



Title

Multidimensional perfectionism and motivation in sport:  
Potential mediating and moderating variables

Name

Andrew P Hill

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Multidimensional perfectionism and motivation in sport: Potential  
mediating and moderating variables

by

Andrew P. Hill

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Abstract

Recent research has found that self-oriented and socially prescribed perfectionism have distinct consequences for athletes. The purpose of the thesis was to extend this research by further examining their motivational consequences for athletes and identifying the psychological mechanisms that explain their divergent consequences. The first two studies suggested that the positive relationship between socially prescribed perfectionism and athlete burnout was mediated by the tendency to engage in validation-seeking and utilise avoidant coping, whereas the inverse relationship between self-oriented perfectionism and athlete burnout was mediated by the tendency to utilise problem-focused coping and eschew avoidant coping. Because these initial studies provided little evidence to suggest that self-oriented perfectionism has negative psychological consequences for athletes, the nature of self-oriented perfectionism and its consequences were examined more closely in two subsequent studies. A comparative study examining similarities and differences in the correlates of self-oriented perfectionism and conscientious achievement striving found that while both include a commitment to high standards, self-oriented perfectionism also includes a concern over mistakes, fear of failure and negative reactions to imperfection. An experimental study examining the response of student-athletes

higher in this dimension of perfectionism to successive failures further suggested that, in comparison to those with lower levels of self-oriented perfectionism, those with higher levels of self-oriented perfectionism experienced a more pronounced increase in threat following an initial failure and reported withdrawing effort from the subsequent performance. The final two studies suggest that the divergent consequences of these two dimensions of perfectionism may also be explained by differences in the controllability of sources of self-worth and evaluative standards. In addition, in some instances, perceptions of the achievement climate may influence the self-criticism experienced by perfectionists. Collectively, this series of studies suggest that socially prescribed perfectionism will invariably lead to motivational and psychological difficulties for athletes. In contrast, such difficulties may not be inevitable for those with higher levels of self-oriented perfectionism; however, it may render athletes vulnerable to psychological difficulties when personal standards are not met.

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- Hill, A. P., Hall, H. K. & Appleton, P. R. (Accepted October, 2009). Perfectionism and athlete burnout in junior elite athletes: The mediating influence of coping tendencies. *Anxiety, Stress, & Coping*.
- Hill, A. P., Hall, H. K., Appleton, P. R. & Kozub, S. A. (2008). Perfectionism and burnout in junior elite soccer players: The mediating influence of unconditional self-acceptance. *Psychology of Sport and Exercise*. 9, 630-644.
- Appleton, P. R., Hall, H. K. & Hill, A. P. (2009). Motivational antecedents of athlete burnout: The influence of perfectionism and achievement goal orientations. *Journal of Sport and Exercise Psychology*, 10, 457-465.
- Hall, H. K., Hill, A. P., Appleton, P. R. & Kozub, S. A. (2009). The mediating

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Ethical permissions sought and gained for projects within the thesis

Prior to conducting each study within the thesis, ethical approval was gained from the research ethics committee at the University of Bedfordshire. Because data collection for the study included in chapter five took place at the University of Birmingham, ethical approval for this project was also gained for this study from the research ethics committee at the University of Birmingham.

## Chapter One: Introduction

“7,000 drop goals in four months. Obsessive? Maybe. Necessary? Definitely.”

*Jonny Wilkinson*

Few athletes are equipped to cope with the intense physical and psychological demands associated with striving for elite status. For the majority of athletes, this process is characterised by intense investment, frustration and personal failure. Research that has examined the psychological factors associated with successful athletes has identified a number of potentially important personality characteristics. These include, for example, high levels of motivation and superior psychological skills (Gould, Dieffenbach, & Moffett, 2002; Smith, Schultz, Smoll, & Ptacek, 1995; Williams & Krane, 2001). Recently, perfectionism has been suggested as another possible hallmark quality of elite athletes (Anshel & Eom, 2002; Dunn, Causgrove, Dunn, and Syrotuik, 2002; Gould et al, 2002; Henschen, 2000; Silverman, 1998). Yet, because the motivational influence of perfectionism may have widely differing consequences (see Hall, 2006), it remains unclear if perfectionism is a characteristic that should be actively encouraged in sports performers or whether it should be effectively managed in order to avoid any potentially deleterious effects (Flett & Hewitt, 2005; Hall, 2006). Given that perfectionism has been found to lead to debilitating,

and at times pathological, consequences in non-clinical samples (e.g., Cheng, 2001; Enns, Cox, & Clara, 2002; Enns, Cox, Sareen, & Freeman, 2001), research is required to begin to determine the implications of encouraging perfectionism in athletes.

### 1.1 *Defining perfectionism: Less than perfect agreement*

One of the reasons why it is unclear whether perfectionism is likely to foster or undermine athletic development is because there is currently no agreed definition of perfectionism (Hall, 2006). The origins of initial definitions of perfectionism lie in clinical and counselling research. Based upon their observations, early theorists considered perfectionism to be a largely undesirable and debilitating quality that underpinned numerous psychological difficulties. This was because perfectionism was believed to be the product of irrational beliefs and encompassed a cognitive style that included a preoccupation with self-critical appraisal (Burns, 1980; Hollander, 1965; Pacht, 1985). Burns (1980), for example, defined perfectionism as unremitting striving towards impossible goals and the tendency to measure self-worth based upon accomplishment. Similarly, Pacht (1985) regarded perfectionism as the setting of impossible standards in an effort to win acceptance from significant others. Consequently, perfectionism was considered unidimensional and measured in a manner that emphasised its negative facets using either a modified portion of the Dysfunctional Attitude Scale (DAS; Weissman & Beck, 1978) in the form of Burn's (1980) Perfectionism Scale, or using the perfectionism subscale of the Eating Disorder Inventory (EDI; Garner, Olmstead, & Polivy, 1983).

A number of researchers have suggested that this approach may be

misleading when considering perfectionism in non-clinical settings, however (e.g., Slaney & Ashby, 1996; Slaney, Ashby, & Trippi, 1995; Suddarth, & Slaney, 2001). Specifically, because these definitions are based on the influence of perfectionism in clinical and subclinical populations, some have argued that these definitions may over-emphasise the negative aspects of perfectionism and ignore the possibility that it may have some positive features and consequences. This possibility is evident in contemporary multidimensional conceptualisations and measures of perfectionism which include a wide array of personal and interpersonal dimensions that capture both the high levels of striving and dysfunctional features that are believed to characterise perfectionism separately (e.g., Chang, 2006; Frost et al., 1990; Hill et al., 2004; Slaney, Rice, Mobley, Trippi, & Ashby, 2001; Stöber, Otto, & Stoll, 2004; Terry-Short, Owens, Slade, & Dewey, 1995). Using these measures, researchers have typically examined and compared the consequences of discrete dimensions of perfectionism independently. This disaggregated approach has demonstrated the varied and often opposing consequences of dimensions of perfectionism. The recent work of Stoeber and colleagues (Stoeber & Becker, 2008; Stoeber, & Kersting, 2007; Stoeber, Otto, Pescheck, Becker, & Stoll, 2007; Stoeber, Stoll, Pescheck, & Otto, 2008), in particular, has illustrated that perfectionistic striving and negative reactions to imperfection encourage disparate cognitive (e.g., attributions), affective (e.g., anxiety, guilt, shame) and behavioural (e.g., performance) outcomes.

Other similar multidimensional models include dimensions that share a commitment to high standards but differ in their concomitants (e.g., Chang, 2006;

Terry-Short et al., 1995). For example, Chang (2008) has proposed a model that includes a distinction between dimensions of perfectionism that entail high standards (self-imposed and socially imposed) but are accompanied by either positive or negative cognitive expectancies. Similarly, Owens and colleagues (Terry-Short et al., 1995; Slade & Owens, 1998; Owens & Slade, 2008) have proposed a distinction between positive and negative perfectionism that encompass different types of goals (approach versus avoidance), self-concept involvement (ideal self versus feared self), emotional correlates (satisfaction versus dissatisfaction) and environmental reinforcement (positive versus conditional). In accord, research adopting this concomitant approach has found support for the distinction between the constructs captured by these dimensions of perfectionism. To date, this includes divergent relationships with a number of psychological factors such as cognitive styles (Burns & Fedewa, 2005), coping strategies (Burns, Dittmann, Nguyen, & Mitchelson, 2000), emotional regulation and life-satisfaction (Mitchelson & Burns, 1998; Bergman, Nyland, & Burns, 2007).

The theoretical basis for these two approaches (disaggregated and concomitant) are typically considered to be the initial contentions of Hamachek (1978) who argued that perfectionism can exist in both 'normal' and 'neurotic' forms. While both forms entail a commitment to the pursuit of excellence, the normal perfectionist is purported to be free from the rigid necessity of perfect performance and chronic sense of dissatisfaction that is experienced by the neurotic perfectionist. There is also an empirical basis for this distinction. Specifically, a number of factor-analytical studies that have examined the

convergence between multidimensional measures of perfectionism indicate two higher-order factors may underlie the dimensions they measure (e.g., Bieling, Israeli, & Antony, 2004; Dunkley, Blankstein, Halsall, Williams, & Winkworth, 2000; Enns et al., 2002; Frost, Heimberg, Holt, Mattia, & Neubauer, 1993). The first reflects a commitment to exceptionally high personal standards, while the second reflects self-critical evaluative concerns. Furthermore, research has also indicated that these two higher-order factors are distinguishable based upon their respective correlates, processes and consequences (e.g., Bieling et al., 2004; Dunn et al., 2002; Rice, & Lopez, 2004; Stoeber & Otto, 2006; Stoeber, Stoll, Salmi, & Tikkaja, 2009; Terry-Short et al., 1995). Consequently, over the last 20 years, theoretical and empirical evidence has accrued from research in social and educational contexts that indicates dimensions of perfectionism which energise the pursuit of high standards can be distinguished from those which are likely to underpin psychological difficulties.

The nature and consequences of perfectionism continue to be a contentious issue, however. Despite the theoretical and empirical gains from a multidimensional approach, a number of researchers have questioned the validity of the two approaches described above. In particular, they have raised concerns over the consequences of considering high personal standards sufficient to be given the label perfectionism which is evident in both disaggregated and concomitant approaches (Flett & Hewitt, 2006; Greenspon, 2000, 2008; Hall, 2006). They argue that when high personal standards or striving are considered sufficient qualities to be labelled perfectionism, perfectionism is unlikely to reflect patterns of cognition, affect and behaviour beyond those associated with

adaptive achievement motivation (Flett & Hewitt, 2006; Greenspon, 2000, 2008; Hall, 2006; Shafran, Cooper, & Fairburn, 2002). Hall (2006), for example, has argued that the striving qualities central to perfectionism may be necessary, but alone insufficient, to adequately define perfectionism. Others have similarly argued that by failing to differentiate between the broader defining characteristics of perfectionism and the more restrictive qualities that simply reflect commitment to exceedingly high standards, the term perfectionism may be incorrectly equated with a healthy commitment to striving for excellence (Flett & Hewitt, 2006; Greenspon, 2000, 2008). Therefore, from this perspective, much of the extant research has merely demonstrated the adaptive consequences of a commitment to high personal standards relative to neurotic evaluative concerns, rather than the consequences of perfectionism.

## 1.2 *Perfectionism and sport*

This discord is evident in sport psychology where it is currently unclear whether perfectionism is a desirable and adaptive characteristic of elite athletes, or a debilitating personality disposition that undermines athlete development and psychological well-being. Because high-personal standards are central to perfectionism, some researchers have argued that perfectionism may be an essential quality of elite performers (e.g. Anshol & Eom, 2002; Dunn et al., 2002; Hardy, Jones, & Gould, 1996; Stoeber, Stoll, Salmi, & Tikkaja, 2009). In contrast, others have argued that because the definition of perfectionism is inclusive of harsh self-critical evaluation it is likely to have few genuinely positive consequences for athletes (Flett & Hewitt, 2005; Hall, 2006). This issue appears especially important in a sport context because while a total commitment to

exceptionally high standards is considered essential for high achievement (Weinberg, Burton, Yukelson, & Wiegand, 2000), Flett and Hewitt (2005) have argued that poorer psychological adjustment and negative achievement behaviours may be evident in athletes who are characterised by higher levels of perfectionism.

