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An update and extension of the independent effects approach to perfectionism in sport, dance, and exercise

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Most research on perfectionism in sport, dance, and exercise continues to examine the effects of dimensions of perfectionism separately. In this chapter, we describe this independent effects approach and revisit our previous review of research that has adopted it in sport, dance, and exercise. In doing so, we provide an updated account of the thoughts, emotions, and behaviours related to multidimensional perfectionism. In a further extension of our previous work, we also include a focus on the *total unique effect* of perfectionism. This is a new approach to examining the effects of multidimensional perfectionism and can be used to help determine whether, overall, perfectionism is adaptive, maladaptive, or neutral. Our updated review shows that research in this area continues to grow, most notably in sport. In addition, consistent with our previous review perfectionistic concerns and perfectionistic strivings continue to be associated with contrasting patterns of effects. In illustrating the use of total unique effects, we show for the first time that, overall, perfectionism is likely to be maladaptive in these domains, largely due to the relative influence of perfectionistic concerns.

Perfectionism in sport, dance, and exercise

As described in previous chapters in this book, there are several different multidimensional models of perfectionism that have been adopted in research in sport, dance, and exercise. Here, we follow the hierarchical model described in Chapter 1. Specifically, we consider the dimensions of perfectionism drawn from separate models to be indicative of two higher-order dimensions. Perfectionistic strivings capture “aspects of perfectionism associated with self-oriented striving for perfection and the setting of very high personal performance standards” (Gotwals et al., 2012, pp. 264). Perfectionistic concerns capture “aspects associated with concerns over making mistakes, fear of negative social evaluation, feelings of discrepancy between one’s expectations and performance, and negative reactions to imperfection” (Gotwals et al., 2012, pp. 264). When considering how these two broad

dimensions of perfectionism might manifest in sport, dance, and exercise, it might be apparent that they have the potential to have opposing effects. One might visualise this as a tug of war, with perfectionistic strivings pulling hard in one direction and perfectionistic concerns pulling hard in the other.

The competing forces of perfectionistic strivings and concerns are often evident in the personal accounts of perfectionistic athletes. One recent illustrative example is provided from tennis in the case of Emma Raducanu. At the 2021 US Open, Raducanu, a self-identified perfectionist, became the first qualifier to win a coveted grand slam since the open era began in 1968. Both perfectionistic strivings and perfectionistic concerns appear to have been instrumental in her development and in shaping her experiences. When recounting her formative years, Raducanu (2022) has expressed the importance of her drive for exacting and perfectionistic standards for her success. However, she also cited the strain of an inability to accept even minor mistakes, how it could be "really self-destructive," and recognised the need to try to let go of her unrealistic pursuit of perfection.

Capturing the independent effects of perfectionistic strivings and concerns

One of the most common approaches to examining perfectionistic behaviours in sport, dance, and exercise, is to focus on the effects of perfectionistic strivings and perfectionistic concerns separately. This approach is based firmly on the notion that perfectionism is multidimensional and that the two main dimensions ought to be differentiated. The differentiation between the two dimensions is important because perfectionistic strivings and perfectionistic concerns have long been shown to have a contrasting pattern of relationships with various criterion variables (Stoeber & Otto, 2006). Consequently, research that considers the two dimensions separately helps address this issue and, in turn, provides insight into the opposing effects of dimensions of perfectionism (Stoeber, 2012). This approach contrasts to

other approaches described later in this book that attempt to examine different combinations or interactive effects of perfectionistic strivings and perfectionistic concerns (see Chapters 5 and 6 for discussion of the tripartite model and 2 × 2 model of perfectionism, respectively).

The first approach to examining the effects of perfectionistic strivings and perfectionistic concerns separately is to do so in a manner that ensures each dimension is conceptually 'intact' and statistically unaltered. That is, any relationship between the two dimensions is not statistically controlled or taken into account. Here, we are referring to an approach that examines the linear relationship between perfectionistic strivings or perfectionistic concerns and some other criterion variable. This approach can be observed in research examining perfectionism in sport, dance, and exercise (and research more widely) when using bivariate correlations (e.g., Madigan et al., 2016) or error-free correlations among latent factors in structural equation modelling (e.g., Curran, 2018).

A second approach to examining the effects of perfectionistic strivings and perfectionistic concerns separately focuses on their unique effects. This entails examination of the effects of perfectionistic strivings and perfectionistic concerns after statistically controlling for their relationship. This is achieved via statistical partialling. Statistical partialling involves holding the effects of one variable constant while examining the effects of another (Lynam, Hoyle, & Newman, 2006). Partialling can take place among predictor variables only (creating semi-partial correlations) or among predictor variables and the criterion variable (creating partial correlations). In the case of the former, new residualised predictor variables are created and the criterion variable is unchanged. In the case of the latter, new residualised predictor variables and a new residualised criterion variable are created. Partialling can be observed in research examining perfectionism in sport, dance, and exercise (and research more widely) when using multiple regression (regression coefficients;

e.g., Květon et al., 2021) and structural equation modelling (path coefficients; e.g., Wang et al., 2020).

The new dimensions of perfectionism that are created following partialling have previously been referred to as “pure” perfectionistic strivings and “pure” perfectionistic concerns (Hill, 2014; Hill & Curran, 2016; Stoeber, 2014). These terms were used to portray the notion that perfectionistic strivings and perfectionistic concerns are not “contaminated” by the other (Stoeber & Otto, 2006). We now consider the terms “residual perfectionistic strivings” and “residual perfectionistic concerns” to be a more accurate and less misleading labels. This is because the “pure” label suggests that following partialling the two dimensions are unrelated to each other when, in fact, it is the residualized variable and the unresidualized opposite that are unrelated (e.g., residual perfectionistic strivings and perfectionistic concerns) (Hill et al., 2018). The term “pure” is also used in the 2 × 2 model of perfectionism when labelling subtypes of perfectionism (see Chapter 6) so confusion can be avoided in that regard, too.

Partialling is illustrated in Figure 4.1 which depicts the unpartialled, partialled, and semi-partialled relationship between perfectionistic strivings and perfectionistic concerns with a criterion variable. The conceptual ramifications of the creation of residual perfectionistic strivings and residual perfectionistic concerns are discussed later. For now, the reader can simply note that perfectionistic strivings and perfectionistic concerns are altered following statistical partialling and, therefore, warrant new labels.

[Figure 4.1 here]

Partialling perfectionistic strivings and perfectionistic concerns is warranted for several reasons. Firstly, perfectionistic strivings and perfectionistic concerns typically display a positive and moderate relationship with each other. Consequently, if one is interested in whether a particular relationship is due to the unique features of perfectionistic strivings or the unique features of perfectionistic concerns, partialling is necessary. Secondly, perfectionistic strivings and perfectionistic concerns often display opposing relationships with the same criterion variable (e.g., depressive symptoms; Smith et al., 2018). Therefore, examining their unique effects provides a clearer reflection of these divergent relationships. Thirdly, there is evidence that perfectionistic strivings and perfectionistic concerns supress each other and this is especially pronounced for perfectionistic strivings. That is, before partialling, perfectionistic strivings can often appear ambiguous in terms of its correlates but is more clearly adaptive after partialling. Due to these issues, there is value in partialling perfectionistic strivings and perfectionistic concerns and to studying residual perfectionistic strivings and residual perfectionistic concerns (see Hill, 2014, for consideration of some of the pitfalls).

A review of research examining perfectionistic strivings and concerns

A large amount of research has examined perfectionistic strivings and perfectionistic concerns separately. Outside of sport, dance, and exercise, Stoeber and Otto (2006) conducted the first substantial review of perfectionism research and adopted this approach. In terms of perfectionistic strivings and concerns, the first aim of their review was to examine whether the two could be differentiated based on their associations with positive and negative characteristics. The second aim was to investigate whether perfectionistic strivings might be considered positive due to its association with positive characteristics. Studies were considered for inclusion if perfectionistic strivings and perfectionistic concerns had been measured using established multidimensional instruments. This resulted in the inclusion of

thirty-five studies published between 1993 and 2005. The samples in these studies were drawn from undergraduate students, outpatients, and academically gifted children. Of these studies, fifteen examined the correlates of perfectionistic strivings and concerns (the other studies used group-based approaches). To address the second aim, the fifteen studies were graded in terms of the support provided for the notion that perfectionistic strivings are positive or adaptive (viz. positive evidence, negative evidence, mixed evidence, and inconclusive/null findings).

Across the fifteen studies there was a clear distinction between perfectionistic strivings and perfectionistic concerns. The pattern of findings for perfectionistic concerns was straightforward in that they were positively related to negative characteristics (e.g., neuroticism, depression, and avoidant coping) and either unrelated or inversely related to positive characteristics (e.g., self-esteem, positive affect, and social support). However, for perfectionistic strivings, the pattern of findings was more equivocal. That is, in six of the fifteen studies, perfectionistic strivings were found to be positively related to positive characteristics only (e.g., conscientiousness, positive affect, and satisfaction with life). These studies provided positive evidence. In four studies, perfectionistic strivings were related to negative characteristics only (e.g., self-blame, depression, and anxiety). These studies were taken as negative evidence. A further four studies indicated that perfectionistic strivings were related to both positive and negative characteristics (e.g., conscientiousness and neuroticism). These studies were taken as mixed evidence. There was one inconclusive, null finding, where perfectionistic strivings were found to be unrelated to a positive characteristic (self-esteem).

While this initial categorisation of findings provided useful insight into perfectionistic strivings and perfectionistic concerns, Stoeber and Otto (2006) noted and then addressed a key limitation. Specifically, they identified that findings from the fifteen correlational studies seemed to relate to how strongly perfectionistic strivings and perfectionistic concerns were

correlated, with high correlations ($.45 \leq rs \leq .70$) tending to result in negative evidence or mixed evidence. In accord, the studies were re-examined using partial correlations. The purpose was to identify any change in findings for perfectionistic strivings when the overlap with perfectionistic concerns was controlled for (i.e., when examining residual perfectionistic strivings). Based on partial correlations, ten of the fifteen studies (versus six of fifteen previously) could now be categorised as positive evidence. Of the remaining five studies, no studies were categorised as negative evidence, three provided mixed evidence, and two had inconclusive/null findings. Therefore, controlling for the relationship between perfectionistic strivings and concerns helped to clarify the distinction between the two dimensions, as well as the associations of perfectionistic strivings, in the form of residual perfectionistic strivings.

Building on this work and others (e.g., Stoeber, 2011), Gotwals et al. (2012) conducted the first systematic review of perfectionistic strivings and perfectionistic concerns in sport. The particular focus of the review was on the nature of perfectionistic strivings and its associations with adaptive and maladaptive characteristics, processes, and outcomes. Studies were included if bivariate correlations between indicators of perfectionistic strivings and perfectionistic concerns were reported and at least one characteristic examined could be clearly identified as adaptive (e.g., positive affect, task orientation, and self-esteem) or maladaptive (e.g., negative affect, ego orientation, and symptoms of athlete burnout). This resulted in the inclusion of twenty-six research articles, reporting thirty-one studies, published between 1998 and 2010. Across the thirty-one studies, ninety-two bivariate and partial correlations with adaptive characteristics and one hundred nine bivariate and partial correlations with maladaptive characteristics were examined. These correlations were categorised in terms of support for the degree to which perfectionistic strivings, with perfectionistic concerns unpartialled and partialled, were associated with adaptive versus

maladaptive characteristics (viz. supportive evidence, contrary evidence, mixed evidence, and non-significant findings).

The findings of the review demonstrated a mixed profile for perfectionistic strivings when unpartialled from perfectionistic concerns. In terms of emotions, perfectionistic strivings were positively related to positive emotional experiences, including positive affect, self-confidence, and self-esteem (e.g., Kaye et al., 2008; McArdle & Duda, 2008; Stoeber et al., 2007). They were also positively related to negative emotional experiences, including negative affect, anger, cognitive anxiety, and self-esteem instability (e.g., Dunn et al., 2006; Hall et al., 2009; Kaye et al., 2008). In terms of motivation, perfectionistic strivings were positively related to hope of success, mastery-approach goals, and a task orientation, but also fear of failure, mastery-avoidance goals, performance-avoidance goals, and an ego orientation (e.g., Appleton et al., 2009; Stoeber & Becker, 2008; Stoeber, Stoll et al., 2009). In addition, they were positively related to intrinsic motivation, identified regulation, introjected regulation, and external regulation (McArdle & Duda, 2004). Finally, in terms of performance, perfectionistic strivings were positively related with performance in training and performance in competition (Stoeber, Uphill et al., 2009; Stoll et al., 2008).

The profile of residual perfectionistic strivings mirrored the profile of perfectionistic strivings in relation to performance. However, a more adaptive profile was evident for residual perfectionistic strivings in relation to emotions and motivation. When residual perfectionistic strivings were examined, the relationships with positive emotions became stronger (e.g., Kaye et al., 2008; McArdle & Duda, 2008; Stoeber et al., 2007); the relationships with negative affect, anger, and self-esteem instability became non-significant (e.g., Dunn et al., 2006; Hall et al., 2009; Kaye et al., 2008); and residual perfectionistic strivings displayed an inverse relationship with cognitive and somatic anxiety (e.g., Stoeber et al., 2007). Regarding motivation, the relationships between residual perfectionistic

strivings and adaptive motivation were comparable or stronger (e.g., Appleton et al., 2009; McArdle & Duda, 2004; Stoeber et al., 2008). Specifically, the relationship with fear of failure became inverse (e.g., Stoeber & Becker, 2008); the positive relationships with ego orientation and external regulation were smaller (e.g., Dunn et al., 2002; McArdle & Duda, 2004); and the relationships with mastery-avoidance goals, performance-avoidance goals, and introjected regulation became non-significant (e.g., McArdle & Duda, 2004; Stoeber, Stoll et al., 2009).

The growing body of studies available by the mid-2010s enabled the first meta-analysis of multidimensional perfectionism in sport by Hill et al. (2018). The aim of this meta-analytical review was to update and extend previous reviews by calculating effect sizes across studies for the unpartialled and partialled relationships that perfectionistic strivings and perfectionistic concerns shared with motivation, emotion/well-being, and performance. Hill et al. (2018) included criterion variables providing there were at least three studies to calculate effects and, unlike previous reviews where only clearly adaptive or maladaptive criterion variables were examined, also included criterion variables that were neither clearly adaptive nor maladaptive (e.g., performance approach goals). They were also able to use the meta-analytical approach to assess potential moderators of the effects of perfectionism (gender, age, sport type and the instrument/subscale used to measure perfectionism). The meta-analysis comprised 52 studies and 361 effect sizes.

Consistent with Gotwals et al. (2012), unpartialled perfectionistic strivings displayed a mixed profile of motivation, emotion/well-being and performance. Specifically, Hill et al. (2018) found that perfectionistic strivings shared negligible (task-involving coach climate) -to-medium (intrinsic motivation, mastery approach) positive relationships with adaptive motivation, small positive relationships with mastery avoidance and fear of failure, small-to-medium relationships with identified and introjected regulation, and a medium-to-large

positive relationship with performance approach goals. Further, perfectionistic strivings shared small positive relationships with self-esteem and self-confidence but also trait anxiety, cognitive anxiety and worry, small-to-medium positive relationships with positive affect and enjoyment, and a medium positive relationship with self-criticism. Perfectionistic strivings was unrelated to negative affect, rumination, depressive symptoms and satisfaction. It shared a small-to-medium positive relationship with athletic performance. In line with previous reviews, the profile of residual perfectionistic strivings was more adaptive in terms of motivation and emotion. For example, residual perfectionistic strivings was unrelated to fear of failure and shared a small negative relationship with cognitive anxiety. The relationship with athletic performance remained positive and small-to-medium.

