

Running Head: NARCISSISM, GOAL-SETTING, TRAINING

Accepted on 5<sup>th</sup> February 2021 in *Sport, Exercise, and Performance Psychology*

**Foresee the glory and train better: Narcissism, goal-setting and athlete training**

Shuge Zhang<sup>1,3</sup>, Ross Roberts<sup>1</sup>, Tim Woodman<sup>1</sup>, Amanda Pitkethly<sup>2</sup>, Cedric English<sup>2</sup>, David  
Nightingale<sup>1</sup>

<sup>1</sup> Institute for the Psychology of Elite Performance, Bangor University, UK

<sup>2</sup> School of Life, Sport and Social Sciences, Edinburgh Napier University, UK

<sup>3</sup> School of Human Sciences, University of Derby, UK

**Corresponding Author**

Dr Shuge Zhang ([s.zhang@derby.ac.uk](mailto:s.zhang@derby.ac.uk)), Lecturer in Sport & Exercise Psychology, School of Human Sciences, University of Derby, Kedleston Road, Derby, UK, DE22 1GB.

**Abstract**

1  
2 Grandiose narcissism may be debilitating to athlete training because the opportunity  
3 for self-enhancement that motivates narcissists to strive is normally absent in training  
4 environments. However, this view ignores the divergent influences of the *self-inflated*  
5 (reflecting over-confidence) and *dominant* (reflecting willingness for dominance) facets of  
6 grandiose narcissism. We expected that self-inflated narcissism would undermine athlete  
7 training, but only when dominant narcissism was low. This is because dominant narcissism  
8 may serve as the catalyst that drives those with self-inflated narcissism to train well. We  
9 further considered goal-setting as a practical means of alleviating the negative influence of  
10 self-inflated narcissism in training. Goal-setting provides athletes with an exciting vision of  
11 the future and thus can be an important self-enhancement strategy to engage narcissistic  
12 athletes in training. In the present study, 321 athletes completed the Narcissistic Personality  
13 Inventory (NPI-40) and the goal-setting subscale in the Test of Performance Strategies-3  
14 (TOPS-3). Coaches of these athletes assessed training behaviors using the Quality of Training  
15 Inventory (QTI). Self-inflated narcissism predicted higher levels of (coach-rated)  
16 distractibility and poorer quality of preparation only when both dominant narcissism and  
17 goal-setting were low (and not when either was high). The findings suggest that dominant  
18 narcissism and goal-setting protect against the adverse influences of self-inflated narcissism  
19 on athlete training. The work underscores the importance of considering grandiose narcissism  
20 as a multidimensional construct and supports goal-setting as a useful self-enhancement  
21 strategy.

22 *Keywords:* self-inflated narcissism, dominant narcissism, goal-setting, self-  
23 enhancement, training behaviors

## 24 **Foresee the glory and train better: Narcissism, goal-setting and athlete training**

25 High-quality training is essential to achieve peak performance (Hardy et al., 2017).  
26 Research has examined factors that might influence the quality of training, with several  
27 studies showing that personality is related to how well an athlete trains. For example, work  
28 using the Big Five model of personality has shown conscientiousness to positively influence  
29 the quality of preparation in training, whereas extraversion and neuroticism contribute to  
30 increased distractibility and impaired coping with adversity in training settings (Woodman,  
31 Zourbanos, Hardy, Beattie, & McQuillan, 2010; Zhang, Beattie, Pitkethly, & Dempsey,  
32 2019). While these findings point to a potentially important role of personality in relation to  
33 training behaviors, much is still to be understood. Indeed, researchers within the performance  
34 domain have called for personality research to go beyond the Big Five and focus on other  
35 traits that have specific relevance to performance environments (e.g., Hill & Madjigan, 2017;  
36 Roberts & Woodman, 2017; Zhang, Woodman, & Roberts, 2018). With this call in mind, we  
37 explore here the role of grandiose narcissism on training behaviors.

38 Grandiose narcissism (hereafter narcissism) is a non-clinical personality trait  
39 encompassing a self-centered, self-aggrandizing, entitled, dominant, and manipulative  
40 interpersonal orientation (Morf, Horvath, & Torchetti, 2011). Hereafter, when we use the  
41 term *narcissist*, we refer to an individual scoring relatively highly in grandiose narcissism  
42 based on a sub-clinical measure of narcissism such as the Narcissistic Personality Inventory  
43 (NPI; Raskin & Hall, 1979), as opposed to those with narcissistic personality disorder (see  
44 American Psychiatric Association, 2013)<sup>1</sup>.

45 While we investigate narcissism in relation to training, we also examine the  
46 facilitative role of goal-setting in athletic training contexts. According to Hardy, Jones and  
47 Gould's (1996) Pyramid Model of Peak Performance, athlete personality interacts with  
48 performance strategies (e.g., goal-setting) to lead to peak performance states. Previous work

49 investigating other aspects of personality has supported this theoretical position (e.g.,  
50 Woodman et al., 2010). Indeed, Woodman et al. showed that while athlete extraversion is  
51 related to increased distractibility, goal-setting mitigates such a relationship. However,  
52 despite the conceptual grounding offered by Hardy et al.'s model and the wider empirical  
53 support for this model, knowledge of how narcissism may interact with goal-setting in athlete  
54 training is sparse. Further, no work has applied the personality  $\times$  performance strategy  
55 interaction to narcissism and training. In the present study, we explored this interaction  
56 perspective to understand how goal-setting might facilitate training for those athletes high in  
57 narcissism.

### 58 **Narcissism in performance and training**

59       Narcissism is related to an inflated, yet fragile, self-view (Morf et al., 2011).  
60 Narcissists believe they are superior to others (Gabriel, Critelli, & Ee, 1994) and are high in  
61 confidence even when facing failures (Campbell, Goodie, & Foster, 2004). Despite such an  
62 inflated self-view, narcissists normally do not perform any better or worse than their non-  
63 narcissistic counterparts (e.g., Ames & Kammrath, 2004); except when perceived  
64 opportunities for self-enhancement or personal glory are present. Specifically, Wallace and  
65 Baumeister's (2002) seminal work demonstrated that individuals high in narcissism excelled  
66 when situations offered self-enhancement opportunity (e.g., competition and reward) but  
67 performed poorly when no such opportunities were evident. These effects have since been  
68 replicated in a number of laboratory- and field-based studies in sport confirming that the  
69 quality of narcissists' performance is context-specific (see Roberts, Woodman, & Sedikides,  
70 2018 for a review).

71       Narcissists' craving for the lionization of the self specifically in high-pressure and  
72 competitive environments may make them less likely to engage in the relatively mundane  
73 training environment. In contrast to the self-enhancement laden opportunities associated with

74 competition, training offers very little opportunity for glory; a relatively tiring and tedious  
75 environment in which thousands of hours of deliberate practice are required to develop  
76 expertise (Rees et al., 2016). Although training environments can be competitive especially in  
77 high-level sport (Vaughan, Madigan, Carter & Nicholls, 2019), the competitiveness within  
78 training settings does not offer the same level of self-enhancement opportunity (e.g.,  
79 audience, rewards, performance pressure) as does competition. As such, narcissists might be  
80 less likely to strive in training because they perceive little opportunity for glory in the training  
81 environment (e.g., Roberts, Woodman, Lofthouse, & Williams, 2015).

## 82 **A multidimensional conceptualization of narcissism**

83       Based on the aforementioned theory and research, the relationship between narcissism  
84 and training performance is seemingly straightforward. However, one limitation of this view  
85 is that it fails to consider the multidimensional nature of narcissism. Indeed, evidence has  
86 supported the different nomological networks of *self-inflated* and *dominant* narcissism. *Self-*  
87 *inflated narcissism*, reflected by a sense of authority and self-sufficiency in the NPI, is related  
88 to greater extraversion, self-esteem, lower informant-rated conscientiousness, and captures  
89 personal qualities such as confidence and self-awareness (Ackerman et al., 2011). By  
90 contrast, *dominant narcissism* is related to higher levels of neuroticism, low empathy, and  
91 captures personal qualities such as a dominating orientation (Cai & Luo, 2018). Historically,  
92 self-inflated and dominant narcissism were known as adaptive and maladaptive narcissism,  
93 respectively. However, researchers have recently criticized these terms on a number of  
94 counts, not least because they focus on the hypothesized consequences of the trait rather than  
95 on the underlying psychological properties (see Cai & Luo, 2018; Zhang, Roberts,  
96 Woodman, & Cooke, 2020).