Research examining the consequences of perfectionism for athletes has produced similar findings to those observed in social and educational settings. Specifically, while dimensions reflective of a commitment to high personal standards are associated with largely positive consequences, dimensions indicative of evaluative concerns are associated with negative consequences (see Hall, 2006, for a review). The distinction between these dimensions is evident in the cognition, affect and behaviour exhibited by athletes. This includes divergent relationships with anxiety (Frost & Henderson, 1991; Hall et al., 1998; Koivula, Hassmen, & Fallby, 2002; Mor, Day, Flett, & Hewitt, 1995; Stoeber, Otto et al., 2007), anger (Dunn, Gotwals, Causgrove Dunn, & Syrotuik, 2006; Vallance, Dunn, & Causgrove Dunn, 2006), self-serving attributions (Stoeber & Becker, 2008), fear of failure (Kaye, Conroy, & Fifer, 2008; Segars & Stoeber, in press), self-esteem, athletic competence, satisfaction (Gotwals, Dunn, & Wayment, 2004), thoughts before competition, reactions to mistakes (Frost & Henderson, 1991), coping (Gaudreau & Antl, 2008), obligatory exercise (Hall, Kerr, Kozub, & Finnie, 2007), exercise dependence (Hall, Hill, Appleton, & Kozub, 2009), achievement goals (Dunn et al., 2002; Stoeber et al., 2008), disordered eating behaviours and body concerns (Ackard, Henderson, & Wonderlich, 2004; Clough & Wilson, 1993; Neumarker, Bettle, Neumarker & Bettle, 2000; Montanari &

Zietkiewicz, 2000), injury (Krasnow, Mainwaring, & Kerr, 1999; Liederbach & Compagno, 2001), burnout symptoms (Lemyre, Hall & Roberts, 2008; Hill, Hall, Appleton, & Kozub, 2008; Appleton, Hall & Hill, 2009; Gould et al., 1996), quality of peer-relationships (Ommundsen, Roberts, Lemyre & Miller, 2005), and performance (Stoll, Lau, & Stoeber, 2008; Stoeber, Uphill, & Hotham, 2009).

This research has typically used an approach to the measurement of perfectionism developed by Frost and colleagues (Frost et al., 1991). As with the other dimensional approaches described above, this involves the assessment of perfectionism across multiple dimensions. The first dimension is the setting of excessively high personal standards for performance (personal standards). The second two dimensions are related to the critical evaluative tendencies that underpin perfectionism. These are a concern and fear of making mistakes in performance (concern over mistakes) and a vague sense of doubt about the quality of one's performance (doubts about action). The next two dimensions reflect the conditional parental approval that is presumed to underpin perfectionism. These are an expectations dimension (parental expectations) and an expected criticism dimension (parental criticism). The final dimension is an intense desire for precision, neatness, and organisation (organisation).

While this measure has provided some initial insight into the potential consequences of perfectionism for athletes, there is some disagreement regarding the suitability of its content. For example, it is unclear whether the doubts about action and organisation dimensions should be included in the scale (see Gotwals & Dunn, 2008). Organisation was not considered a necessary dimension of perfectionism by Frost and colleagues and doubts about action has demonstrated

poor psychometric properties. For these reasons these subscales were originally removed from the sport domain adaption to this measure (Sport-MPS; Dunn et al., 2006; Dunn et al., 2002), however they have been included in subsequent revisions to the scale (Sport-MPS-2; Gotwals & Dunn, 2008). The instrument has also attracted criticism for potentially containing both antecedents (e.g., parental expectations) and consequences (e.g., organisation) of the disposition making interpretation of the scale difficult (Rheaume et al., 2000; Shafran et al., 2002). Finally, there is some confusion regarding the number of factors that underlie the measure. Evidence has found support for three, four and five factors (Cox, Enns, & Clara, 2002[5]; Harvey, Pallant, & Harvey, 2004[4]; Purdon, Antony, & Swinson, 1999[3]; Stöber, 1998[4]; Stumpf & Parker, 2000[3]).

More recently, research has begun to utilise the conceptualisation and measure developed by Stoeber (Stöber et al., 2004) which, as stated above, includes a perfectionistic striving dimension and negative reactions to imperfection dimension. However, as with the Frost et al.'s scale, because the standards and striving dimensions are separate, research has typically assessed the consequences of these dimensions independently (e.g., Stoeber et al., 2007). As discussed early, a number of eminent researchers have questioned whether when used in this manner these subscales measure perfectionism or are likely to capture a form of conscientious striving versus neurotic concerns. In some cases, the correlates of the perfectionistic striving dimension have also been examined after controlling for the negative reactions to imperfection dimension. In these instances, it is also unclear whether inferences about these dimensions of perfectionism are appropriate because what these variables measure once the

variance they share is removed is uncertain (see Lynam, Hoyle, & Newman, 2006). Therefore, to date, research examining the consequences of perfectionism for athletes has tended to measure perfectionism in a manner that does not capture both striving and concerns elements simultaneously. This has undoubtedly contributed to current confusion regarding the nature and consequences of perfectionism amongst athletes.

### 1.3 *Self-oriented and socially prescribed perfectionism*

A potentially useful alternative conceptualisation of perfectionism is provided by Hewitt and Flett (1991). Hewitt and Flett (1991) define perfectionism as a marked need for absolute perfection from the self and others. According to their model, perfectionism has self-oriented, socially prescribed and other-oriented dimensions. These dimensions distinguish between the motivation that underpins the perfectionistic standards, as well as their distinct personal or interpersonal focus (Hewitt & Flett, 1991, 1993). Self-oriented perfectionism is the tendency to set exceedingly high standards for oneself, to focus on flaws in performance and to respond to substandard performance with harsh self-criticism. This dimension of perfectionism also involves the belief that self-acceptance is based on the attainment of exceedingly high personal standards. Conversely, socially prescribed perfectionism is the belief that significant others impose extremely high and unrealistic standards on the self and that approval is contingent on their achievement. This also entails stringent evaluation of attempts to attain these standards and harsh self-critical tendencies. The final dimension, other oriented perfectionism, is the tendency to impose perfectionistic standards on others and evaluate others critically.

Self-oriented and socially prescribed perfectionism are considered to energise the pursuit of exceedingly high standards. However, each is characterised by a different pattern of self-critical evaluation and distinct beliefs about the degree of personal accomplishment that is required in order to feel competent, successful and worthy. In contrast, other-oriented perfectionism is outward focused and may not energise achievement striving independent of its association with self-oriented and socially prescribed perfectionism. Consequently, the thesis focused on self-oriented and socially prescribed perfectionism, rather than other oriented perfectionism. Hewitt and Flett's (1991) conceptualisation of these dimensions of perfectionism may advance our understanding of perfectionism in the sport domain because, in contrast to currently utilised approaches (e.g., Frost et al., 1990; Stöber et al., 2004), self-oriented and socially prescribed dimensions of perfectionism capture both salient perfectionistic standards and evaluative concerns simultaneously.

The extensive work of Hewitt, Flett and colleagues has supported the utility of this approach (see Hewitt & Flett, 2002); however, to date, there has been little examination of the consequences of these dimensions of perfectionism in a sport and exercise setting. Empirical examination of their consequences in other achievement contexts has been relatively consistent (see Hewitt & Flett, 2002). The findings of this research suggests that these dimensions have distinct consequences that include debilitating personal and interpersonal focused cognitions, emotions and behaviours (see Hewitt & Flett, 1991, 2002). Socially prescribed perfectionism entails a chronic discrepancy between levels of desired and perceived acceptance from others that is thwarted by a negative interpersonal

style, over-generalisation of failure, sense of helplessness and self-criticism that contributes to substantial personal psychological maladjustment (Hewitt & Flett, 1991, 1993, 1996). In addition, when considered in combination with other dimensions of perfectionism indicative of evaluative concerns, socially prescribed perfectionism has emerged as a consistent predictor of higher levels of distress in the form of anxiety, negative affect, anger and depression (Dunkley & Blankstein, 2000; Dunkley et al., 2000; Dunkley, Sanislow, Grilo, & McGlashan, 2006; Dunkley, Zuroff, & Blankstein, 2003).

Self-oriented perfectionism appears to be more complex (see Flett & Hewitt, 2005, 2006, 2007). Flett and Hewitt (2005, 2006) consider self-oriented perfectionism to be a vulnerability factor that leads to psychological difficulties through its interaction with achievement related stressors. This is believed to be because it is underpinned by a conditional sense of self-acceptance and intense desire for control (Besser, Flett, & Hewitt, 2004; Flett, Hewitt, Blankstein, & Mosher, 1995). In accord, Flett and Hewitt (2005, 2006) and their colleagues (Besser et al., 2004; Hewitt, Flett, Oliver, & Macdonald, 2002; Flett, Besser, Davis, & Hewitt, 2003) contend that although this dimension of perfectionism may energise achievement striving, it inevitably leads to elevated levels of distress, psychological maladjustment and motivational deficits. Some evidence exists to support their contentions. For example, the experience of stressors (Flett et al., 1995), perceptions of failure (Flett et al., 2003) and negative feedback (Besser et al., 2004) have been found to moderate the effects of the disposition. However, there is research that has failed to support the vulnerability associated with self-oriented perfectionism (Blankstein, Lumley, & Crawford, 2007; Chang

& Rand, 2000; Enns, Cox, & Clara, 2005; Enns et al., 2001; Hewitt, Caelian, Flett, Sherry, Collins, & Flynn, 2002; Sherry, Hewitt, Flett, & Harvey, 2003). In addition, self-oriented perfectionism has also been found to be positively related to more desirable consequences in student samples. These include resourcefulness (Flett, Hewitt, Blankstein, & O'Brien, 1991), intrinsic motivation (Mills & Blankstein, 2000), mastery goals (Spiers Neumeister & Finch, 2006) and performance (Bieling, Israeli, Smith, and Antony, 2003). Finally, research aimed at classifying perfectionism dimensions suggest that self-oriented perfectionism is part of a higher-order perfectionism dimension that is considered to have primarily adaptive consequences (e.g., Bieling et al., 2004; Dunkley et al., 2000; Enns, et al., 2002; Frost et al., 1993). Therefore, as with the broader debate, the consequences of self-oriented perfectionism are currently not clear.

An initial insight into the consequences of self-oriented perfectionism and socially prescribed perfectionism for athletes has been provided by Hill, Hall, Appleton, & Kozub (2008) who examined the relationship between self-oriented and socially prescribed perfectionism and extreme sport disaffection in the form of burnout in junior elite soccer players. They hypothesised that both self-oriented and socially prescribed dimensions of perfectionism would be associated with burnout in junior elite soccer players because each dimension of perfectionism reflects the pursuit of high standards in conjunction with different self-critical and evaluative tendencies. In partial support of their hypotheses, Hill et al. (2008) found that when athletes pursued standards perceived to be imposed by others, they experienced elevated levels of burnout. In contrast, when athletes pursued standards that were internally endorsed, the relationship between perfectionism

and burnout became more complex. A direct inverse relationship indicated that self-oriented perfectionism may have the potential to mitigate the experience of the syndrome, while an indirect effect through unconditional self-acceptance suggested that it may also contribute to its eventual development.

These findings provide a number of intriguing questions regarding the potential for different psychological processes to explain the relationship between self-oriented and socially prescribed perfectionism and their consequences, as well as the nature of self-oriented perfectionism. Extant literature suggests there may be a number of important moderating and mediating variables that explain the divergent consequences of self-oriented and socially prescribed perfectionism. These include differences in terms of motivation regulation (Miquelon, Vallerand, Grouzet, & Cardinal, 2005), coping tendencies (Hewitt & Flett, 1996), and self-critical tendencies (Thompson & Zuroff, 2004; Trumpeter, Watson, & O'Leary, 2006). There are also a number of possible explanations for the duality of self-oriented perfectionism. Dunkley and colleagues (Dunkley, et al., 2000), for example, have argued that the negative aspects of self-oriented perfectionism may be offset by more adaptive cognitions and behaviours associated with the disposition. These may include perceptions of control (Mor et al., 1995), perceived ability (Flett & Hewitt, 2005), a history of success (Blankstein & Winkworth, 2004), and coping behaviours (Hewitt & Flett, 1996). However, to date, few studies have sought to identify variables that may explain or mitigate the impact of self-oriented and socially prescribed perfectionism for athletes. This is surprising given that identifying third-order variables that influence the overall appraisal of the sporting environment appears essential before drawing

conclusions about the implications of these dimensions of perfectionism for athletes (Flett & Hewitt, 2005, 2006; Hall, 2006). As such, examining mediating and moderating processes associated with these dimensions of perfectionism, self-oriented perfectionism especially, may also provide further insight in to the broader perfectionism debate.

#### 1.4 *Purpose of the thesis*

The purpose of the thesis is to build on initial research that has examined self-oriented and socially prescribed perfectionism in athletes (Hall et al., 2008; Hill et al., 2008; Appleton et al., 2009) by further examining their consequences and identifying the psychological processes that mediate and moderate their divergent motivational consequences. The thesis comprises five correlational studies and one experimental study. The first two studies build directly on Hill et al. (2008) and examine whether validation-seeking, growth-seeking and coping tendencies mediate the relationship between self-oriented and socially prescribed perfectionism and athlete burnout. Studies three and four examine self-oriented perfectionism more closely by comparing its correlates to those of conscientious achievement striving and comparing the response of student-athletes higher and lower in self-oriented perfectionism following successive failure on a cycling task. The penultimate study examines whether the divergent consequences of these two dimensions of perfectionism can be explained by differences in terms of contingencies of self-worth and the final study examines the relationship between self-oriented and socially prescribed perfectionism and disparate negative self-critical cognitive styles and whether the motivational climate moderates these relationships.