Unpartialled perfectionistic concerns displayed a largely maladaptive profile of motivation and emotion/wellbeing. Specifically, perfectionistic concerns was unrelated to intrinsic motivation, mastery approach goals, shared a small-to-medium positive relationship with ego orientation, medium positive relationships with performance approach goals, performance avoidance goals, mastery avoidance goals and amotivation, a medium-to-large positive relationship with ego-involving coach climate, introjected regulation, external regulation, and fear of failure, and a small negative relationship with task-involving coach climate. Perfectionistic concerns also shared a small-to-medium positive relationship with negative affect, medium positive relationships with trait anxiety, cognitive anxiety, self-criticism, rumination, and depressive symptoms, small-to-medium negative relationships with self-confidence and satisfaction, a medium-to-large negative relationship with self-esteem, and was unrelated to positive affect, enjoyment and athletic performance. As expected, for some variables residual perfectionistic concerns displayed more maladaptive associations (e.g., a large positive relationship with cognitive anxiety, small negative relationship with intrinsic motivation). However, there were a small number of other instances where residual

perfectionistic concerns displayed a relatively less maladaptive profile (e.g., negligible relationship with ego orientation).

Some initial evidence of moderation by gender, age, sport type, and instrument were also found. However, these findings should be interpreted tentatively given they are based on a relatively small number of studies (Hill et al., 2018). For gender, the relationships found for predominantly female samples appeared to be typically more maladaptive than for predominantly male samples (e.g., perfectionistic strivings and negative affect). For age, the differences in the relationships for predominantly adult and adolescent samples were mixed with some relationships more adaptive for adolescents (e.g., perfectionistic strivings and perceived athletic ability) and others more maladaptive for adolescents (e.g., perfectionistic strivings and negative affect). For sport type, some relationships also differed in direction as well as magnitude and significance depending on team versus individual sport (e.g., the relationship between perfectionistic concerns and self-confidence was small, negative and significant for team sports but small, positive and non-significant for individual sports). Finally, for instrument, there was evidence that relationships differed depending on the specific subscales used to measure perfectionistic strivings and perfectionistic concerns. For example, the positive relationship between residual perfectionistic concerns and cognitive anxiety was small and significant when the concern over mistakes subscale was used but large and significant when negative reactions to imperfection was used.

Taken together, we now have an extensive body of knowledge documenting and reviewing the independent effects of perfectionistic strivings and perfectionistic concerns in sport. This work has highlighted perfectionistic concerns to be maladaptive in regards to emotion/wellbeing and motivation. By contrast, perfectionistic strivings are more complex and ambiguous, sharing a mixed pattern of relationships with the same criterion variables but seemingly more advantageous than perfectionistic concerns when it comes to performance.

Also, it is clear from the reviews to date that partialling matters. That is, when the variance between perfectionistic strivings and perfectionistic concerns and the relevant outcome is controlled, the magnitude and in some cases the direction of the relationships can change. Of particular note, while residual perfectionistic concerns are largely similar to perfectionistic concerns, residual perfectionistic strivings often appear much more adaptive than perfectionistic strivings.

An Updated Review of the Independent Effects of Perfectionism

For this current chapter, we have revisited and updated our original review of research that was presented in the first edition of this book. It is valuable to do so, first because since the first edition chapter, interest in perfectionism in sport, dance, and exercise appears to have grown considerably. We are now seeing studies examining perfectionism in these domains in academic journals and at scientific conferences much more frequently. Second, while the first meta-analytical review has also appeared since our last review, it focused only on sport, rather than dance and exercise. It has also been five years since the end of the search date in the Hill et al. (2018) meta-analyses. Therefore, for the benefit of researchers and practitioners, we are seeking to re-establish the state of knowledge and what is now known about the separate effects of perfectionism in these domains. Third, in repeating our review, we have been able to check and correct any previous errors when reporting the features of the studies, correlations and partial corrections.

In conducting the new review, we followed the same methodological approach to our original review. The review is based on an electronic search of PsycINFO, PsycARTICLES, and SPORTDiscus using the terms perfection* (for perfectionism, perfectionist) AND sport OR dance OR exercise) for peer-reviewed journal articles published in English [date of search: 23-06-2022]. The review spanned from January 1990 to July 2022. The search

produced *k* = 804 studies. After removing duplicates, and reviewing titles and abstracts for relevance this was reduced to *k* = 296. As in our previous search we excluded qualitative studies, unidimensional measures of perfectionism, or studies reporting only total scores, studies that used instruments with questionable validity, and those that did not include bivariate correlations. The final total was 156 studies.

[Table 4.1 here]

An obvious initial observation regarding the results of the review is the considerable increase in the number of studies since our first review. The number of studies included in the new review has doubled over a much shorter period (1990 to 2016 versus 2016 to 2022). Most research that has taken place since the first review has done so in a sport domain. Some of this research revisits existing relationships (e.g., burnout) and other research includes previously unexamined variables (e.g., attitudes towards doping). There is also a notable increase in focus on the athlete's social context and performance in newer studies. Of note, too, is that studies in dance and exercise have increased but to a lesser extent. New research in dance and exercise largely includes studies that have examined similar variables found in sport research such as burnout, goals and motives for participation, and psychological needs (e.g., Jowett et al., 2021; Molnar et al., 2021; Nordin-Bates et al., 2020). However, a distinctive focus on exercise dependence and eating pathology is a feature of emerging research in the exercise domain (e.g., Deck et al., 2021).

In regards to the findings of this new research, our updated review supports previous work by again highlighting divergence between perfectionistic strivings

(complex/ambiguous) and perfectionistic concerns (maladaptive). With reference to some of the new criterion variables, perfectionistic strivings, when unpartialled, shared a medium positive relationship with failure/evaluation worry, a small positive relationship with optimism in athletes (Dunn et al., 2020), small-to-medium positive relationships with dimensions of engagement in dancers (Jowett et al., 2021), and large positive relationships with the dark triad personality traits in exercisers (González-Hernández et al., 2021). As expected, residual perfectionistic strivings generally displayed a generally more adaptive profile (e.g., a non-significant relationship with failure/evaluation worry, and a medium positive relationship with optimism). By contrast, perfectionistic concerns, when unpartialled, shared a large positive relationship with failure/evaluation worry and a small negative relationship with optimism (Dunn et al., 2020), medium-to-large positive relationships with the dark triad (González-Hernández et al., 2021), and small negative relationships with engagement (Jowett et al., 2021). Residual perfectionistic concerns displayed a more maladaptive profile with some variables (e.g., small-to-medium negative relationships with engagement), but also a more adaptive profile with others (e.g., small-to-medium relationships with the dark triad).

New research also suggests similar patterns for perfectionistic strivings and perfectionistic concerns in relation to social interactions with coaches and parents. Unpartialled and residual perfectionistic strivings shared small positive correlations with the coach-athlete relationship (Martin et al., 2021) and parental conditional regard (Curran, 2018). By contrast, unpartialled and residual perfectionistic concerns shared non-significant correlations with the coach-athlete relationship, and large positive relationships with parental conditional regard (Curran, 2018). The picture for interactions with peers is less consistent. In the study by Grugan et al. (2019), perfectionistic strivings (unpartialled and residual) shared non-significant relationships with angry reactions towards teammates as well as antisocial

behaviour towards teammates and opponents. By contrast, perfectionistic concerns (unpartialled and residual) shared small positive relationships with these negative peer interactions. Conversely, Mallinson-Howard et al. (2019) found that perfectionistic strivings and perfectionistic concerns, when unpartialled, shared medium positive relationships with antisocial behaviour toward teammates and opponents, and that residual perfectionistic strivings and perfectionistic concerns shared small positive relationships with antisocial behaviour.

More research has begun to emerge examining the relationship between perfectionism and performance. Research findings appear relatively consistent. In regards to perceived performance, perfectionistic strivings was typically positively related to perceived performance and perfectionistic concerns was unrelated (e.g., Haraldsen, et al., 2020), or was negatively related (e.g., Květon et al., 2021), to perceived performance. In regards to actual performance, a similar pattern is evident. Perfectionistic strivings was typically positively related to actual performance whereas perfectionistic concerns was typically negatively related or unrelated to actual performance. This pattern was evident for golf putting (Lizmore et al., 2019), basketball free throws (Madigan et al., 2018), and a range of physical fitness testing (Mallinson-Howard et al., 2021).

In summary, based on the findings of previous reviews and our new review, we see some consensus for the independent effects of perfectionistic concerns and perfectionistic strivings. Perfectionistic concerns are typically problematic as they demonstrate inverse relationships with a range of adaptive characteristics (e.g., positive affect, self-esteem, and social support) and positive relationships with a range of maladaptive characteristics (e.g., negative affect, fear of failure, and avoidant coping) in sport, dance and exercise. When perfectionistic concerns are partialled from perfectionistic strivings, residual perfectionistic concerns do not appear to be discernibly different in terms of their effects. By contrast,

perfectionistic strivings are more ambiguous. Specifically, perfectionistic strivings demonstrate positive relationships with both adaptive (e.g., positive affect, task orientation, and self-confidence) and maladaptive characteristics (e.g., negative affect, ego orientation, and self-blame) in sport, dance and exercise. Some of this ambiguity is explained by the positive correlation between perfectionistic strivings and perfectionistic concerns. That is, when perfectionistic strivings are partialled from perfectionistic concerns, residual perfectionistic strivings can demonstrate positive relationships with adaptive characteristics (e.g., hope for success, mastery-approach goals, and social support) and non-significant or inverse relationships with maladaptive characteristics (e.g., anxiety, fear of failure, and negative affect).

The Case for Total Unique Effects and Relative Weights

A shortcoming of previous reviews in this area, including our own, is that they fail to resolve the tug of war between perfectionistic strivings and perfectionistic concerns. On one hand, we have perfectionistic concerns pulling towards more problematic outcomes and, on the other hand, we have perfectionistic strivings pulling towards less problematic outcomes and some desirable outcomes such as better athletic performance. For many researchers and practitioners this is an unhelpful state of affairs when seeking to advise, educate, and inform others about perfectionism. It is also unnecessary because the partialling approaches described in this chapter can be used to determine the overall effects of perfectionism. That is, they can be used to understand whether athletes, dancers, and exercisers are typically better or worse off because of perfectionism depending on the criterion variable being measured. This is achieved by determining the overall effect of perfectionism and weighing the relative contributions of perfectionistic strivings and perfectionistic concerns to that effect.

Creating total perfectionism scores is not new. Indeed, in the first study of perfectionism in sport, Frost and Henderson (1991) proposed that a total perfectionism score could be calculated as the sum of the subscales included on his multidimensional perfectionism instrument. However, simply adding subscales together provides us with little means to account for the different and unique effects of each dimension. Stoeber et al. (2020) recently attempted to address this shortcoming by calculating a *combined effect* of perfectionistic strivings and concerns. To do so, they adapted the regression equations from the 2 x 2 model of perfectionism (see Chapter 6 in this book) so to compare the effects of a non-perfectionism subtype of perfectionism (low in both perfectionistic strivings and perfectionistic concerns) with a mixed perfectionism subtype (high in both perfectionistic strivings and perfectionistic concerns). The combined effect approach provides a useful way for researchers to assess differences in outcomes between two important subtypes and was the first to recognise the usefulness of deriving an overall effect of perfectionism.

With Stoeber et al.'s (2020) combined effects approach as impetus, Hill et al. (2021) proposed the idea of a *total unique effect* (TUE) that could also be used to determine if perfectionism is, overall, adaptive, maladaptive, or neutral. Unlike, the combined effect approach, the total unique effect does not rely on a "pick-a-point" approach (viz. high versus low scores) or comparison of subtypes. Rather, it is based on summing the unique effects of perfectionistic strivings and perfectionistic concerns to derive a total effect. TUE is calculated by summing the two standardised residual regression coefficients (TUE = βPS + βPC). These are partialled effects that are very similar to the semi-partial correlations introduced earlier. By adding the effects together, TUE is interpreted as the change in the criterion variable following a one standard deviation increase in both perfectionistic strivings and perfectionistic concerns.

As should be evident, TUE is determined by the strength and the direction of the effects of perfectionistic strivings and perfectionistic concerns. This means that when perfectionistic strivings and perfectionistic concerns pull equally in opposing directions in relation to a given outcome, the TUE will signal perfectionism as neutral. When the pull of perfectionistic concerns is stronger (or in cases where perfectionistic strivings and perfectionistic concerns pull in the same direction for an undesirable outcome), the TUE will signal perfectionism as, overall, maladaptive. When the pull of perfectionistic strivings is stronger, the TUE will typically signal that perfectionism is, overall, adaptive (again depending on the criterion variable, though of course). We can test the significance of the TUE by calculating it's standard error (SE) and 95% confidence intervals. A computational example for how to calculate TUE is provided in Hill et al. (2021). Code for R is also available (Hill, 2022a), as is more user-friendly web-based application (Hill, 2022b).

Once TUE is calculated, the contribution of residual perfectionistic strivings and residual perfectionistic concerns to the overall effects is determined by calculating their relative weights. By calculating relative weights, we can assess the percentage of variance in the criterion variable explained by residual perfectionistic strivings or residual perfectionistic concerns. The relative weight can be considered an effect size for residual perfectionistic strivings and residual perfectionistic concerns in context of the TUE. As such, the relative weights also tell us which dimension is more important for a particular criterion variable. So far, the use of TUE has been illustrated using research outside of sport, dance, and exercise (Hill et al., 2021). To show what insight can be gained from applying it to research in these domains, we have illustrated the approach for some of the effects observed in Hill et al (2018) meta-analysis. The results are displayed in Table 4.2.

[Table 4.2 here]

In applying the TUE to the meta-analytical data in sport we can draw conclusions regarding the likely overall effects of perfectionism as an athlete becomes more perfectionistic. Starting with motivation, for task orientation, the non-significant TUE suggests that perfectionism is, overall, neutral. This might be surprising as there is a clear positive effect for perfectionistic strivings but as perfectionistic concerns is pulling in the opposing direction to a similar degree there is no "net gain" for perfectionistic athletes in regards to motivation for this goal orientation. For ego orientation, TUE suggests that, overall, perfectionism is maladaptive. So, as athletes become more perfectionistic, we can expect to deal with the problematic motivation issues that arise from being more ego-oriented (and not task-oriented). In examining the relative weights, we can see that perfectionistic strivings largely accounts for the prediction of task orientation whereas perfectionistic strivings and perfectionistic concerns are equally important in predicting ego orientation.

To consider athlete wellbeing we can use self-confidence and depression as proxies. Like with task orientation, calculation of TUE suggests that there is no net gain of being perfectionistic for self-confidence with increases in perfectionistic strivings and perfectionistic concerns resulting in, overall, a neutral effect. However, based on TUE we can expect athletes to report higher depressive symptoms so in this regard perfectionism is, overall, maladaptive. Indeed, this was the largest total effect we observed in this set of examples. In reviewing the relative weights, we can see a similar contribution to the prediction of self-confidence for the two dimensions of perfectionism but, by some way, perfectionistic concerns accounts for the prediction of depressive symptoms.

The last criterion variable we consider is athletic performance. In this case we see an overall adaptive effect with increases in perfectionism resulting in better athletic performance. There are complexities to this relationship, of course, and we remain unconvinced of the benefits of perfectionism for athlete performance for most people, most of the time. Nonetheless, we have illustrated here that current evidence suggests perfectionism may aid athlete performance, albeit to a small degree. The relative weights in this regard are important, too, as they show, as you would expect, the prediction of performance is almost entirely due to perfectionistic strivings.

Although these TUEs and relative weights are only a small set of examples and are limited to sport, they provide us with important insight into whether, overall, perfectionism is neutral, maladaptive or adaptive. Driven predominantly by perfectionistic strivings, perfectionism appears to offer some small benefit to athletic performance, but at what cost? An overall association with an ego orientation and neutral effects for task orientation and self-confidence alludes to potential motivational difficulties. Furthermore, due predominantly to the pull of perfectionistic concerns, perfectionism is associated with increased risk of maladjustment in the form of depressive symptoms. This is aligned with the TUEs we have seen outside of sport that show maladaptive effects for anxiety, burnout, depression, eating disorders and suicide ideation (Hill et al., 2021). Based on this evidence, we contend that perfectionism is most likely, overall, maladaptive for athletes, dancers, and exercisers.

