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The relationship between multidimensional perfectionism and passion in junior athletes

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1           During their formative years, aspiring junior athletes must accrue the requisite  
2 practice and skills necessary to compete at senior elite level. This undertaking is arduous, and  
3 requires extraordinary dedication over a period of time that can span childhood to early  
4 adulthood (Elferink-Gemser, Jordet, Coelho-E-Silva & Visscher, 2011). The motivational  
5 processes that govern whether a junior athlete graduates to elite level or becomes one of the  
6 many athletes to dropout (or burnout) of sport are complex. From a personality perspective,  
7 some junior athletes may be better suited to this endeavor than others (Hall, 2006). In accord,  
8 examination of personality characteristics and the patterns of motivation they engender may  
9 provide the basis for better talent identification and the development of future elite athletes.

10           In reviewing the factors associated with Olympic success, Gould and Maynard (2009)  
11 identify perfectionism as a potentially important personality characteristic. Perfectionism is a  
12 trait broadly defined as a preoccupation with striving for flawlessness in concert with overly  
13 critical self-evaluative concerns (Flett & Hewitt, 2002). Hewitt and Flett (1991) have  
14 proposed a model in which perfectionism is understood in terms of the direction in which  
15 perfectionistic beliefs are focused. When directed towards the self (self-oriented  
16 perfectionism) individuals set exceedingly high personal standards and evaluate themselves  
17 critically. When perceived to be directed from others (socially prescribed perfectionism)  
18 individuals believe that significant others have excessive expectations, appraise them harshly,  
19 and exert pressure on them to be perfect. Studies outside of sport suggest that these two  
20 dimensions have divergent consequences. Socially prescribed perfectionism tends to be  
21 uniformly problematic – contributing to higher levels of stress, anxiety and depression.  
22 Conversely, self-oriented perfectionism appears to be highly motivating and best considered  
23 only a vulnerability factor for such outcomes (Flett & Hewitt, 2007).

24           Researchers have begun to examine the influence of these dimensions in junior  
25 athletes. Self-oriented perfectionism has been found to contribute to a mix of positive and

1 negative outcomes (Gotwals, Stoeber, Dunn, & Stoll, 2012). On one hand, this dimension of  
2 perfectionism is positively related to more adept coping and negatively related to burnout,  
3 suggesting it is a seemingly desirable characteristic for athletes to possess (Hill, Hall &  
4 Appleton, 2010a; Hill, Hall, Appleton & Kozub, 2008). However, on the other hand, self-  
5 oriented perfectionism is negatively related to self-acceptance and positively related to a fear  
6 of failure (Hill et al., 2008; Hill, Hall & Appleton, 2010b). In addition, there is also evidence  
7 that self-oriented perfectionism may contribute to deficits in motivation when performance  
8 difficulties arise and thus is notably complex (Hill, Hall, Duda & Appleton, 2011). Socially  
9 prescribed perfectionism, by contrast, appears to be much more debilitating for athletes.  
10 Research suggests that, unlike self-oriented perfectionism, this dimension is associated with  
11 only negative outcomes for junior athletes, such as poorer coping, lower well-being, and  
12 higher burnout (e.g., Gaudreau & Verner-Filion, 2012; Hill et al., 2008; Hill et al., 2010a).

13         The divergent outcomes associated with self-oriented and socially prescribed  
14 perfectionism for junior athletes are known to reflect contrasting motivational properties.  
15 These include, for example, differing patterns of motivation regulation (a combination of  
16 autonomous and controlled regulation vs. only controlled regulation; Appleton & Hill, 2012)  
17 and contingencies of self-worth (internal contingencies vs. external contingencies; Hill, Hall,  
18 & Appleton, 2011). Their divergent features are also likely to include other motivational  
19 properties. Of especial note here, Vallerand and colleagues (Vallerand, 2010; Vallerand,  
20 Rousseau, et al., 2006) have purported that dimensions of perfectionism may give rise to  
21 different types of passion, another important predictor of sport-related outcomes. The current  
22 study thus builds on previous research by examining this suggestion and testing whether self-  
23 oriented perfectionism and socially prescribed perfectionism can indeed be differentiated by  
24 their association with harmonious and obsessive passion.

