

## **The Effects of Self-Compassion and Mindfulness on Performance Anxiety and Flow in Elite Athletes**

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*Elite athletes represent a unique population who are at an increased risk for perfectionism, negative cognitions, and emotional and behavioral difficulties. Although previous research has established a clear inverse relationship between mindfulness and performance anxiety, little is known about the potential influence of self-compassion on performance anxiety and flow among elite athletes. The present study explored the predictive value of self-compassion among elite athletes, hypothesizing that higher levels of self-compassion would predict increased levels of flow and decreased levels of performance anxiety. This study replicated past research on mindfulness and performance anxiety. The unique contribution of this study is the finding that self-compassion significantly predicted athletes' level of flow, above and beyond the predictive value of mindfulness. Together, mindfulness and self-compassion explained 27% of the variance in athletes' experience of flow. Implications of the findings suggest the value of incorporating self-compassion training for elite athletes.*

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Elite athletes represent a unique population who are at an increased risk for perfectionism, negative cognitions, and emotional and behavioral difficulties (Goodman et al., 2014). Elite athletes can be defined as competing at the national/international level (Swann, Moran, & Piggott, 2015). Research has highlighted that elite athletes face unique and multi-faceted stressors and problems associated with their role. For example, rigorous training schedules can interfere with the development and maintenance of peer relationships and can lead to feelings of loneliness and social isolation. (Sanders & Winter, 2016). Furthermore, Bär and Markser (2013) have highlighted how many athletes face an expectation of mental toughness from coaches, which can lead to an overwhelming pressure to represent an ideal image. As an additional consequence of these expectations, elite athletes may experience resistance in seeking instrumental help or emotional support for fear of tainting the “tough” image (Ntoumanis, Biddle, & Haddock, 1999). The intense and frequent training schedules of elite athletes often result in over-worked and fatigued bodies that are more susceptible to injury (Heird & Steinfeldt, 2013).

Performance anxiety is another common problem manifested by elite athletes. Research has shown that excessive sports-related anxiety disrupts attentional functioning and can consequently negatively affect performance (Janelle, 2002). Scott-Hamilton, Schutte, and Brown (2016) highlighted how anxiety can invoke a negative self-conscious focus, which can lead to distraction from the present moment. In high-performance states, the athlete has high levels of external focus and automatic processing; in contrast, when high anxiety or negative emotions are present, these may cause the athlete to become inwardly focused and therefore distracted from the performance itself (Janelle, 2002). To achieve optimal performance, athletes must maintain focus on the relevant external and internal cues, even when anxiety tries to hijack attention (Janelle, 2002).

Athletes are taught to control and/or reduce unwanted thoughts, feelings, and sensations, with the intended goal of directing all efforts toward achieving optimal performance (Bickley et al., 2016; Hardy, Jones, & Gould, 1996). Several studies show that the pressure experienced by elite athletes can lead to distress and poor emotional health (Markser, 2011; Kristiansen, Halvari, & Roberts, 2011). Striving for perfection and achievement often leads the elite athlete to suppress emotions that may be perceived as weak or inappropriate (Sinden 2014). Consequently, emotional suppression can eventually lead to increased distress that negatively affects well-being (Lundqvist & Raglin, 2015). When an athlete experiences stress build-up over a period of time, without adequate coping skills, he or she may experience burnout (Gustafsson et al., 2013).

There is considerable evidence-based research supporting the effectiveness of mindfulness-based interventions with elite athletes (Bennett & Lindsay, 2016; Brown &

Ryan, 2003; Burns, 2016; Goodman et al. 2014; Neff 2003; Scott-Hamilton et al., 2016). Mindfulness is defined as an individual bringing conscious awareness to the present moment in a nonjudgmental, curious, and open manner in which one intentionally self-observes thoughts, bodily sensations, and emotions without judgment (Goodman et al., 2014). In a sample of basketball players, involvement in mindfulness training was associated with several benefits, which included heightened self-knowledge, calmer states of mind, and the ability to stay in the moment (Burns, 2016). In a sample of female collegiate athletes, results indicated that a mindfulness-based intervention led to greater reductions in substance use, emotional dysregulation and psychological distress compared to a psychological training skills intervention (Gross, Moore, Gardner, Wolanin, Pess, & Marks, 2018). Research on utilizing acceptance and commitment therapy (ACT) techniques has found that athletes may benefit from incorporating practice of physiological flexibility when recovering from injury and returning to the sport (Bennett & Lindsay, 2016). Scott-Hamilton and colleagues (2016) found that mindfulness training increased athletes' mindfulness and flow experience and decreased sport-specific pessimism and sport-specific anxiety.