Concluding comments

In this chapter we described an independent effects approach to examining the two main dimensions of perfectionism and a new approach that focuses on deriving their overall effect and relative weights. Based on previous reviews and our updated review, we believe there is now sufficient evidence to derive consensus regarding the likely effects of

perfectionistic strivings and perfectionistic concerns in sport, dance, and exercise. Because perfectionistic concerns are consistently associated with maladaptive characteristics, we can expect higher levels to undermine motivation and contribute to personal difficulties. Because perfectionistic strivings display a mixed pattern of adaptive and maladaptive characteristics, they are best considered ambiguous. In addition, when examining residual perfectionistic strivings, they appear more adaptive in relation to well-being, motivation, and performance. Beyond these conclusions, if we wish to determine whether, overall, perfectionism is adaptive, maladaptive, or neutral, we need to add the contributions of perfectionistic strivings and perfectionistic concerns to calculate a total effect. Doing so suggests that, overall, perfectionism may aid performance to a small degree but to a much larger degree is likely to be maladaptive for athletes due to the contribution of perfectionistic concerns. Further research is required to establish whether these total effects and conclusions are also evident in dance and exercise, as well as for a broader range of psychological outcomes.

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Table 4.1. *A systematic review of research examining multidimensional perfectionism in sport, dance and exercise*

				Perfectionistic				PS	PC	PS	PC
Study	Sample	Domain	Instru.	*Strivings*	*Concerns*	rPS PC	Criterion variable	*r*	*r*	*pr*	*pr*
Anshel & Seipel (2007)	186 undergraduate students/exercisers	Exercise	F-MPS-b	PST	CM	.15	Social physique anxiety	-.08	.15	-.10	**.16**
Appleton & Hill (2012)	231 junior athletes (12% females)	Sport	CAPS	SOP	SPP	**.23**	Intrinsic motivation	**.35**	.05	**.35**	-.03
							Identified regulation	.07	**.14**	.04	**.13**
							Introjected regulation	**.22**	**.30**	**.16**	**.26**
							External regulation	**.24**	**.24**	**.20**	**.20**
							Amotivation	**-.12**	**.25**	**-.19**	**.29**
							BO: Reduced accomplishment	**-.24**	**.21**	**-.30**	**.28**
							BO: Exhaustion	-.03	**.32**	-.11	**.34**
							BO: Devaluation	**-.29**	**.18**	**-.32**	**.26**
Appleton et al. (2009)	201 male junior and senior athletes	Sport	HF-MPS	SOP	SPP	**.24**	Task orientation	**.24**	-.09	**.27**	**-.16**
							Ego orientation	**.32**	.10	**.31**	.02
							BO: Reduced accomplishment	**-.19**	**.27**	**-.27**	**.33**
							BO: Exhaustion	-.07	**.27**	-.14	**.30**
							BO: Devaluation	**-.17**	**.29**	**-.26**	**.35**
							Satisfaction with goal progress	-.06	**-.20**	-.01	**-.19**
							Coach satisfaction with goal progress	.03	**-.22**	.09	**-.23**
Appleton et al. (2010)	324 male junior athletes	Sport	HF-MPS	SOP	SPP	--	Mother's SOP (MSOP)	.10	.09	--	--
							Mother's SPP (MSPP)	.01	**.22**	--	--

						Mother's OOP (MOOP)	.05	**.19**	--	--
						Athlete's perception of MSOP	**.50**	**.18**	--	--
						Athlete's perception of MSPP	**.23**	**.54**	--	--
						Athlete's perception of MOOP	**.25**	**.28**	--	--
						Father's SOP (FSOP)	**.28**	**.17**	--	--
						Father's SPP (FSPP)	.03	**.16**	--	--
						Father's OOP (FOOP)	**.20**	**.22**	--	--
						Athlete's perception of FSOP	**.57**	**.19**	--	--
						Athlete's perception of FSPP	**.29**	**.50**	--	--
						Athlete's perception of FOOP	**.41**	**.34**	--	--
237 female junior athletes	Sport	HF-MPS	SOP	SPP	--	Mother's SOP (MSOP)	**.20**	.07	--	--
						Mother's SPP (MSPP)	.09	**.30**	--	--
						Mother's OOP (MOOP)	.14	.13	--	--
						Athlete's perception of MSOP	**.42**	**.22**	--	--
						Athlete's perception of MSPP	**.27**	**.43**	--	--
						Athlete's perception of MOOP	**.30**	**.33**	--	--
						Father's SOP (FSOP)	-.01	.14	--	--
						Father's SPP (FSPP)	.07	.10	--	--
						Father's OOP (FOOP)	-.01	**.20**	--	--
						Athlete's perception of FSOP	**.39**	**.20**	--	--
						Athlete's perception of FSPP	.13	**.38**	--	--
						Athlete's perception of FOOP	.15	**.38**	--	--

Arcelus et al. (2015)	281 junior female dancers	Dance	F-MPS	PST	CM	**.67**	Dieting	**.46**	**.58**	**.12**	**.41**
							Bulimia	**.33**	**.44**	.05	**.31**
							Oral control	**.56**	**.22**	**.57**	**-.25**
							Body dissatisfaction	**.43**	**.64**	.00	**.53**
							Depressive symptoms	**.45**	**.61**	.07	**.47**
							Cognitive anxiety	**.31**	**.46**	.00	**.36**
Aruguete et al. (2012)	258 female psychology undergraduates	Exercise	F-MPS	--	CM	--	Trait anger	--	.21	--	--
							Suppressed anger	--	**.35**	--	--
							Drive for thinness	--	**.29**	--	--
							Exercise commitment	--	**.35**	--	--
							Self-loathing	--	**.62**	--	--
Atienza et al. (2020)	429 junior footballers (12% females)	Sport	MIPS	SP	NRI	**.62**	Anxiety	**.24**	**.47**	-.07	**.42**
							Contingent self-worth	**.40**	**.55**	**.09**	**.42**
			HF-MPS-b	SOP	SPP	**.57**	Anxiety	**.23**	**.20**	**.14**	.09
							Contingent self-worth	**.34**	**.54**	.05	**.45**
Bae et al. (2017)	198 adult Olympians (48% females)	Sport	AE-MPS	PST	CM	**.45**	Attitudes towards doping	-.01	**.18**	-.10	**.21**
							Task-involving climate	-.04	.11	-.10	**.14**
							Ego-involving climate	**.16**	**.45**	-.05	**.43**
Barcza-Renner et al. (2016)	487 adult university swimmers (72% females)	Sport	HF-MPS-b	SOP	SPP	**.36**	Autonomous motivation	**.21**	**-.24**	**.33**	**-.35**
							Controlled motivation	**.18**	**.64**	-.07	**.63**
							Amotivation	.01	**.46**	**-.19**	**.49**
							Coaches' controlling use of rewards	**.18**	**.28**	**.09**	**.23**

							Coaches' conditional regard	**.12**	**.41**	-.03	**.40**
							Coaches' intimidation	.07	**.36**	-.07	**.36**
							Coaches' excessive personal control	**.20**	**.38**	.07	**.34**
							Total burnout	.02	**.39**	**-.14**	**.41**
Blažev et al. (2020)	345 adult and adolescent male bodybuilders	Sport	APS-R	HS	D	**.16**	Dissatisfaction with appearance	**-.11**	**.23**	**-.15**	**.25**
							Worry about appearance	-.01	**.44**	**-.09**	**.45**
							Attitudes towards disordered eating	**.21**	.07	**.20**	.04
							Intensity of exercise	.10	**.33**	.05	**.32**
							Perfectionistic self-promotion	**.24**	**.27**	**.21**	**.24**
							Non-display of imperfection	.04	**.45**	-.04	**.45**
							Non-disclosure of imperfection	.07	**.35**	.02	**.34**
Brannan et al. (2009)	204 female university athletes	Exercise	F-MPS	PST	CM	**.41**	Bulimia	**.14**	**.42**	-.04	**.40**
							Body-part satisfaction	.03	**-.38**	**.22**	**-.43**
							Life orientation	.09	**-.31**	**.25**	**-.38**
							Global self-esteem	.08	**-.45**	**.32**	**-.53**
							Exercise for health and fitness	**.21**	-.14	**.30**	**-.25**
							Exercise for appearance	**.21**	**.27**	.11	**.21**
							Exercise for socializing/mood	**.25**	**.16**	**.20**	.07
							BMI	-.12	-.01	-.13	.04
Carr & Wyon (2003)	181 dance students (87% females)	Dance	F-MPS	PST	CM	**.54**	Task-involving climate	-.03	**-.22**	.11	**-.24**
							Effort and learning climate	**.18**	-.02	**.23**	**-.14**
							Co-operative learning climate	-.11	**-.18**	-.02	**-.14**

							Import role climate	**-.22**	**-.37**	-.03	**-.31**
							Ego-involving climate	**.37**	**.41**	**.19**	**.27**
							Inter-student rivalry climate	**.36**	**.34**	**.22**	**.19**
							Unequal recognition climate	**.36**	**.38**	**.20**	**.24**
							Punishment of mistakes climate	**.30**	**.41**	.10	**.31**
							Task orientation	.13	-.01	**.16**	-.10
							Ego orientation	**.41**	**.45**	**.22**	**.30**
							Total trait anxiety	.10	**.34**	-.11	**.34**
							Somatic anxiety	.03	**.17**	-.07	**.18**
							Worry	**.19**	**.43**	-.06	**.40**
							Concentration disruption	.04	**.26**	-.12	**.28**
Carter & Weissbrod (2011)	Female university athletes (*n* unspecified; *n* = 137 in total)	Sport	HF-MPS	SOP	SPP	**.66**	Enjoyment of competition	.08	-.03	.13	-.11
							Positive self-perception when winning	**.25**	**.31**	.06	.20
							Negative self-perception when losing	**.41**	**.62**	.00	.51
							Trait anxiety	.18	**.38**	-.09	.35
							Depressive symptoms	**.44**	**.58**	.06	.43
							Somatic anxiety	-.02	**.25**	-.24	.35
							Worry	.10	**.33**	-.15	.35
							Concentration disruption	.02	**.41**	-.30	.53
	Male university athletes (*n* unspecified; *n* = 137 in total)	Sport	HF-MPS	SOP	SPP	**.47**	Enjoyment of competition	**.37**	-.15	.49	-.34
							Positive self-perception when winning	.25	.17	.19	.06
							Negative self-perception when losing	.22	**.59**	-.05	.54

							Trait anxiety	.08	**.35**	-.09	.35
							Depressive symptoms	**.37**	**.33**	.23	.16
							Somatic anxiety	.18	.19	.10	.12
							Worry	**.29**	**.40**	.11	.29
							Concentration disruption	-.19	.14	-.29	.26
Chen et al (2008)	320 intercollegiate athletes (60% females)	Sport	AE-MPS	PST	CM	**.18**	Total burnout	**-.28**	**.20**	**-.33**	**.27**
Chen et al (2009)†	188 high school athletes (46% females)	Sport	MIPS	SP	NRI	**.60**	BO: Reduced accomplishment (time 1)	**-.43**	**-.12**	**-.45**	**.19**
							BO: Exhaustion (time 1)	**-.39**	**-.15**	**-.38**	.11
							BO: Devaluation (time 1)	-.13	.06	**-.21**	**.17**
							BO: Reduced accomplishment (time 2)	**-.22**	-.04	**-.25**	.12
							BO: Exhaustion (time 2)	**-.29**	**-.14**	**-.26**	.04
							BO: Devaluation (time 2)	**-.23**	-.02	**-.27**	**.15**
Cheng & Hardy (2016)	485 university dance students (87% females)	Dance	CPI	PST	CM	-	Regulatory anxiety	**.51**	--	--	--
Chou et al. (2019)	266 adult dancers (92% females)	Dance	F-MPS	PST	CM	**.67**	Self-esteem[a]	**.48**	**.51**	**.22**	**.29**
							Creative thinking[a]	**.38**	**.25**	**.30**	-.01
Correia et al. (2017)	206 adolescent athletes (gender not reported)	Sport	F-MPS	PST	CM	-	Worry	**.32**	**.33**	--	--
							Concentration disruption	.04	**.21**	--	--
							Fear of failure[a]	**.34**	**.55**	--	--
Costa et al. (2015)	169 adult exercisers (50% females)	Exercise	F-MPS	-	PC+	-	Autonomy thwarting	**.30**	--	--	--

							Competence thwarting	**.42**	--	--	--
							Relatedness thwarting	**.47**	--	--	--
							Autonomy satisfaction	**-.17**	--	--	--
							Competence satisfaction	-.14	--	--	--
							Relatedness satisfaction	-.15	--	--	--
							Need thwarting	**.47**	--	--	--
							Need satisfaction	**-.17**	--	--	--
							ED: Withdrawal	**.28**	--	--	--
							ED: Continuance	**.20**	--	--	--
							ED: Tolerance	**.18**	--	--	--
							ED: Lack of control	**.27**	--	--	--
							ED: Reduction in other activities	**.28**	--	--	--
							ED: Time	.06	--	--	--
							ED: Intention effects	**.16**	--	--	--
							ED: Total	**.29**	--	--	--
Costa et al. (2016)	178 male adult exercisers	Exercise	F-MPS	--	PC+	--	Psychological control mother	--	**.46**	--	--
							Psychological control farther	--	**.37**	--	--
							Eating disorder symptoms	--	**.36**	--	--
							Exercise dependence	--	**.34**	--	--
	170 female adult exercisers	Exercise	F-MPS	--	PC+	--	Psychological control mother	--	**.59**	--	--
							Psychological control farther	--	**.41**	--	--
							Eating disorder symptoms	--	**.43**	--	--

							Exercise dependence	--	**.42**	--	--
Crocker et al. (2014)†	274 university athletes (46% females)	Sport	S-MPS-2	PST	CM	**.20**	Problem coping	.03	-.01	.03	-.02
							Emotion coping	.05	-.03	.06	-.04
							Avoidance coping	-.09	**.20**	**-.14**	**.22**
							Control appraisal	**.32**	**-.20**	**.38**	**-.28**
							Challenge appraisal	**.19**	**-.15**	**.23**	**-.20**
							Threat appraisal	.05	**.20**	.01	**.19**
							Goal progress	**.34**	-.14	**.38**	**-.23**
							Positive affect	**.42**	-.03	**.43**	**-.13**
							Negative affect	.00	**.30**	-.06	**.31**
Cumming & Duda (2012; Quested et al., 2014)	194 dance students (87% females)	Dance	F-MPS	PST	CM	**.33**	Social physique anxiety	-.10	**.35**	**-.24**	**.41**
							Positive affect	**.45**	-.08	**.51**	**-.27**
							Negative affect	-.05	**.54**	**-.29**	**.59**
							Physical symptoms	-.02	**.31**	**-.14**	**.34**
							BO: Exhaustion	-.06	**.20**	**-.14**	**.23**
							Intrinsic motivation	**.47**	.02	**.49**	-.16
							Fear of failure	-.01	**.56**	**-.25**	**.60**
							Self-esteem	**.25**	**-.42**	**.45**	**-.55**
							Body dissatisfaction	-.05	**.28**	**-.16**	**.31**
Curran et al. (2014)	266 junior athletes (50% females)	Sport	HF-MPS-b	SOP	SPP	**.25**	Harmonious passion	**.45**	.01	**.46**	**-.12**
							Obsessive passion	**.26**	**.32**	**.20**	**.27**
Curran & Hill (2018)†	60 university athletes (12%	Sport	HF-MPS	SOP	SPP	**.48**	Pride	**.30**	-.07	**.38**	**-.26**

	females)						Shame	-.02	**.26**	-.17	**.31**
							Guilt	-.07	.11	-.14	.16
Curran (2018)	153 adolescent athletes (39%	Sport	S-MPS-2	PS+	PC+	**.71**	Parental conditional regard	**.29**	**.59**	**-.23**	**.57**
	females)		MIPS				Competence contingent self-worth	**.64**	**.75**	**.23**	**.55**
Deck et al. (2021)	376 university students (65%	Exercise	HF-MPS	SOP	SPP	**--**	Exercise dependence	**.26**	**.17**	**--**	**--**
	females)										
Deck et al. (2021)	195 university students (66%	Exercise	HF-MPS	SOP	SPP	**.39**	Social Physique anxiety	.11	**.17**	.05	**.14**
	females)						Total exercise	-.06	.02	-.07	.05
							Negative affect	**.13**	**.21**	.05	**.17**
							Positive affect	**.01**	**.23**	-.09	**.25**
De Muynck et al (2021)†	59 adolescent tennis players (31%	Sport	F-MPS	--	PC+	**--**	Competence need satisfaction	**--**	**-.27**	**--**	**--**
	females)						Training frequency	--	-.18	**--**	**--**
Donachie et al. (2018)	206 academy footballers (62%	Sport	CAPS	SOP	SPP	**.05**	Perfectionistic cognitions	**.34**	**.38**	**.35**	**.39**
	females)						Anxiety	**.15**	.04	**.15**	.03
							Dejection	.02	**.16**	.01	**.16**
							Excitement	**.22**	-.02	**.22**	-.03
							Anger	.04	**.21**	.03	**.21**
							Happiness	.12	-.01	.12	-.02
Donachie et al. (2019)†	352 academy footballers (gender	Sport	CAPS	SOP	SPP	**.32**	Perfectionistic cognitions	**.49**	**.51**	**.40**	**.43**
	not reported)						Anxiety	**.20**	**.30**	**.12**	**.25**
							Dejection	.04	**.24**	-.04	**.24**
							Excitement	**.19**	-.01	**.20**	-.08