25 **Passion for sport**

1            Passion reflects a close affinity for activities (such as sport) that people consider self-  
2 defining (Vallerand, Blanchard et al., 2003). It develops in a dualistic manner via  
3 internalization (a process whereby activities become more or less part of one's sense of self),  
4 and can either be harmonious or obsessive (Vallerand, 2010). Harmonious passion emerges  
5 from autonomous internalization whereby an activity integrates fully into the self and resides  
6 harmoniously alongside pre-existing values and goals (e.g., "my sport reflects the qualities I  
7 like about myself"; Vallerand et al., 2003). When activities are regulated by harmonious  
8 passion, people identify with, and personally endorse, the relevance of their participation  
9 leading to wilful engagement. Obsessive passion emerges from controlled internalization  
10 whereby the same activity only partially integrates into the self, leading to internal conflicts  
11 between the activity and pre-existing values and goals (e.g., "I often have difficulties  
12 controlling the urge to engage in my sport"; Vallerand et al., 2003). Like harmonious passion,  
13 when activities are energized by obsessive passion people identify highly with the activity  
14 and express personal endorsement of participation. Yet, unlike harmonious passion, this is  
15 only the case inasmuch as the activity serves to fulfil some important contingency (e.g., to  
16 bolster self-worth or gain approval; Mageau, Carpentier & Vallerand, 2011), resulting in  
17 compulsive and inflexible engagement.

18            The experiences of junior athletes will be markedly different depending on the  
19 presence of harmonious or obsessive passion. Moreover, while both passions are highly  
20 energizing, it is the presence of harmonious passion that provides the basis for long-term  
21 participation in sport (Vallerand, Salvy et al., 2007). This is because, in addition to more  
22 flexible and enthusiastic patterns of participation, harmonious passion promotes more  
23 positive thoughts and feelings towards sport. By contrast, in addition to more rigid and  
24 compulsive patterns of participation, obsessive passion promotes less positive and often  
25 negative thoughts and feelings towards sport (Vallerand, 2012). For example, harmonious

1 passion is associated with lower levels of negative affect and burnout, and higher levels of  
2 well-being among athletes (e.g., Curran, Appleton, Hill & Hall., 2011, 2013; Vallerand et al.,  
3 2003). It is the opposite for obsessive passion which is associated with higher levels of  
4 negative affect and burnout, and lower levels of well-being in sport (e.g., Vallerand et al.,  
5 2003; Vallerand, et al., 2006; Schellenberg, Gaudreau & Crocker, 2013). In tandem, elements  
6 of both of these outcomes are evident. The presence of both passions energizes enthusiasm  
7 and intense behavioral investment but carries the potential for motivational and psychological  
8 difficulties, due to the presence of obsessive passion (Stenseng, 2008; Vallerand, Mageau et  
9 al., 2008; Vallerand et al., 2003).

#### 10 **The relationship between perfectionism and passion for sport**

11         There are a number of conceptual similarities between the concepts of perfectionism  
12 and passion. Both represent central features of an athlete's self-concept or identity. Similarly,  
13 both are motivation-related factors that contribute to junior athletes' cognitions, affect and  
14 behavior. Yet perfectionism and passion also differ in important ways. In particular, self-  
15 oriented and socially prescribed perfectionism reside at the trait level and influence cognition,  
16 affect, and behavior broadly (Flett & Hewitt, 2002), whereas passion is situated at a more  
17 immediate, contextual level regulating behavior for specific activities (Vallerand et al., 2003).  
18 Accordingly, when considering how perfectionism and passion influence each other,  
19 perfectionism should determine the types of passion exhibited in sport (as opposed to vice-  
20 versa).