Researchers have made the distinction between facilitative and debilitating perceptions of anxiety states in athletes (Hatzigeorgiadis & Chroni, 2007). In a study of male swimmers with international competitive experience, researchers found that swimmers who perceived their anxiety to be facilitative (i.e., helpful and motivating) reported more approach and less avoidance coping strategies. On the contrary, those who perceived their anxiety to be debilitating (i.e., interfering and excessive) reported more avoidance and less approach-oriented coping strategies (Hatzigeorgiadis & Chroni, 2007). In other words, one's cognitive perception and/or interpretation of their internal states mattered. The findings suggest that cognitive strategies, such as mindfulness and compassionate self-talk, might have an impact on how one perceives his own emotional experience, and consequently, how one copes.

When coping is optimized, there is a greater likelihood that an individual can approach and fully engage in a desired activity. Csikszentmihalyi (1990) originally described flow as a cognitive state that involves enjoying a focus on the performance at hand. Jackson and Ekstrand (2002) have explained flow as the experience consisting of an enhanced feeling of physical and psychological functioning, providing a sense of freedom which stems from the absence of negative thought and self-conscious evaluation. In high-performance states, flow is described to be distinct from deliberate and focused exertion due to its perceived effortlessness (Bruya, 2010). Previous research has shown that mindful athletes have a higher likelihood of experiencing a flow state, which gives the athlete a full involvement and energized focus on the athletic performance (Goodman et al., 2014). The importance of

mindfulness is for athletes to be absorbed in the present moment therefore helping to create an opportunity for them to experience flow (Scott-Hamilton et al., 2016).

Despite past research relating mindfulness with decreased performance anxiety and increased flow with elite athletes, there has been limited research on the relationship between self-compassion and each of these variables. Neff (2003) has defined self-compassion as involving “being touched by and open to one’s own suffering, not avoiding or disconnected from it, generating the desire to alleviate one’s suffering and to heal oneself with kindness” (p. 87). A self-compassionate mind frame is comprised of three major components: self-kindness, common humanity, and mindful-awareness (Ferguson et al., 2015). The first element is self-kindness, which involves extending warmth and nonjudgmental understanding to oneself (Neff, 2003). Common humanity is manifested when one can recognize that encountering life’s difficulties and making mistakes is normal for everyone. Finally, being able to have a balance of thoughts and feelings instead of suppressing or denying them is accomplished through mindful-awareness (Neff, 2003). Thus, although mindfulness can be conceptualized separately from self-compassion, Neff acknowledges that awareness of one’s internal experience is also a component of self-compassion (Neff et al., 2019).

Mosewich and colleagues (2013) discussed how self-compassion plays a vital role in emotion regulation, offers strategies to cope with adverse cognitions and emotions associated with failure, and simultaneously presents opportunities to learn from the experiences and create a more positive frame of mind. Self-compassion may be useful for athletes when coping with difficult times in sports and can aid in the perceptions of failure or inadequacy they may encounter. A recent study of 82 female athletes from multiple sports found that self-compassion was related to higher perceived sports performance (Killham et al., 2018). Leary et al. (2007) highlighted how self-compassion can aid individuals in understanding themselves more clearly and accurately by holding a more realistic and balanced perspective on evaluating their performance. A study of female athletes highlighted how greater levels of self-compassionate talk were linked to lower levels of catastrophizing and personalizing (Reis et al., 2015). This study highlighted how talking kindly to oneself may aid in mitigating anxiety-provoking responses.