							Anger	.03	**.27**	-.06	**.27**
							Happiness	.07	-.02	.08	-.04
							Cognitive anxiety	**.32**	**.51**	**.19**	**.45**
							Somatic anxiety	**.16**	**.30**	.07	**.27**
							Feel anger	**.28**	**.15**	**.25**	.07
							Verbal anger	**.28**	**.24**	**.22**	**.17**
							Physical Anger	**.17**	**.29**	.09	.25
Dunn et al. (2021)	251 university athletes (41% females)	Sport	S-MPS-2	PST	CM	**.31**	Consistency of interests	.09	**-.15**	.15	**-.19**
							Perseverance of effort	**.33**	**-.19**	**.42**	**-.33**
				SP	NRI	**.47**	Consistency of interests	.11	**-.15**	**.21**	**-.23**
							Perseverance of effort	**.24**	**-.14**	**.35**	**-.30**
Dunn et al. (2011)	119 female junior figure skaters	Sport	S-MPS	PST	CM	**.55**	Appearance orientation	**.50**	**.49**	**.32**	**.30**
							Appearance evaluation	-.02	-.34	**.21**	**-.39**
							Overweight preoccupation	**.42**	**.49**	**.21**	**.34**
							Self-classified weight	.13	**.33**	-.07	**.31**
							Body satisfaction	-.04	**-.36**	**.20**	**-.41**
							Body image ideal	.14	**.43**	-.13	**.43**
			HF-MPS	SOP	SPP	**.44**	Appearance orientation	**.42**	**.33**	**.32**	**.18**
							Appearance evaluation	-.12	**-.30**	.01	**-.28**
							Overweight preoccupation	**.39**	**.41**	**.26**	**.29**
							Self-classified weight	**.31**	**.26**	**.23**	.14

							Body satisfaction	**-.21**	**-.35**	-.07	**-.29**
							Body image ideal	**.32**	**.35**	**.20**	**.25**
Dunn et al. (2002)	174 male adolescent Canadian footballers	Sport	S-MPS	PST	CM	**.40**	Task orientation	**.20**	**-.16**	**.29**	**-.27**
							Ego orientation	**.23**	**.23**	**.15**	**.15**
Dunn et al. (2006)	138 male adolescent Canadian footballers	Sport	S-MPS	PST	COM	**.54**	Feel angry after mistakes	**.38**	**.35**	**.24**	**.19**
							Anger at something after mistakes	.16	**.18**	.08	.11
							Express anger verbally after mistakes	.16	**.21**	.06	.15
							Trait anger: Angry temperament	.16	**.23**	.04	**.17**
							Trait anger: Angry reaction	**.36**	**.45**	.16	**.33**
Dunn et al. (2020)	144 male high school and senior Canadian football players	Sport	S-MPS-2	PST	COM	**.51**	Failure/evaluation worry	**.38**	**.61**	.10	**.52**
							Uncertainty worry	.14	**.40**	-.08	**.39**
							Injury worry	.03	.08	-.01	.08
							Optimism	**.20**	**-.20**	**.36**	**-.36**
Elison & Partridge (2012)	285 university athletes (46% females)	Sport	PI	SE	CM	--	Attack self	**.22**	**.53**	--	--
							Withdrawal	.04	**.45**	--	--
							Attack other	**-.13**	**.37**	--	--
							Avoidance	-.10	**.14**	--	--
Eusanio et al. (2014)	24 university students from dance classes (79% females)	Dance	HF-MPS	SOP	SPP	**.60**	Self-concept	-.17	**-.49**	.18	-.49
							Shame	.31	**.59**	-.07	**.53**
Fawver et al. (2020)	169 adolescent alpine skiers (52% females)	Sport	S-MPS-2	PST	CM	**.20**	Grit	**.15**	**-.17**	**.19**	**-.21**
							MT: Total	**.14**	**-.13**	**.17**	**-.16**
							MT: Confidence	**.18**	-.05	**.19**	-.09

							MT: Constancy	**.24**	**-.13**	**.27**	**-.19**
							MT: Control	-.10	**-.15**	-.07	-.13
Fazlagić & Belić (2017)	50 adult athletes (24% females)	Sport	F-MPS	PST	CM	-	Flow	.06	**-.15**	.09	**-.17**
Ferrand et al. (2007)	33 female junior swimmers	Sport	HF-MPS	SOP	SPP	.03	Body-esteem/satisfaction: Appearance	-.04	**-.42**	-.03	**-.42**
							Body-esteem/satisfaction: Attribution	**-.43**	-.26	**-.44**	-.27
							Body-esteem/satisfaction: Weight	-.06	.17	-.07	.17
							Dietary restraint	**.49**	.06	**.49**	.05
Fleming et al. (2022)	149 adolescent footballers (28%	Sport	MIPS	SP	NRI	**.33**	Maternal pressure	-.11	.12	**-.16**	**.17**
	females)						Paternal pressure	.16	**.44**	.02	**.42**
							Maternal warmth	.22	.16	**.18**	.09
							Paternal warmth	.13	-.09	**.17**	**-.14**
Freire et al. (2020)	177 school sport participants (41%	Sport	S-MPS-2	PST	CM	.08	Somatic anxiety	**-.30**	**.28**	**-.34**	**.32**
	females)						Worry	**-.20**	**.28**	**-.23**	**.30**
							Concentration disruption	**-.26**	**.37**	**-.31**	**.41**
Freire, Fiorese et al. (2022)	413 school sport participants (45%	Sport	S-MPS-2	PST	CM	**.14**	Task cohesion	**.18**	**-.15**	**.21**	**-.18**
	females)						Social cohesion	**.15**	-.01	**.15**	-.03
							Task conflict	.08	**.24**	.05	**.23**
							Social conflict	.06	**.24**	.03	**.23**
Friere, Santos et al. (2022)	413 high school athletes (45%	Sport	S-MPS-2	PS/O	CM	**.14**	Ego orientation	**.18**	**.23**	**.15**	**.21**
	females)						Task orientation	**.38**	.06	**.38**	.01
Frost & Henderson (1991)	40 female university athletes	Sport	F-MPS	PST	CM	--	Competitive anxiety	.31	**.47**	--	--
							Trait confidence	-.03	**-.61**	--	--

Success orientation	**.68**	**.35**	--	--
Failure orientation	**.37**	**.70**	--	--
Social concerns after mistakes	.21	**.68**	--	--
Disappointment after mistakes	.30	**.64**	--	--
Effort after mistakes	.30	.23	--	--
Focus after mistakes	.17	**.55**	--	--
Self-talk after mistakes	.13	**.31**	--	--
Pressure after mistakes	.30	**.55**	--	--
Dwell after mistakes	.27	**.66**	--	--
Move on after mistakes	-.18	**.34**	--	--
Affect after mistakes	.12	-.26	--	--
Images after mistakes	.07	**.61**	--	--
Coaches' ratings: Ability	-.01	-.23	--	--
Coaches ratings: Playing time	-.06	-.11	--	--
Coaches' ratings: Reactions to mistakes	-.21	**-.38**	--	--
Before competition: Fear of mistakes	.24	**.48**	--	--
Before competition: Images of mistakes	.07	**.48**	--	--
Before competition: Self-confidence	-.12	**-.48**	--	--
Before competition: Dreams of perfection	**.43**	.18	--	--
Before competition: Feeling in control	.14	-.21	--	--
Before competition: Thoughts of competition	**.36**	.21	--	--
Before competition: Difficulty concentrating	**.47**	**.49**	--	--

							Before competition: Audience worries	**.31**	**.61**	--	--
Gaudreau & Antl (2008)†	186 adult and adolescent athletes	Sport	HF-MPS	PS+	PC+	**.58**	Life satisfaction (time 1)	.08	**-.37**	**.39**	**-.51**
	(43% females)		F-MPS				Life satisfaction (time 2)	-.05	**-.42**	**.26**	**-.48**
							Self-determined motivation	**.43**	.12	**.45**	**-.18**
							Non-self-determined motivation	**.37**	**.49**	.12	**.36**
							Task-oriented coping	**.30**	.17	**.25**	-.01
							Distraction-oriented coping	.16	**.48**	**-.17**	**.48**
							Disengagement-oriented coping	.13	**.43**	**-.16**	**.44**
							Goal attainment	.10	-.02	.14	-.10
Gaudreau & Verner-Filion	208 adult athletes (43% male)	Sport	HF-MPS-b	SOP	SPP	**.37**	Positive affect	.10	-.04	.12	-.08
(2012)							Subjective vitality	.06	**-.19**	.14	**-.23**
							Life satisfaction	.05	**-.24**	.15	**-.28**
Gaudreau et al. (2019)	97 children in physical education	Sport	HF-MPS	SOP	SPP	**.51**	First class performance	.11	.18	.02	.14
	classes (46% females)						Second class performance	.09	.04	.08	-.01
							Third class performance	**.24**	.07	**.24**	-.06
							Fourth class performance	.16	-.03	**.20**	-.13
							Fifth class performance	.18	-.03	**.23**	-.14
							Sixth class performance	.04	-.16	.14	-.21
González-Hernández, Diaz	487 adult and adolescent athletes	Sport	F-MPS	--	CM	--	General impulsiveness	--	**.47**	--	--
et al. (2019)	(44% females)										
González-Hernández,	127 adolescents (35% females)	Sport	F-MPS	PST	CM	**.46**	Stress	.11	**.40**	-.09	**.40**
Gómez–López et al. (2019)							Sport practice (days)	**.31**	**.00**	**.31**	.00

González-Hernández et al. (2021)	224 adult cross-fitters (gender not reported)	Sport	F-MPS	PST	CM	**.71**	Narcissism	**.57**	**.59**	**.27**	**.32**
							Machiavellianism	**.49**	**.39**	**.33**	.07
							Psychopathy	**.51**	**.61**	**.14**	**.41**
							Exercise dependence	**.68**	**.71**	**.35**	**.44**
	201 adult runners (gender not reported)	Sport	F-MPS	PST	CM	**.41**	Narcissism	**.68**	**.70**	**.60**	**.63**
							Machiavellianism	**.72**	**.59**	**.65**	**.47**
							Psychopathy	**.64**	**.50**	**.55**	**.34**
							Exercise dependence	**.73**	**.74**	**.70**	**.71**
Gotwals et al. (2003)	87 university athletes (11% females)	Sport	F-MPS	PST	CM	**.50**	Global self-esteem	.09	**-.43**	**.39**	**-.55**
							Perceived athletic competence	-.00	**-.34**	**.21**	**-.39**
							Satisfaction with performance	-.14	**-.59**	**.22**	**-.61**
Gotwals (2011)	117 university athletes (41% females)	Sport	S-MPS-2	PST	CM	**.45**	BO: Reduced sense of accomplishment	.04	**-.23**	.17	**-.28**
							BO: Exhaustion	.02	-.05	.05	-.07
							BO: Devaluation	**-.18**	**-.30**	-.05	**-.25**
Gotwals & Dunn (2009)	251 intercollegiate athletes (46% females)	Sport	S-MPS-2	PST	CM	--	Global self-esteem	.04	**-.45**	--	--
Grainger et al. (2016)	522 university athletes (20% females)	Sport	S-MPS-2	PST	CM	**.46**	Stress	**.18**	**.46**	-.04	**.43**
							Burnout	.04	**.38**	**-.16**	**.41**
Grugan et al. (2019)	257 adult and adolescent athletes (15% females)	Sport	HF-MPS	SOP	SPP	**.51**	Angry reactions to teammates	.08	**.21**	-.03	**.20**
							Antisocial teammate behaviour	.07	**.15**	-.01	**.13**
							Antisocial opponent behaviour	.04	**.15**	-.04	**.15**
Gucciardi et al (2012)	423 adult and junior athletes (58%	Sport	S-MPS	PST	CM	**.30**	External regulation	**.14**	**.28**	.06	**.25**

	females)						Intrinsic motivation	**.37**	-.05	**.40**	**-.18**
							Mastery avoidance goal	**.20**	**.41**	.09	**.37**
							Performance avoidance goal	**.15**	**.37**	.04	**.34**
							Mastery approach goal	**.35**	**-.08**	**.39**	**-.21**
							Performance approach goal	**.35**	**.42**	**.26**	**.35**
							Fear of failure	**.24**	**.63**	.07	**.60**
Gustafsson et al. (2016)	237 adolescent athletes (48% females)	Sport	F-MPS-b	PST	CM	**.68**	Learning/enjoyment climate	.10	**-.14**	**.27**	**-.29**
							Worry conducive climate	**.27**	**.46**	-.07	**.39**
							Success without effort climate	.12	**.18**	.00	**.14**
							BO: Reduced accomplishment	**.49**	**.48**	**.25**	**.23**
							BO: Exhaustion	**.31**	**.49**	-.04	**.40**
							BO: Devaluation	**.62**	**.45**	**.48**	.05
Hall et al. (1998)	119 high school runners (62% females)	Sport	F-MPS	PST	CM	**.62**	Perceived ability	**.33**	.12	**.33**	-.11
							Ego orientation	**.34**	**.38**	.14	**.23**
							Task orientation	**.24**	-.02	**.32**	**-.22**
							State cognitive anxiety (1 week)	.11	**.23**	-.04	**.21**
							State somatic anxiety (1 week)	-.11	.03	-.16	.13
							State confidence (1 week)	**.35**	.15	**.33**	-.09
							State cognitive anxiety (2 days)	.16	**.39**	-.11	**.38**
							State somatic anxiety (2 days)	-.16	.06	**-.25**	**.21**
							State confidence (2 days)	**.41**	.16	**.40**	-.13
							State cognitive anxiety (1 day)	.13	**.32**	-.09	**.31**

							State somatic anxiety (1 day)	-.14	.13	**-.28**	**.28**
							State confidence (1 day)	**.36**	.10	**.38**	-.17
							State cognitive anxiety (30 mins)	.19	**.23**	.06	.15
							State somatic anxiety (30 mins)	-.06	.06	-.12	.12
							State confidence (30 mins)	**.20**	.04	**.22**	-.11
							Ego orientation (30 mins)	.16	**.21**	.04	.14
							Task orientation (30 mins)	**.26**	-.05	**.37**	**-.28**
Hall et al. (2007)	246 adult club runners (32% females)	Exercise	F-MPS	PST	CM	**.61**	Perceived ability	**.45**	**.44**	**.26**	**.23**
							Ego orientation	**.43**	**.44**	**.23**	**.25**
							Task orientation	**.30**	.09	**.31**	-.12
							Obligatory exercise	**.45**	**.45**	**.25**	**.25**
Hall et al. (2009)	307 adult club runners (36% females)	Exercise	HF-MPS	SOP	SPP	**.44**	Unconditional self-acceptance	**-.30**	**-.48**	**-.11**	**-.41**
							Labile self-esteem	**.16**	**.33**	.02	**.29**
							Total exercise dependence	**.25**	**.30**	**.14**	**.22**
							ED: Interference	**.15**	**.22**	.06	**.17**
							ED: Positive reward	**.18**	**.13**	**.14**	.06
							ED: Withdrawal symptoms	**.29**	**.17**	**.24**	.05
							ED: Weight control	**.14**	**.14**	.09	.09
							ED: Insight into problem	.08	**.24**	-.03	**.23**
							ED: Social reasons	.04	**.26**	-.09	**.27**
							ED: Health reasons	.05	-.09	.10	**-.12**
							ED: Stereotyped behaviours	.01	.03	.00	.03