21         Self-oriented perfectionism is likely to contribute to both athletes' harmonious and  
22 obsessive passion. This is because self-oriented perfectionism engenders both a personal  
23 endorsement of achievement striving that will promote autonomous internalization (a  
24 determinant of harmonious passion) and, in concert, an intense desire to preserve self-worth  
25 that will promote controlled internalization (a determinant of obsessive passion). Empirical

1 support for this notion is provided by existing research. In particular, self-oriented  
2 perfectionism contributes to higher levels of both autonomous regulations (e.g., enjoyment  
3 and recognition of personal value of the activity) and controlled regulations (e.g., need to  
4 satisfy internal and external contingencies) (e.g., Appleton & Hill, 2012; Miquelon,  
5 Vallerand, Grouzet & Cardinal, 2005; Stoeber, Feast & Hayward, 2009). These regulations,  
6 and their associated internalization processes (viz. autonomy support and interpersonal  
7 control), also collectively characterize both passions (Mageau et al., 2009; Wang, Liu, Chye  
8 & Chatzisarantis, 2011). The expected positive relationship between self-oriented  
9 perfectionism and both passions is also evident in the complex pattern of motivation, and  
10 motivational vulnerability, associated with this dimension of perfectionism (Flett & Hewitt,  
11 2005, 2007).

12       Socially prescribed perfectionism is likely to contribute to a different pattern of  
13 passion for sport. This is because socially prescribed perfectionism is characterized primarily  
14 by the pursuit of external standards with the aim of garnering social approval and bolstering  
15 self-worth (Hewitt & Flett, 1991). These features are likely to promote only controlled  
16 internalization and obsessive passion. Again, this is evident in extant research, especially  
17 studies examining the relationship between this dimension of perfectionism and motivation  
18 regulation. These studies indicate that, akin to obsessive passion (but antagonistic to  
19 harmonious passion), socially prescribed perfectionism relates predominantly with higher  
20 levels of controlled regulations (and amotivation) (e.g., Appleton & Hill, 2012; Mills &  
21 Blankstein, 2000; Vallerand, et al., 2007). Based on this research, one would expect a  
22 positive association between socially prescribed perfectionism and obsessive passion, along  
23 with a negative association with harmonious passion.

24 **The present research**





1 questionnaire was administered in a training session setting, during which a trained research  
2 assistant was present to give general instructions and to answer any questions.

### 3 **Instruments**

4         **Perfectionism.** Perfectionism was measured using a short version of Hewitt and  
5 Flett's (1991) Multidimensional Perfectionism Scale (H-MPS; Cox, Enns, & Clara, 2002).  
6 This scale contains two subscales that measure self-oriented perfectionism (SOP; 5 items,  
7 e.g., "I set very high standards for myself") and socially prescribed perfectionism (SPP; 5  
8 items, e.g., "My family expects me to be perfect"). The instructions and the stem of the  
9 instrument were modified to focus athletes on their sport and items were measured on a 7-  
10 point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). Cox et al. (2002) have  
11 demonstrated that this shortened version of the H-MPS is closely related to the original (self-  
12 oriented perfectionism  $r = .95$ ; socially prescribed perfectionism  $r = .94$ ) and numerous  
13 studies attest to its validity and reliability with samples of junior athletes (e.g., Gaudreau &  
14 Antl, 2008; Gaudreau & Verner-Filion, 2012; Hill, 2013).

15         **Passion for sport.** The Passion Scale (Marsh, Vallerand, et al., 2013) was used to  
16 assess harmonious passion (6 items; e.g. "Sport allows me to live a variety of experiences")  
17 and obsessive passion (6 items; e.g. "I cannot live without sport"). The instructions focused  
18 athletes on their sport ("While thinking of your main sport and using the scale below, please  
19 indicate your level of agreement with each item"). Athletes responded on a 7-point Likert  
20 scale (1 = *do not agree at all*, 7 = *very strongly agree*). The validity and reliability of the  
21 passion scale has been documented in previous research (see Marsh et al., 2013) including in  
22 samples of junior athletes (Curran et al., 2013).

### 23 **Analytical strategy**

24         A two-stage analytical strategy was employed to test the hypotheses. In the first stage,  
25 hierarchical multiple regression analyses were employed to examine univariate relationships

1 and the unique predictive ability of the dimensions of perfectionism in relation to each type  
2 of passion (i.e., predicting the two passions separately). In the second stage, canonical  
3 correlational analyses were employed to identify multivariate relationships and the predictive  
4 ability of the dimensions of perfectionism in relation to both types of passion (i.e., predicting  
5 the two passions simultaneously).