A self-compassionate approach to personal failures has been shown to facilitate higher internal motivation to self-improve (Breines & Chen, 2012). Specifically, Breines & Chen (2012) found that increased levels of self-compassion led to motivation to self-improve in the domains of personal weakness, moral transgression, and test failure. Other studies have found that engagement in self-compassionate self-talk has been associated with promoting positive experiences with body appreciation, intuitive eating in female athletes, and well-being, while reducing self-criticism, rumination, and concerns over mistakes (Mos-

weiwch et al., 2013, Ferguson et al., 2015; Killham, 2014).

Given promising findings associated with self-compassion, the current study explored the interrelationship between self-compassion and mindfulness related to flow and performance anxiety. The present study explored the predictive value of self-compassion among elite athletes, hypothesizing that higher levels of self-compassion would relate to increased levels of flow and decreased levels of performance anxiety.

## **Methods**

### **Participants**

The participants in this study consisted of 48 elite female swimmers between the ages of 22 and 30 years of age. Elite is defined in this study as any athlete who competes at the national and/or international level. Participants consisted of athletes currently competing or retired athletes from NCAA Division I, Division II, and Division III swimming teams. All participants were US citizens.

### **Measures**

The Self-Compassion Scale (SCS; Neff 2003a) is a 26-item measure utilizing a five-point likert scale. The scale consists of six sub scales which together represent self-compassion: self-kindness (five items), self-judgement (five items), mindfulness (four items), over identification (four items), and isolation (four items). The SCS is the most widely used measure of self-compassion and has established strong psychometric properties (Neff et al., 2019). In the current study, internal consistency for the total score was strong ( $\alpha = .96$ ). Greater self-compassion was indicated by higher scores.

The Mindfulness Attention Awareness Scale (MAAS) is a 15-item self-report designed to measure one's ability to be aware of external and internal experiences throughout everyday life, with higher scores yielding higher levels of mindfulness (Brown & Ryan, 2003). The MAAS has been found to have strong reliability and sound validity across multiple studies (Park, Reilly-Spong, & Gross, 2013). In the current study, internal consistency for the total score was strong ( $\alpha = .89$ ).

The Dispositional Flow Scale (DSF-2) is a 36-item self-report questionnaire on a 5-point Likert scale designed to assess an individual's propensity in experiencing flow by examining the nine dispositions of flow: challenge-skill balance, self-consciousness action-awareness merging, unambiguous feedback, sense of control, concentration on the task, transformation of time clear goals, and autotelic experience (Jackson & Eklund, 2002). The DSF-2 is the second version of a well-established and validated measure of flow (Jackson,

Martin, & Eklund, 2008). In the current study, internal consistency for the total score was strong ( $\alpha = .92$ ).

The Sports Anxiety Scale (SAS) is a multidimensional self-report 21-item measure, which assesses three subscales of competitive anxiety, which are cognitive anxiety and worry, somatic anxiety, and concentration disruption (Smith et al., 1990). It has been used to assess sports anxiety across many different sports and types of athletes (Smith, Smoll, Cumming, & Grossbard, 2006). In the current study, internal consistency for the total score was strong ( $\alpha = .93$ ).

### **Procedure**

The study was approved by the institutional review board (IRB) overseeing human subjects research. The research was a self-report survey-based study. The participants were obtained through convenience sampling and snowball sampling (Wright, 2014). A survey link was sent out via email to participants who expressed interest in participating. The survey included a demographic survey of the participant's age, educational level, ethnicity, the current level of athletic competition, previous level of athletic completion, and years post competition. The participants then answered questions pertaining to the five scales explained above.

### **Data Analysis**

The research was a cross-sectional design in which the self-reported measures were completed at one-time point. The evaluation of skewness and kurtosis for all measures was used to assess the normality of the data. Initially, a correlational analysis was completed for each of the predictor variables with the outcome variable. Then we conducted separate multiple regression analyses to test the hypotheses. The predictor variables were self-compassion and mindfulness, and the criterion variables were flow and performance anxiety.

## **Results**

The sample consisted of 48 participants, including 16 NCAA Champions, six professional, paid athletes, 19 United States National Team Members, seven Olympic Team Members, 38 Division I athletes, two Division II, and two Division III athletes. The women primarily self-identified as white (91%) with two participants identifying as biracial, one as Asian American, and one as Hispanic/Latino. All participants were either currently performing or have previously performed at an elite level of swimming.