97       Although self-inflated and dominant narcissism appear to have different  
98 conceptualizations, the two constructs are moderately correlated with each other (Cai & Luo,

99 2018). Nevertheless, research indicates that self-inflated and dominant facets of narcissism  
100 serve different functions in social (e.g., Auckerman et al., 2011) and performance contexts  
101 (e.g., Zhang et al., 2020). As such, considering grandiose narcissism as a single, unitary  
102 construct can be misleading because it ignores the differences between the self-inflated and  
103 dominant facets of narcissism and treats narcissism as a homogeneous concept.

104 In the context of athlete training, *self-inflated narcissism* may be debilitating because  
105 of its link to overly inflated confidence (e.g., Beattie, Dempsey, Roberts, Woodman, &  
106 Cooke, 2017). Typically, athletes with high levels of self-inflated narcissism might not be  
107 fully engaged in training (as they are more easily distracted and engage less with the  
108 preparation for competition routines) and feel no need for hard work. Different from self-  
109 inflated narcissism, *dominant narcissism* reflects a desire for personal control and to  
110 dominate others (Washburn et al., 2004). In this sense, dominant narcissism may be  
111 particularly beneficial to athletic training because the desire to prevail derived from this facet  
112 of narcissism may help athletes to be aware that training is a valuable means to realize  
113 personal control and dominance in (future) competition or performance (e.g., Zhang et al.,  
114 2020). However, dominant narcissism is associated with neuroticism (Cai & Luo, 2018) that  
115 is typically detrimental to athlete training (Woodman et al., 2010; Zhang et al., 2019). Given  
116 these contrasting viewpoints, one would not expect a simple relationship between dominant  
117 narcissism and athlete training.

### 118 **Self-inflated and dominant narcissism: An interactionist perspective**

119 Narcissism can reflect either high levels of self-inflated narcissism, high levels of  
120 dominant narcissism, or high levels of both. As such, it is important to consider how these  
121 facets of narcissism might interact to understand the influences of narcissism on athlete  
122 training. Given that the overconfidence linked to self-inflated narcissism leads to decreased  
123 effort (e.g., Beattie et al., 2017), athletes who hold an inflated self-view (i.e., high only in

124 self-inflated narcissism) may not engage well in training especially when they do not have a  
125 willingness to strive for dominance. Dominant narcissism may be the catalyst that makes  
126 athletes more likely to seek validation of their self-view in performance settings (e.g., Zhang  
127 et al., 2020). As such, from an interactionist perspective, dominant narcissism may well  
128 attenuate the possible negative relationship between self-inflated narcissism and training.  
129 Specifically, when dominant narcissism is low, self-inflated narcissism will likely have a  
130 negative impact on training because of the lack of effort and motivation inherent in the  
131 inflated self (e.g., Roberts et al., 2015). However, when there is a concomitant desire to  
132 dominate (dominant narcissism), one would expect the negative influence of self-inflated  
133 narcissism on training to be mitigated because the strong willingness for dominance leads  
134 athletes to strive to be exceptional in order to validate their grandiose self-view (Zhang et al.,  
135 2020). Such an interactionist perspective suggests that dominant narcissism likely protects  
136 against the adverse effects of self-inflated narcissism on athlete training.

### 137 **Goal-setting as an aid to self-enhancement**

138         Despite the clear importance of considering personality in optimizing performance,  
139 most researchers accept that personality is difficult to change. As such, it is paramount to  
140 investigate strategies that might help athletes maximize their training environment within the  
141 confines of their personality. Goal-setting is a clear candidate in this regard. Indeed,  
142 Woodman et al. (2010) found that goal setting mitigated extraverted athletes' distraction in  
143 training. Similar beneficial effects might be expected for those high in self-inflated  
144 narcissism. Specifically, despite the relative lack of opportunity for glory in athletic training  
145 environments (Roberts et al., 2018), goal-setting facilitates self-enhancement because goals  
146 create inspiring visions to engage athletes to commit to their training (Smith, Arthur, Hardy,  
147 Callow, & Williams, 2013). Such an inspiring vision can help athletes to foresee the  
148 opportunity for glory afforded by the training environment. Also, according to Hardy,

149 Roberts, Thomas, and Murphy (2010), goal-setting in training is not only linked to athletes'  
150 operation of specific performance goals and evaluation of possible future achievement but  
151 also a reflection of how athletes may initiate actions to fulfil desired performance states. As  
152 such, goal-setting in practice should bridge the link between training and the future  
153 performance opportunities, and should help athletes high in self-inflated narcissism to strive.

154 In relation to the interactionist perspective of self-inflated and dominant narcissism,  
155 the potential utility of goal-setting is even more evident. Self-inflated narcissism is  
156 underpinned by an inflated self-view without a solid and clear grounding in reality (Zhang et  
157 al., 2020). Goal-setting sets out a clear path of required actions in order to achieve one's  
158 aspiration (Kingston & Wilson, 2008). If that aspiration is to dominate others, then a goal-  
159 setting program can provide the path to maximize the likelihood of that desired outcome. As  
160 such, goal-setting offers a realistic path to perceived success and thus is vital to make self-  
161 inflated narcissists strive, especially when these individuals are concomitantly low in  
162 dominant narcissism (reflecting a lack of willingness to validate their grandiose self-view).

163 In line with these theoretical positions, we extended our earlier interactionist position  
164 relating to self-inflated and dominant narcissism in the context of athlete training, to a three-  
165 way interaction (self-inflated narcissism  $\times$  dominant narcissism  $\times$  goal-setting). Specifically,  
166 when goal-setting use was low, we expected self-inflated narcissism to have adverse effects  
167 on athlete training behaviors only when dominant narcissism was low. However, when goal-  
168 setting use was high, we predicted that the potential negative influences of self-inflated  
169 narcissism to be mitigated regardless of the levels of dominant narcissism. Figure 1 displays  
170 the proposed three-way interaction.

### 171 **The present study**

172 To date, it is unknown how multidimensional narcissism (e.g., self-inflated and  
173 dominant narcissism) might interact with goal-setting to predict athlete training. In the



174 present study, we examined the hypothesized *self-inflated* × *dominant narcissism* × *goal-*  
175 *setting* interaction on two important aspects of athlete training, namely distractibility and  
176 quality of competition preparation. Low distractibility (i.e., concentrating on training despite  
177 distractions) and high-quality competition preparation (i.e., focusing on specific plans and  
178 routines that form a competition or training preparation strategy) are vital to achieving  
179 optimal performance states (Woodman et al., 2010), and scores on these variables  
180 discriminate between higher- and lower-level athletes (Zhang et al., 2019). Importantly,  
181 narcissism is associated with high extraversion and low conscientiousness (Ackerman et al.,  
182 2011) that contributes to increased distractibility and poorer quality of preparation,  
183 respectively (Woodman et al., 2010). As such, distractibility and quality of preparation are  
184 the aspects of training most likely to be undermined by athlete narcissistic characteristics.

185 In the present research, we investigated the interactionist proposition using a large  
186 sample of athletes from different sports and at different levels. We obtained multiple-source  
187 data (i.e., athlete-rated narcissism and goal-setting, and coach-rated distractibility and quality  
188 of preparation) to enhance the trustworthiness of the study findings. Collecting multiple  
189 source data allowed us to avoid problems associated common method variance (Chang, Van  
190 Witteloostuijn, & Eden, 2010) and socially desirable responding (Vazire, 2006), which are  
191 present in studies relying on single-source, self-report questionnaires.

## 192 Method

### 193 Participants

194 Power analysis (G\*Power 3; Faul, Erdfelder, Lang, & Buchner, 2007) indicated that  
195 we needed a minimum sample of 316 participants to have adequate power (.80) to detect a  
196 small interaction effect (i.e., Cohen's  $f^2 = .025$ , alpha set at .05) at the within-team level  
197 (level 1). With institutional approval, we recruited 321 athletes ( $n = 153$  men, 168 women;  
198  $M_{\text{age}} = 21.88$ ,  $SD = 5.72$ ). Participants competed in 8 different sports ( $n = 2$  individual sports,

199 6 team sports) and at different levels, including university ( $n = 7$  teams), regional clubs ( $n =$   
200 15 teams), premier leagues ( $n = 2$  teams), and national ( $n = 3$  teams). These athletes had  
201 received formal training in their respective sport for an average of 8.31 years ( $SD = 6.05$ ). To  
202 provide informant ratings of athlete training behaviors, the head coaches of all participating  
203 teams ( $n = 20$  men, 7 women;  $M_{age} = 36.1$ ,  $SD = 10.65$ ) also took part in this research. They  
204 had a mean of 10 years' coaching experience ( $SD = 7.07$ ) and had coached their respective  
205 athletes for a mean of 3.5 years ( $SD = 3.33$ ). All participants provided written consent.