## 6 **Results**

### 7 **Preliminary analysis**

8 Missing value analysis indicated that there were 200 complete cases and 66 cases with  
9 item non-responses. In accordance with the recommendations of Tabachnick and Fidell  
10 (2007), cases with item non-responses exceeding 5% were removed. This resulted in the  
11 removal of 13 cases. Following removal, the probability of the patterns of missing items  
12 diverging from randomness was greater than .05 (MCAR  $\chi^2 = 25.34$ ,  $df = 25$ ,  $p = .44$ ).  
13 Therefore, missing values were considered to be absent for non-systematic reasons and were  
14 replaced using the mean of the non-missing items from the subscale in each individual case  
15 (Graham, Cumsille, & Elek-Fisk, 2003).

16 Subscales were then computed and screened for both univariate and multivariate  
17 outliers using the recommendations of Tabachnick and Fidell (2007). Standardised z-scores  
18 greater than  $\pm 3.29$  ( $p < .001$ ) served as the standard for identifying univariate outliers. A  
19 Mahalanobis distance greater than  $\chi^2(4) = 18.47$  ( $p < .001$ ) was used to identify multivariate  
20 outliers. Four further cases were removed using these criteria ( $n = 249$ ; female  $n = 46$ ;  $M$  age  
21  $= 16.07$ ;  $SD = 2.22$ ). After removal, skewness and kurtosis values indicated that the data was  
22 approximately normally distributed. Finally, Cronbach's alpha coefficients indicated that  
23 each subscale demonstrated acceptable internal consistency and are displayed in Table 1.

### 24 **Descriptive statistics and zero-order correlations**

1           The descriptive statistics indicated that the junior athletes reported moderate levels of  
2 perfectionism and passion. Consistent with previous research, dimensions of perfectionism  
3 were positively correlated (e.g., Hill et al., 2008, 2010a) and so were the two types of passion  
4 (e.g., Curran et al., 2011, 2013). Self-oriented perfectionism was positively correlated with  
5 harmonious and obsessive passion. Socially prescribed perfectionism was positively  
6 correlated with obsessive passion and was uncorrelated with harmonious passion. The  
7 magnitudes of the relationships between the two dimensions of perfectionism and two types  
8 of passion were typically moderate in size (Cohen, 1988). Descriptive statistics and zero-  
9 order correlations are displayed in Table 1.

#### 10 **The predictive ability of dimensions of perfectionism in relation to types of passion**

11           The first hierarchical regression indicated that dimensions of perfectionism explained  
12 22% of variance in harmonious passion,  $F(2, 248) = 35.70, p < .001$ . As expected, self-  
13 oriented perfectionism positively predicted harmonious passion ( $b = .43, 95\% \text{ BCa CI} = .33$   
14 to  $.54, \beta = .48, p < .001$ ). However, in contrast to the hypotheses, socially prescribed  
15 perfectionism did not predict harmonious passion ( $b = -.04, 95\% \text{ BCa CI} = -.13$  to  $.05, \beta =$   
16  $.06, p = .32$ ). Therefore, the analyses indicated that self-oriented perfectionism uniquely  
17 predicted higher harmonious passion among the junior athletes. Results of this analysis are  
18 reported in Table 2.

19           The second hierarchical regression indicated that the dimensions of perfectionism  
20 explained 12% of variance in obsessive passion,  $F(2, 248) = 18.31, p < .001$ . As expected,  
21 self-oriented perfectionism positively predicted obsessive passion ( $b = .25, 95\% \text{ BCa CI} =$   
22  $.10$  to  $.40, \beta = .21, p < .001$ ). Similarly, in line with the hypotheses, socially prescribed  
23 perfectionism also positively predicted obsessive passion ( $b = .25, 95\% \text{ BCa CI} = .15$  to  $.36,$   
24  $\beta = .25, p < .001$ ). Therefore, the analyses indicated that both self-oriented perfectionism and

1 socially prescribed perfectionism uniquely predicted higher obsessive passion among the  
2 junior athletes. Results of this analysis are reported in Table 2.