The means and standard deviations of the study variables were analyzed by the researchers and are presented in Table 1. All data were normally distributed with skewness and kurtosis  $<|2|$ . In Table 2, the correlations among total scores on all variables are shown. The research supported negative correlations of sports anxiety measured by the SAS with mindfulness ( $r=-.53$ ), self-compassion ( $r=-0.51$ ), and flow ( $r=-.48$ ). Mindfulness was positively correlated with the self-compassion ( $r=.63$ ) and flow ( $r=.30$ ). Finally, self-compassion was positively correlated with the flow ( $r=.52$ ).

Table 3 portrays the results from a hierarchical regression analysis after controlling for mindfulness. The researchers ran a predictive analysis of the outcome variable of sports anxiety as measured by the SAS with the two predictor variables of mindfulness and self-compassion. We found mindfulness explained 28% of the variance in sports anxiety ( $p<.01$ ). Self-compassion added an additional 6% variance explained in sports anxiety and was significant at the trend level ( $p <.10$ ). When predicting the outcome variable of flow (DFS-2), mindfulness explained 9% of the variance in the outcome, and this finding was significant at the trend level. When adding the variable of self-compassion into the hierarchical regression analysis, it explained an additional 18% of the variance, and this finding was statistically significant ( $p<.01$ ).

**Table 1.**  
*Means and Standard Deviations of Study Variables (Total Scores); N = 43*

Scales	Mean	SD
SAS	49.16	12.61
MAAS	48.67	11.64
SCS	71.50	20.08
DFS-2	123.51	15.40

**Notes:** SAS: Sports Anxiety Scale; MAAS: Mindfulness Attention Awareness Scale; SCS: Self-Compassion Scale; DFS-2: Dispositional Flow Scale

Table 2.  
Correlations among total scores on all variables

	1	2	3	4
1. SAS	---	-.533**	-.516**	-.476**
2. MAAS		---	.626**	.298
3. SCS			---	.516**
4. DFS-2				---

Notes. SAS: *Sports Anxiety Scale*; MAAS: *Mindfulness Attention Awareness Scale*;  
SCS: *Self-Compassion Scale*; DFS-2: *Dispositional Flow Scale*  
\* $p < .05$ , \*\* $p < .01$

**Table 3.**  
*Mindfulness and Self-Compassion Predicting Outcome: Hierarchical Regression Analyses After Controlling for Mindfulness*

Step	Variable(s)	R <sup>2</sup>	ΔR <sup>2</sup>	ΔF	β
<b>Sports Anxiety (SAS)</b>					
1		0.28	0.28	15.05**	
	Mindfulness				-0.53
2		0.34	0.06	3.06 <sup>†</sup>	
	Mindfulness				-0.35*
	Self-Compassion				-0.30 <sup>†</sup>
<b>Flow</b>					
1		0.09	0.09	3.4 <sup>†</sup>	
	Mindfulness				0.30
2		0.27	0.18	8.27	
	Mindfulness				0.04
	Self-Compassion				0.54**

Nota. <sup>†</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$

### Discussion

This study intended to explore the effects of self-compassion and mindfulness on performance anxiety and flow. This study replicated past research on mindfulness and performance anxiety, further reinforcing the negative correlation between mindfulness levels and sports anxiety (Scott-Hamilton et al., 2016). This research showed that mindfulness explains 28% of the variance in sports anxiety, and highlights the value of incorporating mindfulness interventions for elite athletes who struggle with performance anxiety. This study aimed to evaluate the unique contribution of self-compassion in the explanation of sports anxiety and flow among elite athletes. Results revealed that self-compassion explained an additional 6% variance in sports anxiety after controlling for mindfulness. This finding was significant at the trend level suggesting the likelihood that self-compassionate talk adds incremental influence in managing sports anxiety. This finding is consistent with recent research that found that self-compassion played both a direct and indirect role in the stress process among female athletes (Mosewich, Crocker, Sabiston, Kowalksi, & Goudreau, 2019). Specifically, self-compassion was found to predict higher goal progress, more positive affect, and less negative affect, suggesting that self-compassionate talk facilitates adaptive appraisals and coping (Mosewich et al., 2019). Implications of this finding suggest that implementing interventions to teach athletes ways to increase their self-compassion will decrease the likelihood of experiencing high levels of sports anxiety.