## 206 **Measures**

### 207 *Narcissism*

208 We used the NPI (Raskin & Hall, 1979), which is a 40-item forced-choice inventory  
209 that asks participants to choose between one narcissistic and one non-narcissistic statement  
210 for each item (e.g., "I will be a success" vs "I am not too concerned about success"). The NPI  
211 is considered the most appropriate assessment of the grandiose form of narcissism because it  
212 captures many of the central narcissistic qualities such as dominance, immodesty,  
213 noncompliance and manipulativeness more fully than other measures of narcissism (Miller et  
214 al., 2012). For the same reason the NPI has also been widely used in sport research (e.g.,  
215 Arthur et al., 2011; Roberts et al., 2010, 2013, 2019; Woodman et al., 2011; Zhang et al.,  
216 2020). We generated mean scores for *self-inflated* (14 items; e.g., "I am more capable than  
217 other people") and *dominant* (18 items; e.g., "If I rule the world, it would be a better place")  
218 narcissism items from the NPI following recommendations (i.e., Barry et al., 2003; Zhang et  
219 al., 2020; see Supplementary Tables for a list of self-inflated and dominant narcissism items  
220 derived from the NPI-40 and item factor loadings for both the two-factor and unidimensional  
221 NPI model). Confirmatory Factor Analysis (CFA) of the proposed two-factor model provided  
222 support for an acceptable factor structure<sup>2</sup>; Robust  $\chi^2 = 702.10$ ,  $df = 463$ ,  $CFI = .87$ ,  $RMSEA$   
223  $= .04$  (90% CI [.03, .05]),  $SRMR = .10$ . Further, when compared against a single-factor

224 solution (i.e., NPI at a global level; Robust  $\chi^2 = 804.11$ ,  $df = 464$ ,  $CFI = .80$ ,  $RMSEA = .05$   
225 (90% CI [.04, .06]),  $SRMR = .11$ ), the two-factor model represented a significantly better  
226 model fit (adjusted  $\Delta\chi^2 = 44.35$ ,  $df = 1$ ,  $p < .001$ ). The composite reliability for self-inflated  
227 and dominant narcissism in this study was .84 and .86, respectively.

### 228 ***Goal-setting***

229 We used the goal-setting items from the practice subscale of the Test of Performance  
230 Strategies (TOPS-3; Arthur, Fitzwater, Roberts, Hardy, & Arthur, 2017). The practice  
231 subscale of the TOPS-3 assesses the use of different athlete performance strategies in training  
232 contexts. The TOPS-3 is an updated version of the widely used TOPS-2 (Hardy, Roberts,  
233 Thomas, & Murphy, 2010). Goal-setting items from the TOPS-3 practice subscale (4 items;  
234 e.g., “I set goals to help me use practice time effectively”) ask athletes to rate how frequently  
235 they use the strategy in training on a 5-point Likert-scale from 1 (*never*) to 5 (*always*). CFA  
236 of the goal-setting items revealed an excellent model fit to a single-factor structure; Robust  $\chi^2$   
237 = 6.76,  $df = 2$ ,  $CFI = .98$ ,  $RMSEA = .03$ ,  $SRMR = .03$ . The composite reliability for the goal-  
238 setting items in the present study was .79.

### 239 ***Coach-rated quality of training***

240 Coaches provided ratings of their athletes’ training behaviors. We used an adapted  
241 version of the Quality of Training Inventory (QTI, Woodman et al., 2010). The QTI assesses  
242 three core training behaviors including distractibility (5 items; e.g., “I am easily distracted by  
243 other people in training”), coping with adversity (4 items; e.g., “When my training session  
244 isn’t going well, I try to overcome the problem”), and quality of preparation (4 items; e.g., “I  
245 always have a competition plan that covers all eventualities”). The QTI asks athletes to  
246 respond to a Likert scale from 1 (*strongly disagree*) to 9 (*strongly agree*). In this study, we  
247 focused on the distractibility and quality of preparation subscales as these are likely the most  
248 relevant aspects of athlete training undermined by narcissism (Roberts et al., 2018). To

249 enable coaches to rate their athletes we changed the QTI items to a third-person narrative (see  
250 also Zhang et al., 2019). Considering the nested nature of the data (athletes nested within  
251 teams/coaches), we conducted multilevel CFA for the coach-rated QTI and demonstrated a  
252 good model fit to the three-factor structure suggested by Woodman et al. (2010); Robust  $\chi^2 =$   
253 159.18,  $df = 62$ , CFI = .90, RMSEA = .07, SRMR = .07. The composite reliability for the  
254 distractibility, quality of preparation, and coping with adversity<sup>4</sup> subscales ranged  
255 from .86-.89.

## 256 **Procedure**

257 We contacted coaches or team managers from sports teams in the UK. Via the initial  
258 email, we provided detailed information about our research and invited prospective teams to  
259 participate. We proceeded only when the coach agreed to take part. Once coaches gave  
260 consent to approach their athletes, we asked the coach to arrange a post-training session for  
261 us to brief the athletes and to ask them to complete the survey. Athletes were encouraged to  
262 raise any questions they had before participating and were free not to participate. After  
263 confirming voluntary participation, all participants (athletes and coaches) received a  
264 questionnaire pack containing an information sheet, written consent form, and the  
265 questionnaires. We were also available to answer any questions. At the end of the session, we  
266 collected all completed questionnaire packs.

## 267 **Data analyses**

268 We first checked for missing data and outliers (i.e., scores more than three standard  
269 deviations from the mean; Jaccard & Turrisi, 2003) for each of the study variables. Following  
270 that, we assessed the zero-order correlation among study variables.

271 We used Mplus 8 (Muthén & Muthén, 2015) for the main analyses. Given the nested  
272 nature of our data, we adopted a multilevel approach to examine our hypotheses (see Hox,  
273 1995) and used a random intercept fixed slope model to test the hypothesized three-factor

274 interaction between athlete self-inflated and dominant narcissism and goal-setting. We  
275 modelled self-inflated narcissism as the focal predictor, dominant narcissism as the first  
276 moderator, and goal-setting as the second moderator, at Level 1 (within-team). To deal with  
277 the nested nature of the data (i.e., athletes nested within teams while using coach-rated  
278 training as dependent variables), we modelled coach-rated training behaviors to cross Level 1  
279 (within-team) and Level 2 (between-team). Such a multilevel approach allows intercepts in  
280 the specified regression model at Level 1 (within-team) to vary across Level 2 variable (i.e.,  
281 team) and thus remove between-team differences on any within-team effect.

282 Consistent with procedures set out by Hox (1995), we applied z-score transformation  
283 to all the predictors prior to testing the specified multilevel model to reduce possible  
284 collinearity and provide a common metric to aid interpretability and used the Robust Full  
285 Information Maximum Likelihood (FIML) estimator (i.e., MLR in Mplus; see Muthén &  
286 Muthén, 2015). We assessed the Intraclass Correlation (ICC) to estimate the proportion of  
287 between-team variance at Level 2 (i.e., between-team). We report standardized coefficients  
288 ( $\beta$ ) and analyzed simple slopes at  $Mean \pm 1SD$  for the hypothesized three-factor interaction at  
289 Level 1 (i.e., within-team). Lower and upper bound 95% confidence intervals (CI) that do not  
290 encompass zero indicate significance at the .05 level. Alpha was set at .05.

## 291 **Results**

### 292 **Preliminary analyses**

293 All individual scores on study variables were within three standard deviations of the  
294 mean. Five participants could not be identified from their sport team information and thus  
295 were coded as missing for their respective sport team. However, these participants were  
296 included for the main analyses because the FIML approach used by the MLR estimator  
297 enables inclusion of these random missing data. Correlations revealed that athlete age, sex,  
298 and years of training experience were unrelated to athlete narcissistic traits and training

299 behaviors. NPI and self-inflated and dominant narcissism were not correlated to goal-setting  
300 use. NPI and dominant narcissism were weakly but positively related to athlete distractibility.  
301 We present the descriptive statistics and zero-order correlations in Table 2.