## Chapter Two: Perfectionism and burnout: The mediating influence of validation and growth-seeking

“Many athletes seem truly to love to play their sport. I didn’t think I ever felt that way about tennis. I looked forward to the practice and preparation, but the match itself was a constant battle for me, against two people: the other guy and myself.”

*John McEnroe*

Recently, Hill and colleagues (Hill et al., 2008) found that socially prescribed perfectionism has a positive direct and positive indirect relationship with athlete burnout, whereas self-oriented perfectionism has an inverse direct and a positive indirect relationship with athlete burnout. The reason for the divergent association between these dimensions of perfectionism and athlete burnout is unclear. In this chapter it is argued that one possible explanation is that self-oriented and socially prescribed perfectionism entail different regulatory factors (growth-seeking versus validation-seeking; Dykman, 1998). Specifically, whereas socially prescribed perfectionism may encourage only validation-seeking, self-oriented perfectionism may encourage both validation-seeking and growth-seeking. Moreover, because these regulatory factors are likely to have a divergent relationship with athlete burnout, it is further argued that the association between

self-oriented perfectionism and both validation and growth-seeking may also explain why this dimension of perfectionism has both an inverse direct and positive indirect relationship with athlete burnout. The purpose of the first study of the thesis was to examine whether the association between both self-oriented and socially prescribed perfectionism and athlete burnout was mediated by validation and growth-seeking tendencies. Athlete burnout and the evidence to support the association between dimensions of perfectionism and athlete burnout are first discussed. An explanation of a possible psychological process involving validation-seeking (versus growth-seeking) that explains the divergent relationship between dimensions of perfectionism and athlete burnout is then provided. This is followed by an empirical examination of these theoretical contentions.

## 2.1 *Perfectionism and athlete burnout*

The concept of burnout originated from the work of Maslach and Jackson (1981, 1986) in human care and general occupational settings. In these domains, burnout is considered to be a psychological syndrome that includes the development of three key symptoms. The first is a sense of depleted emotional resources (emotional exhaustion). The second is a lack of feelings of competence and achievement (reduced sense of accomplishment). The third is the development of a distant and impersonal attitude towards recipients of care (depersonalisation). These symptoms are associated with a number of debilitating consequences that include social, mental and physical health problems and are believed to be caused by the interaction between a number of stress related personality and situational factors (Maslach, Schaufeli, & Leiter, 2001; Schaufeli

& Buunk, 2003). These include poorer coping and interpersonal skills, as well as salient features of occupational settings such as role conflict, role ambiguity, locus of control and staff-client ratio (Maslach et al., 2001; Schaufeli & Buunk, 2003).

Consistent with the occupational origins of burnout, initial research in the sport domain examined burnout amongst sport and exercise professionals (Gould, 1996). This included coaches (Caccese & Mayerberg, 1984; Capel, Sisley, & Desertain, 1987; Dale & Weinberg, 1989; Kelley, 1994; Kelley, Eklund, & Ritter-Taylor, 1999; Kelley & Gill, 1993; Vealey, Armstrong, Comar, & Greenleaf, 1998; Vealey, Udry, Zimmerman, & Soliday, 1992), education teachers (DePaepe, French, & Lavay, 1985), athletic directors (Martin, Kelley, & Eklund, 1999), and officials (Taylor, Daniel, Leith, & Burke, 1990). The findings of this research are broadly consistent with that in other occupational setting.

Specifically, this research has identified a number of stress related factors that may potentially render sport and exercise professionals vulnerable to the development of burnout. For example, lower levels of perceived social support, a considerate leadership style, lower levels of hardiness, and higher levels of interpersonal conflict are all associated with higher levels of burnout (Dale & Weinberg, 1989; Kelley, 1994; Kelley et al., 1999; Taylor et al., 1990).

Taking in to account contextual differences (i.e., central purpose and pressures associated with being an athlete), Maslach and Jackson's (1981, 1986) concept of burnout is believed to be analogous to a syndrome of (i) emotional and physical exhaustion, (ii) reduced athletic accomplishment, and (iii) sport devaluation in athletes (Raedeke, 1997; Raedeke & Smith, 2001). The first symptom is characterised by the perceived depletion of emotional and physical

resources beyond that associated with routine practice and competition. The second symptom is characterised by an enduring sense of reduced personal accomplishment in terms of sport abilities and achievement. The final symptom reflects the development of a cynical attitude towards sport and participation. Collectively, these symptoms are considered to best represent burnout as it manifests in athletes.

There is currently little information available on the prevalence of burnout amongst athletes. An examination of recent research suggests that up to 13% of the samples used in studies examining athlete burnout report experiencing its symptoms 'frequently' (ABQ; Appleton et al., 2009; Cresswell & Eklund, 2005a, 2005b, 2005c, 2006a; Hill et al., 2008; Lemyre et al., 2008; Lemyre, Roberts, & Stray-Gundersen, 2007; Lemyre, Treasure, & Roberts, 2006; Raedeke, 1997; Raedeke & Smith, 2001, 2004). However, there is a growing body of empirical evidence that suggests that athlete burnout contributes to numerous debilitating consequences. These include performance and motivational difficulties, as well as impaired health and interpersonal problems (see Goodger, Gorely, Lavallee, & Harwood, 2007). Consequently, burnout remains a significant problem for the small minority who develop its symptoms (Raedeke, 1997; Smith, 1986).

To date, few studies have examined the processes by which athletes develop the syndrome (e.g., Appleton et al., 2009; Gould, Tuffrey, Udry, & Loehr, 1996; Hill et al., 2008; Lemyre et al., 2008). However, a number of theoretical models have identified potential antecedents as well as key psychological mechanisms that may explain the development of these symptoms (see Gould, 1996, for a review). According to Smith (1986), athlete burnout

develops as a result of chronic stress brought about by regularly appraising ones resources as insufficient to meet achievement demands. From this perspective, the burnout process is characterised by heavy investment in the attainment of ever increasing demands, frustration, and emotional turmoil as investment in practice and competition becomes psychologically aversive (Smith, 1986). Overtime, these negative cognitive and affective experiences lead to disaffection and psychological, emotional and potential behavioural disengagement from a once valued activity (Schaufeli & Enzmann, 1998; Smith, 1986).

Within this cognitive-affective model (Smith, 1986), personality factors are considered critical antecedents of burnout as they are assumed to influence central appraisal processes and render athletes vulnerable to the experience of elevated levels of threat and anxiety. Because some dimensions of perfectionism are associated with negative achievement-related cognitions and affect in athletes at various points in the performance process (e.g., Frost & Henderson, 1991; Hall et al., 1998), perfectionism has recently emerged as potential risk factor that may predispose athletes to the development of burnout (Appleton et al., 2009; Gould et al., 1996; Hill et al. 2008; Lemyre et al, 2008). Empirical examination of the relationship between dimensions of perfectionism and athlete burnout has found that dimensions which reflect pervasive self-evaluative concerns contribute to a motivational profile that corresponds to higher levels of burnout symptoms (Gould et al., 1996; Lemyre et al., 2008). In particular, dimensions closely related to socially prescribed perfectionism, such as parental expectations, parental criticism, concern over mistakes and doubts about actions, are significant predictors of burnout symptoms in both junior elite tennis players and junior

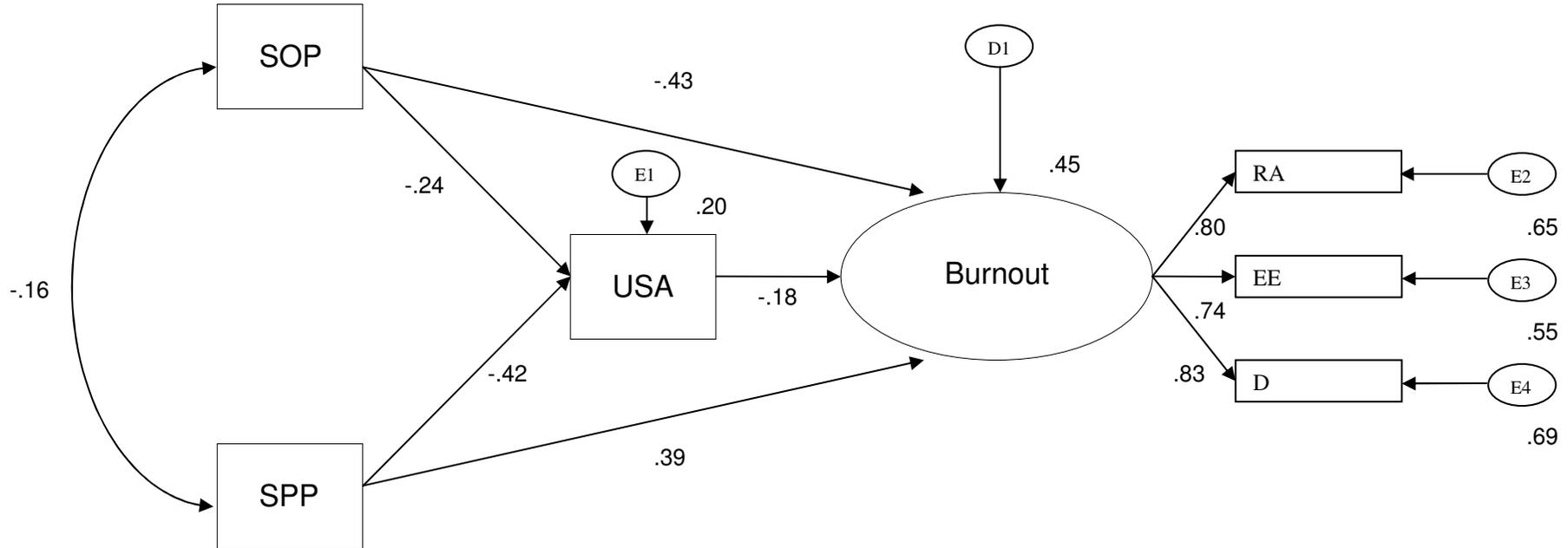
winter sport athletes. In contrast, when considered independently those that reflect a commitment to high standards, such as personal standards, are inversely related to burnout (Gould et al., 1996; Lemyre et al., 2008).

Initial examination of the relationship between self-oriented and socially prescribed perfectionism was provided by Hill et al. (2008). As discussed in chapter one, their findings suggested that while socially prescribed perfectionism has both a positive indirect and direct relationship with athlete burnout, self-oriented perfectionism has a positive indirect but an inverse direct relationship with athlete burnout (See Figure 1). Consequently, different psychological processes appear to underpin the relationship between these two dimensions of perfectionism and athlete burnout. In addition, multiple psychological mechanisms are required in order to understand the converse direct and indirect relationship between self-oriented perfectionism and athlete burnout.

## 2.2 *Perfectionism, validation-seeking, growth-seeking and athlete burnout.*

In addition to the stress-mediation explanation for the development of burnout, a number of additional psychological processes have been identified that attempt to explain the maintenance of participation in the face of recurrent aversive experiences (see Coakley, 1992; Raedeke, 1997; Schmidt & Stein, 1991). These include commitment based and identity based explanations whereby intense investment precludes opportunities to develop a sense of self away from sport and reduces attractive alternative activities to sport participation (see Coakley, 1992; Raedeke, 1997; Schmidt & Stein, 1991). These processes suggest that psychological over-investment may explain why the experience of stress leads to

Figure 1 Structural equation model: The mediating influence of unconditional self-acceptance on the relationship between perfectionism and athlete burnout.



Note. SOP = Self-Oriented Perfectionism; SPP = Socially Prescribed Perfectionism; USA = Unconditional Self-Acceptance; RA = Reduced Accomplishment; EE = Emotional and Physical Exhaustion; D = Sport Devaluation. Variance accounted for in each endogenous variable is displayed.

the development of burnout in only a small number of athletes (Coakley, 1992; Raedeke, 1997; Schmidt & Stein, 1991). In accord, Lemyre and colleagues (Lemyre et al., 2008) have recently argued that the need to repeatedly validate a sense of self through sporting achievement may explain why some athletes may be unable to extricate themselves from the sporting environment when routine practice and competition has become a source of chronic stress.

According to Dykman (1998), the pursuit of self-validation is an active vulnerability factor that interacts with the experience of negative events to predict psychological and motivational difficulties. He suggests that, when achievement striving is underpinned by validation-seeking, behaviour is focused on proving basic worth, competence or likeability. Thus, while achievement settings provide an opportunity to affirm self-worth, repeated failure can also undermine one's sense of self. Moreover, when athlete motivation is underpinned by validation-seeking, a maladaptive pattern of engagement may emerge because individuals feel compelled to maintain investment and gain the approval of others, despite the fact that their continued achievement striving may evoke debilitating cognition and negative emotional experiences. Over time, this pattern of engagement is likely to render athletes vulnerable to the development of burnout. A very different pattern of engagement emerges when athlete motivation is underpinned by growth-seeking tendencies. Under these circumstances, concerns over the impact of failure become superseded by the realisation that continued investment can only increase opportunities for personal development. Consequently, achievement related cognition and affective responses tend to remain adaptive

regardless of any perceived achievement difficulty (Dykman, 1998), meaning that this form of goal pursuit may provide resilience against the onset of burnout.