### 3 **Canonical correlation analysis**

4 In the canonical correlation analyses the first canonical variate was a linear composite  
5 of self-oriented and socially prescribed perfectionism and the second canonical variate was a  
6 linear composite of harmonious and obsessive passion. Dimension reduction suggested two  
7 significant canonical functions:  $Rc = .48$ , Wilks'  $\lambda = .70$ ,  $p < .001$ ;  $Rc = .29$ , Wilks'  $\lambda = .92$ ,  $p$   
8  $< .001$ .

9 Examination of the canonical loadings for the first canonical function revealed that  
10 self-oriented perfectionism was the primary contributor to the first canonical variate ( $rs =$   
11  $.99$ ). Both harmonious ( $rs = .97$ ) and obsessive ( $rs = .56$ ) passion made primary contributions  
12 to the second canonical variate. The first canonical variate explained an average of 53% of  
13 variance in the dimensions of perfectionism and the second canonical variate explained an  
14 average of 63% of variance in the types of passion. The corresponding positive loadings of  
15 self-oriented perfectionism on the first canonical variate and of harmonious and obsessive  
16 passion on the second canonical variate is consistent with the interpretation that self-oriented  
17 perfectionism is positively associated with a mix of harmonious and obsessive passion. The  
18 canonical correlation was large and corresponded with 23% of shared variance between the  
19 two variates.

20 Examination of the canonical loadings for Function 2 revealed that socially prescribed  
21 perfectionism was the primary contributor to the first canonical variate ( $rs = .97$ ). Obsessive  
22 passion was the primary contributor to the second canonical variate ( $rs = .83$ ). The first  
23 canonical variate explained an average of 47% of variance in the dimensions of perfectionism  
24 and the second canonical variate explained an average of 37% of variance in the types of  
25 passion. The corresponding positive loadings of socially-prescribed perfectionism on the first

1 canonical variate and of obsessive passion on the second canonical variate is consistent with  
2 the interpretation that socially prescribed perfectionism is positively related to obsessive  
3 passion. The canonical correlation between the two variates was moderate and corresponded  
4 with 8% of shared variance between the two variates. Results of these analyses are reported  
5 in Table 3.

## 6 **Discussion**

7 The aim of the current study was to examine whether self-oriented and socially  
8 prescribed perfectionism could be differentiated by their relationships with harmonious and  
9 obsessive passion. It was hypothesized that (1) self-oriented perfectionism would positively  
10 predict both harmonious and obsessive passion and (2) socially prescribed perfectionism  
11 would positively predict obsessive passion and negatively predict harmonious passion. In  
12 addition, it was expected that these relationships would be evident at the univariate level and  
13 the multivariate level. At the univariate level, the findings generally supported the  
14 hypothesized relationships. As expected, both self-oriented and socially prescribed  
15 perfectionism positively predicted obsessive passion. However, while self-oriented  
16 perfectionism positively predicted harmonious passion, socially prescribed perfectionism was  
17 unrelated to harmonious passion (as opposed to being a negative predictor). Findings were  
18 similar at the multivariate level. Self-oriented perfectionism was positively related to a  
19 combination of harmonious passion and obsessive passion. Socially prescribed perfectionism  
20 was positively related to obsessive passion (but not, as expected, negatively related to  
21 harmonious passion).

### 22 **Self-oriented perfectionism and passion**

23 The findings support Vallerand and colleagues' (Vallerand, 2010; Vallerand, et al.,  
24 2006) suggestions that dimensions of perfectionism may influence internalization processes  
25 and give rise to different types of passion. In the case of self-oriented perfectionism, it

1 positively predicted both harmonious and obsessive passion. This is indicative of the complex  
2 mix of motivational properties evident in self-oriented perfectionism. Previous research in  
3 sport (and more widely) has found these properties include an array of motivation regulations  
4 (e.g., Appleton & Hill, 2012; Mills & Blankstein, 2000; Van Yperen, 2006) and both the  
5 desire to develop personal competence and demonstrate comparative competence (e.g.,  
6 Neumeister & Finch, 2006; Van Yperen, 2006; Verner-Filion & Gaudreau, 2010). The  
7 current study extends this research by illustrating that this complex mix also includes another  
8 important predictor of sport behavior - the type of passion that is likely to be exhibited by  
9 junior athletes.