## 302 **Main analyses**

### 303 *Distractibility*

304 The ICC for distractibility was .18, suggesting that 18% of the variance in coach-rated  
305 athlete distractibility was at the between-team level. The regression analysis yielded a non-  
306 significant main effect for self-inflated narcissism ( $\beta = .04, p = .65, 95\% \text{ CI } [-.13, .18]$ ) but  
307 significant main effects for dominant narcissism ( $\beta = .15, p = .02, 95\% \text{ CI } [.02, .28]$ ) and  
308 goal-setting ( $\beta = -.13, p = .02, 95\% \text{ CI } [-.25, -.02]$ ). More importantly, the hypothesized  
309 three-factor interaction between self-inflated narcissism, dominant narcissism, and goal-  
310 setting was significant ( $\beta = .21, p < .01, 95\% \text{ CI } [.13, .28]$ ; see Figure 2 left panel). The  
311 nature of the interaction was consistent with our theorizing. Specifically, when goal-setting  
312 use was low, self-inflated narcissism predicted higher distractibility when dominant  
313 narcissism was low ( $\beta = .47, p < .01, 95\% \text{ CI } [.29, .66]$ ) but not high ( $\beta = -.11, p = .26, 95\%$   
314  $\text{CI } [-.30, .08]$ ). However, when goal-setting use was high, self-inflated narcissism did not  
315 predict distractibility regardless of whether dominant narcissism was low ( $\beta = -.19, p = .23,$   
316  $95\% \text{ CI } [-.51, .12]$ ) or high ( $\beta = .02, p = .93, 95\% \text{ CI } [-.36, .40]$ ). In sum, these findings  
317 indicate that athletes high in self-inflated narcissism were more distractible in training when  
318 low in dominant narcissism and when they failed to engage in goal-setting. However, those  
319 athletes engaging in goal-setting had no such problems with distractibility.

### 320 *Quality of preparation*

321 The ICC for quality of preparation was .47, suggesting that 47% of the variance in  
322 coach-rated athlete quality of preparation was at the between-team level. At the within-team  
323 level, main effects for self-inflated narcissism ( $\beta = .12, p = .05, 95\% \text{ CI } [.00, .24]$ ) and goal-

324 setting ( $\beta = .11, p = .08, 95\% \text{ CI } [-.01, .24]$ ) approached significance while dominant  
325 narcissism ( $\beta = -.12, p = .14, 95\% \text{ CI } [-.27, .04]$ ) did not predict quality of preparation.  
326 Importantly, the three-factor interaction, that goal-setting would moderate the *self-inflated*  $\times$   
327 *dominant narcissism* interaction on quality of training, was significant ( $\beta = -.20, p < .01, 95\%$   
328  $\text{CI } [-.34, -.07]$ ). Probing the three-factor interaction again yielded findings consistent with our  
329 theorizing (see Figure 2 right panel). To expand, when goal-setting use was low, self-inflated  
330 narcissism demonstrated impaired quality of preparation when dominant narcissism was low  
331 ( $\beta = -.14, p = .24, 95\% \text{ CI } [-.39, .10]$ ) but enhanced quality of preparation when dominant  
332 narcissism was high ( $\beta = .32, p < .01, 95\% \text{ CI } [.12, .52]$ ). In contrast, when goal-setting use  
333 was high, self-inflated narcissism predicted improved quality of preparation only when  
334 dominant narcissism was low ( $\beta = .31, p = .09, 95\% \text{ CI } [-.06, .68]$ ) but not high ( $\beta = .05, p$   
335  $= .70, 95\% \text{ CI } [-.21, .31]$ ). Taken together, these findings demonstrate that athletes high in  
336 self-inflated narcissism had poorer quality of preparation when low in dominant narcissism  
337 and when they failed to engage in goal setting. However, such an adverse influence was  
338 buffered when either dominant narcissism or goal-setting was high.

339

### Discussion

340 Narcissism may be debilitating to athlete training because the opportunity for self-  
341 enhancement that motivates narcissists to strive for their best is usually absent in training  
342 environments. However, this view fails to consider the likely divergent effects of the *self-*  
343 *inflated* and *dominant* facets of narcissism and also ignores the potential of performance  
344 strategies to mitigate any adverse influence of narcissistic qualities on athlete training. The  
345 present research provided the first evidence that self-inflated narcissism, dominant  
346 narcissism, and goal-setting interactively predict athlete distractibility in training and quality  
347 of preparation. We hypothesized that, when goal-setting was low, athletes high in self-  
348 inflated narcissism might demonstrate impaired training (i.e., increased distractibility and

349 poorer quality of preparation) when dominant narcissism was low, but that this effect would  
350 disappear when dominant narcissism was also high. We further predicted that, when goal-  
351 setting was high, self-inflated narcissism would not undermine athlete training, regardless of  
352 the levels of dominant narcissism. The study results supported these hypotheses. The findings  
353 suggest that dominant narcissism and goal-setting seem to protect against the adverse effects  
354 of self-inflated narcissism on athlete concentration and quality of preparation for competition.  
355 In effect, the desire to dominate combined with a willingness to confront oneself with reality  
356 (via goal-setting) increases the confident narcissist's focus on the importance of training to  
357 achieve his/her competition aspirations.

### 358 **Theoretical and practical implications**

359         Several implications warrant attention. First, the data support the use of a  
360 multidimensional conception of narcissism, which involves *self-inflated* and *dominant*  
361 components. The terms *self-inflated* and *dominant* are more appropriate than the previously  
362 used *adaptive* and *maladaptive* narcissism monikers, as they focus on the psychological  
363 qualities involved in the constructs as opposed to the social and interpersonal outcomes  
364 associated with narcissism (see Barry & Malkin, 2010). These terms do not pre-suppose that  
365 one aspect of narcissism is necessarily more socially desirable than any other type (as  
366 opposed to the adaptive/maladaptive distinction, see also Cai & Luo, 2018). Indeed, our  
367 findings clearly show that self-inflated narcissism undermines the quality of training. In  
368 contrast, dominant narcissism appears particularly beneficial as it offsets some of the  
369 problems associated with self-inflated narcissism and low goal-setting use. Overall, the  
370 findings demonstrate that self-inflated narcissism is not as 'adaptive' as it was previously  
371 termed (cf. Barry & Malkin, 2010), and that dominant narcissism may be more beneficial in  
372 performance settings than its prior impression, at least when self-inflated narcissism is high.



373           Moreover, goal-setting appears to be a useful self-enhancement strategy to aid athlete  
374 training, especially for those high in self-inflated narcissism. As training environments offer  
375 low opportunity for self-enhancement, narcissists, particularly those high in self-inflated  
376 narcissism, are less likely to strive during training (Roberts et al., 2018). However, the  
377 present study reveals that athletes high in self-inflated narcissism train better via committing  
378 to goal-setting, probably due to the facilitative role of goals in allowing one to better foresee  
379 the opportunity for glory afforded by training environments. This particular finding dovetails  
380 other work showing that coach-created performance climates create a sense of self-  
381 enhancement and increase narcissistic athletes' effort in training (Roberts et al., 2015). While  
382 Roberts et al. suggested that fostering a performance climate or making practice more of a  
383 competition can be particularly beneficial to athletes high in narcissism, the current study  
384 offers support for goal-setting as an alternative self-enhancement strategy to optimize  
385 training. Nonetheless, although performance climate and goal-setting use seem to have  
386 similar self-enhancement effects for athlete training, the former reflects more a top-down or  
387 coach-oriented strategy while the latter reflects more a bottom-up or athlete-driven approach.  
388 Researchers and practitioners would do well to consider the use of goal-setting as an effective  
389 self-enhancement strategy in athlete training, either as a supplement to or in combination  
390 with other approaches.

391           Furthermore, the findings indicate that while athletes high in self-inflated narcissism  
392 seem to take advantage of goal-setting in their training, the use of such a performance  
393 strategy seems less beneficial to those high in dominant narcissism. Typically, the results  
394 showed that when dominant narcissism was low, goal-setting use mitigated the association of  
395 self-inflated narcissism and poorer training (see dotted lines in Figure 2). However, when  
396 dominant narcissism was high, such effects become less apparent or indeed failed to emerge  
397 (see solid lines in Figure 2). As goal-setting is considered an important self-enhancement

398 strategy, the findings indicate that perceived opportunity for self-enhancement does not  
399 always motivate individuals to strive, especially when one is high in dominant narcissism. It  
400 is possible that self-inflated narcissism might be more associated with impulsivity or a focus  
401 on short-term reward that self-enhancement might bring, whereas dominant narcissism might  
402 be more related to a long-term desire to gain benefit and to achieve control over situations.  
403 Consequently, some self-enhancement strategies may not add extra motivation to those high  
404 in dominant narcissism because such strategies may provide a short-term sense of glory but  
405 do not help achieve dominance and personal control in the long term.