It is possible that the pattern of direct and indirect relationships between self-oriented and socially prescribed perfectionism and athlete burnout observed by Hill et al. (2008) can be explained by distinct relationships between the two dimensions of perfectionism and validation and growth-seeking. Because conditional self-acceptance and perfectionistic striving are defining features of self-oriented and socially prescribed perfectionism (Flett et al., 2003), it suggests that both dimensions have the potential to energise validation seeking. However, unlike socially prescribed perfectionism, self-oriented perfectionism has also been associated with more adaptive patterns of achievement behaviour. These include intrinsic forms of regulation, as well as the pursuit of mastery goals (Miquelon et al., 2005; Speirs-Neumeister & Finch, 2006; Van Yperen, 2006). Consequently, while socially prescribed perfectionism is likely to encourage a pattern of achievement striving characterised primarily by high levels of validation-seeking, self-oriented perfectionism may invoke a combination of validation-seeking and growth-seeking.

### 2.3 *Purpose of study one*

The purpose of this study was to test these assertions. Specifically, the present investigation examined whether validation and growth-seeking partially mediate the relationship between self-oriented and socially prescribed dimensions of perfectionism and athlete burnout. Based on the preceding argument and previous research (e.g., Hill et al., 2008), it was hypothesised that socially prescribed perfectionism would have a positive direct relationship with athlete

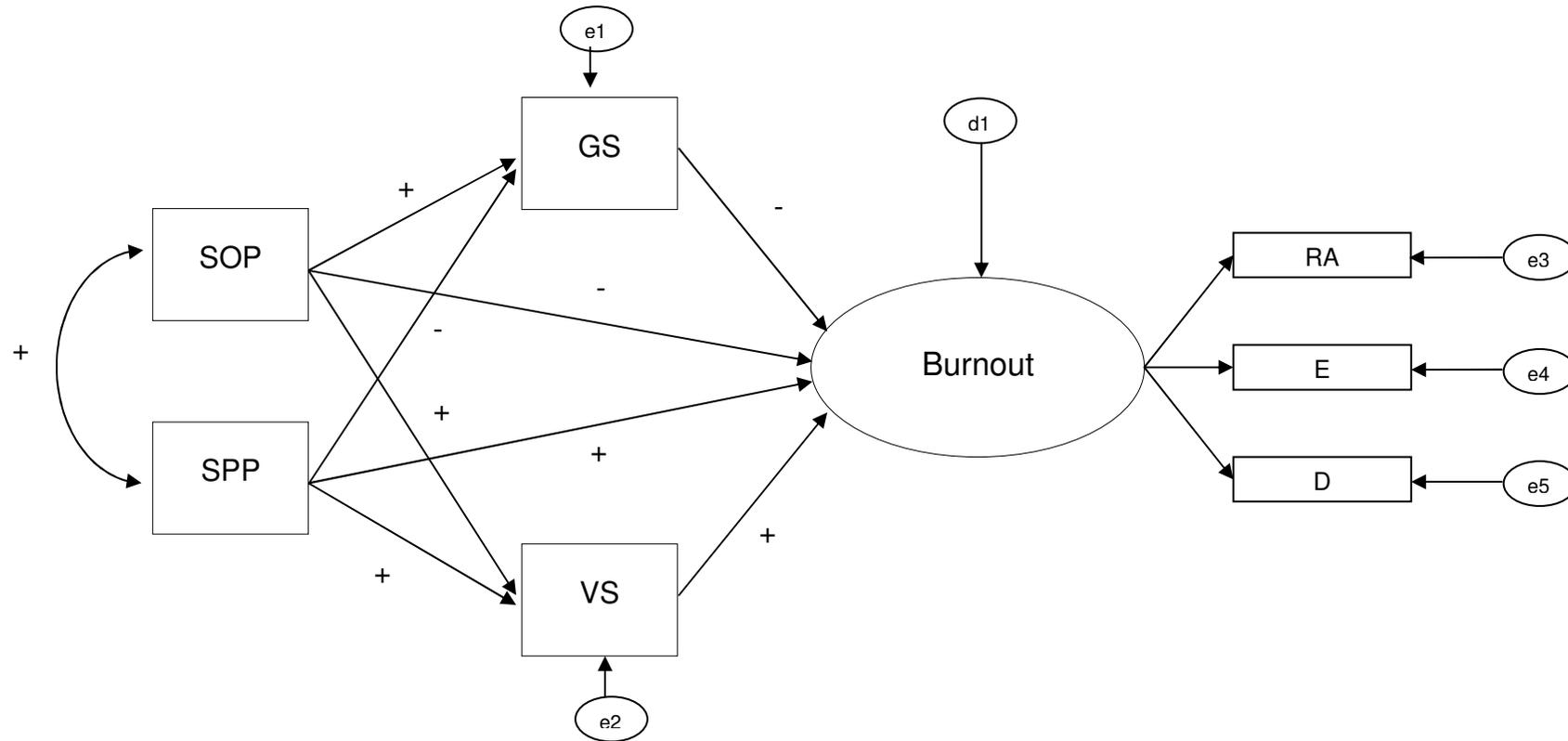
burnout, and that self-oriented perfectionism would have an inverse direct relationship with athlete burnout. It was also hypothesised that the association between socially prescribed perfectionism and athlete burnout would be partially mediated by a positive relationship with validation-seeking and an inverse relationship with growth-seeking. In contrast, it was hypothesised that the association between self-oriented perfectionism and athlete burnout would be partially mediated by a positive relationship with both validation-seeking and growth-seeking. The positive association with validation-seeking and growth-seeking would lead to two contrasting pathways indicative of the potential for both higher and lower levels of burnout. The hypothesised structural relations between dimensions of perfectionism, validation-seeking, growth-seeking and athlete burnout are depicted in Figure 2.

## 2.4 *Method*

### 2.4.1 *Participants*

Participants were 150 (86 males, 64 females) canoe polo and kayak slalom athletes recruited from the top two divisions in the UK (age  $M = 26.05$  years,  $SD = 9.57$  years, range = 13 to 55). Sixty-five of the athletes were members of Great Britain development squads or were members of Great Britain national teams. Participants were approached at club and regional competitions and were asked to complete a multi-sectional questionnaire at their leisure. Informed consent was gained from each participant or parent/guardian when appropriate. As a non-professional sport, these athletes can face considerable challenges with regards to balancing life and sport commitments which may render them susceptible to high levels of participation related stress. The athletes reported that, on average, they

Figure 2 Proposed structural model: The mediating influence of validation-seeking and growth-seeking on the relationship between perfectionism and athlete burnout



Note: SOP = Self-oriented perfectionism, SPP = Socially prescribed perfectionism, VS = Validation-seeking, GS = Growth-seeking, RA = Reduced accomplishment, E = Emotional and physical exhaustion, and D = Sport devaluation. The direction of the hypothesised relationship is indicated by + or -.

considered their sport very important in comparison to other things in their lives ( $M = 7.40$ ,  $SD = 1.18$ ; 1 = *not at all important* to 9 = *extremely important*). Most were experienced participants ( $M = 9.32$  years,  $SD = 7.03$ ) who reported that they spent 6.86 hours per week ( $SD = 5.42$ ) training for their sport.

#### 2.4.2 Instruments

*Multidimensional Perfectionism*: Self-oriented (SOP) and socially prescribed perfectionism (SPP) were assessed using Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (MPS). The third dimension measured by this scale, other-oriented perfectionism, is unrelated to self-focused personal consequences and was, therefore, not included in the study. To reflect the possible domain-specificity of perfectionism (see Dunn et al., 2005), the stem of the instrument was adapted to focus the athletes on their participation in sport ("Listed below are a number of statements concerning how you view your participation in your sport..."). The two subscales of the MPS each contain 15-items measured on a seven-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). Responses on the self-oriented perfectionism subscale reflect excessive striving for high personal standards and self-critical tendencies (e.g., "I must always be successful in activities that are important to me." "I demand nothing less than perfection of myself."). In contrast, responses to the socially prescribed perfectionism subscale reflect the belief that significant others have exceedingly high standards and that acceptance is based on the attainment of those standards (e.g., "The people around me expect me to succeed at everything I do." "Others will like me even if I don't excel at everything." (reversed scored)). Evidence to support the validity and reliability of measurement associated with

the scale has been provided by Hewitt and Flett (1991, 2004). This evidence includes good internal consistency ( $\alpha = \text{SOP} .89$  and  $\alpha = \text{SPP} .86$ ) and test-retest reliability for these scales ( $r = \text{SOP} .88$  and  $r = \text{SPP} .75$ ) in student and general samples (Hewitt & Flett, 1991). This instrument is currently the only available measure of self-oriented and socially prescribed perfectionism with extensive evidence for its reliability and validity (Hewitt & Flett, 1991, 2004).

*Athlete Burnout: Raedeke and Smith's (2001) Athlete Burnout*

Questionnaire (ABQ) was used to assess athlete burnout. This instrument contains three 5-item subscales that are scored on a five-point Likert scale (1 = *almost never* to 5 = *almost always*). The scale assesses an athletes' experience of a reduced sense of athletic accomplishment (RA) (e.g., "I'm accomplishing many worthwhile things." (reversed)), perceived emotional and physical exhaustion (E) associated with their sports participation (e.g., "I feel so tired from my training that I have trouble finding energy to do other things."), and the extent to which athletes devalue the activity (D) (e.g., "I feel less concerned about being successful than I used to."). Raedeke and Smith (2001) have provided evidence to support the validity and the reliability of the measurement associated with the scale when measuring burnout symptoms in athletes. For example, internal consistency ( $\alpha = \text{RA} .84$ ,  $\alpha = \text{E} .89$  and  $\alpha = \text{D} .89$ ) and test-retest reliability of the scale ( $r = \text{RA} .86$ ,  $r = \text{E} .92$  and  $r = \text{D} .92$ ) were found in high school and collegiate athletes (age 14- 23 years) (Raedeke & Smith, 2001). This instrument is currently considered the most appropriate measure of burnout symptoms in athletes (Raedeke & Smith, 2001).

*Validation-seeking and growth-seeking:* Validation-seeking (VS) and Growth-seeking (GS) were assessed using Dykman's (1998) Goal Orientation Inventory (GOI). The stem of the instrument was adapted to focus the participants on their participation in sport, rather than on how they think and act in general. The validation-seeking and growth-seeking subscales of the GOI contain 18-items each and are measured on a seven-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). The validation subscale reflects a strong motivational need to prove self-worth, competence or likeability (e.g., "I feel like I'm constantly trying to prove that I'm as competent as the people around me."). In contrast, response to the growth-seeking subscale reflects a strong motivational need to improve and realise ones' potential (e.g., "My natural tendency is to view problem situations as providing opportunities for growth and self-improvement."). Dykman (1998) has provided support for the validity and reliability of the measurement associated with the scale in student samples. This evidence includes internal consistency ( $\alpha =$  VS .97 and  $\alpha =$  GS .96) and test-retest reliability ( $r =$  VS .76 and  $r =$  GS .78; Dykman, 1998). Prior to the current study, this instrument has not been used in an athlete sample.

## 2.5 Results

### 2.5.1 Preliminary analysis

Prior to the main analyses, a missing value analysis was conducted on the data. Due to large amounts of missing data from individual respondents (> 5%), nine participants were removed from the sample. The missing value analysis indicated that for the remaining sample the percentage of missing data due to item non-response was extremely small ( $M = 0.39$ ,  $SD = 0.52$ , range = 0 to 2.80%).

There were 112 complete cases and 29 cases with incomplete data. For those with incomplete data, the average percentage of missing values due to item non-response was 1.90% ( $SD = 1.04$ , range = 1.20 to 4.99%). This percentage of missing data is the equivalent of less than 2 items ( $M = 1.55$ ,  $SD = 0.83$ , range 1 to 4). An inspection of the pattern of missing data suggested a non-systematic mechanism for the missing data. Specifically, there was a high ratio of unique patterns of missing data to the number of participants with missing data = .97, and only one common pattern shared by two participants (same item not complete). Consequently, each missing item was replaced using the mean of the each case's available non-missing items from the relevant subscale. This method of imputation is considered to be an appropriate strategy when the amount of missing data is low and items are highly correlated (Graham, Cumsille, & Elek-Fisk, 2000)<sup>1</sup>.

Next, the data was screened for univariate and multivariate outliers (see Tabachnick & Fidell, 2007). Standardised z-scores larger than 3.29 ( $p < .001$ , two-tailed) and variables with a Mahalanobis distance greater than  $\chi^2_{(6)} = 22.46$  were used as criteria for univariate and multivariate outliers. This procedure did not lead to the removal of any participants. The remaining data ( $n = 141$ ) was considered to be approximately univariate and multivariate normal (absolute skewness  $M = .24$ ,  $SD = .16$ ,  $SE = .20$ , absolute kurtosis  $M = .28$ ,  $SD = .21$ ,  $SE = .41$ , Mahalanobis distance  $M = 6.95$ ,  $SD = 3.89$ , Mardia's normalised multivariate kurtosis = 1.12).