Haraldsen et al. (2019)	171 junior athletes and performing artists (51% females)	Sport	F-MPS	--	CM	--	Controlling conditions	--	**.43**	--	--
							Need frustration: competence	--	**.59**	--	--
							Need frustration: autonomy	--	**.49**	--	--
							Need frustration: relatedness	--	**.50**	--	--
							Introjected motivation	--	**.48**	--	--
							External motivation	--	**.37**	--	--
							Performance anxiety	--	**.33**	--	--
Haraldsen et al. (2020)†	259 junior athletes and performing artists (47% females)	Sport	F-MPS-b	PST	CM	**.39**	Need frustration: competence (time 1)	.06	**.48**	**-.16**	**.50**
							Need frustration: competence (time 2)	.02	**.54**	**-.25**	**.58**
							Need frustration: competence (time 3)	**.19**	**.55**	-.03	**.53**
							Need frustration autonomy (time 1)	.11	**.41**	-.06	**.40**
							Need frustration: autonomy (time 2)	.14	**.43**	-.03	**.41**
							Need frustration: autonomy (time 3)	.14	**.38**	-.01	**.36**
							Need frustration: relatedness (time 1)	.07	**.40**	-.10	**.41**
							Need frustration: relatedness (time 2)	.13	**.43**	-.05	**.42**
							Need frustration: relatedness (time 3)	.14	**.40**	-.02	**.38**
							Anxiety/worry (time 3)	.05	**.42**	**-.14**	**.44**
							Self-rated performance level (time 3)	**.21**	-.03	**.24**	-.12
Hardwick et al. (2022)	173 adult athletes (28% females)	Sport	S-MPS	PS+	PC+	**.70**	Task orientation	**.19**	.06	**.21**	-.10
			MIPS				Ego orientation	**.41**	**.42**	**.18**	**.20**
							Attitudes towards doping	.08	**.17**	-.06	**.16**
Hill (2013)	171 male junior soccer players	Sport	HF-MPS-b	PS+	CM+	**.27**	Total burnout	**-.23**	**.29**	**-.33**	**.38**

			S-MPS-2				BO: Reduced accomplishment	**-.33**	**.22**	**-.41**	**.34**
							BO: Exhaustion	**-.22**	**.27**	**-.32**	**.35**
							BO: Devaluation	-.03	**.23**	-.10	**.25**
Hill (2014)	291 adult athletes (34% females)	Sport	F-MPS	PST	CM	**.32**	Performance approach goal	**.51**	**.37**	**.44**	**.25**
							Performance avoidance goal	-.15	**.60**	**-.45**	**.69**
							Mastery approach goal	**.44**	-.02	**.47**	**-.19**
							Mastery avoidance goal	.15	**.58**	-.05	**.57**
							Intrinsic motivation (to know)	**.57**	.14	**.56**	-.05
							Intrinsic motivation (to accomplish)	**.54**	-.02	**.58**	**-.24**
							Intrinsic motivation (for stimulation)	**.50**	.03	**.52**	**-.16**
							Identified motivation	.19	.00	**.20**	-.07
							Introjected motivation	**.35**	**.63**	**.20**	**.58**
							Extrinsic motivation	**.49**	**.68**	**.39**	**.63**
							Amotivation	-.04	**.62**	**-.32**	**.67**
							Fear of failure	**.23**	**.75**	-.02	**.73**
							Contingent self-worth	**.31**	**.42**	**.20**	**.36**
							Overgeneralisation of failure	.17	**.60**	-.03	**.58**
							Mental perseveration	**.30**	**.63**	**.13**	**.59**
							Self-criticism	**.39**	**.51**	**.28**	**.44**
							Labile self-esteem	.12	**.43**	-.02	**.42**
							Rumination	.12	**.35**	.01	**.33**
Hill & Appleton (2011)	202 male junior and adult rugby	Sport	HF-MPS	SOP	SPP	.12	BO: Reduced accomplishment	-.12	**.32**	**-.17**	**.34**

	players						BO: Exhaustion	-.15	**.30**	**-.20**	**.32**
							BO: Devaluation	**-.45**	.14	**-.47**	**.22**
Hill & Davis (2014)	238 adult coaches (26% females)	Sport	HF-MPS-b FMPS-b	PS+	CM+	**.47**	Cognitive appraisal	**.17**	.03	**.18**	-.06
							Expressive suppression	**.26**	**.31**	**.14**	**.22**
							Anger control-in	.11	-.09	**.17**	**-.16**
							Anger control-out	.10	-.13	**.18**	**-.20**
Hill et al. (2008)	151 male junior soccer players	Sport	HF-MPS	SOP	SPP	**-.16**	Unconditional self-acceptance	**-.17**	**-.38**	**-.25**	**-.42**
							BO: Reduced accomplishment	**-.39**	**.46**	**-.36**	**.44**
							BO: Exhaustion	**-.25**	**.41**	**-.20**	**.39**
							BO: Devaluation	**-.42**	**.40**	**-.39**	**.37**
							Satisfaction with goal progress	**.33**	**-.23**	**.31**	**-.19**
							Coach satisfaction with goal progress	**.34**	**-.30**	**.31**	**-.26**
Hill, Hall, Appleton, & Murray (2010)	150 junior and adult canoe polo and kayak slalom athletes (43% females)	Sport	HF-MPS	SOP	SPP	**.26**	Validation seeking	**.21**	**.52**	.09	**.49**
							Growth seeking	**.31**	-.15	**.37**	**-.25**
							Reduced accomplishment	-.09	**.34**	**-.20**	**.38**
							Exhaustion	.04	**.26**	-.03	**.26**
							Devaluation	-.14	**.22**	**-.21**	**.27**
Hill, Hall, & Appleton (2010)	255 male junior cricketers	Sport	HF-MPS	SOP	--	--	Fear of failure	.18	--	--	--
							Self-criticism	.38	--	--	--
Hill et al. (2015)	248 adult exercisers (41% females)	Exercise	HF-MPS-b	SOP	SPP	**.38**	Perfectionistic self-promotion	**.45**	**.57**	**.31**	**.48**
							Non-display of imperfection	**.29**	**.47**	**.14**	**.41**

							Non-disclosure of imperfection	**.32**	**.45**	**.18**	**.37**
							ED: Withdrawal	**.30**	**.22**	**.24**	**.12**
							ED: Continuance	**.23**	**.19**	**.17**	.11
							ED: Tolerance	**.30**	**.18**	**.25**	.07
							ED: Lack of control	**.29**	**.20**	**.24**	.10
							ED: Reduction	**.24**	**.21**	**.18**	**.13**
							ED: Time	**.26**	.10	**.24**	.00
							ED: Intention effects	**.29**	**.22**	**.23**	**.12**
Hill et al. (2020)	297 adolescent swimmers (54% females)	Sport	MIPS	SP	NRI	.86	Confidence	**-.15**	**-.19**	.03	**-.12**
							Dedication	-.11	**-.14**	.02	-.09
							Vigour	**.15**	**-.21**	**.66**	**-.67**
							Enthusiasm	**-.23**	**-.30**	.06	**-.21**
			HF-MPS	SOP	SPP	.44	Confidence	**.37**	.04	**.39**	**-.15**
							Dedication	**.39**	.05	**.41**	**-.15**
							Vigour	**.20**	.05	**.20**	-.04
							Enthusiasm	.10	.04	.09	.00
	211 adult athletes (34% females)	Sport	MIPS	SP	NRI	.57	Confidence	**.32**	.03	**.37**	**-.20**
							Dedication	**.35**	**.18**	**.31**	-.03
							Vigour	**.26**	.07	**.27**	-.10
							Enthusiasm	**.28**	.09	**.28**	-.09
			S-MPS-2	PST	CM	.43	Confidence	**.45**	.02	**.49**	**-.22**
							Dedication	**.58**	.11	**.59**	**-.19**

							Vigour	**.40**	.02	**.43**	**-.18**
							Enthusiasm	**.38**	.08	**.38**	-.10
Ho et al. (2015)	212 deaf junior and adult athletes (26% females)	Sport	HF-MPS	SOP	SPP	**.37**	BO: Reduced accomplishment	**-.19**	-.03	**-.19**	.04
							BO: Exhaustion	.03	**.17**	-.04	**.17**
							BO: Devaluation	-.12	**.15**	**-.19**	**.21**
							Negative affect	**.14**	.13	.10	.09
							Physical symptoms of ill-health	.02	.11	-.02	.11
	205 junior and adult athletes (38% females)	Sport	Sport	Sport	Sport	HF-MPS	BO: Reduced accomplishment	**-.38**	.15	**-.45**	**.29**
							BO: Exhaustion	**-.19**	.12	**-.24**	**.19**
							BO: Devaluation	**-.40**	.12	**-.46**	**.27**
							Negative affect	**-.16**	**.21**	**-.24**	**.27**
							Physical symptoms of ill-health	**-.23**	.10	**-.27**	**.18**
Houltberg et al. (2018)	99 adult athletes (gender not reported)	Sport	S-MPS-2	PST	CM	**.39**	Belief in good life after sports	-.17	-.14	-.13	-.08
							Global self-esteem	-.06	**-.59**	**.23**	**-.62**
							Meaning of Life (purpose)	-.02	**-.33**	.13	**-.35**
							Contingent self-worth (competition)	**.30**	**.65**	.07	**.61**
							Fear of failure	**.27**	**.68**	.01	**.65**
							Anxiety	.18	**.43**	.01	**.40**
							Depressive symptoms	.07	**.44**	-.12	**.45**
							Shame	**.25**	**.59**	.03	**.55**
							Life satisfaction	-.03	**-.27**	.08	**-.28**
Jowett et al. (2021)	244 adolescent dancers (17%	Dance	HF-MPS-b	PS+	PC+	**.39**	Autonomy support	**.16**	**-.19**	**.26**	**-.28**

	females)		S-MPS-2				BO: Reduced accomplishment	**-.18**	**.34**	**-.36**	**.45**
							BO: Exhaustion	**.01**	**.29**	-.12	**.31**
							BO: Devaluation	**-.34**	**.15**	**-.44**	**.33**
							Confidence	**.23**	**-.16**	**.32**	**-.28**
							Dedication	**.48**	-.11	**.57**	**-.37**
							Vigour	**.25**	-.13	**.33**	**-.26**
							Enthusiasm	**.30**	**-.18**	**.41**	**-.34**
Jowett et al. (2018)	224 adult runners (36% females)	Sport	HF-MPS-b	SOP	SPP	**.40**	Problem-focused coping	.06	**-.17**	**.14**	**-.21**
							Emotion-focused coping	**.18**	.13	**.14**	.06
							Avoidance coping	**.14**	.26	.04	**.22**
Jowett et al. (2016)	222 adolescent athletes (56%	Sport	HF-MPS-b	PS+	PC+	**.22**	Need satisfaction	**.44**	-.07	**.47**	**-.19**
	females)		S-MPS-2				Need thwarting	**-.16**	**.42**	**-.29**	**.47**
							Total engagement	**.41**	-.07	**.44**	**-.18**
							BO: Total	**-.26**	**.36**	**-.37**	**.44**
Kaye et al. (2008)	372 college students/exercisers	Exercise	HF-MPS	SOP	SPP	**.37**	FOF: Shame and embarrassment	**.22**	**.41**	.08	**.36**
	(40% females)						FOF: Self esteem	**.15**	**.34**	.03	**.31**
							FOF: Uncertain future	.09	**.37**	-.05	**.36**
							FOF: Losing interest	**.15**	**.46**	-.02	**.44**
							FOF: Upsetting others	**.14**	**.47**	-.04	**.45**
							Behavioural inhibition	**-.19**	**-.13**	**-.15**	-.07
							Behavioural activation	**-.10**	**.14**	**-.17**	**.19**
							Neuroticism	**.11**	**.44**	-.06	**.43**

					Extraversion	.08	**-.18**	**.16**	**-.23**
					Negative affectivity	**.20**	**.38**	.07	**.34**
					Positive affectivity	**.21**	**-.11**	**.27**	**-.21**
					Mastery approach goal	**.36**	-.06	**.41**	**-.22**
					Mastery avoidance goal	.08	.16	.02	**.14**
					Performance approach goal	**.38**	**.14**	**.36**	.00
					Performance avoidance goal	**.14**	**.22**	.06	**.18**
Exercise	F-MPS	PST	CM	**.34**	FOF: Shame and embarrassment	**.15**	**.56**	-.05	**.55**
					FOF: Self esteem	.05	**.46**	**-.13**	**.47**
					FOF: Uncertain future	-.00	**.38**	**-.15**	**.40**
					FOF: Losing interest	**.19**	**.54**	.01	**.51**
					FOF: Upsetting others	.10	**.35**	-.02	**.34**
					Behavioural inhibition	**-.12**	**-.19**	-.06	**-.16**
					Behavioural activation	.08	.10	.05	.08
					Neuroticism	**.25**	**.40**	**.13**	**.35**
					Extraversion	.06	**-.19**	**.13**	**-.22**
					Negative affectivity	**.21**	**.43**	.08	**.39**
					Positive affectivity	.02	**-.14**	.07	**-.16**
					Mastery approach goal	-.01	-.00	-.01	.00
					Mastery avoidance goal	**.21**	**.23**	**.14**	**.17**
					Performance approach goal	**.12**	**.25**	.04	**.22**
					Performance avoidance goal	**.11**	**.27**	.02	**.25**

Krasnow et al. (1999)	19 female junior modern dancers	Dance	F-MPS	--	CM	--	Total Stress	--	**.53**	--	--
							Negative stress	--	**.47**	--	--
							Injury	--	--	--	--
	30 female junior artistic gymnasts	Dance	F-MPS	--	CM	--	Total Stress	--	**.86**	--	--
							Negative stress	--	**.86**	--	--
							Injury	--	**.68**	--	--
	16 female junior ballet dancers	Dance	F-MPS	--	CM	--	Total Stress	--	--	--	--
							Negative stress	--	--	--	--
							Injury	--	.50	--	--
Kristiansen et al. (2012)	24 junior and adult swimmers (38%	Sport	F-MPS	PST	CM	**.50**	Task-involving climate	-.01	-.04	.01	-.04
	females)						Ego-involving climate	.36	**.59**	.09	**.51**
							Different types of recovery	.26	-.09	.35	**-.26**
							Balance of training and recovery	.26	.12	.23	-.01
							Knowledge about recovery	.10	.01	.11	-.05
							BO: Exhaustion	-.18	-.11	-.15	-.02
							BO: Reduced accomplishment	-.17	.17	-.30	.30
							BO: Devaluation	-.37	.15	**-.52**	**.42**
Klund & Sæther (2017)	115 male junior football players	Sport	S-MPS	PST	CM	**.45**	Self-assessed skills	**.24**	-.05	**.29**	-.18
							Coach-assessed skills	**.28**	-.14	**.39**	**-.31**
							Number of organised training sessions	**.23**	.05	**.23**	-.06
							Hours of organised training sessions	**.26**	.01	**.29**	-.12
							Number of independent training sessions	.02	.03	.01	.02