406         Alternatively, it is possible that narcissists in general tend to set short-term goals. As  
407 such, narcissists may be more likely to use goal-setting as a short-term strategy that only  
408 benefits those focusing on short-term reward (i.e., high in self-inflated narcissism) rather than  
409 long-term dominance (i.e., high in dominant narcissism). Also, if individuals high in  
410 dominant narcissism focus more on the long-term “gain”, any short-term strategies such as  
411 creating a sense of self-enhancement might simply be less effective. Future research should  
412 consider using short- and long-term focus of interests to further distinguish between self-  
413 inflated and dominant narcissism in relation to training. This future direction would  
414 contribute to the theoretical development of these different narcissistic facets along with the  
415 exploration of individualized strategies to enhance athlete training.

416         In addition, from a wider perspective, the potentially different roles of self-inflated  
417 and dominant narcissism in athletic training suggest that a 2 (i.e., high vs low self-inflated  
418 narcissism)  $\times$  2 (i.e., high vs low dominant narcissism) framework encapsulating the varying  
419 within-person combinations of self-inflated and dominant narcissism is a fruitful direction for  
420 theoretical advancement in multidimensional narcissism research. Our findings provide  
421 partial support for a 2  $\times$  2 framework in relation to athlete training, as self-inflated narcissism  
422 was detrimental to training when dominant narcissism was low, but not high. However, it

423 would be premature to suggest a full picture of the possible distinctive effects among the  
424 tetrads of narcissism (i.e., high/low self-inflated narcissism  $\times$  high/low dominant narcissism).  
425 Future research should consider testing the  $2 \times 2$  framework in sport and beyond<sup>5</sup>.

426 Finally, the ICC was particularly large for coach-rated quality of preparation (.47).  
427 The high ICC suggests a salient variation of coach-rated quality of preparation between the  
428 different participating sport teams. The varied coach-rating is not a surprise given the fact  
429 that the study samples involved athletes from different levels (university, premier leagues,  
430 national teams) and sport types (team and individual sports). However, it is also possible that  
431 how coaches rate athlete quality of preparation is particularly subject to their interpretation of  
432 the questionnaire items. Researchers and practitioners should be mindful of this issue when  
433 analyzing coach-rated quality of preparation in future work.

#### 434 **Limitations**

435 The present research is not without limitations. First, the cross-sectional design of the  
436 present research may invite concern regarding causality between our study variables.  
437 However, the effects are clear, novel, well-powered, and meaningful for advancing theory  
438 and practice in relating to the understanding of narcissism and the utilization of goal-setting  
439 in athlete training settings. Despite its correlational nature, the present research also offers  
440 insights into valuable directions for future research.

441 Another limitation points to the measure of goal-setting. That is, the TOPS-3 (Arthur  
442 et al., 2017) assesses global goal-setting use and does not detail the use of different goal  
443 types. The literature suggests that there are at least three types of goals including outcome,  
444 performance, and process goals (see Kingston & Wilson, 2008). Treating the different goal  
445 types as homogeneous in the TOPS-3 may not offer information on which roles the different  
446 goals may play within the relationship between narcissism, goal-setting, and training. Since  
447 process goals are thought to be essential stepping stones to the fulfilment of

448 performance/outcomes goals (Kingston & Wilson, 2008), failing to distinguish between the  
449 different goals makes it difficult to evaluate the extent to which athletes may link the  
450 (present) practice to (future) performance when engaging in goal-setting<sup>6</sup>. Also, the use of  
451 TOPS-3 to measure goal-setting means one cannot distinguish between the different goal  
452 orientations such as mastery vs performance, or approach vs avoidance goals (e.g., Elliot &  
453 McGregor, 2001). Indeed, it is possible that self-inflated and dominant narcissism may relate  
454 to different goal orientations (see also Elliot & Thrash, 2001), which may conduce to  
455 different outcomes. Future research should consider the roles of different goal types and  
456 orientations when examining narcissism and goal-setting in training contexts.

457         Moreover, as this study focused solely on goal-setting, we ignored other  
458 psychological skills that may contribute to narcissists' training. Roberts et al. (2010, 2013)  
459 demonstrated that narcissistic individuals performed well in competition only when they used  
460 imagery, relaxation, and self-talk. Further, Roberts et al. also found that relatively non-  
461 narcissistic individuals performed well in competition when they had good emotional control  
462 skills but received no benefit from using self-talk and relaxation. However, it is unclear about  
463 the extent to which these psychological skills facilitate narcissistic athletes' training. Future  
464 research should consider examining the effects of different psychological skills in relation to  
465 narcissism and training.

466         Finally, the conceptualizations and discussions on narcissism in the present research  
467 are only relevant to its grandiose and agentic form; different forms of narcissism also likely  
468 play different roles in athlete training. For example, vulnerable narcissism reflects  
469 hypersensitivity and hypervigilance to criticism and failure (Miller et al., 2011); athletes high  
470 in vulnerable narcissism may struggle to cope with setbacks during training. Future research  
471 would do well to examine the potential negative influence of vulnerable narcissism in athlete  
472 training and explore ways to protect against them.

473

**Conclusions**

474

Training environments are relatively low in the opportunity for self-enhancement, and

475

the present research demonstrates that self-inflated narcissism can negatively impact athlete

476

training behaviors. However, dominant narcissism, and the performance strategy of goal-

477

setting helps athletes to foresee the opportunity for glory. In athlete training, although self-

478

inflated narcissism may not be particularly 'adaptive', dominant narcissism can be beneficial.

479

Future research would do well to explore strategies for optimal training while taking athlete

480

individual differences into account.

481

482

**References**

- 483 Ackerman, R. A., Witt, E. A., Donnellan, M. B., Trzesniewski, K. H., Robins, R. W., &  
484 Kashy, D. A. (2011). What does the narcissistic personality inventory really measure?  
485 *Assessment, 18*, 67–87. DOI:10.1177/1073191110382845
- 486 American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental*  
487 *disorders (5th ed.)*. Arlington, VA: American Psychiatric Publishing.
- 488 Ames, D. R., & Kammrath, L. K. (2004). Mind-reading and metacognition: Narcissism, not  
489 actual competence, predicts self-estimated ability. *Journal of Nonverbal Behavior, 28*,  
490 187–209. DOI:10.1023/B:JONB.0000039649.20015.0e
- 491 Arthur, C. A., Woodman, T., Ong, C. W., Hardy, L., & Ntoumanis, N. (2011). The role of  
492 athlete narcissism in moderating the relationship between coaches' transformational  
493 leader behaviors and athlete motivation. *Journal of Sport & Exercise Psychology, 33*, 3–  
494 19. DOI:10.1123/jsep.33.1.3
- 495 Arthur, R. A., Fitzwater, J., Roberts, R., Hardy, J., & Arthur, C. A. (2017). Psychological  
496 skills and “the Paras”: The indirect effects of psychological skills on endurance. *Journal*  
497 *of Applied Sport Psychology, 29*, 449–465. DOI:10.1080/10413200.2017.1306728
- 498 Barry, C. T., Frick, P. J., & Killian, A. L. (2003). The relation of narcissism and self-esteem  
499 to conduct problems in children: a preliminary investigation. *Journal of Clinical Child*  
500 *and Adolescent Psychology, 32*, 139–152. DOI:10.1207/S15374424JCCP3201
- 501 Barry, C. T., & Malkin, M. L. (2010). The relation between adolescent narcissism and  
502 internalizing problems depends on the conceptualization of narcissism. *Journal of*  
503 *Research in Personality, 44*, 684–690. DOI:10.1016/j.jrp.2010.09.001
- 504 Beattie, S., Dempsey, C., Roberts, R., Woodman, T., & Cooke, A. (2017). The moderating  
505 role of narcissism on the reciprocal relationship between self-efficacy and performance.  
506 *Sport, Exercise, and Performance Psychology, 6*, 199–214. DOI:10.1037/spy0000092