10       Beyond the univariate relationships, it is noteworthy that self-oriented perfectionism  
11 was associated with a combination of both types of passion. The presence of both (rather than  
12 the presence of one or the other) provides insight into the overall pattern of motivation one  
13 might expect from junior athletes who display self-oriented perfectionism. Specifically, when  
14 underpinned by both passions, sport participation has the potential to be characterized by a  
15 mixture of both flexible and enthusiastic engagement and rigid and compulsive engagement  
16 (Stenseng, 2008). This is evident in existing research where self-oriented perfectionism  
17 appears on some occasions to be adaptive (e.g., Hill et al., 2010a; Neumeister & Finch, 2006;  
18 Stoeber & Otto, 2006) but on others more problematic (e.g., Besser, Flett & Hewitt, 2004;  
19 Besser, Flett, Hewitt & Guez, 2008; Hill et al., 2011). The findings suggest the long-term  
20 implications of self-oriented perfectionism for junior athletes are likely to be dependent on  
21 the maintenance of harmonious passion and keeping obsessive passion at bay (see Bélanger,  
22 Lafrenière, Vallerand, & Kruglanski, 2013).

### 23 **Socially prescribed perfectionism and passion**

24       In the case of socially prescribed perfectionism, it only predicted higher obsessive  
25 passion. This is consistent with previous research, which has found socially prescribed

1 perfectionism to be associated primarily with maladaptive motivational properties in sport  
2 and other domains (e.g., controlling motivation regulation and performance goals; Appleton  
3 & Hill, 2012; Hall, Kerr, & Matthews, 1998). This finding is likely to reflect a number of  
4 features within socially prescribed perfectionism that promote the controlled internalization  
5 underpinning obsessive passion. These features include the pursuit of external standards with  
6 the aim of garnering social approval and bolstering self-worth. As these particular features  
7 did not result in an inverse relationship with harmonious passion (as was initially expected),  
8 the association between socially prescribed perfectionism and passion appears to be best  
9 characterized as one where it promotes more rigid, compulsive engagement but does not  
10 undermine (or promote) the development of flexible and enthusiastic engagement. In other  
11 words, socially prescribed perfectionism does not explain the presence or absence of  
12 harmonious passion among junior athletes.

13         Multivariate analyses further illustrated that socially prescribed perfectionism was  
14 characterized primarily by the presence of obsessive passion and an absence of harmonious  
15 passion. This is likely to have important ramifications for junior athletes exhibiting this  
16 dimension of perfectionism. Specifically, unlike self-oriented perfectionism, no respite is  
17 provided by harmonious passion. This will leave junior athletes exhibiting this dimension of  
18 perfectionism disposed to a debilitating pattern of motivation energized by defensive, self-  
19 protective behaviors (e.g., the desire to protect self-worth and perceptions of competence;  
20 Mageau et al., 2011). This may partly explain why socially prescribed perfectionism has  
21 consistently been found to positively predict negative cognitive and emotional outcomes,  
22 including extreme disaffection such as burnout (e.g., Appleton, Hall & Hill, 2009; Hill et al.,  
23 2008; Hill et al., 2010b). With this in mind, the association between socially prescribed  
24 perfectionism and only obsessive passion affirms that this dimension of perfectionism is  
25 likely to be an undesirable characteristic for junior athletes to possess.