							Hours of organised training sessions	-.02	-.05	.00	-.05
Květon et al. (2021)	251 adolescent athletes (50% females)	Sport	S-MPS-2	PS+	PC+	**.14**	Total athlete burnout	**-.39**	**.29**	**-.45**	**.38**
							BO: Reduced accomplishment	**-.35**	**.25**	**-.40**	**.32**
							BO: Exhaustion	-.06	**.22**	-.09	**.23**
							BO: Devaluation	**-.43**	**.17**	**-.47**	**.26**
							Training distress	-.04	**.40**	-.11	**.41**
							Perceived performance	**.19**	**-.20**	**.22**	**-.23**
Kwon & Cho (2020)	302 university athletes (21% females)	Sport	HF-MPS-b	SOP	SPP	**.31**	Cognitive anxiety	-.06	**.24**	**-.15**	**.27**
							BO: Exhaustion	**.27**	.08	**.26**	.00
							Subjective vitality	-.07	**.19**	**-.14**	**.22**
Laborde et al. (2015)	332 university students (37% females)	Sport	F-MPS	PST	CM	**.47**	Movement self-consciousness	**.13**	**.21**	.04	**.17**
							Conscious motor processing	**.14**	.11	.10	.05
							Movement-specific reinvestment total	**.17**	**.19**	.09	**.13**
							Decision reinvestment	**.28**	**.25**	**.19**	**.14**
							Decision rumination	**.15**	**.44**	-.07	**.42**
							Decision-specific reinvestment total	**.25**	**.43**	.06	**.37**
							Private self-consciousness	**.18**	**.14**	**.13**	.06
							Public self-consciousness	.08	**.20**	-.02	**.18**
							Self-anxiety	-.06	.06	-.10	.10
							Response style: Rumination	.05	**.28**	-.10	**.29**
							Response style: Distraction	**.15**	**-.15**	**.25**	-.25
Lemyre et al. (2008)	141 junior and adult athletes (43%	Sport	F-MPS	PST	CM	**.60**	Ego orientation	**.31**	**.33**	.15	**.19**

	females)						Task orientation	-.15	**-.20**	-.04	-.14
							Ego-involving climate	**.19**	**.43**	-.09	**.40**
							Task-involving climate	.08	**-.24**	**.29**	-.36
							Perceived ability	**.23**	-.05	**.33**	**-.24**
							BO: Exhaustion	**-.22**	.06	**-.32**	**.25**
							BO: Reduced accomplishment	**-.19**	**.21**	**-.40**	**.41**
							BO: Devaluation	-.15	.00	**-.19**	.11
							Total burnout	**-.22**	.12	**-.37**	**.32**
							Goal attainment	-.07	**-.20**	.06	**-.20**
							Performance satisfaction	-.07	**-.21**	.07	**-.21**
Lizmore et al. (2016)	343 adult curlers (42% females)	Sport	S-MPS-2	PST	CM	**.35**	RM: Anger / low criticality	**.15**	**.46**	-.01	**.44**
							RM: Self-confidence / low criticality	**.12**	**-.26**	**.23**	**-.32**
							RM: Anger / high criticality	**.14**	**.48**	-.03	**.46**
							RM: Self-confidence / high criticality	.10	**-.28**	**.22**	**-.34**
Lizmore et al. (2017)	239 university athletes (43%	Sport	S-MPS-2	PS+	PC+	**.34**	Self-compassion	-.08	**-.63**	**.18**	**-.64**
	females)		MIPS				Optimism	**.17**	**-.39**	**.35**	**-.48**
							Pessimism	-.09	**.47**	**-.30**	**.53**
							Rumination	**.24**	**.58**	.06	**.55**
Lizmore et al. (2019)	99 university athletes (53%	Sport	S-MPS-2	PS+	PC+	**.41**	Putting performance	**-.30**	-.11	**-.28**	.01
	females)		MIPS				Putting performance (after failure)	**-.29**	-.12	**-.27**	.00
Longbottom et al. (2010)	215 sport science undergraduates	Exercise	F-MPS-b	PST	CM	**.46**	Adaptive cognitions	**.22**	.01	**.24**	-.11
	(50% females)						Adaptive behaviours	**.14**	.12	.10	.06

							Impeding cognitions	.02	**.33**	**-.16**	**.36**
							Maladaptive behaviours	-.12	**.23**	**-.26**	**.32**
			HF-MPS-b	SOP	SPP	**.53**	Adaptive cognitions	**.20**	.01	**.23**	-.12
							Adaptive behaviours	**.24**	.11	**.22**	-.02
							Impeding cognitions	**.14**	**.32**	-.04	**.29**
							Maladaptive behaviours	**.53**	**.27**	**.47**	-.02
Longbottom et al. (2012)	257 sport science undergraduates	Exercise	FMPS-b	PST	CM	**.40**	Amotivation	**-.13**	**.20**	**-.23**	**.28**
	(66% females)						External regulation	-.01	**.40**	**-.20**	**.44**
							Introjected regulation	**.18**	**.38**	.03	**.34**
							Identified regulation	**.21**	.01	**.22**	-.08
							Intrinsic motivation	**.18**	-.09	**.24**	**-.18**
							Relative autonomy index	**.15**	**-.28**	**.30**	**-.38**
							Impression motivation	**.28**	**.22**	**.21**	**.12**
							Impression construction	**.19**	**.37**	.05	**.33**
							Total exercise behaviour	**.16**	-.03	**.19**	-.10
		Exercise	HF-MPS	SOP	SPP	**.43**	Amotivation	.02	**.27**	-.11	**.29**
							External regulation	.11	**.46**	-.11	**.46**
							Introjected regulation	**.21**	**.18**	**.15**	.10
							Identified regulation	.11	-.11	**.18**	**-.18**
							Intrinsic motivation	.12	**.20**	.04	**.17**
							Relative autonomy index	.01	**-.38**	**.21**	**-.43**
							Impression motivation	**.31**	**.22**	**.24**	.10

							Impression construction	**.21**	**.35**	.07	**.29**
							Total exercise behaviour	.06	-.10	.11	**-.14**
Luszczynska et al. (2015)†	845 adolescents (59% females)	Exercise	F-MPS	PST	CM	**.29**	Fruit and vegetable intake (time 1)	**.21**	.05	**.20**	-.01
							Snack intake (time 1)	**-.14**	-.02	**-.14**	.02
							Moderate/vigorous activity (time 1)	**.11**	.02	**.11**	-.01
							Fruit and vegetable intake (time 2)	**.15**	.01	**.15**	-.04
							Snack intake (time 2)	**-.17**	-.05	**-.16**	.00
							Moderate/vigorous activity (time 2)	**.08**	-04	.10	-.07
Machida et al. (2012)	206 university athletes (67% females)	Sport	S-MPS-2	PS+	PC+	**-.25**	Controllable sources of confidence	**.34**	.07	**.37**	**.17**
							Uncontrollable sources of confidence	**.21**	**.26**	**.29**	**.33**
							Task orientation	**.14**	-.01	**.14**	.03
							Ego orientation	**-.21**	**.15**	**-.18**	.10
							Task-involving climate	-.02	-.11	-.05	-.12
							Ego-involving climate	.10	**.49**	**.26**	**.53**
Madigan et al. (2015)†	103 adolescent athletes (20% females)	Sport	S-MPS MIPS	PS+	PC+	**.54**	BO: Total (time 1)	**-.31**	.08	**-.42**	**.31**
							BO: Total (time 2)	**-.40**	.14	**-.57**	**.46**
Madigan et al. (2016a)	130 male adolescent athletes	Sport	S-MPS MIPS	PS+	PC+	**.60**	Positive attitudes towards doping	-.08	.10	**-.18**	**.19**
Madigan et al. (2016b)†	129 adult athletes (49% females)	Sport	S-MPS MIPS	PS+	PC+	**.78**	BO: Reduced accomplishment (time 1)	**-.33**	-.08	**-.43**	**.30**
							BO: Exhaustion (time 1)	-.13	.08	**-.31**	**.29**
							BO: Devaluation (time 1)	-.32	-.07	**-.43**	**.30**

							BO: Total (time 1)	**-.29**	-.02	**-.44**	**.34**
							BO: Reduced accomplishment (time 2)	**.29**	-.02	**.49**	**-.41**
							BO: Exhaustion (time 2)	**-.21**	-.02	**-.31**	**.24**
							BO: Devaluation (time 2)	**.29**	-.02	**.49**	**-.41**
							BO: Total (time 2)	**-.31**	-.05	**-.43**	**.32**
Madigan et al. (2016c;	141 adolescent athletes (11%	Sport	S-MPS	PS+	PC+	**.54**	Training distress (time 1)	-.07	**.24**	**-.24**	**.33**
2017a)†	females)		MIPS				Training distress (time 2)	.09	**.33**	-.11	**.34**
							Autonomous motivation (time 1)	**.35**	.01	**.41**	**-.23**
							Controlled motivation (time 1)	**.17**	**.39**	-.05	**.36**
							Amotivation (time 1)	-.06	.14	**-.16**	**.21**
							Athlete burnout (time 1)	-.04	**.31**	**-.26**	**.39**
							Autonomous motivation (time 2)	**.45**	**.17**	**.43**	-.10
							Controlled motivation (time 2)	**.34**	**.56**	.05	**.48**
							Amotivation (time 2)	-.15	.02	**-.19**	.12
							Athlete burnout (time 2)	-.14	**.40**	**-.46**	**.57**
							Autonomous motivation (time 3)	**.22**	-.15	**.36**	**-.33**
							Controlled motivation (time 3)	.10	**.25**	-.04	**.23**
							Amotivation (time 3)	-.09	.06	-.15	.13
							Athlete burnout (time 3)	-.05	**.32**	**-.28**	**.41**
Madigan et al. (2017b)	136 junior athletes (21% females)	Sport	S-MPS	PS+	PC+	**.53**	Task-approach	**.26**	-.02	**.32**	**-.19**
			MIPS				Task-avoidance	-.11	**.18**	**-.25**	**.28**
							Self-approach	**.21**	-.07	.29	**-.22**

							Self-avoidance	-.11	**.21**	**-.27**	**.32**
							Other-approach	**.27**	**.20**	**.20**	.07
							Other-avoidance	.03	**.30**	-.16	**.34**
Madigan et al. (2017c)	261 adolescent and adult athletes (26% females)	Sport	MIPS	SP	NRI	**.62**	Training for avoidance of negative affect	**.20**	**.31**	.01	**.24**
							Training for weight control	**.14**	**.28**	-.04	**.25**
							Training for mood control	**.20**	**.14**	**.15**	.02
Madigan, Hill et al. (2018)	171 junior athletes (27% females)	Sport	S-MPS MIPS	PS+	PC+	**.71**	Problem-focused coping	**.33**	.11	**.36**	**-.19**
							Avoidant coping	-.05	**.17**	**-.25**	**.29**
							Training distress	.01	**.28**	**-.28**	**.39**
Madigan, Stoeber et al. (2018)	90 adult and adolescent (19% females)	Sport	S-MPS MIPS	PS+	PC+	**.63**	Task-approach	**.43**	.19	**.41**	-.12
							Task-avoidance	**.27**	.19	.20	.03
							Self-approach	**.28**	.13	**.26**	-.06
							Self-avoidance	**.28**	**.24**	.17	.09
							Other-approach	**.47**	**.36**	**.34**	.09
							Other-avoidance	**.38**	**.43**	.16	**.27**
							Performance	**.29**	.10	**.29**	-.11
Madigan, Stoeber, Forsdyke et al. (2018)	80 junior athletes (19% females)	Sport	S-MPS MIPS	PS+	PC+	**.59**	Injury	.16	**.29**	-.01	**.25**
Madigan et al. (2020)	181 adult and adolescent athletes (31% females)	Sport	S-MPS MIPS	PS+	PC+	**.59**	Attitudes towards doping	-.07	**.16**	**-.21**	**.25**
Mallinson & Hill (2011)	205 junior athletes (57% females)	Sport	S-MPS-2	PST	CM	**.66**	Autonomy thwarting	**.30**	**.40**	.05	**.28**
							Competence thwarting	**.16**	**.33**	-.08	**.30**

							Relatedness thwarting	**.18**	**.31**	-.03	**.26**
			HF-MPS	SOP	SPP	**.46**	Autonomy thwarting	**.18**	**.31**	.04	**.26**
							Competence thwarting	.12	**.23**	.02	**.20**
							Relatedness thwarting	.05	**.28**	-.09	**.29**
Mallinson et al. (2014)	241 junior athletes (59% females)	Sport	S-MPS-2	PST	PC+	**.58**	Enjoyment	**.20**	-.10	**.32**	**-.27**
							Physical self-worth	.01	**-.24**	**.19**	**-.30**
							Friendship: Self-esteem enhancement	**.17**	**-.18**	**.34**	**-.35**
							Friendship: Loyalty	.08	-.10	**.17**	**-.18**
							Friendship: Things in common	**.18**	.03	**.20**	-.09
							Friendship: Companionship	**.16**	-.05	**.23**	**-.18**
							Friendship: Conflict resolution	**.14**	-.10	**.24**	**-.22**
							Friendship: Conflict	.11	**.31**	-.09	**.30**
Mallinson-Howard et al. (2019)	222 youth athletes (71% females)	Sport	S-MPS-2	PST	CM	**.69**	Negative affect	**.33**	**.52**	-.05	**.43**
							Positive affect	.08	**-.24**	**.35**	**-.41**
							Concentration disruption	-.04	**.20**	**-.25**	**.31**
							Worry	**.20**	**.24**	.05	**.14**
							Somatic anxiety	**.16**	**.23**	.00	**.17**
							Antisocial behaviour-teammates	**.36**	**.35**	**.17**	**.15**
							Antisocial behaviour-opponents	**.44**	**.43**	**.22**	**.19**
							Prosocial behaviour-teammates	.05	-.07	**.14**	**-.14**
							Prosocial behaviour-opponents	.07	-.06	**.15**	**-.15**
							Intentions to dropout	-.08	.10	**-.21**	**.22**

Mallinson-Howard et al. (2021)	129 university athletes (44% females)	Sport	MIPS	SP	NRI	**.33**	Performance (jump test)	**.21**	-.14	**.27**	**-.23**
							Performance (sprint test)	**-.24**	.16	**-.31**	**.26**
	136 university athletes (41% females)	Sport	MIPS	SP	NRI	**.47**	Performance (agility trial time)	**-.24**	-.10	**-.22**	.01
	116 junior athletes (17% females)	Sport	MIPS	SP	NRI	**.48**	Performance (Yo-Yo test)	**.26**	.11	**.24**	-.02
Martin et al (2021)	149 adult athletes (30% females)	Sport	F-MPS-b	PST	PC+	**.46**	Life stress	.12	**.18**	.04	.14
							Athletic identity	**.40**	**.27**	**.32**	.11
							Coach-athlete relationship	**.20**	-.03	**.24**	-.14
Martinent & Ferrand (2007)	166 adult athletes (47% females)	Sport	S-MPS	PST	CM	--	Somatic anxiety intensity	**.27**	**.33**	--	--
							Cognitive anxiety intensity	**.35**	**.48**	--	--
							Self-confidence intensity	**.20**	-.05	--	--
							Somatic anxiety frequency	.12	.10	--	--
							Cognitive anxiety frequency	**.24**	**.30**	--	--
							Self-confidence frequency	.13	.14	--	--
							Somatic anxiety direction	**-.15**	-.14	--	--
							Cognitive anxiety direction	-.13	**-.32**	--	--
							Self-confidence direction	**.19**	-.05	--	--
McArdle & Duda (2004)	196 junior athletes (61% females)	Sport	F-MPS	PST	CM	**.38**	Task orientation	**.22**	-.07	**.27**	**-.17**
							Ego orientation	**.32**	**.23**	**.26**	.12
							Intrinsic motivation	**.35**	.06	**.35**	-.08
							Identified regulation	**.18**	.08	**.16**	.01
							Introjected regulation	**.23**	**.34**	.12	**.28**

							External regulation	**.30**	**.36**	**.19**	**.28**
							Amotivation	-.02	**.23**	-.12	**.26**
							Flexible goal structure	.09	**-.15**	**.16**	**-.20**
							Perceived parental task orientation	.10	**.19**	.03	**.17**
							Perceived parental ego orientation	**.24**	.00	**.26**	-.10
McArdle & Duda (2008)	196 junior athletes (61% females)	Sport	F-MPS	PST	CM	**.39**	Global self-esteem	**.31**	-.14	**.40**	**-.30**
							Labile self-esteem	.14	**.39**	-.01	**.37**
Miller & Mesagno (2014)	90 adult exercisers (62% females)	Exercise	HF-MPS	SOP	SPP	**.47**	Exercise dependence	**.32**	**.35**	.19	**.24**
							Narcissism	.17	**.31**	.03	**.26**
Molnar et al. (2021)	425 adolescent female dancers	Dance	CAPS	SOP	SPP	**.56**	Appearance	**.26**	**.44**	.02	**.37**
							Social goals	**.22**	**.26**	**.09**	**.17**
							Enjoyment goals	.01	**-.13**	**.10**	**-.16**
							Competence goals	**.30**	**.15**	**.26**	-.02
							Expert goals	**.13**	**.43**	**-.15**	**.43**
							Health goals	**.15**	**.20**	.05	**.14**
Mouratidis & Michou (2011)	333 junior athletes (32% females)	Sport	F-MPS	PS	CM	.10	Autonomous motivation	**.49**	.01	**.49**	-.04
							Controlled motivation	**.19**	**.37**	**.17**	**.36**
							Coping with adversity	**.33**	**-.20**	**.36**	**-.25**
							Peaking under pressure	**.42**	.01	**.42**	-.04
							Goal setting/mental preparation	**.56**	.02	**.56**	-.04
							Concentration	**.37**	**-.13**	**.39**	**-.18**
							Confidence	**.43**	**-.27**	**.48**	**-.35**

