</sup> Conversely, in a study of young adults, investigators determined that grit had no direct relationship with well-being but rather had a possible indirect influence.<sup>22</sup> Grit had more of an effect on autonomy and competency as basic psychological needs, which affected well-being. Although in our work, grit explained almost 15% of the variance in well-being, grit may be more influential as an indirect predictor of well-being, as described by Jin and Kim,<sup>22</sup> by positively altering these basic psychological needs.

The effects of grit on burnout and well-being in nonathlete populations have shown promising results. In addition, we offer support for the further exploration of these relationships in a collegiate student-athlete population. Future research is needed, yet grit can be considered to reduce athlete burnout and improve well-being, especially for more internally motivated student-athletes. Those athletes driven by internal factors may benefit from fostering more personality-based traits such as grit rather than social support when faced with psychological challenges. Our findings add to the limited literature in this area and provide direction for further examination.

One foundational way of improving grit is by practicing process-oriented goal setting rather than outcome-focused goal setting. Although grit cannot be provided, it is not a stagnant trait. Focusing on process-oriented goals rather than outcome-oriented goals can help foster grit.<sup>1</sup> Process-oriented goals involve developing practical steps that require consistency to reach the desired result. Outcome-oriented goals solely focus on the result. Because outcome-oriented goals are often based on wins and losses for collegiate studentathletes, these types of goals can be more pressure inducing, specifically when considering uncontrollable factors such as the abilities of the opposing team.<sup>1</sup> Placing more emphasis on creating process-oriented goals for mastering specific skills allows for an individualized focus that is more attainable and will likely lead to a positive outcome.<sup>1</sup> In addition to goal setting, the repetitive practice of the skills an individual is trying to develop also improves grit.<sup>15</sup> Athletic trainers can work to incorporate these goal-setting methods into prevention and rehabilitation programs. Furthermore, because athletic trainers often bridge the communication gap between student-athletes and coaches, they can educate coaches on how increasing grit could reduce psychological obstacles such as athlete burnout and ultimately improve overall performance.

To our knowledge, we were the first to assess the possible buffering effect of grit on the relationship between athlete burnout and well-being in female collegiate student-athletes. The results of the moderated regression analyses did not reveal significant findings, which could have been due to participants not expressing severely high levels of athlete burnout. Tang et al<sup>24</sup> revealed that grit acted as a buffer to school burnout in adolescents to influence the presence of depressive symptoms. No other previous researchers have addressed this relationship; however, grit has been evaluated as a moderator in other areas.<sup>25,26</sup> Buckingham and Richardson identified grit as a significant moderator of psychological resilience, improving the pain threshold in a college student population.<sup>25</sup> Grit also moderated feedback to influence sport performance.<sup>26</sup>

Several limitations affected our study, including the use of a convenience sample from a single NCAA Division I institution, the cross-sectional nature of the study, the use of self-report measures, and a lack of high levels of athlete burnout.<sup>27–29</sup> The use of convenience sampling from a single NCAA Division I institution restricts the generalizability of the findings to other athletic populations because access to additional resources such as mental health services is part of being a Power Five institution. Moreover, the resources offered to these female collegiate studentathletes were specific to the institution and may differ from those at other universities, including universities in other NCAA divisions and competition levels. Also, our exclusion of male collegiate student-athletes limited the generalizability of the findings, although this exclusion was justified by earlier findings related to mental health stigma and unwillingness to disclose mental health challenges.<sup>4,5,30</sup> These factors may prevent the findings and conclusions from representing the entire collegiate student-athlete population but provide the opportunity for future investigation of sex comparisons associated with athlete burnout. Another limitation of the current study was the crosssectional nature of the research design.<sup>29</sup> Data were collected during a typically stressful point in the semester from both academic and athletic standpoints to mitigate this limitation. Although self-report measures are the only way to quantitatively assess the variables of interest, their use can be problematic given the subjective nature of the responses and the potential for social desirability bias.<sup>29</sup> Keeping the survey results anonymous was essential to help mitigate these limitations. Lastly, even though athlete burnout was assessed during a stressful point in the semester, athlete burnout ratings were primarily low to moderate. It is encouraging to know that the collegiate studentathletes in the study were not suffering significantly from athlete burnout, but this could have affected some of the findings and conclusions.<sup>27</sup>