## 1 **Limitations and future directions**

2           The results must be interpreted in context of the study's limitations. Notably, as the  
3 study is cross-sectional, no inference can be made in terms of whether perfectionism precedes  
4 passion or vice versa (here, it is based on theoretical grounds). Future research will need to  
5 include a temporal element to test causal precedence. Similarly we did not include a third  
6 variable in this study, which may have helped to clarify the commonalities and differences  
7 between perfectionism and passion. Extending this research should involve the examination  
8 of conceptually relevant mediating variables such as contingencies of self-worth and  
9 ruminative cognition. The current study also adopted self-report measures, introducing the  
10 potential for greater social desirability and common-method bias (Podsakoff, Mackenzie, Lee  
11 & Podsakoff, 2003). Future research would benefit from other methods of data collection  
12 (e.g., observer ratings) to confirm the pattern of relationships observed in the current study.  
13 Finally, we adopted Hewitt and Flett's (1991) model of perfectionism. Adopting other models  
14 (e.g., Gotwals & Dunn, 2009) will provide further insight into the perfectionism-passion  
15 relationship. In particular, which other specific features of perfectionism account for the  
16 relationships observed and whether the same relationships are observed for higher-order  
17 dimensions of perfectionism.

## 18 **Conclusion**

19           The main contribution of the current study is that it illustrates that self-oriented and  
20 socially prescribed perfectionism can be distinguished by their association with types of  
21 passion. Self-oriented perfectionism appears to contribute to both harmonious and obsessive  
22 passion. By contrast, socially prescribed perfectionism appears to contribute to only  
23 obsessive passion. Passion can therefore be considered alongside other known differences in  
24 the motivational properties of these two dimensions of perfectionism. In addition, those  
25 wishing to understand the implications of the two dimensions of perfectionism for junior

- 1 athletes should consider the likely influence of the two passions on the experiences and
- 2 motivation of junior athletes.
- 3

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- 23



1 Table 1. *Descriptive statistics and bivariate correlations.*

	<i>M</i>	<i>SD</i>	$\alpha$	1	2	3	4
1. Self-oriented perfectionism	4.75	0.65	.69	---			
2. Socially prescribed perfectionism	4.15	0.68	.70	.25**	---		
3. Harmonious passion	5.00	0.84	.73	.45**	.01	---	
4. Obsessive passion	4.02	1.09	.73	.26**	.32**	.34**	---

2  $p < .05^*$ ,  $p < .01^{**}$

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1 Table 2. *The predictive ability of the dimensions of perfectionism in relation to types of passion*

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Variable	<i>b</i> (95% BCa CI)	$\beta$
<i>Harmonious passion: F</i> (2, 248) = 35.70, $p < .01$ ; $R = .47$ ; $R^2 = .22$ ; $R adj^2 = .22$		
Self-oriented perfectionism	0.43 (0.33 to 0.54)	.48**
Socially prescribed perfectionism	-0.04 (-0.13 to 0.05)	-.06
<i>Obsessive passion: F</i> (2, 248) = 18.31, $p < .01$ ; $R = .36$ ; $R^2 = .13$ ; $R adj^2 = .12$		
Self-oriented perfectionism	0.25 (0.10 to 0.40)	.21**
Socially prescribed perfectionism	0.25 (0.15 to 0.36)	.25**

3 Note.  $R$  = multiple regression coefficient;  $b$  = beta coefficient;  $\beta$  = standardized beta coefficients;  $F$  =4  $F$  statistic; 95% BCa CI = 95% bias corrected accelerated confidence interval (5000 iterations).5  $p < .01$ \*\*

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1 Table 3. *Canonical correlation between dimensions of perfectionism and*  
 2 *types of passion.*

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Variable	Function 1		Function 2	
	$r_s$	$r_s^2$	$r_s$	$r_s^2$
Self-oriented perfectionism	.99	.98	-.02	.00
Socially prescribed perfectionism	.23	.05	.97	.94
Adequacy		.52		.47
Redundancy		.12		.04
Harmonious passion	.97	.94	-.23	.05
Obsessive passion	.56	.30	.83	.69
Adequacy		.62		.37
Redundancy		.14		.03
Canonical correlation ( $R_c$ )		.48		.29
$R_c^2$		.23		.08

34 Note.  $r_s$  = canonical loading;  $r_s^2$  = squared canonical loading

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