- 507 Brown, T. (2006). *Confirmatory factor analysis for applied research*. New York: Guildford.
- 508 Cai, H., & Luo, Y. L. L. (2018). Distinguishing between Adaptive and Maladaptive  
509 Narcissism. In A. D. Hermann, A. B. Brunell, & J. D. Foster (Eds.), *Handbook of trait*  
510 *narcissism* (pp. 97–104). New York, NY: Springer International Publishing.
- 511 Campbell, W. K., Goodie, A. S., & Foster, J. D. (2004). Narcissism, confidence, and risk  
512 attitude. *Journal of Behavioral Decision Making*, *17*, 297–311. DOI:10.1002/bdm.475
- 513 Chang, S. J., Van Witteloostuijn, A., & Eden, L. (2010). From the Editors: Common method  
514 variance in international business research. *Journal of International Business Studies*,  
515 *41*, 178–184. DOI:10.1057/jibs.2009.88
- 516 Elliot, A. J., & McGregor, H. A. (2001). A 2 X 2 achievement goal framework. *Journal of*  
517 *Personality and Social Psychology*, *80*, 501–519. DOI:10.1037/0022-3514.80.3.501
- 518 Elliot, A. J., & Thrash, T. M. (2001). Narcissism and motivation. *Psychological Inquiry*, *12*,  
519 216–219. DOI:10.1023/A:1009009018235
- 520 Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G\* Power 3: A flexible statistical  
521 power analysis program for the social, behavioral, and biomedical sciences. *Behavior*  
522 *Research Methods*, *39*, 175–191. DOI:10.3758/bf03193146
- 523 Gabriel, M. T., Critelli, J. W., & Ee, J. S. (1994). Narcissistic illusions in self-evaluations of  
524 intelligence and attractiveness. *Journal of Personality*, *62*, 143–155. DOI:10.1111/1467-  
525 6494.ep9406221282
- 526 Hardy, L., Barlow, M., Evans, L., Rees, T., Woodman, T., & Warr, C. (2017). Great British  
527 medalists: Psychosocial biographies of Super-Elite and Elite athletes from Olympic  
528 sports. In V. Walsh, M. Wilson, & B. B. T.-P. in B. R. Parkin (Eds.), *Sport and the*  
529 *Brain: The Science of Preparing, Enduring and Winning* (pp. 1–119). Cambridge, MA:  
530 Academic Press, Elsevier.

- 531 Hardy, L., Jones, G., & Gould, D. (1996). *Understand Psychological Preparation for Sport:*  
532 *Theory and Practice of Elite Performers*. Hoboken NJ: John Wiley & Sons, Inc.
- 533 Hardy, L., Roberts, R., Thomas, P. R., & Murphy, S. M. (2010). Test of Performance  
534 Strategies (TOPS): Instrument refinement using confirmatory factor analysis.  
535 *Psychology of Sport and Exercise, 11*, 27–35. DOI:10.1016/j.psychsport.2009.04.007
- 536 Hill, A. P., & Madigan, D. J. (2017). A short review of perfectionism in sport, dance and  
537 exercise: out with the old, in with the 2 × 2. *Current Opinion in Psychology, 16*, 72–77.  
538 DOI: 10.1016/j.copsyc.2017.04.021
- 539 Hox, J. J. (1995). *Applied Multilevel Analysis*. Amsterdam: TT-Publikaties.
- 540 Jaccard, J., & Turrisi, R. (2003). *Interaction effects in multiple regression* (2nd ed.). Sage  
541 University Papers series on Quantitative Applications in the Social Sciences, 07–072.  
542 Thousand Oaks, CA: Sage.
- 543 Kingston, J. M., & Wilson, K. (2008). The application of goal-setting in sport. In S. D.  
544 Mellalieu & S. Hanton (Eds.), *Advances in applied sport psychology: A review* (pp. 75–  
545 123). London: Routledge.
- 546 Miller, J. D., Hoffman, B. J., Gaughan, E. T., Gentile, B., Maples, J., & Campbell, W. K.  
547 (2011). Grandiose and vulnerable narcissism : A nomological network analysis. *Journal*  
548 *of Personality, 79*, 1013-1042. DOI:10.1111/j.1467-6494.2010.00711.x
- 549 Miller, J. D., Price, J., & Campbell, W. K. (2012). Is the Narcissistic Personality Inventory  
550 still relevant? A test of independent grandiosity and entitlement scales in the assessment  
551 of narcissism. *Assessment, 19*, 8–13. DOI:10.1177/1073191111429390
- 552 Morf, C. C., Horvath, S., & Torchetti, L. (2011). Narcissistic self-enhancement: Tales of  
553 (successful?) self-portrayal. In M. D. Alicke & C. Sedikides (Eds.), *Handbook of self-*  
554 *enhancement and self-protection* (pp. 399–424). New York: Guilford.



- 555 Muthén, L. K., & Muthén, B. O. (2015). *Mplus User's Guide* (Seventh). Los Angeles, CA:  
556 Muthén & Muthén. DOI:10.1111/j.1532-5415.2004.52225.x
- 557 Newton, M., Duda, J. L., & Yin, Z. (2000). Examination of the psychometric properties of  
558 the perceived motivational climate in sport questionnaire-2 in a sample of female  
559 athletes. *Journal of Sports Sciences*, *18*, 275–290. DOI:10.1080/026404100365018
- 560 Raskin, R. N., & Hall, C. S. (1979). A narcissistic personality inventory. *Psychological*  
561 *Reports*, *45*, 590. DOI:10.2466/pr0.1979.45.2.590
- 562 Rees, T., Hardy, L., Güllich, A., Abernethy, B., Côté, J., Woodman, T., ... Warr, C. (2016).  
563 The Great British Medalists Project: A Review of Current Knowledge on the  
564 Development of the World's Best Sporting Talent. *Sports Medicine*, *46*, 1041–1058.  
565 DOI:10.1007/s40279-016-0476-2
- 566 Roberts, R., Callow, N., Hardy, L., Woodman, T., & Thomas, L. (2010). Interactive effects of  
567 different visual imagery perspectives and narcissism on motor performance. *Journal of*  
568 *Sport & Exercise Psychology*, *32*, 499–517.
- 569 Roberts, R., Cooke, A., Woodman, T., Hupfeld, H., Barwood, C., & Manley, H. (2019).  
570 When the going gets tough, who gets going? An examination of the relationship  
571 between narcissism, effort, and performance. *Sport, Exercise, and Performance*  
572 *Psychology*, *8*, 93–105. DOI:10.1037/spy0000124
- 573 Roberts, R., & Woodman, T. (2015). Contemporary personality perspectives in sport  
574 psychology. In S. Mellalieu & S. Hanton (Eds.), *Contemporary advances in sport*  
575 *psychology: A review* (pp. 1–27). London: Routledge.
- 576 Roberts, R., & Woodman, T. (2017). Personality and performance: moving beyond the Big 5.  
577 *Current Opinion in Psychology*, *16*, 104–108. DOI:10.1016/j.copsyc.2017.03.033

- 578 Roberts, R., Woodman, T., Hardy, L., Davis, L., & Wallace, H. M. (2013). Psychological  
579 skills do not always help performance: The moderating role of narcissism. *Journal of*  
580 *Applied Sport Psychology, 25*, 316–325. DOI:10.1080/10413200.2012.731472
- 581 Roberts, R., Woodman, T., Lofthouse, S., & Williams, L. (2015). Not all players are equally  
582 motivated: The role of narcissism. *European Journal of Sport Science, 15*, 536–542.  
583 DOI:10.1080/17461391.2014.987324
- 584 Roberts, R., Woodman, T., & Sedikides, C. (2018). Pass me the ball: Narcissism in  
585 performance settings. *International Review of Sport and Exercise Psychology, 11*, 190–  
586 213. DOI:10.1080/1750984X.2017.1290815
- 587 Smith, M. J., Arthur, C. a., Hardy, J., Callow, N., & Williams, D. (2013). Transformational  
588 leadership and task cohesion in sport: The mediating role of intrateam communication.  
589 *Psychology of Sport and Exercise, 14*, 249–257. DOI:10.1016/j.psychsport.2012.10.002
- 590 Vaughan, R., Madigan, D. J., Carter, G. L., & Nicholls, A. R. (2019). The dark triad in male  
591 and female athletes and non-athletes: Group differences and psychometric propoerties of  
592 the Short Dark Triad (SD3). *Psychology of Sport & Exercise, 43*, 64-72. DOI:  
593 10.1016/j.psychsport.2019.01.002
- 594 Vazire, S. (2006). Informant reports: A cheap, fast, and easy method for personality  
595 assessment. *Journal of Research in Personality, 40*, 472–481.  
596 DOI:10.1016/j.jrp.2005.03.003
- 597 Washburn, J. J., McMahon, S. D., King, C. A., Reinecke, M. A., & Silver, C. (2004).  
598 Narcissistic features in young adolescents: Relations to aggression and internalizing  
599 symptoms. *Journal of Youth and Adolescence, 33*, 247–260.  
600 DOI:10.1023/B:JOYO.0000025323.94929.d9