In addition to the previous suggestions, future authors should consider evaluating grit, athlete burnout, and wellbeing in a broader and more diverse population. Identifying differences between men and women as well as various types of sports (ie, team versus individual sports) may help the development and implementation of effective interventions that are more individualized. Also, assessing multiple types of institutions would allow comparisons about the usefulness of certain resources, such as mental health services and scholarships. Examining levels of athlete burnout and access to resources could present beneficial findings to determine best practices and how to adjust the use of resources used. Future researchers should explore how grit can be used to improve sport performance and injury recovery, specifically with the use of process-oriented goals instead of outcome-oriented goals. Consideration of these aspects would provide a better understanding of whether grit can positively influence well-being and reduce athlete burnout.

### CONCLUSIONS

The main effects of grit on athlete burnout and well-being in the current study were significant. Although results supporting the use of grit as a moderator or buffer are extremely limited, growth in grit research and knowledge is needed to truly understand its effects. Our currently limited knowledge does not necessarily aid in advocating for the inclusion of grit in resources and programming to influence athlete burnout and well-being. However, this large gap in the literature does allow room for substantial exploration. These findings indicate that high levels of athlete burnout are not necessary for a level of grit to positively influence well-being. Coaches, athletic trainers, and other athletic staff should acknowledge the need to focus on helping collegiate student-athletes develop process-oriented goals rather than placing substantial pressure on the outcome. In doing so, collegiate student-athletes may be able to increase their level of grit and reduce their chances of suffering from athlete burnout.

### REFERENCES

- Dubuc-Charbonneau N, Durand-Bush N. Moving to action: the effects of a self-regulation intervention on the stress, burnout, well-being, and self-regulation capacity levels of university student-athletes. *J Clin Sport Psychol.* 2015;9(2):173–192. doi:10.1123/jcsp.2014-0036
- Garinger LM, Chow GM, Luzzeri M. The effect of perceived stress and specialization on the relationship between perfectionism and burnout in collegiate athletes. *Anxiety Stress Coping.* 2018; 31(6):714–727. doi:10.1080/10615806.2018.1521514
- Gustafsson H, Kentta G, Hassmen P. Athlete burnout: an integrated model and future research directions. *Int Rev Sport Exerc Psychol.* 2011;4(1):3–24. doi:10.1080/1750984x.2010.541927
- Judge LW, Bell RJ, Theodore R, Simon L, Bellar D. An exploratory examination of burnout in NCAA Division II athletes. *J Intercoll* Sport. 2012;5(2):230–240.
- Brown RL, Moloney ME, Brown J. Gender differences in the processes linking public stigma and self-disclosure among college students with mental illness. *J Commun Psychol.* 2018;46(2):202–212. doi:10.1002/jcop.21933
- Ferguson LJ, Kowalski KC, Mack DE, Sabiston CM. Self-compassion and eudaimonic well-being during emotionally difficult times