The unique contribution of this study is the finding specifically for the outcome of flow. Specifically, the study found that self-compassion explained an additional 18% of the variance in flow above and beyond the influence of mindfulness. Together, mindfulness and self-compassion explained 27% of the variance in flow. Implications of these findings highlight the value of self-compassion training in enhancing the potential for flow experiences in elite athletes. The results suggest the importance of moving away from a self-critical environment and instead promoting kindness towards oneself and acceptance of one's emotional and behavioral experiences.

Results from the current study corroborate other research findings that highlight the value of self-compassion for maladaptive perfectionism and negative self-talk among non-athletes (Gilbert & Procter, 2006). One possible mechanism through which self-compassion adds incremental value in predicting flow is via down-regulation; when we or others are hard on ourselves (e.g., with critical talk), our amygdala interprets this experience as a threat and activates the sympathetic nervous system. However, self-compassionate talk and feeling connected to others through our common humanity tends to calm our fight or flight response, resulting in more opportunity for broadened attentional focus and enhanced ability

to reap the benefits of the present moment (Breines et al., 2015). These positive consequences of self-compassion are congruent with the characteristics of flow, such as merging of action-awareness, concentration, sense of control, and autotelic experience (Carter, River, & Sachs, 2013).

Self-compassion might also have predicted enhanced flow via its influence on behavioral coping. Specifically, research has identified the predictive value of self-compassion on reducing disengagement behavioral coping responses (Barczak & Eklund, 2018). Therefore, talking kindly and intentionally to oneself in the midst of a competition may serve to enhance openness to the experience and facilitate increased engagement in the present moment. Based on these results, it is essential for coaches, universities, and athletes to understand how self-compassion can facilitate a healthy self-attitude through focusing on being kind and understanding towards oneself during times of failure and pain. Indeed, preliminary research on self-compassion interventions with athletes has suggested that self-compassion training has led to a reduction in self-criticism, state rumination, and concern over mistakes (Mosewich et al., 2013) as well as performance improvements (Hatzigeorgiadis, Galanis, Zourbanos, & Theodorakis, 2014). Rather than motivating athletes through shame- and fear-based interactions, shifting towards a self-compassionate approach may help to encourage individuals to strive toward personal improvement in a more effective manner.

### **Limitations**

There were several limitations to this study. One limitation was the online survey format. Some ( $N = 3$ ) individuals did not fully complete all aspects of the survey. Furthermore, the research was cross-sectional and solely self-report, and these methods may not fully capture the comprehensive experience for each athlete. Future research should incorporate longitudinal analyses to examine how self-compassion and/or mindfulness interventions may impact flow and performance anxiety over time. Additionally, adding a measure of actual performance (e.g., swim time) may help to examine how these variables influence the athletes' desired goals or outcomes. Finally, social desirability bias may have affected participants' ratings of their self-reported internal states.

### **Conclusions**

Given the emerging new findings in this study on the statistically significant inter-correlation between self-compassion and flow, it is vital to continue this line of research to better understand this new variable of self-compassion and how it impacts athletes' ability to encounter flow. The continued exploration of this variable through both qualitative and quantitative approaches could be beneficial to determine the best means to implement self-compassion and mindfulness training among athletes. One recent qualitative study

explored the experiences of highly self-compassionate women varsity athletes and found that these self-compassionate exemplars noted that learning from others (e.g., coaches, sport psychologists, peers, siblings, and parents), in addition to self-awareness, was a key factor in their development of self-compassion (Ingstrup, Mosewich, & Holt, 2007). This finding highlights the pivotal role that coaches and mental health providers can play in providing instruction and modeling self-compassionate talk. It further suggests that incorporating specific trainings in self-compassionate talk may be beneficial in helping athletes with both their coping and performance. Coaches, trainers, and sports psychologists can play a valuable role in supporting athletes in building their awareness of how their self-oriented talk can play a motivating, instead of discouraging, role in their performance and experience of flow.

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