The homogeneity of the covariance matrix of the variables included in the model across competitive level (club level athlete only/ GB representative or

development squad representative) was assessed using Box's  $M$  test. These analyses indicated that the covariance matrix was homogenous across competitive level, Box's  $M$  (28.00, 59769.34) = 1.35 ( $p > .05$ ). The data were, therefore, analysed in an ungrouped fashion. Internal reliability analysis (Cronbach's alpha) indicated that all instruments demonstrated internal consistency above that typically considered acceptable ( $\alpha = .70$ ). The values are displayed in Table 1.

### 2.5.2 *Descriptive Analyses*

The descriptive statistics for dimensions of perfectionism, validation-seeking, growth-seeking and dimensions of athlete burnout are displayed in Table 1. The sample reported moderate-to-high levels of self-oriented perfectionism and low-to-moderate levels of socially prescribed perfectionism (seven-point Likert scale). The mean scores are of a similar magnitude to those observed in junior-elite samples suggesting that athletes may typically score higher in self-oriented perfectionism than socially prescribed perfectionism (Hill et al., 2008). The sample also reported low-to-moderate burnout scores across all symptoms of burnout (five-point Likert scale). These mean scores are also of a similar magnitude to those reported elsewhere (e.g., Cresswell & Eklund, 2005a). This suggests that levels of burnout symptoms may be comparable across sports in similar samples. Finally, participants reported moderate-to-high levels of growth-seeking and low-to-moderate levels of validation-seeking (seven-point Likert scale). No scores from athlete samples are available for comparison.

### 2.5.3 *Bivariate Correlations*

The bivariate associations between dimensions of perfectionism, validation-seeking, growth-seeking and dimensions of athlete burnout are also

Table 1 *Descriptive statistics, bivariate correlations, and internal reliability coefficients for dimensions of perfectionism, validation-seeking, growth-seeking and symptoms of athlete burnout*

Variable	1	2	3	4	5	6	<i>M</i>	<i>SD</i>	$\alpha$
1. Self-oriented perfectionism							4.70	0.86	.86
2. Socially prescribed perfectionism	.26**						3.62	0.71	.78
3. Validation-seeking	.21*	.52**					3.73	1.23	.95
4. Growth-seeking	.31**	-.15	-.19*				4.89	0.80	.91
5. Reduced athletic accomplishment	-.09	.34**	.31**	-.27**			2.56	0.68	.73
6. Physical and emotional exhaustion	.04	.26**	.31**	-.12	.14		2.57	0.86	.88
7. Devaluation	-.14	.22**	.23**	-.19*	.53**	.32**	2.23	0.84	.78

\*  $p < .05$       \*\*  $p < .01$

displayed in Table 1. Socially prescribed perfectionism was positively related to all symptoms of burnout (reduced sense of accomplishment, emotional and physical exhaustion, and devaluation). In contrast, self-oriented perfectionism was unrelated to burnout symptoms. The correlational analyses further indicated that socially prescribed perfectionism was positively related to validation-seeking and inversely related to growth-seeking. As hypothesised, self-oriented perfectionism was positively related to both growth-seeking and validation-seeking. Also consistent with the hypotheses, validation-seeking was positively related to all symptoms to burnout symptoms and growth-seeking was inversely related to all burnout symptoms. The relationship between growth-seeking and physical and emotional exhaustion was not statistically significant, however.

#### 2.5.4 *Path analysis*

AMOS statistical software package (Version 6.0.1; Arbuckle, 2006) utilising maximum likelihood estimation was employed to test the hypothesised model. Dimensions of perfectionism, validation-seeking and growth-seeking were represented as measured variables, while burnout was represented as a latent variable reflecting scores on the three dimensions of the ABQ to enable a measure of the burnout syndrome. The athlete burnout latent factor demonstrated sufficient composite reliability ( $\rho_c = .64$ )<sup>2</sup>. One limitation of this mixed model approach is that measurement error in the observed predictor variables is not modelled. However, this approach was considered appropriate due to the small sample size (< 150) and the requirement for a minimum participant to estimated parameter ratio (5:1; Bentler, 1995).

The fit of the hypothesised model was assessed using a combination of absolute and incremental fit indices; chi-square statistic ( $\chi^2$ ),  $\chi^2/df$  ratio, standardised root mean squared residual (SRMR), comparative fit index (CFI) and the incremental fit index (IFI). These indices were selected based on their performance with small samples (Bentler, 1995; Hoyle & Panter, 1995). Acceptable fit was considered to be indicated by  $\chi^2/df$  ratio < 3.00, SRMR < .10, CFI > .90, and IFI > .90 (Marsh, Hau, & Wen, 2004; Schermelleh-Engel et al., 2003). An assessment of the proposed mediation and post-hoc probing of significant meditational effects were conducted using a procedure described by Holmbeck (1997, 2002). In this approach, establishing mediation involves three steps. The first is an assessment of the direct relationship between the predictor variable and the outcome variable in the absence of the mediating variable. The second is an examination of the path coefficients included in the mediation pathway. The third is a comparison of the direct effect of the predictor variable in the presence and absence of the mediator. In order for full mediation to be supported: (i) the direct effect of the predictor variable in the absence of the mediator must be statistically significant, (ii) the path coefficients between the predictor variable and mediator, and the mediator and outcome variable after controlling for the effect of the predictor, must be statistically significant, and (iii) following the introduction of the mediator, the direct effect of the predictor on the outcome variable must be reduced to zero and there must be no significant improvement in fit from the introduction of the additional direct pathway ( $p < .05$ ). If the direct effect remains statistically significant, and the model provides

statistically significant improved fit, partial mediation rather than full mediation is supported. Fit indices for the estimated models are displayed in Table 2.

Consistent with Holmbeck's (1997, 2002) approach, a model was first estimated to assess the direct effect of the two dimensions of perfectionism on athlete burnout in the absence of validation and growth-seeking (M1). This model provided acceptable fit and the path coefficients from dimensions of perfectionism to athlete burnout were statistically significant (SOP  $\beta = -.27$  & SPP  $\beta = .47$ ,  $p < .05$ ). Next, a partial mediation model that included both direct and indirect pathways from dimensions of perfectionism to athlete burnout via validation and growth-seeking was estimated (M2; see Figure 2). This model allowed for an inspection of path coefficients from the dimensions of perfectionism to the mediating variables, and from the mediating variables to athlete burnout after controlling for the direct effects of dimensions of perfectionism. The model provided an acceptable fit; however, the path coefficient from self-oriented perfectionism to validation-seeking, and the path coefficient from growth-seeking to burnout, was not statistically significant. Consequently, only the mediation pathway from socially prescribed perfectionism to athlete burnout via validation-seeking was tenable. Finally, the partial mediation model (M2) was compared to a more parsimonious model depicting full mediation (M3). In the full mediation model, the direct pathways from dimensions of perfectionism to athlete burnout were constrained to zero. A chi-square difference test indicated that the partial mediation model provided a significantly better fit than the full mediation model. This finding indicates that the direct pathways from dimensions of perfectionism to athlete burnout contribute significantly to the model and supports partial

Table 2 Assessment of fit of measurement and structural models

	$\chi^2$	df	$\chi^2/df$	CFI	IFI	SRMR	$\Delta\chi^2_{(df)}$
Test of mediation							
M1: Absence of mediators	12.57	4	3.14	.91	.92	.06	
M2: Partial mediation	22.44	9	2.49	.92	.93	.06	
M3: Full mediation	33.39	11	3.03	.87	.88	.08	M2 vs. M3 = $(2)$ 10.95**

*Note.* M1 = In this model both dimensions of perfectionism have a direct pathway to athlete burnout. No mediators are included in the model; M2 = In this model both direct and indirect pathways from dimensions of perfectionism to athlete burnout are included (**hypothesised model**; see figure 1); M3 = In this model dimensions of perfectionism have only indirect pathways to athlete burnout via validation and growth-seeking.

\*  $p < .05$       \*\*  $p < .01$

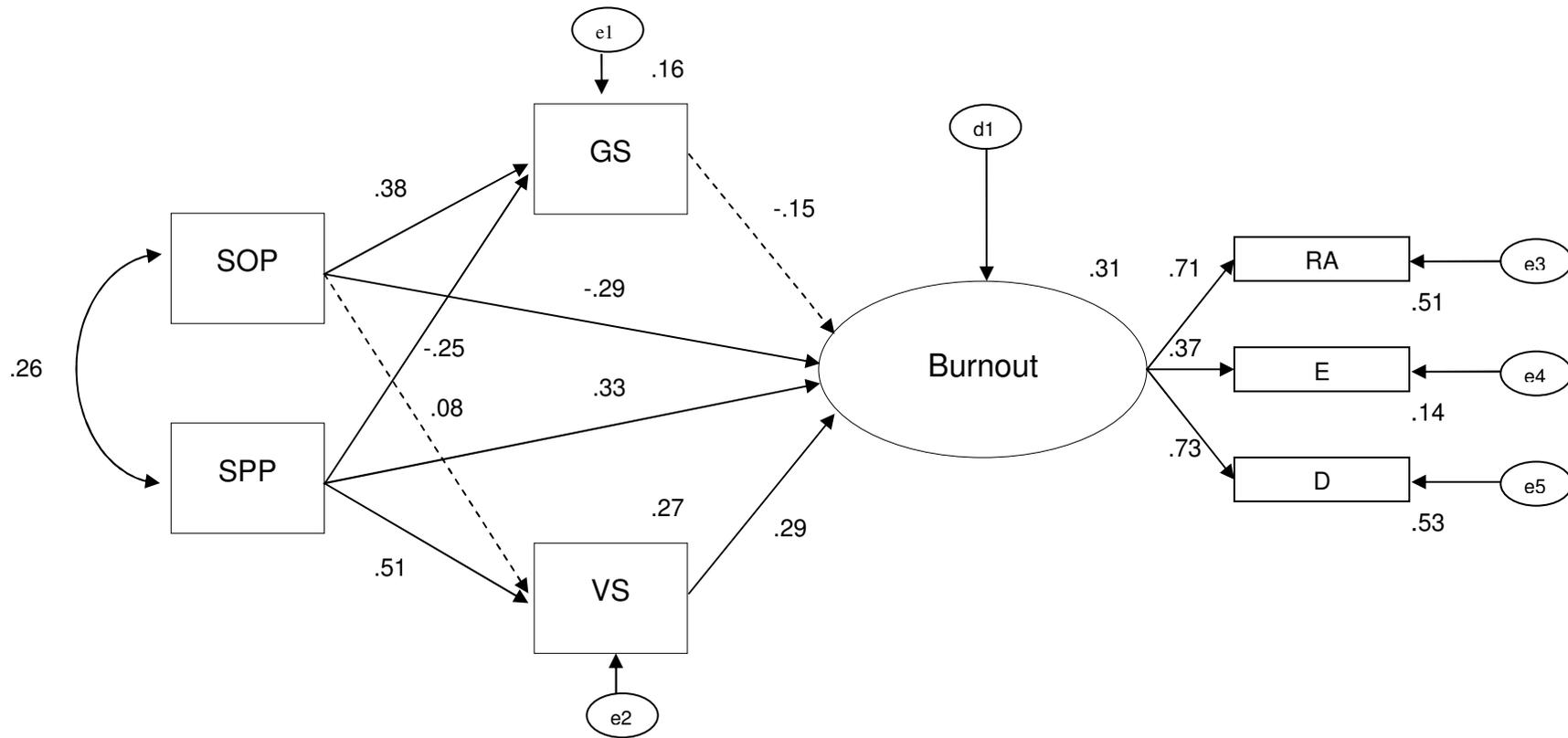
mediation, rather than full mediation. The indirect effect of socially prescribed perfectionism on athlete burnout via validation-seeking was statistically significant (standardised indirect effect = .13, unstandardised indirect effect = .06 SE = .03,  $p < .05$ , 95% CI 0.01 to 0.11). The partial mediation model (M2) was subsequently accepted as the more tenable model and is displayed in Figure 3.

The final model indicated that the relationship between socially prescribed perfectionism and athlete burnout was partially mediated by validation-seeking. The dimensions of perfectionism explained 27% of variance in validation-seeking and 16% of variance in growth-seeking. Validation-seeking and the two dimensions of perfectionism accounted for 31% of behavioural variance in athlete burnout. Calculation of standardised total direct and indirect effects indicated that SPP (.48) made the largest contribution to the prediction of burnout followed by both validation-seeking (.27) and self-oriented perfectionism (-.27) and, finally, growth-seeking (-.15).