in sport. J Happiness Stud. 2015;16(5):1263-1280. doi:10.1007/s10902-014-9558-8

- Kipp LE, Weiss MR. Social influences, psychological need satisfaction, and well-being among female adolescent gymnasts. *Sport Exerc Perform Psychol.* 2013;2(1):62–75. doi:10.1037/a0030236
- DeFreese JD, Smith AL. Athlete social support, negative social interactions and psychological health across a competitive sport season. J Sport Exerc Psychol. 2014;36(6):619–630. doi:10.1123/jsep.2014-0040
- Moen F, Bentzen M, Myhre K. The role of passion and affect in enhancing the understanding of coach burnout. *Int J Coach Sci.* 2018;12(1):3–34.
- Wagstaff C, Hings R, Larner R, Fletcher D. Psychological resilience's moderation of the relationship between the frequency of organizational stressors and burnout in athletes and coaches. *Sport Psychol.* 2018; 32(3):178–188. doi:10.1123/tsp.2016-0068
- Atkinson F, Martin J. Gritty, hardy, resilient, and socially supported: a replication study. *Disabil Health J.* 2020;13(1):100839. doi:10.1016/j. dhjo.2019.100839
- Martin J, Byrd B, Watts ML, Dent M. Gritty, hardy, and resilient: predictors of sport engagement and life satisfaction in wheelchair basketball players. J Clin Sport Psychol. 2015;9(4):345–359. doi:10.1123/ jcsp.2015-0015
- Vainio MM, Daukantaite D. Grit and different aspects of well-being: direct and indirect relationships via sense of coherence and authenticity. *J Happiness Stud.* 2016;17(5):2119–2147. doi:10.1007/s10902-015-9688-7
- Moen F, Olsen M. Grit: a unique protective factor of coaches wellbeing and burnout? *New Ideas Psychol.* 2020;59:100794. doi:10. 1016/j.newideapsych.2020.100794
- Duckworth AL, Peterson C, Matthews MD, Kelly DR. Grit: perseverance and passion for long-term goals. J Pers Soc Psychol. 2007; 92(6):1087–1101. doi:10.1037/00223514.92.6.1087
- Duckworth AL, Quinn PD. Development and validation of the short grit scale (grit-s). J Pers Assess. 2009;91(2):166–174. doi:10.1080/ 00223890802634290
- NCAA demographic database. National Collegiate Athletic Association. Published 2021. Accessed 2021. https://www.ncaa.org/sports/ 2018/12/13/ncaa-demographics-database.aspx
- Raedeke TD, Smith AL. Development and preliminary validation of an athlete burnout measure. J Sport Exerc Psychol. 2001;23(4):281– 306. doi:10.1123/jsep.23.4.281
- Tennant R, Hiller L, Fishwick R, et al. The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): development and UK validation. *Health Qual Life Outcomes*. 2007;5:63. doi:10.1186/1477-7525-5-63
- IBM SPSS Statistics for Windows. IBM. Instruction Manual. Published online 2020. Accessed 2021. https://www.ibm.com/docs/en/ SSLVMB\_27.0.0/pdf/en/IBM\_SPSS\_Statistics\_Core\_System\_User\_ Guide.pdf
- Dam A, Perera T, Jones M, Haughy M, Gaeta T. The relationship between grit, burnout, and well-being in emergency medicine residents. *AEM Educ Train*. 2019;3(1):14–19. doi:10.1002/aet2.10311
- 22. Jin B, Kim J. Grit, basic needs satisfaction, and subjective wellbeing. J Individ Diff. 2017;38(1):29–35. doi:10.1027/1614-0001/ a000219
- Tedesqui RAB, Young BW. Investigating grit variables and their relations with practice and skill groups in developing sport experts. *High Abil Stud.* 2017;28(2):167–180. doi:10.1080/13598139.2017. 1340262
- Tang X, Upadyaya K, Salmela-Aro K. School burnout and psychosocial problems among adolescents: grit as a resilience factor. *J Adolesc*. 2021;86:77–89. doi:10.1016/j.adolescence.2020.12.002
- Buckingham A, Richardson EJ. The relationship between psychological resilience and pain threshold and tolerance: optimism and grit as moderators. J Clin Psychol Med Settings. 2021;28(3):518–528. doi:10.1007/s10880-020-09731-7

- 26. Moles TA, Auerbach AD, Petrie TA. Grit happens: moderating effects on motivational feedback and sport performance. J Appl Sport Psychol. 2017;29(4):418–433. doi:10.1080/10413200.2017. 1306729
- 27. Russell WD. The role of perceived social support and athletic identity on college female athletes' burnout. *J Sport Behav.* 2021;44(1):99–119.
- 28. Shannon S, Breslin G, Haughey T, et al. Predicting student-athlete and non-athletes' intentions to self-manage mental health: testing an

integrated behaviour change model. *Ment Health Prev.* 2019;13: 92–99. doi:10.1016/j.mhp.2019.01.006

- 29. Sharma M, Petosa RL. *Measurement and Evaluation for Health Educators*. Jones & Bartlett Publishers; 2014.
- Criticos M, Layne T, Simonton KL, Irwin C. Gender differences with anxiety, perceived competence, and grit in collegiate track and field throwers. *J Phys Educ Sport*. 2020;20(5):2751–2759. doi:10.7752/jpes.2020.05374

Address correspondence to Haleigh M. Gray, PhD, ATC, 9200 University Boulevard, Charleston, SC 29406. Address email to hgray@csuniv.edu.