Nascimento Junior et al. (2017)	301 male adult futsal players	Sport	S-MPS-2	PST	CM	**.43**	Competence satisfaction	**.15**	.03	**.15**	-.04
							Relatedness satisfaction	.06	-.02	.08	-.05
							Autonomy satisfaction	**.14**	.01	**.15**	-.06
							Cohesion: Group-Integration task	.07	.07	.04	.04
							Cohesion: Group-Integration social	.08	.08	.05	.05
							Cohesion: Attraction to group task	**.31**	**.31**	**.21**	**.21**
							Cohesion: Attraction to group social	.11	**.11**	.07	.07
Nascimento Junior et al. (2020)	29 male adult futsal medal winners	Sport	S-MPS-2	PS+	CM	**.32**	Scored goals	**.32**	.06	.32	-.05
							Conceded goals	**-.32**	-.06	-.32	.05
							Number of wins	.13	-.09	.17	-.14
							Number of defeats	-.13	.09	-.17	.14
							Total score in competition	.13	-.10	.17	-.15
	111 male adult futsal non-medal winners	Sport	S-MPS-2	PS+	CM	**.30**	Scored goals	.08	.08	.06	.06
							Conceded goals	.13	.04	.12	.00
							Number of wins	-.10	.05	-.12	.08
							Number of defeats	.13	-.03	.15	-.07
							Total score in competition	-.08	.08	-.11	.11
Nordin-Bates (2020)	77 adolescent dance students (77% females)	Dance	MIPS	SP	NRI	**.49**	Creativity	.17	-.01	.20	-.11
							Autonomy satisfaction	.12	**-.30**	**.32**	**-.41**
							Competence satisfaction	.16	-.16	**.28**	**-.28**
							Relatedness satisfaction	.23	.02	**.25**	-.11
							Facilitative imagery	**.25**	**-.02**	**.29**	**-.15**

Nordin-Bates, Cumming et al. (2011)	250 adult dancers (66% females)	Dance	PI	SE	CM	**.44**	Debilitative imagery	**.15**	**.47**	-.07	**.46**
							Cognitive anxiety intensity	**.22**	**.48**	.01	**.44**
							Cognitive anxiety direction	-.11	**-.18**	-.03	**-.15**
							Somatic anxiety intensity	.11	**.37**	-.06	**.36**
							Somatic anxiety direction	-.05	-.13	.01	-.12
							Self-confidence	-.02	**-.35**	**.16**	**-.38**
Nordin-Bates et al. (2014)†	271 junior dancers (74% females)	Dance	PI	SE	CM	**.43**	Task-involving climate (time 1)	.04	**-.20**	**.14**	**-.24**
							Ego-involving climate (time 1)	**.21**	**.41**	.04	**.36**
							Task-involving climate (time 2)	-.06	**-.24**	.05	**-.24**
							Ego-involving climate (time 2)	**.26**	**.36**	**.12**	**.28**
Nordin-Bates, Walker et al. (2011)	261 adolescent female dancers	Dance	PI	PS+	PC+	**.56**	Eating attitudes	**.27**	**.42**	.05	**.34**
							Self-esteem	**-.32**	**-.31**	**-.19**	**-.17**
	85 adolescent male dancers	Dance	PI	PS+	PC+	**.50**	Eating attitudes	**.24**	**.31**	.10	**.23**
							Self-esteem	-.16	-.20	-.07	-.14
Nordin-Bates et al. (2017)	91 adolescent ballet dancers (43% females)	Dance	F-MPS	PST	CM	**.28**	BO: Reduced accomplishment	-.18	**.40**	**-.33**	**.48**
							BO: Exhaustion	.13	**.38**	.03	**.36**
							BO: Devaluation	-.02	**.31**	-.12	**.33**
							Intrinsic motivation	**-.26**	.24	**-.35**	**.34**
							Identified regulation	**-.33**	.03	**-.35**	.14
							External regulation	-.12	.06	-.14	.10
							Amotivation	.21	**-.32**	**.33**	**-.40**
Olivera et al. (2015)‡	63 adolescent professional soccer	Sport	F-MPS	PS+	PC+	--	Intrinsic motivation to know	**.40**	--	--	--

	players (gender not reported)						Intrinsic motivation for accomplishment	**.42**	--	--	--
							Intrinsic motivation for stimulation	**.53**	--	--	--
							External regulation	**.42**	--	--	--
	119 adolescent non-professional soccer players (gender not reported)	Sport	F-MPS	PS+	PC+	--	Intrinsic motivation to know	--	--	--	--
							Intrinsic motivation for accomplishment	--	--	--	--
							Intrinsic motivation for stimulation	--	--	--	--
							External regulation	--	**.41**	--	--
Ommundsen et al. (2005)	1719 junior soccer player (28% females)	Sport	F-MPS	PST	PC+	**.53**	Task orientation	**.14**	**-.06**	**.20**	**-.16**
							Ego orientation	**.30**	**.22**	**.22**	.08
							Task-involving climate	**.05**	**-.09**	**.12**	**-.14**
							Ego-involving climate	**.31**	**.53**	.04	.45
							Friendship quality: Loyalty	.01	**-.23**	**.16**	**-.28**
							Friendship quality: Companionship	**-.07**	**-.33**	**.13**	**-.35**
							Friendship quality: Conflict	.04	**.17**	-.06	**.18**
							Peer acceptance	-.01	**-.18**	**.10**	**-.21**
Olsson et al. (2020)	150 adolescent athlete-parent dyads (gender not reported)	Sport	MIPS	SP	NRI	**.53**	Actual parental perfectionistic strivings	**.20**	.09	**.18**	-.02
							Actual parental perfectionistic concerns	**.24**	**.17**	**.18**	.05
							Perceived parental perfectionistic strivings	**.44**	**.34**	**.33**	.14
							Perceived parental perfectionistic concerns	**.29**	**.48**	.05	**.40**
Olsson et al. (2021)	256 adult athletes (50% females)	Sport	MIPS	SP	NRI	**.41**	Stress	.11	**.35**	-.04	**.34**
							Total burnout	-.06	**.20**	**-.16**	**.25**
							BO: Reduced accomplishment	-.05	**.23**	**-.16**	**.27**

							BO: Exhaustion	.04	**.20**	-.05	**.20**
							BO: Devaluation	**-.13**	.02	**-.15**	.08
Pacewicz et al. (2018)	173 university athletes (50%	Sport	S-MPS-2	PST	CM	**.39**	Total burnout	**-.19**	**.41**	**-.42**	**.54**
	females)						BO: Reduced accomplishment	-.01	**-.27**	.11	**-.29**
							BO: Exhaustion	**-.18**	**.32**	**-.35**	**.43**
							BO: Devaluation	**-.25**	**.31**	**-.42**	**.46**
							Problem-focused coping	.12	-.07	**.16**	-.13
							Emotion-focused coping	.08	**-.27**	**.21**	**-.33**
							Avoidant coping	-.06	**.20**	-.15	**.24**
Padlam & Aujla (2014)	92 adult dancers (75% females)	Dance	PI	PS+	PC+	**.65**	Harmonious passion	-.01	-.02	.00	-.02
							Obsessive passion	**.32**	**.39**	.10	**.25**
							Attitudes towards disordered eating	.17	**.31**	-.04	**.27**
							Food preoccupation	.07	**.17**	-.05	.16
							Dieting	**.23**	**.38**	-.02	**.31**
							Oral control	.01	.02	.00	.02
							Global self-esteem	-.16	**-.35**	.09	**-.33**
Paulson & Rutledge (2014)	204 female undergraduates	Exercise	APS-R	HS	D	-.11	Attitudes towards disordered eating	-.04	**.30**	-.01	**.30**
							Cardiovascular exercise	**.15**	.00	**.15**	.02
							Strength exercise	.03	.02	.03	.02
	110 male undergraduates	Exercise	APS-R	HS	D	.14	Attitudes towards disordered eating	-.15	.11	-.17	.13
							Cardiovascular exercise	**.26**	.10	**.25**	.07
							Strength exercise	**.43**	-.01	**.44**	-.08

Penniment & Egan (2012)	142 adult female ballet and jazz dancers	Dance	F-MPS	PST	CM	**.88**	Dietary restraint	**.75**	**.79**	**.19**	**.41**
							Eating concern	**.76**	**.80**	**.20**	**.43**
							Shape concern	**.84**	**.84**	**.39**	**.39**
Puente-Díaz et al. (2013)	204 adolescent tennis players	Sport	F-MPS	PST	CM	**.32**	Hope	**.19**	-.01	**.20**	-.08
							Enjoyment	.10	**.20**	.04	**.18**
							Performance avoidance	.06	.12	.02	.11
							Performance approach	**.29**	-.04	**.32**	**-.15**
							Mastery avoidance	-.02	-.03	-.01	-.02
							Mastery approach	**.26**	**.28**	**.19**	**.22**
							Fear of failure	**.16**	**.32**	.06	**.29**
Raedeke et al. (2021)	254 aesthetic performers (80% females)	Sport/ Dance	F-MPS	PST	CM	**.65**	Self-esteem	**-.19**	**-.50**	**.21**	**-.50**
							Contingent self-worth	**.49**	**.59**	**.17**	**.41**
							BO: Exhaustion	.12	**.25**	-.06	**.23**
							BO: Reduced accomplishment	**.22**	**.37**	-.03	**.31**
							BO: Devaluation	.00	**.13**	-.11	**.17**
							Life satisfaction	**-.14**	**-.37**	**.14**	**-.37**
Friere et al. (2022)	413 high school athletes (gender not reported)	Sport	S-MPS-2	PS/O	CM	**.14**	Ego orientation	**.18**	**.23**	**.15**	**.21**
							Task orientation	**.38**	.06	**.38**	.01
Sapieja et al. (2011)	194 male junior soccer players	Sport	S-MPS-2	PST	CM	**.49**	Perceived maternal authoritativeness	-.01	**-.37**	**.21**	**-.42**
							Perceived paternal authoritativeness	.07	**-.33**	**.28**	**-.42**
Sagar & Stoeber (2009)	388 university athletes (46% females)	Sport	S-MPS	PST	CM	**.56**	Positive affect after success	**.11**	.02	**.12**	-.05
							Negative affect after failure	**.11**	**.30**	-.07	**.29**

							FOF: Shame and embarrassment	**.20**	**.51**	-.12	**.49**
							FOF: Self esteem	**.21**	**.46**	-.06	**.42**
							FOF: Losing interest	**.23**	**.45**	-.03	**.40**
							FOF: Upsetting others	**.32**	**.50**	.06	**.41**
							FOF: Uncertain future	**.31**	**.42**	**.10**	**.31**
Shanmugam & Davies (2015)	192 adult athletes (44% females)	Sport	F-MPS	PST	--	--	Eating psychopathology	**.18**	-	--	--
Shanmugam et al. (2011)	588 adult athletes (59% females)	Sport	F-MPS	PST	--	--	Avoidant attachment	**.10**	--	--	--
							Anxious attachment	.05	--	--	--
							Parent support	**.07**	--	--	--
							Parent conflict	**.11**	--	--	--
							Coach support	**.12**	--	--	--
							Coach conflict	**.11**	--	--	--
							Self-criticism	**.29**	--	--	--
							Self-esteem	.04	--	--	--
							Depressive symptoms	**.08**	--	--	--
							Dietary restraint	**.11**	--	--	--
							Eating concern	.04	--	--	--
							Shape concern	**.08**	--	--	--
							Weight concern	**.07**	--	--	--
Shanmugam et al. (2012)‡	411 junior and adult athletes (61% females)	Sport	F-MPS	PST	--	--	Avoidant attachment	.08	--	--	--
							Anxious attachment	.04	--	--	--

							Self-criticism	**.28**	--	--	--
							Self-esteem	.04	--	--	--
							Depressive symptoms	.08	--	--	--
							Eating psychopathology	.06	--	--	--
Smith et al. (2018)†	162 male adolescent soccer players	Sport	HF-MPS	SOP	SPP	-.03	Depressive symptoms (time 1)	**-.20**	**.27**	**-.20**	**.27**
							BO: Reduced accomplishment (time 1)	**-.25**	**.27**	**-.25**	**.27**
							BO: Exhaustion (time 1)	**-.32**	.24	**-.32**	**.24**
							BO: Devaluation (time 1)	**-.40**	.16	**-.40**	**.16**
							Depressive symptoms (time 2)	**-.23**	**.27**	**-.23**	**.27**
							BO: Reduced accomplishment (time 2)	-.16	.16	**-.16**	**.16**
							BO: Exhaustion (time 2)	**-.20**	**.27**	**-.20**	**.27**
							BO: Devaluation (time 2)	-.18	**.27**	**-.18**	**.27**
Somasundaram & Burgess	478 female students and athletes	Sport	F-MPS-b	PST	CM	**.39**	Body dissatisfaction	.09	**.30**	-.03	**.29**
(2018)							Eating attitudes	**.14**	**.30**	.03	**.27**
Stoeber & Becker (2008)	74 female soccer players	Sport	MIPS	SP	NRI	**.58**	Hope of success	**.28**	.18	.22	.02
							Fear of failure	-.07	.16	-.20	**.25**
							Success internal attributions	**.21**	-.07	**.31**	**-.24**
							Success external attributions	.14	**.23**	.01	.18
							Failure internal attributions	-.14	.07	-.22	.19
							Failure external attributions	-.04	**-.20**	.10	-.22
							Self-serving attributions	.05	**-.24**	**.24**	**-.33**
Stoeber et al. (2007)	115 university athletes (54%	Sport	MIPS	SP	NRI	**.63**	Competitive trait cognitive anxiety	**.20**	**.54**	-.21	**.54**

	females)						Competitive trait somatic anxiety	.11	**.42**	-.22	**.45**
							Competitive trait self-confidence	.15	**-.26**	**.42**	**-.46**
	74 female soccer players	Sport	MIPS	SP	NRI	**.58**	Competitive trait cognitive anxiety	.20	**.67**	**-.31**	**.69**
							Competitive trait somatic anxiety	.17	**.43**	-.11	**.41**
							Competitive trait self-confidence	-.03	**-.28**	.17	**-.32**
	204 high school athletes (36%	Sport	MIPS	SP	NRI	**.35**	Competitive trait cognitive anxiety	.03	**.57**	**-.22**	**.60**
	females)						Competitive trait somatic anxiety	.04	**.54**	**-.19**	**.56**
							Competitive trait self-confidence	**.18**	**-.39**	**.37**	**-.49**
	142 university athletes (39%	Sport	MIPS	SP	NRI	**.56**	Competitive trait cognitive anxiety	.10	**.46**	**-.21**	**.49**
	females)						Competitive trait somatic anxiety	.07	**.31**	-.13	**.33**
							Competitive trait self-confidence	.02	**-.34**	**.27**	**-.42**
Stoeber et al. (2008)	204 high school athletes (36%	Sport	MIPS	SP	NRI	**.35**	Mastery goal	**.16**	-.09	**.21**	**-.16**
	females)						Performance approach	**.19**	**.25**	.11	**.20**
							Performance avoidance	.02	**.39**	-.14	**.41**
		Sport	MIPS	SP	NRI	**.41**	Mastery goal	**.32**	-.04	**.37**	**-.20**
							Performance approach goal	**.28**	**.26**	**.20**	**.17**
							Performance avoidance goal	.13	**.37**	-.03	**.35**
	147 sport science undergraduates	Sport	MIPS	SP	NRI	**.56**	Mastery approach goal	**.49**	**.23**	**.45**	-.06
	(39% females)						Mastery avoidance goal	**.21**	**.42**	-.03	**.37**
							Performance approach goal	**.35**	**.35**	**.20**	**.20**
							Performance avoidance goal	.10	**.22**	-.03	**.20**
		Sport	MIPS	SP	NRI	**.53**	Mastery approach goal	**.50**	**.29**	**.43**	.03