#### 2.5.5 *Potential confounding and suppression effects*

Comparison of the effect of self-oriented perfectionism on validation-seeking and athlete burnout in the absence and presence of socially prescribed perfectionism indicated that these relationships may be either confounded or suppressed by socially prescribed perfectionism (Cohen, Cohen, Aiken, & West, 2003; MacKinnon, Krull, & Lockwood, 2000). Suppression is evident when the relationship between a predictor and an outcome variable becomes larger or changes direction in the presence of another predictor variable (Cohen et al., 2003). In the current study, after controlling for socially prescribed perfectionism, the positive bivariate relationship between self-oriented perfectionism and

Figure 3 Structural model: The mediating influence of validation and growth-seeking on the relationship between perfectionism and athlete burnout



Note: SOP = Self-Oriented Perfectionism; SPP = Socially Prescribed Perfectionism; VS = Validation-Seeking; GS = Growth-Seeking; RA = Reduced Accomplishment; EE = Emotional and Physical Exhaustion; D = Sport Devaluation. Pathways that are not statistically significant are displayed using a dashed line ( $p > .05$ ). Variance accounted for in each endogenous variable is displayed.

validation-seeking was reduced to non-significance. The opposite effect was observed in the relationship between self-oriented perfectionism and athlete burnout. Specifically, when socially prescribed perfectionism was controlled, the predictive ability of self-oriented perfectionism was enhanced. The implications of these effects are considered in the discussion.

## 2.6 *Discussion*

Hill et al. (2008) recently found that while socially prescribed perfectionism has a positive direct and positive indirect relationship with athlete burnout, self-oriented perfectionism has an inverse direct and a positive indirect relationship with athlete burnout. The present investigation sought to extend this study by examining a model in which the association between self-oriented and socially prescribed dimensions of perfectionism and athlete burnout are mediated by different relationships with validation and growth-seeking (Dykman, 1998). Based on previous research and Dykman's (1998) model, it was hypothesised that socially prescribed perfectionism would have a positive direct relationship with athlete burnout and self-oriented perfectionism would have an inverse direct relationship with athlete burnout. It was also hypothesised that the association between socially prescribed perfectionism and athlete burnout would be partially mediated by a positive relationship with validation-seeking and an inverse relationship with growth-seeking. In contrast, it was hypothesised that the association between self-oriented perfectionism and athlete burnout would be partially mediated by a positive relationship with both validation-seeking and growth-seeking, leading to two contrasting pathways indicative of the potential for both higher and lower levels of athlete burnout.

The findings provided partial support for the hypothesised model. Direct pathways from dimensions of perfectionism to athlete burnout were as predicted, and the relationship between socially prescribed perfectionism and burnout was partially mediated by a positive relationship with validation-seeking. However, there was no indirect relationship between self-oriented perfectionism and athlete burnout. The variables in the structural model explained 27% variance in validation-seeking, 16% variance in growth-seeking and 31% variance in athlete burnout.

#### 2.6.1 *Socially prescribed perfectionism, validation-seeking and burnout*

The finding that socially prescribed perfectionism had both a positive direct and indirect association with elevated symptoms of athlete burnout is consistent with previous research (e.g., Hill et al., 2008). In particular, the belief that one must achieve socially imposed perfectionistic standards in order to gain approval from self and others appears to be an important antecedent of elevated burnout symptoms in athletes (Appleton et al., 2009; Gould et al., 1996; Lemyre et al., 2008). Extending previous research, the current findings suggest that the association between this dimension of perfectionism and burnout may, in part, be due to a strong desire for self-validation. Moreover, higher levels of socially prescribed perfectionism in athletes may engender the belief that sporting achievement can be a vehicle for self-validation and, therefore, explain why some athletes are unable to extricate themselves from athletic environments when they begin to experience the negative cognition and affect that precede burnout.

#### 2.6.2 *Self-oriented perfectionism and burnout*

The findings from the test of the structural model confirmed an inverse

direct relationship between self-oriented perfectionism and athlete burnout which replicates previous research (e.g., Appleton et al., 2009; Hill et al. 2008).

However, the hypothesis that self-oriented perfectionism would be indirectly related to athlete burnout via a positive association with both validation-seeking and growth-seeking was not supported. This was because in the final model growth-seeking was unrelated to athlete burnout and self-oriented perfectionism was unrelated to validation-seeking. There was, however, some support for the hypothesised relationships at a bivariate level. Specifically, growth-seeking was negatively correlated with a reduced sense of athletic accomplishment and sports devaluation, and self-oriented perfectionism was positively associated with validation-seeking. The inverse association between growth-seeking and some symptoms of burnout may, therefore, still explain why self-oriented perfectionism has a direct inverse relationship with athlete burnout in this study and Hill et al. (2008).

The bivariate correlations amongst self-oriented perfectionism, validation-seeking, growth-seeking and athlete burnout also indicate that despite the potential for self-oriented perfectionism to contribute to undesirable psychological consequences (see Flett & Hewitt, 2005, 2006), an association with growth-seeking may contribute to positive achievement experiences, foster intrinsic motivation, and enhance the development of perceived competence. While the relationship between self-oriented perfectionism and growth-seeking is not consistent with Hewitt and Flett's (1991) assertion that this dimension of perfectionism is fundamentally maladaptive, it supports research in other achievement contexts that has found that self-oriented perfectionism contributes

to positive motivational outcomes in non-clinical samples (e.g., Bieling et al., 2003; Mills & Blankstein, 2000). Although there is currently insufficient evidence to draw any firm conclusions regarding the consequences of self-oriented perfectionism for athletes, the present findings provide some initial evidence that growth-seeking may be a source of a number of positive consequences that may include resilience against a reduced sense of athletic accomplishment and sport devaluation.

The finding that self-oriented perfectionism was unrelated to validation-seeking in the final structural model despite being positively related to validation-seeking at a bivariate level was also unexpected. One reason why there was no significant association between self-oriented perfectionism and validation-seeking in the structural model may be due to the confounding or suppressor effects of socially prescribed perfectionism. A comparison of the relationship between self-oriented perfectionism and validation-seeking before and after controlling for socially prescribed perfectionism suggests that the relationship differs depending on whether socially prescribed perfectionism is included in the model. In the current study, this suppressor effect may also extend to burnout because controlling for socially prescribed perfectionism also lead to an increase in the predictive ability of self-oriented perfectionism with regards to burnout symptoms.

Similar patterns of suppression have been noted in other research that has examined the mediating influence of third-order variables on the relationship between dimensions of perfectionism and distress (e.g., Aldea & Rice, 2006; Flett et al., 2003; Scott, 2007; Wu & Wei, 2008). Commenting on this issue, Aldea and

Rice (2006) have noted that when examining the effects of correlated dimensions of perfectionism simultaneously, each may act to suppress the other in a manner that provides more purified associations with other variables. As self-oriented and socially prescribed perfectionism are typically positively correlated, their relationship may render it difficult to draw firm conclusions about their consequences when both are included in the same structural model. The current findings indicate that after controlling for socially prescribed perfectionism, self-oriented perfectionism may appear more adaptive. This possibility suggests that shared variance between the two dimensions of perfectionism may be a fundamental source of the psychological difficulties associated with self-oriented perfectionism (see Van Yperen, 2006).

## 2.7 *Conclusion*

In some respects, the findings from the current study support those observed by Hill et al. (2008). In particular, socially prescribed perfectionism appears to be an antecedent of burnout in athletes. The findings also extend research in this area by indicating that the association between this dimension of perfectionism and athlete burnout can, in part, be explained by validation-seeking through athletic achievement. However, the positive indirect and inverse direct relationship between self-oriented perfectionism and burnout observed by Hill et al. (2008) was not explained by validation and growth-seeking in the current study. While self-oriented perfectionism appears to entail multiple motives, the psychological processes that explain the potential for this dimension of perfectionism to lead to both higher and lower levels of burnout remain unclear. If, as Flett and Hewitt (2005) have suggested, self-oriented perfectionism is

ultimately maladaptive for athletes, it is possible that in this instance negative aspects of self-oriented perfectionism (e.g., stress perpetuation and conditional acceptance) may be offset by more adaptive cognitions and behaviours (Dunkley et al., 2000). In particular, self-oriented perfectionism's association with adaptive aspects of coping (e.g. Flett et al., 1991; Flett, Hewitt, Blankstein, Solnik, & Van Brunschot, 1996) may be especially important as effective psychological coping skills may have the potential to modify the appraisal processes responsible for the experience of anxiety that precedes burnout (see Lazarus, 1999; Lazarus & Folkman, 1984; Lemyre et al., 2007). The possibility that coping tendencies mediate the relationship between self-oriented and socially prescribed perfectionism and athlete burnout was examined in study two of the thesis.

#### Endnotes

<sup>1</sup> Based on the recommendations of Tabachnick and Fidell (2007), the analysis was repeated using only cases with complete data. Estimation of the final partial mediation model using this sample was similar to that observed with the full imputed data set ( $\chi^2(4) = 21.69$ ,  $\chi^2/df = 2.41$ , CFI = .92, IFI = .93).

<sup>2</sup> Although the athlete burnout latent factor demonstrated composite reliability below current recommended levels (e.g.,  $\rho_c > .70$ ; Hair, Black, Babin, & Anderson, 2009), standardised residual covariances were inspected for the burnout latent factor. Apart from one residual (= 2.04), all residuals were below 2.00. Average absolute standardised residual was .44 ( $SD = .57$ , median = .17, range 0.00-2.04).

Chapter Three: Perfectionism and athlete burnout: The mediating influence of coping tendencies

“The better I get at tennis the better my temper will be.”

*Andy Murray*

The findings of study one, as well as previous research (Hill et al., 2008), suggests that socially prescribed perfectionism is likely to predispose athletes to higher levels of athlete burnout. However, the relationship between self-oriented perfectionism and athlete burnout remains unclear. While there is some evidence to suggest self-oriented perfectionism may indirectly contribute to higher levels of burnout, it has also been found to have a direct inverse relationship with burnout (Hill et al., 2008). An attempt in study one to explain this pattern of association between self-oriented perfectionism and athlete burnout using different regulatory factors proved inconclusive. In this chapter it is argued that there is sufficient theoretical and empirical evidence to suggest that problem-focused coping tendencies (versus avoidant coping) may be one factor that explains the direct inverse relationship between self-oriented perfectionism and athlete burnout. In addition, it is also argued that differences in coping tendencies between self-oriented and socially prescribed perfectionism provides a further explanation for their disparate association with athlete burnout. The purpose of study two was to

examine whether coping tendencies (problem-focused and avoidant coping) mediate the relationship between self-oriented and socially prescribed perfectionism and athlete burnout. Coping and the importance of coping tendencies in the burnout process is first discussed. This is followed by a discussion of the relationship between self-oriented, socially prescribed perfectionism and coping tendencies. Finally, an empirical investigation of the mediating influence of coping tendencies on the perfectionism-burnout relationship is provided.

### 3.1 *Coping and athlete burnout*

Coping is typically defined as the cognitive and behavioural effort that an individual makes in order to manage internal and external sources of psychological stress (Lazarus & Folkman, 1984). Examining the manner in which individuals cope is a large and complex area of research. There are currently a number of approaches to conceptualising and measuring coping that has provided the basis for research in this area (see Skinner, Edge, Altman, & Sherwood, 2003, for a review). For example, research has adopted both trait (coping styles or preferences) and state (transactional or process) approaches to examining coping. There are also a number of models used to categorise the cognitive and behavioural coping efforts utilised (e.g., engagement versus disengagement, approach versus avoidance, accommodation versus rigid perseverance; Roth & Cohen, 1986; Compas et al., 2001; Brandstadter & Renner, 1990). These approaches typically include higher-order coping categories (e.g., problem-focused, emotion-focused, and avoidant coping) that differ in terms of their aim and function, and lower-order coping strategies within these categories that are utilised in service of the

higher-order coping categories (e.g., planning, seeking support, and denial) (Carver, Scheier, & Weintraub, 1989; Endler & Parker, 1994; Lazarus & Folkman, 1984).

Coping categories and strategies are not typically considered implicitly adaptive or maladaptive (Lazarus & Folkman, 1984; Folkman & Lazarus, 1988; Skinner, Edge, Altman & Sherwood, 2003). This is because the impact of coping on psychological adjustment is likely to depend on a number of additional factors, such as the nature of the stressors and situational constraints (Folkman, 1991). Consequently, all coping efforts may have the potential to be locally adaptive or maladaptive (Skinner et al., 2003). However, Skinner and colleagues (Skinner et al., 2003) argue that a distinction can be made between coping strategies on the basis of whether the coping strategies lead to adequate handling of demands or eventually lead to the individual becoming overwhelmed. They argue that from this perspective coping that is organized, flexible, and constructive is likely to be more beneficial than coping that is rigid, disorganized or lead to unmanageability. Therefore, coping categories can be distinguished in terms of their influence on psychological adjustment if they are obstinately utilised. In support of this distinction, coping strategies such as planning, negotiation, and support seeking are typically associated with positive cognitive and affective outcomes, whereas coping strategies such as rumination, self-blame and negative thinking are typically associated with more debilitating consequences (see Hoar, Kowlaski, Gaudreau, & Crocker, 2006, and Nicholls & Polman, 2007, for reviews).