- 601 Woodman, T., Roberts, R., Hardy, L., Callow, N., & Rogers, C. H. (2011). There is an “I” in  
602 TEAM: Narcissism and social loafing. *Research Quarterly for Exercise and Sport*, *82*,  
603 285–290. DOI:10.5641/027013611X13119541883988
- 604 Woodman, T., Zourbanos, N., Hardy, L., Beattie, S., & McQuillan, A. (2010). Do  
605 performance strategies moderate the relationship between personality and training  
606 behaviors? An exploratory study. *Journal of Applied Sport Psychology*, *22*, 183–197.  
607 DOI:10.1080/10413201003664673
- 608 Zhang, S., Beattie, S., Pitkethly, A., & Dempsey, C. (2019). Lead me to train better:  
609 Transformational leadership’s moderation of the negative relationship between athlete  
610 personality and training behaviours. *The Sport Psychologist*, *33*, 119–128.  
611 DOI:10.1123/tsp.2018-0055
- 612 Zhang, S., Roberts, R., Woodman, T., & Cooke, A. (2020). I am great, but only when I also  
613 want to dominate: Maladaptive narcissism moderates the relationship between adaptive  
614 narcissism and performance under pressure. *Journal of Sport and Exercise Psychology*,  
615 *42*, 323–335. DOI:10.1123/jsep.2019-0204
- 616 Zhang, S., Woodman, T., & Roberts, R. (2018). Anxiety and fear in sport and performance.  
617 In *Oxford research encyclopedia of psychology*. New York, NY: Oxford University  
618 Press. DOI: 10.1093/acrefore/9780190236557.013.162

619  
620  
621  
622  
623  
624  
625  
626  
627  
628  
629  
630  
631  
632  
633  
634  
635  
636  
637  
638  
639  
640  
641  
642

### Notes

1. As a supplement to our view, it might be more appropriate to use the phrase “individual high in narcissism” as opposed to “narcissist”. We used the two phrases interchangeably in the manuscript to avoid unnecessary repeats of terms and emphasized that extrapolating categorical labels (e.g., narcissist vs non-narcissist) is an inappropriate practice and a mis-use of the NPI.
2. We used the diagonally weighted least squares (WLSMV in the Mplus) approach for the CFAs. The WLSMV is a robust estimator and does not assume normally distributed variables and is considered the best option for modelling such data (Brown, 2006). Given the dichotomous nature of the NPI items, WLSMV is a more appropriate approach compared to the MLR (robust maximum likelihood) or ML (maximum likelihood) approaches that usually deal with continuous data.
3. Chi-Square value for the WLSMV and other robust estimations (e.g., MLR) cannot be used for Chi-Square difference testing in the regular way. We used the DIFFTEST option that is designed for WLSMV difference testing in Mplus (see Muthén & Muthén, 2015).
4. Based on a suggestion from an anonymous reviewer, we direct interested readers to the Supplementary Table S3 for the full details of regression statistics and the analysis on coping with adversity. We did not hypothesize any effects on coping with adversity because narcissists are generally overoptimistic and thus are less likely to set goals to help them cope. However, to retain the integrity of the QTI we kept these items in the measure. For completeness we analyzed the data and report the findings in Table S3.
5. We thank an anonymous reviewer for this point.
6. We thank an anonymous reviewer for this point.

Table 1  
*Descriptive statistics and zero-order correlations between study variables*

Measure	1	2	3	4	5	6	7	8	9
(1) Age (Yrs)	-	-.05	.47**	-.11	.05	-.11	-.01	-.04	-.02
(2) Sex (1-male, 0-female)		-	.21	.04	.03	.08	-.02	-.02	-.01
(3) Training experience (Yrs)			-	-.01	.04	.01	.01	-.23	.05
(4) NPI total score				(.84)	.79**	.86**	.09	.16*	-.04
(5) Self-inflated narcissism					(.74)	.47**	.17	.10	.04
(6) Dominant narcissism						(.72)	.01	.15*	-.06
(7) Goal-setting							(.83)	-.06	.04
(8) Distractibility								(.89)	-.22*
(9) Quality of preparation									(.91)
Mean	21.88	.48	8.31	.38	.49	.30	3.33	4.07	6.13
SD	5.72	.53	6.05	.17	.21	.18	.73	1.35	1.51

*Note.* NPI = Narcissistic Personality Inventory. Cronbach's alphas are in parentheses.

The possible mean score range is 0-1 for NPI total score, Self-inflated narcissism and Dominant narcissism, 1-5 for Goal-setting, and 1-9 for Distractibility and Quality of Preparation.

\*  $p < .05$ ; \*\*  $p < .01$

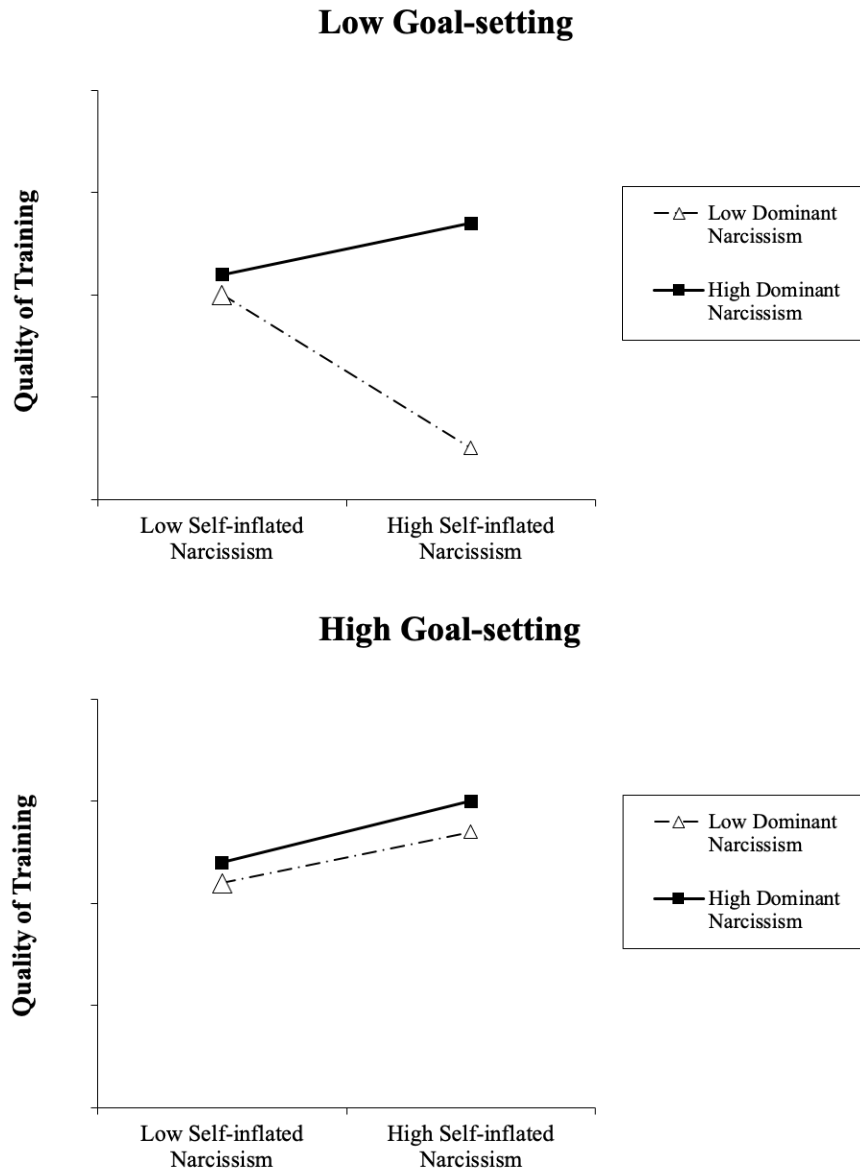


Figure 1. The hypothesized three-way interaction between self-inflated narcissism, dominant narcissism, and goal-setting on athlete quality of training.