							Mastery avoidance goal	.06	**.27**	-.10	**.28**
							Performance approach goal	**.34**	**.37**	**.18**	**.24**
							Performance avoidance goal	.12	.15	.05	.10
Stoeber, Stoll et al. (2009)	138 male junior ice hockey players	Sport	MIPS	SP	NRI	**.49**	Mastery approach goal	**.49**	**.21**	**.45**	-.04
							Performance avoidance goal	**.47**	**.44**	**.32**	**.27**
							Mastery avoidance goal	**.30**	**.48**	.08	**.40**
							Performance avoidance goal	**.23**	**.37**	.06	**.30**
			S-MPS	PST	CM	**.41**	Mastery approach goal	**.40**	**.27**	**.33**	.13
							Performance avoidance goal	**.53**	**.48**	**.42**	**.34**
							Mastery avoidance goal	**.32**	**.52**	.14	**.45**
							Performance avoidance goal	**.26**	**.30**	.16	**.22**
Stoeber, Uphill, et al. (2009)	112 adult triathletes (22% females)	Sport	S-MPS	PST	CM	**.59**	Season best performance: Swimming	**.39**	.16	**.37**	-.09
							Season best performance: Cycling	**.23**	.17	.16	.04
							Season best performance: Running	**.22**	**.23**	.11	.13
							Performance approach goal	**.53**	**.49**	**.34**	**.26**
							Performance avoidance goal	.12	**.47**	**-.22**	**.50**
							Mastery approach goal	**.38**	.13	**.38**	-.13
							Mastery avoidance goal	**.24**	**.46**	-.04	**.41**
							Race performance	**.43**	.18	**.41**	-.10
	321 adult triathletes (17% females)	Sport	S-MPS	PST	CM	**.64**	Season best performance: Swimming	**.26**	.00	**.34**	**-.22**
							Season best performance: Cycling	**.18**	.04	**.20**	-.10
							Season best performance: Running	**.25**	.08	**.26**	-.11

							Personal best performance: Swimming	**.21**	-.01	**.28**	**-.19**
							Personal best performance: Cycling	**.20**	.08	**.19**	-.06
							Personal best performance: Running	**.20**	.09	**.19**	-.05
							Performance approach goal	**.61**	**.52**	**.42**	**.21**
							Performance avoidance goal	**.17**	**.30**	-.03	**.25**
							Mastery approach goal	**.47**	**.30**	**.38**	.00
							Mastery avoidance goal	**.35**	**.51**	.04	**.40**
							Performance goal: Total time	**.20**	.04	**.23**	-.12
							Performance goal: Expectancy	**.13**	-.09	**.25**	**-.23**
							Outcome goal: Rank	**.43**	**.18**	**.42**	**-.14**
							Outcome goal: Expectancy	-.11	**-.24**	.06	**-.22**
							Race performance	**.28**	.05	**.32**	**-.18**
Stornæs et al. (2019)	832 students and students from elite sports schools (53% females)	Sport	F-MPS	PST	CM	**.58**	Anxiety	**.25**	**.50**	-.06	**.45**
							Depressive symptoms	**.20**	**.48**	**-.11**	**.46**
							Weight concern	**.12**	**.35**	**-.11**	**.35**
							Resilience	.08	**-.25**	**.29**	**-.37**
							Self-worth	**-.14**	**.43**	**-.53**	**.63**
Stoll et al. (2008)	122 sport science undergraduates (53% females)	Sport	MIPS	SP	NRI	**.30**	Average increment in points per series	.00	-.15	.05	-.16
							Points in basketball task (series 1)	**.21**	.02	**.21**	-.05
							Points in basketball task (series 2)	**.21**	.06	**.20**	.00

							Points in basketball task (series 3)	.13	-.04	.15	-.08
							Points in basketball task (series 4)	**.24**	-.04	**.26**	-.12
							Total points in basketball task	**.25**	.11	**.23**	.04
Taranis & Meyer (2010)	97 female adult exercisers	Exercise	F-MPS	PST	--	--	CE: Avoidance and rule driven behaviour	**.27**	--	--	--
							CE: Weight control exercise	.05	--	--	--
							CE: Mood improvement	.07	--	--	--
							CE: Lack of exercise enjoyment	.11	--	--	--
							CE: Exercise rigidity	.17	--	--	--
Tashman et al. (2010)	177 adult coaches (36% females)	Sport	PI	SE	CM	**.46**	BO: Exhaustion	**.28**	**.45**	.09	**.38**
							BO: Depersonalisation	**.24**	**.48**	.02	**.43**
							BO: Personal accomplishment	.03	**-.29**	**.19**	**-.34**
							Perceived stress	.15	**.17**	.08	**.12**
Thienot et al. (2014)	343 adult and junior athletes (48%	Sport	HF-MPS-b	PS+	PC+	**.33**	Mindfulness: Awareness	**.33**	-.03	**.36**	**-.16**
	females)		F-MPS-b				Mindfulness: Non-judgemental	**-.21**	**-.33**	**-.11**	**-.28**
							Mindfulness: Refocusing	.11	**-.24**	**.21**	**-.29**
							Worry	**.12**	**.46**	-.04	**.45**
							Concentration disruption	-.01	**.46**	**-.19**	**.49**
							Dispositional flow	**.17**	**-.19**	**.25**	**-.26**
							Mindful attention and awareness	-.05	**-.51**	**.15**	**-.52**
							Rumination	-.01	.07	-.04	.08
Vaarstra et al. (2018)	216 adolescent soccer players (75%	Sport	S-MPS-2	PST	CM	**.35**	Perceived social loafing of teammates	**.23**	.06	**.22**	-.02
	females)						Social loafing acceptability	**-.15**	.03	**-.17**	.09

Vallance et al. (2006)	227 male junior ice hockey players	Sport	S-MPS	PST	CM	**.28**	Trait anger: Angry reaction	**.21**	**.35**	.12	**.31**
							Trait anger: Angry temperament	.08	**.22**	.02	**.21**
Van Dyke et al. (2021)	224 female university gymnasts	Sport	S-MPS-2	PST	CM	**.47**	Present moment attention	**.28**	**-.14**	**.40**	**-.32**
							Awareness	**.16**	**-.15**	**.26**	**-.26**
							Acceptance	.01	**-.42**	**.26**	**-.48**
Vink & Raudsepp (2018)	172 adolescent athletes (45% females)	Sport	S-MPS-2 MIPS	PS+	--	--	Autonomous motivation (time 1)	**.49**	--	--	--
							Autonomous motivation (time 2)	**.42**	--	--	--
							Sport-specific practice/activities (time 1)	**.31**	--	--	--
							Sport-specific practice/activities (times 2)	**.28**	--	--	--
Vink & Raudsepp (2020)†	188 adolescent athletes (60% females)	Sport	S-MPS-2	PST	PC+	**.51**	Quantity of sport specific practice (time 1)	**.39**	-.09	**.51**	**-.36**
							Quantity of sport specific practice (time 2)	**.34**	-.05	**.43**	**-.28**
							Quantity of sport specific practice (time 3)	**.31**	.06	**.33**	-.12
							Quality of sport specific practice (times 1)	**.40**	.04	**.44**	**-.21**
							Quality of sport specific practice (times 2)	**.35**	-.07	**.45**	**-.31**
							Quality of sport specific practice (times 3)	**.33**	-.04	**.41**	**-.26**
Waleriańczyk & Stolarski (2021)	332 adult runners (43% females)	Sport	PSQ	PS	PC	.19	Race performance	**.42**	.20	**.40**	**.13**
							Personal best performance	**.29**	.05	**.29**	-.01
							Anticipate performance	**.43**	.12	**.42**	.04
							Intellect	.15	**-.30**	**.22**	**-.34**
							Extraversion	.09	**-.20**	**.13**	**-.22**
							Agreeableness	-.09	**-.39**	-.02	**-.38**
							Emotional stability	-.18	**-.49**	-.10	**-.47**

							Conscientiousness	**.25**	-.08	**.27**	**-.13**
Waleriańczyk, Stolarski &	188 adult runners (46% females)	Sport	PSQ	PS	PC	.11	Energetic arousal	**.23**	**-.22**	**.26**	**-.25**
Matthews (2022)							Tense arousal	-.10	**.33**	-.15	**.34**
							Hedonic tone	.02	**-.30**	.06	**-.30**
							Personal best performance	**.24**	**.17**	**.23**	**.15**
							Anticipated performance	**.32**	.14	**.31**	.11
							Race performance	**.32**	.12	.31	.09
							Anticipated/actual performance	-.05	-.04	-.05	-.03
Waleriańczyk, Hill, &	401 adult athletes (50% females)	Sport	S-MPS-2	PST	CM	**.51**	Absorption	**.33**	**.12**	**.31**	-.06
Matthews (2022)							Dedication	**.34**	-.08	**.44**	**-.31**
							Vigor	**.40**	.01	**.46**	**-.25**
							BO: Reduced accomplishment	**-.14**	**.23**	**-.31**	**.35**
							BO: Exhaustion	.06	**.34**	**-.14**	**.36**
							BO: Devaluation	-.02	**.21**	**-.15**	**.26**
		Sport	PPS-S	SOP	SPP	.56	Absorption	**.33**	.08	**.35**	**-.13**
							Dedication	**.22**	-.03	**.29**	**-.19**
							Vigor	**.25**	.04	**.27**	**-.12**
							BO: Reduced accomplishment	-.01	**.16**	**-.12**	**.20**
							BO: Exhaustion	**.13**	**.33**	-.07	**.31**
							BO: Devaluation	.05	**.24**	**-.10**	**.26**
Wang et al. (2020)	243 adult athletes (47% females)	Sport	S-MPS-2	PS+	PC+	.11	Autonomous motivation	**.52**	**-.12**	**.54**	**-.21**
			MIPS				Controlled motivation	-.10	**.64**	**-.22**	**.66**

Attitudes toward doping	**-.54**	**.51**	**-.70**	**.68**

Note.; Intru. = Instrument, CAPS = Child and Adolescent Perfectionism Scale (Flett et al., 2001), HF-MPS = Multidimensional Perfectionism Scale (Hewitt & Flett, 1991), HF-MPS-b = Brief version of Multidimensional Perfectionism Scales (Cox, Enns, & Clara, 2002 or Burgess, Frost, & DiBartolo, 2016), APS-R = Almost Perfect Scale-Revised (Slaney et al., 2001), F-MPS = Multidimensional Perfectionism Scale (Frost et al., 1990); FMPS-b = Brief version of Multidimensional Perfectionism Scale (Cox et al., 2002); S-MPS Sport Multidimensional Perfectionism Scale (Dunn et al., 2006); S-MPS-2 Sport Multidimensional Perfectionism Scale 2 (Gotwals et al., 2010); AE-MPS = Multiple Perfectionism Scale for Sport (Anshel & Eom, 2003); MIPS = Multidimensional Inventory of Perfectionism in Sport (Stoeber, Otto, & Stoll, 2006); PI = Perfectionism Inventory (R. W. Hill et al., 2004);
CPI = Chinese Perfectionism Inventory (Cheng & Hardy, 2016); PSQ = Perfectionism in Sport Questionnaire (Waleriańczyk & Stolarski, 2016); SOP = self-oriented perfectionism, HS = High standards, SP = Striving for perfection, PST = Personal standards, SE = Striving for excellence; PS+ = A composite of multiple subscales indicative of perfectionistic strivings; SPP = Socially prescribed perfectionism, D = Discrepancy, CM = Concern over mistakes, DA = Doubts about action, NRI = Negative reactions to imperfection; PS/O = subscale that includes both personal standards and organisation; PS = single subscale of perfectionistic strivings from PSQ; PC = single subscale of perfectionistic concerns from PSQ; PS+ = a composite of multiple subscales indicative of perfectionistic strivings; PC+ = a composite of multiple subscales indicative of perfectionistic concerns; CP = A combination of subscales from labelled Conscientious Perfectionism derived from subscales of Perfectionism Inventory; SP = A combination of subscales from labelled Self-Evaluative Perfectionism derived from subscales of Perfectionism Inventory; BO = Burnout; ED = Exercise dependence, FOF = Fear of failure; CE = Compulsive exercise; MT = Mental toughness; [a] = Sub-facets also available in article; *r* = bivariate correlation coefficient; *pr* = partial correlation coefficient. † = correlations presented are for perfectionism scores measured at time one and/or pre-intervention. ‡ = Spearman's rank correlations. Bold = $p < .05$

Table 4.2 *Meta-analytical relationships, total unique effects and relative weights*

Criterion variables	*k*	*N*	$r_{(PS\ PC)}$	$r_{(PS\ Y)}$	$r_{(PC\ Y)}$	β_{PS}	β_{PC}	TE [95% CI]	RW_{PS} (%)	RW_{PC} (%)	R^2_{MODEL}
Task orientation	8	2877	.36	.15	-.07	.20	-.14	.06 [-.00, .12]	0.03 (71.91)	0.01 (28.09)	0.04
Ego orientation	8	2877	.36	.22	.22	.16	.16	.32 [.27, .38]	0.04 (50.00)	0.04 (50.00)	0.07
Self-confidence	9	1300	.47	.16	-.24	.35	-.41	-.05 [-.15, .04]	0.06 (39.55)	0.09 (60.45)	0.15
Depressive symptoms	5	963	.35	.17	.42	.03	.41	.44 [.34, .53]	0.01 (8.33)	0.16 (91.67)	0.18
Athletic performance	6	684	.45	.23	.06	.25	-.06	.20 [.07, .33]	0.05 (94.60)	0.00 (5.40)	0.06

Note. k = Number of effect sizes. N = Number of participants; DV = Dependent variable. β = Standardised regression coefficient. TUE = Total unique effect (βPS + βPC; units of standard deviations of DV per standard deviation of PS + PC). RW = Relative weight. PS = Perfectionistic strivings. PC = Perfectionistic concerns. Rounding to two decimal places accounts for any differences between βPS + βPC and TUE. If 95% CI (confidence intervals) do not include zero, the TUE is statistically significant ($p < .05$). Harmonic mean of sample size and average PS-PC correlation used to calculate effects.
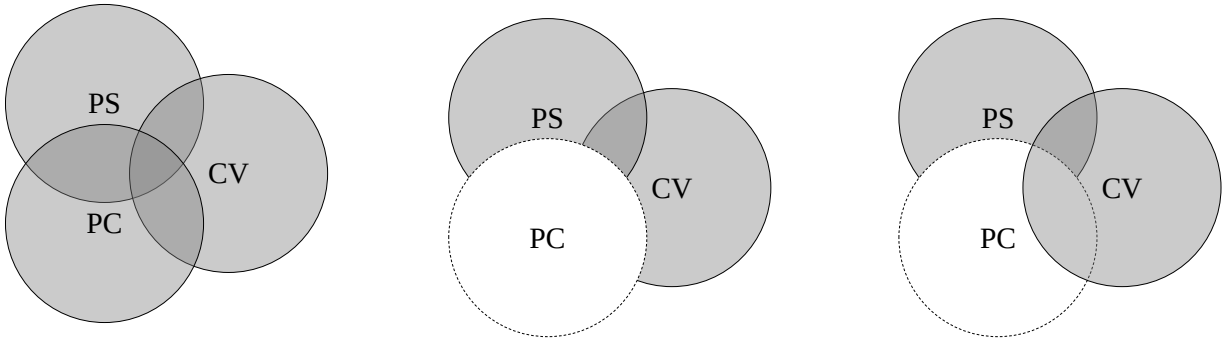
Figure 1. *A depiction of unpartialled (left), partialled (middle), and semi-partialled (right) relationship of perfectionistic strivings on a criterion variable controlling for perfectionistic concerns.*