As has been found in the wider psychology literature, research suggests that athletes utilise an extensive range of strategies in order to cope with the stress

they experience (Nicholls & Polman, 2007). Consequently, a number of approaches have been used to measure coping amongst athletes that mirror those utilised in other domains. One distinction that can be made is that between problem-focused and avoidant coping categories (Endler & Parker, 1994; Krohne, 1993). Problem-focused coping entails strategies aimed at overcoming sources or stress. This includes, for example, thinking about and analyzing the source of stress (planning) and taking direct behavioural steps to remove it (active coping). In contrast, avoidant coping entails utilizing strategies that seek to disengage from the coping process. This includes strategies such as refusal to acknowledge the stressor exists (denial) and reducing behavioural efforts to overcome the stressor (behavioural disengagement). These coping categories provide a distinction between two broad ways of coping that are likely to have clear differences in their consequences when adopted at a dispositional level. These two categories of coping strategies have also previously been adopted by research examining the relationship between perfectionism and psychological adjustment (e.g., Dunkley, Zuroff, & Blankstein, 2003), including athlete burnout (Gould et al., 1996). Consequently, this approach to conceptualising coping was adopted in the current study.

As coping is an important mediator of the stress process (Lazarus & Folkman, 1984), it is also likely to be influential in the etiology of burnout (see Smith, 1986). While coping provides an opportunity to mitigate the experience of threat, coping efforts do not always lead to demands being effectively managed (Compas, 1987). In some circumstances, coping strategies may even contribute to higher levels of stress. Within a cognitive-affective model of burnout (Smith,

1986), problem-focused coping is likely to lead to lower levels of burnout through the attenuation of the frequency and duration of stress (Dunkley et al., 2000). In contrast, avoidant coping may fail to attenuate the experience of stress and, therefore, result in elevated burnout symptoms. This possibility is supported directly by research that has found that greater endorsement of problem-focused coping discriminates between tennis burnouts and active junior tennis players (Gould et al., 1996), as well as indirectly by research that has found that problem-focused coping is associated with positive affective consequences whereas avoidant coping is related to more negative affective consequences in athletes (Hoar et al., 2006). Importantly, the negative affective consequences of avoidant coping includes higher levels of anxiety which are considered to precede the development of burnout symptoms (e.g., Ntoumanis & Biddle, 2000; Gaudreau & Blondin, 2002).

### 3.2 *Perfectionism, coping and athlete burnout*

In a review of research examining the relationship between perfectionism and coping, Hewitt and Flett (1996) argued that self-oriented and socially prescribed perfectionism can be distinguished based on their relationship with variables associated with the coping process (e.g., problem solving confidence, constructive thinking, learned resourcefulness; Flett, Hewitt, Blankstein, & O'Brien, 1991; Flett et al., 1996; Flett, Russo, & Hewitt, 1994), as well as coping strategies (Hewitt, Flett & Endler, 1995). While socially prescribed perfectionism is principally associated with coping strategies that aim to avoid sources of stress, self-oriented perfectionism is principally associated with coping strategies that confront and remove sources of stress (Hewitt et al., 1995). The divergent

relationship between dimensions of perfectionism and coping strategies are believed to reflect differences between the two dimensions in terms of the perceived control and coping efficacy that they engender (Hewitt & Flett, 1996). Since Hewitt and Flett's (1996) review, subsequent research undertaken by Dunkley and colleagues (Dunkley & Blankstein, 2000; Dunkley et al., 2000; Dunkley, Sanislow et al., 2006; Dunkley, Zuroff, & Blankstein, 2003) has further supported the contention that self-oriented and socially prescribed perfectionism encourage different coping strategies (e.g., problem-focused versus avoidant) and that coping is an important partial mediator of the relationship between these dimensions of perfectionism and psychological distress (e.g. anxiety, negative affect, anger and depression). More recently, Gaudreau and Antl (2008) have also found that coping strategies partially mediate the relationship between dimensions of perfectionism that include self-oriented and socially prescribed perfectionism and changes in the life-satisfaction of athletes. Consequently, there is sufficient theoretical and empirical evidence to suggest that coping may partially mediate the relationship between both self-oriented and socially prescribed perfectionism and athlete burnout, and that differences in the coping tendencies associated with these dimensions of perfectionism may explain their converse direct relationship with athlete burnout (Hill et al., 2008; Appleton et al., 2009).

### 3.3 *The purpose of study two*

In summary, the purpose of the current study was to examine whether different coping tendencies partially mediate the relationship between self-oriented and socially prescribed dimensions of perfectionism and burnout in junior athletes. Congruent with the partial mediation model proposed by Dunkley

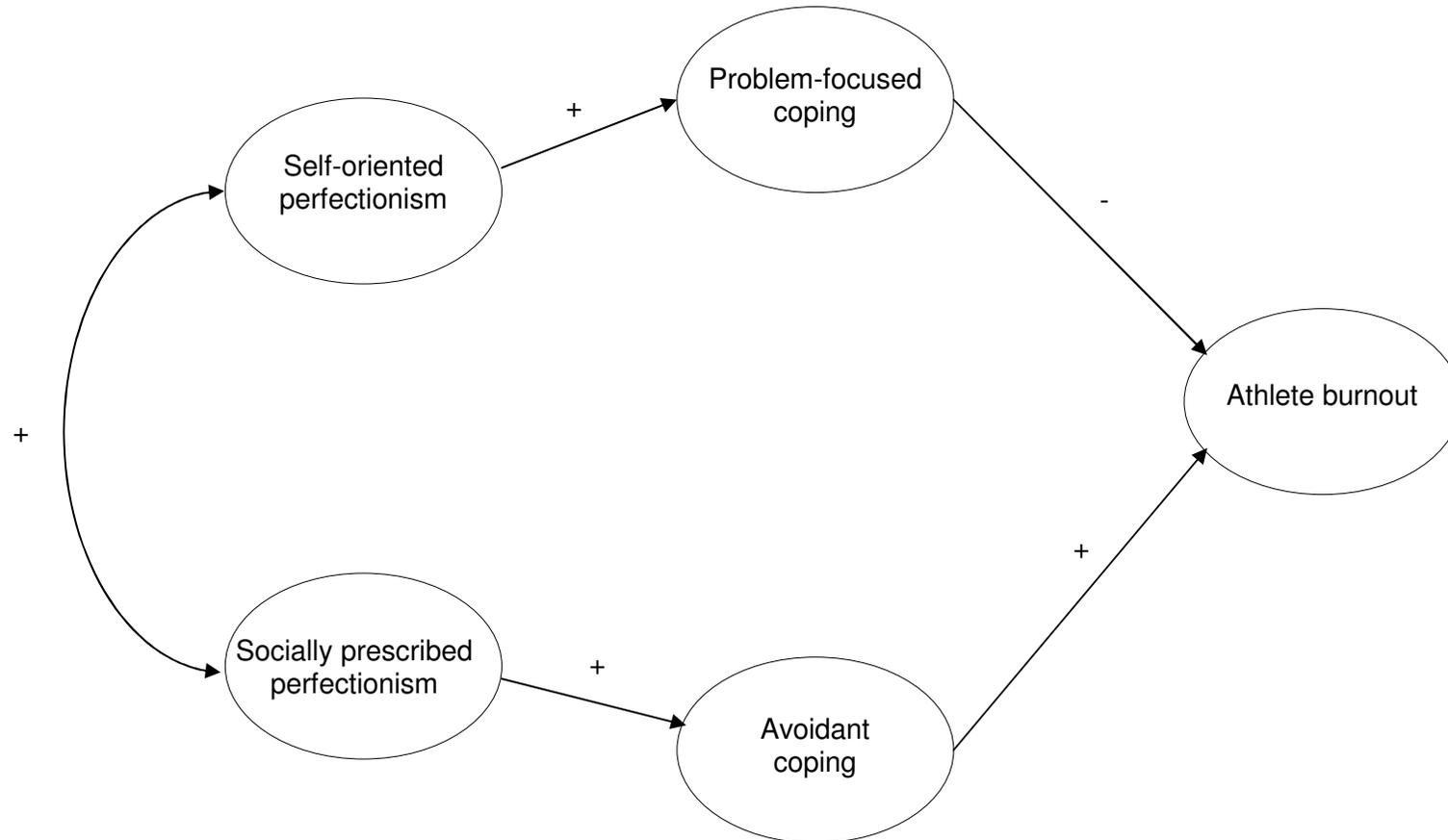
and colleagues (Dunkley & Blankstein, 2000; Dunkley et al., 2000; Dunkley et al., 2003), it was hypothesised that socially prescribed perfectionism will have a positive direct relationship with athlete burnout and a positive indirect relationship with athlete burnout. The indirect relationship will indicate that the higher the level of socially prescribed perfectionism the more avoidant coping would be typically utilised and the higher the subsequent level of burnout. It was further proposed that self-oriented perfectionism will have an inverse direct relationship with athlete burnout and an inverse indirect relationship with athlete burnout. The indirect relationship will indicate that the higher the level of self-oriented perfectionism the more problem-focused coping would typically be utilised and the lower the subsequent level of burnout. The hypothesised partial mediation model would be supported if the direct relationship between perfectionism and burnout is reduced but remains significant after controlling for coping tendencies. The hypothesised structural relations between dimensions of perfectionism, coping tendencies and athlete burnout are depicted in Figure 1.

### 3.4 *Method*

#### 3.4.1 *Participants*

Two-hundred and six junior athletes (97 males, 109 females;  $M$  age = 15.15 years,  $SD$  = 1.88 years, range = 11 to 22 years) were recruited based on their participation in county, regional and national athletics competitions ( $n$  = 12 judo,  $n$  = 81 swimming,  $n$  = 73 track athletics,  $n$  = 38 field athletics,  $n$  = 2 non-respondents). The sample included athletes that represented their sport at club ( $n$  = 42), regional ( $n$  = 116) and national level ( $n$  = 38). There were 8 non-respondents in terms of competitive level. The sample had, on average, participated in their

Figure 1 *Hypothesised structural equation model: The full mediating influence of problem-focused and avoidant coping on the relationship between self-oriented and socially prescribed perfectionism and athlete burnout.*



sport for 5.96 years ( $SD = 3.31$ ) and reported that in comparison to other activities their participation was considered very important ( $M = 7.81$ ,  $SD = 1.30$ ) on a nine-point Likert scale (1 = *not at all important* to 9 = *extremely important*).

#### 3.4.2 Instruments

*Multidimensional Perfectionism:* Self-oriented (SOP) and socially prescribed perfectionism (SPP) were assessed using Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (MPS). See chapter two for a discussion of this measure.

*Coping.* The modified COPE (MCOPE) scale was used to assess coping tendencies (Crocker & Graham, 1995). The scale measures self-regulatory coping strategies in the context of sport (see Carver et al., 1989). These include planning, active coping, suppression of competing activities, seeking instrumental social support, seeking emotional social support, increasing effort, denial, venting of emotion, denial, behavioural disengagement, humour, wishful thinking, and self-blame. Each subscale contains four items that assess each coping strategy. For each item individuals respond on a five-point Likert scale to indicate the degree to which they use these strategies (1 = *used not at all/very little* to 5 = *used very much*). Previous research has supported the scale's psychometric properties (e.g., Crocker & Graham, 1995) and its validity as a measure of coping amongst athletes (e.g., Gould, Finch, & Jackson, 1993). The scale was selected to mirror the use of the MCOPE scale by Gould et al. (1996) when examining the burnout in junior tennis players and the COPE scale by Dunkley and colleagues when examining the relationship between perfectionism and psychological distress (Dunkley et al., 2000; Dunkley et al., 2003). Rather than including all subscales,

coping strategies were selected from the MCOPE scale that corresponded with those used by Dunkley and colleagues to represent problem-focused coping (planning, active coping, and suppression of competing activities) and avoidant coping (denial and behavioural disengagement) as latent factors. Previous research has provided evidence to support the reliability of these two coping latent factors (see measurement models in Dunkley et al., 2000; Dunkley et al., 2003). The original stem of the MCOPE asked athletes to describe a recent stressful performance situation and recall the manner in which they coped (“For each item, indicate how much you used each strategy during the stressful performance situation”). As burnout is presumed to develop as a consequence of chronic stress over time, the stem of the instrument was adapted to assess how athletes typically responded to the experience of stress when competing and practicing their sport.

*Athlete Burnout.* Athlete burnout was assessed using Raedeke and Smith’s (2001) Athlete Burnout Questionnaire. This scale measures athlete burnout across three subscales; a reduced sense of athletic accomplishment (e.g. “I am not performing up to my ability in my sport.”), perceived emotional and physical exhaustion (e.g. “I am exhausted by the mental and physical demands of my sport.”), and sport devaluation (e.g. “I don’t care as much about my sport performance as I used to.”). Each subscale contains 5-items and is scored on a five-point Likert scale (1 = *almost never* to 5 = *almost always*). Raedeke and Smith (2001) have provided evidence to support the validity and reliability of measurement associated with the scale. As in study one and other research (e.g., Hill et al., 2008), athlete burnout was represented as a latent factor manifested through its three burnout symptoms. An athlete burnout latent factor has

demonstrated sufficient composite reliability ( $\rho_c > .70$ ; Hair et al., 2009) in previous research to suggest that this approach is a reliable means of assessing burnout ( $\rho_c = .83$ ; Hill et al., 2008).