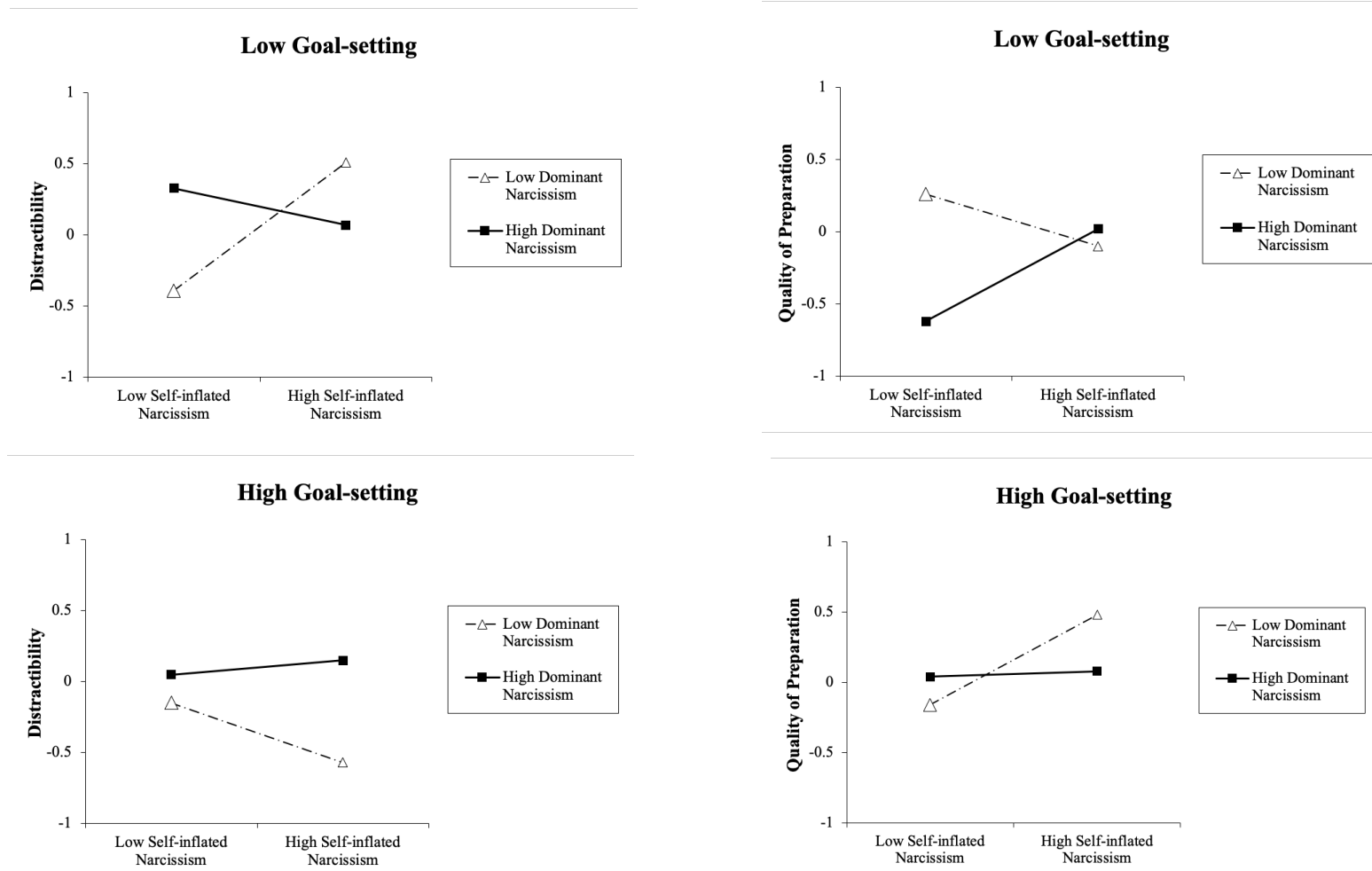


Figure 2. The nature of the self-inflated  $\times$  dominant narcissism  $\times$  goal-setting interaction on athlete distractibility (left panel) and quality of preparation (right panel) at the within-team level. All variables were standardized. Regression slopes were derived from regression equations with hypothetical individuals who are one standard deviation below or above the mean.

Table S1

*Self-inflated and dominant facets of the Narcissistic Personality Inventory (NPI-40; Raskin & Hall, 1979)*

	Narcissistic Response	Non-narcissistic Response
<b>Self-inflated Narcissism</b>		
<b>Item #1</b>	I have a natural talent for influencing people.	I am not good at influencing people.
<b>8</b>	I will be a success.	I am not too concerned about success.
<b>10</b>	I think I am a good leader.	I am not sure if I would be a good leader.
<b>11</b>	I am assertive.	I wish I were more assertive.
<b>12</b>	I like having authority over people.	I don't mind following orders.
<b>32</b>	People always seem to recognize my authority.	Being an expert about something doesn't mean that much to me.
<b>33</b>	I would prefer to be a leader.	It makes little difference to me whether I am a leader or not.
<b>36</b>	I am a born leader.	Leadership is a quality that takes a long time to develop.
<b>17</b>	I like to take responsibility for making decisions.	If I feel competent I am willing to take responsibility for making decisions.
<b>*21</b>	I always know what I am doing.	Sometimes I'm not sure of what I'm doing.
<b>*22</b>	I rarely depend on anyone else to get things done.	I sometimes depend on people to get things done.
<b>*31</b>	I can live my life in any way I want to.	People can't always live their lives in terms of what they want.
<b>34</b>	I am going to be a great person.	I hope that I am going to be successful.
<b>39</b>	I am more capable than other people.	There is a lot that I can learn from other people.
<b>Dominant Narcissism</b>		
<b>Item #2</b>	Modesty doesn't become me.	I am essentially a modest person.
<b>*3</b>	I would do almost anything on a dare.	I tend to be a fairly cautious person.
<b>7</b>	I like to be the center of attention.	I prefer to blend in with the crowd.
<b>20</b>	I usually show off when I get the chance.	I try not to be a show off.
<b>*28</b>	I like to start new crazes and fashions.	I don't pay attention to the latest crazes or fashions.
<b>30</b>	I really like to be the centre of attention.	I am not comfortable being the centre of attention.
<b>38</b>	I get upset when people don't notice how I look in public.	I don't mind blending into the crowd when I go out in public.
<b>5</b>	If I ruled the world, it would be a better place.	The thought of ruling the world frightens the hell out of me.
<b>*14</b>	I insist upon getting the respect that is due me.	I usually get the respect that I deserve.
<b>18</b>	I want to amount to something in the eyes of the world.	I just want to be reasonably happy.
<b>24</b>	I expect to get a lot from other people.	I like to do things for other people.
<b>25</b>	I will never be satisfied until I get all that I deserve.	I take my satisfactions as they come.
<b>27</b>	I have a strong will to power.	Power for its own sake doesn't interest me.
<b>6</b>	I can usually talk my way out of anything.	I try to accept the consequences of my behaviour.
<b>13</b>	I find it easy to manipulate people.	I don't like it when I find myself manipulating people.
<b>*16</b>	I can read people like a book.	People are sometimes hard to understand.
<b>23</b>	Everybody likes to hear my stories.	Sometimes I tell good stories.
<b>35</b>	I can make anybody believe anything I want them to.	People sometimes believe what I tell them.

Note. CFA supported an acceptable factor structure; Robust  $\chi^2 = 702.10$ ,  $df = 463$ , CFI = .87, RMSEA = .04 (90% CI [.03, .05]), SRMR = .10. Test of Chi-square Differences (using the DIFFTEST option in Mplus) suggested the two-factor model manifested better model fit compared to the one-factor solution (Robust  $\chi^2 = 804.11$ ,  $df = 464$ , CFI = .80, RMSEA = .05 (90% CI [.04, .06]), SRMR = .11);  $\Delta\chi^2 = 44.35$ ,  $df = 1$ ,  $p < .001$  (see Table S2 for factor loadings for the two CFAs). An asterisk (\*) indicates item loading below .40; however, removing these items did not improve model fit.



Table S2

*Standardized factor loadings for the two-factor model of self-inflated and dominant narcissism (derived from the NPI-40) and its unidimensional solution*

Items	Two-factor Model		Single-factor Model
	Self-inflated Narcissism	Dominant Narcissism	
1	.72		.65
8	.43		.37
10	.57		.48
11	.59		.50
12	.65		.59
32	.53		.46
33	.61		.52
17	.50		.44
*21	.33		.29
*22	.31		.17
*31	.30		.28
34	.46		.40
36	.75		.65
39	.60		.55
2		.43	.31
*3		.32	.29
7		.80	.76
20		.59	.54
*28		.38	.35
30		.85	.79
38		.73	.68
6		.49	.44
13		.53	.49
*16		.20	.17
23		.57	.52
35		.48	.45
5		.48	.35
*14		.33	.32
18		.46	.44
24		.45	.42
25		.47	.45
27		.60	.56

Note. We used the diagonally weighted least squares (WLSMV in the Mplus) approach for the CFAs. The WLSMV is a robust estimator and does not assume normally distributed variables and is considered the best option for modelling such data (Brown, 2006). Given the dichotomous nature of the NPI items, WLSMV is a more appropriate approach compared to the MLR (robust maximum likelihood) or ML (maximum likelihood) approaches that usually deal with continuous data. An asterisk (\*) indicates item loading below .40; however, removing these items did not improve model fit. Factor loading of each item was better in the two-factor model.