### 3.4 *Results*

#### 3.4.1 *Preliminary analysis*

Missing value analysis indicated that the percentage of missing data due to item non-response was extremely low for the overall sample ( $M = 0.60$ ,  $SD = 0.70$ , range = 0 to 2.90%). There were 159 complete cases and 47 incomplete cases. Participants whose percentage of item non-response exceeded 5%, the equivalent of five items, were removed ( $n = 4$ ). None of the remaining participants had missing values for more than three items ( $M = 1.44$ ,  $SD = 0.70$ , range = 1 to 3). Given the low number of missing values, and previous satisfactory internal consistency of the scales (e.g., Hewitt & Flett, 1991; Raedeke & Smith, 2001; Crocker & Graham, 1995), missing values were replaced using the mean of the non-missing items from the subscale in each individual case. Unlike traditional mean substitution, which involves the substitution of the overall variable mean, in the presence of a large number of complete items this technique does not reduce scale variability (Graham et al., 2000). This technique has also been found to perform well in comparison to other missing data procedures (Hawthorne & Elliot, 2004)<sup>2</sup>.

The data was screened for univariate and multivariate outliers using the protocol described by Tabachnick and Fidell (2007). Standardised z-scores were inspected and those larger than 3.29 ( $p < .001$ ) were removed. Cases with a Mahalanobis distance greater than  $\chi^2_{(9)} = 27.88$  ( $p < .001$ ) were also then removed.

This led to the removal of 8 participants. The remaining data ( $n = 198$ ) was considered to be approximately univariate and multivariate normal (absolute skewness  $M = .35$ ,  $SD = .37$ ,  $SE = .17$ , absolute kurtosis  $M = .48$ ,  $SD = .17$ ,  $SE = .34$ , Mahalanobis distance  $M = 9.95$ ,  $SD = 4.49$ , Mardia's normalised multivariate kurtosis = 3.15). The homogeneity of the covariance matrix across gender, age and sport were assessed using three separate Box's M tests. These indicated that the covariance matrix was homogenous across male and female athletes, Box's M (55.00, 117632.16) = 52.07 ( $p > .05$ ), age (below 14yrs, between 15-16yrs, above 16yrs), Box's M (110.00, 55730.18) = 144.94 ( $p > .05$ ), as well as sport, Box's M (165.00, 5620.96) = 198.84 ( $p > .05$ ). Internal reliability analysis (Cronbach's  $\alpha$ ) indicated that the measurement associated with each scale used in the current study demonstrated sufficient internal consistency ( $M = .76$ ,  $SD = .10$ , range .62 to .89).<sup>3</sup>

### 3.5.2 *Descriptive Analyses*

Descriptive statistics are reported in Table 1. The sample reported high levels of self-oriented perfectionism and moderate levels of socially prescribed perfectionism (seven-point Likert scale). The sample reported moderate-to-low levels of burnout symptoms (five-point Likert scale). These mean scores are similar to those reported in study one and in similar samples in other research (see section 2.5.2 for a discussion of this issue). The sample also reported moderate levels of problem-focused coping strategies (planning, active coping, and suppression) and low-to-moderate levels of avoidant coping strategies (denial and behavioural disengagement) (five-point Likert scale).

Table 1 *Descriptive statistics and internal reliability coefficients for perfectionism, coping and athlete burnout*

Variable	Likert scale	<i>M</i>	<i>SD</i>	$\alpha$
Self-oriented perfectionism	1-7	4.75	0.88	.85
Socially prescribed perfectionism	1-7	3.45	0.75	.78
Planning	1-5	3.39	0.86	.74
Active coping	1-5	3.71	0.66	.62
Suppression	1-5	3.15	0.79	.66
Behavioural disengagement	1-5	1.75	0.80	.75
Denial	1-5	2.24	0.76	.63
Reduced athletic accomplishment	1-5	2.29	0.74	.74
Physical and emotional exhaustion	1-5	2.33	0.92	.89
Devaluation	1-5	1.92	0.92	.87

### 3.5.3 *Structural equation modeling*

Prior to assessing the structural relationships, confirmatory factor analysis was used to assess the fit of the measurement model (Anderson & Gerbing, 1988). The model included five inter-related latent factors (self-oriented perfectionism, socially prescribed perfectionism, problem-focused coping, avoidant coping and athlete burnout). Each dimension of perfectionism was represented using three parcels constructed using item means, variances and inter-item correlations (Landis, Beal, & Tesluk, 2000)<sup>4</sup>. Parcelling is a common practice in structural equation modeling and involves using composite scores derived from multiple individual scale items (Landis et al., 2000). The technique has a number of proposed advantages that include higher sample-size-to-estimated-paths ratios, increased reliability of manifest indicators and less violation of normality assumptions (Bandalos & Finney, 2001). As stated previously, planning, active coping and suppression were used as indicators of problem-focused coping, behavioural disengagement and denial were used as indicators of avoidant coping, and the three symptoms of burnout were used as indicators of athlete burnout.

#### 3.5.3.1 *Assessment of measurement model*

Prior to examining the hypothesised structural relationships, the measurement model was assessed. The measurement model was considered to provide acceptable fit in comparison to criteria used to indicate reasonable fit (CFI and NNFI >.90, RMSEA < .10, SRMR <.10,  $\chi^2/df < 3$ ; Hu & Bentler, 1995; Jöreskog & Sorbom, 1993; Marsh, 2007). Fit indices are displayed in Table 2. Each latent factor also displayed sufficient composite reliability (> .70; Hair et al.,

2009). Factor loadings and composite reliability for each latent factor are presented in Table 3.

#### 3.5.3.2 *Error-free correlations*

Correlations corrected for measurement error between latent factors are displayed in Table 4. These indicated that self-oriented perfectionism was inversely related to athlete burnout, while socially prescribed perfectionism was positively related to athlete burnout. Examination of the relationship between dimensions of perfectionism and coping strategies indicated that self-oriented perfectionism was positively related to problem-focused coping and inversely related to avoidant coping. In contrast, socially prescribed perfectionism was positively associated with avoidant and unrelated to problem-focused coping. Finally, problem-focused coping was inversely related to athlete burnout, while avoidant coping was positively related to athlete burnout.

#### 3.5.3.3 *Structural relationships between latent factors*

Next, structural equation modeling (AMOS 6.0.1 Arbuckle, 2006) with maximum likelihood estimation was used to examine the proposed structural relationships between dimensions of perfectionism, coping and athlete burnout. Fit indices are displayed in Table 2. The hypothesised model stipulated that socially prescribed perfectionism would have a positive direct relationship with athlete burnout and a positive indirect relationship with athlete burnout via avoidant coping. In addition, self-oriented perfectionism would have an inverse direct relationship with athlete burnout and an inverse indirect relationship with athlete burnout via problem-focused coping<sup>5</sup>. The fit of the hypothesised model (M1) did not meet the criteria for reasonable fit. Consequently, based on

Table 2 Assessment of fit of measurement and structural models

	$\chi^2$	df	$\chi^2/df$	CFI	NNFI	SRMR	RMSEA (90% CI)	$\Delta\chi^2$ (df)
Measurement model	158.18	67	2.36	.91	.88	.08	.08 (.07 to .10)	
M1: Hypothesised model	192.60	69	2.79	.88	.85	.11	.10 (.08 to .11)	
M2: Revised model	161.17	68	2.37	.91	.88	.09	.08 (.07 to .10)	M1 vs. M2 = <sub>(1)</sub> 31.43***
Test of mediation								
M3: Absence of mediators	78.88	24	3.29	.91	.86	.09	.11 (.08 to .14)	
M4: Full model- Full mediation	161.87	70	2.31	.91	.89	.09	.08 (.07 to .10)	
M5: Full model- Partial mediation	161.17	68	2.37	.91	.88	.09	.08 (.07 to .10)	M4 vs. M5 = <sub>(2)</sub> 0.70

\*  $p < .05$

\*\*  $p < .01$

Table 3 *Standardised factor loadings for the measurement model*

Latent factor and indicators	Unstandardised	SE	Standardized
Self-oriented perfectionism			
Item parcel one	1.00 <sup>a</sup>		.86
Item parcel two	.94	0.08	.81
Item parcel three	.83	0.09	.68
Socially prescribed perfectionism			
Item parcel one	1.00 <sup>a</sup>		.86
Item parcel two	0.52	0.10	.55
Item parcel three	0.58	0.09	.64
Problem-focused coping			
Planning	1.00 <sup>a</sup>		.79
Active coping	0.74	0.08	.76
Suppression	0.77	0.09	.66
Avoidant coping			
Behavioural disengagement	1.00 <sup>a</sup>		.97
Denial	0.62	0.08	.63
Athlete burnout			
Reduced athletic accomplishment	1.00 <sup>a</sup>		.65
Physical and emotional exhaustion	1.00	0.15	.52
Devaluation	1.80	0.20	.93

*Note.* <sup>a</sup> Unstandardized factor loadings fixed at 1.00 at the initial step of model estimation.

Composite reliability coefficients ( $\rho_c$ ) = Self-oriented perfectionism (.84), Socially prescribed perfectionism (.73), Problem-focused coping (.78), Avoidant coping (.79), and Athlete burnout (.75).

Table 4 *Error free correlation coefficients between latent factors in measurement model*

	1	2	3	4
1. Self-oriented perfectionism				
2. Socially prescribed perfectionism	.37**			
3. Problem-focused coping	.62**	.09		
4. Avoidant coping	-.32*	.25**	-.23**	
5. Athlete burnout	-.35**	.20**	-.38**	.73**

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

Table 5 *Decomposed effects, standard errors and 95% confidence intervals for the effect of self-oriented and socially prescribed perfectionism on athlete burnout*

Effect	Standardised estimate	Unstandardised estimate	SE	95% Confidence interval
<b>Total indirect effects</b>				
SOP-BO	-.46**	-.45	.09	-.62 to -.33
SPP-BO	.29*	.24	.09	.10 to .39
<b>Specific indirect effects</b>				
SOP-problem-focused coping-BO	-.13*	-.13	.05	-.22 to -.04
SOP-avoidant coping-BO	-.33**	-.32	.07	-.46 to -.18
SPP-avoidant coping-BO	.29*	.24	.08	.09 to .39

*Note.* Standard errors and 95% confidence intervals are based on unstandardized path coefficients. SOP = self-oriented perfectionism, SPP = socially prescribed perfectionism, and BO = athlete burnout.

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

modification indices for the structural relationships (M.I estimated  $\Delta\chi^2 = 23.64$ ), an additional pathway from self-oriented perfectionism to avoidant coping was added (M2). A chi-square difference test indicated that this model provided a statistically significant improvement in fit in comparison to the original model:  $\Delta\chi^2(1) = 31.43$  ( $p < .05$ ). Although not originally hypothesised, this revision was considered justifiable as it is possible that the preference for problem-focused coping associated with self-oriented perfectionism may oppose the use of avoidant coping strategies. The possibility that socially prescribed perfectionism was negatively related to problem-focused coping in a similar manner was also examined. However, this pathway was not statistically significant ( $\beta = -.15$ ,  $p > .05$ ). Modification indices indicated that no other additional pathways would improve model fit significantly and were therefore not considered.

The mediational pathways in this model were then assessed in the same manner as in study one. First, the conditions for mediation were established and then individual mediational pathways were examined (Holmbeck, 1997, 2002; MacKinnon, 2008). For full mediation to be supported a number of conditions must be observed. First, in the absence of the mediating variable, the direct effect of the predictor variables must be statistically significant. Second, the path coefficients between the predictor variable and mediator, and the mediator and outcome variable after controlling for the effect of the predictor, must be statistically significant. Third, following the introduction of the mediator, the direct effect of the predictor on the outcome variable must be reduced to zero and must not significantly improve fit of the model. For partial mediation to be supported following the introduction of the mediator the direct relationship

between the predictor variable and the outcome variable would be reduced but remain statistically significant. The fit indices of models tested in this analysis are displayed in Table 2.

A model with direct pathways from perfectionism to athlete burnout in the absence of the mediating latent coping factors (M3) was first examined. The fit of this model was acceptable and the path coefficients from dimensions of perfectionism to athlete burnout were statistically significant (self-oriented perfectionism  $\beta = -.49$  & socially prescribed perfectionism  $\beta = .39, p < .01$ ). Next, using the structural relations in the revised model, a full mediation model (M4) was compared with a partial mediation model (M5). The full mediation model included only indirect pathways from self-oriented and socially prescribed perfectionism to athlete burnout (self-oriented perfectionism to problem-focused coping to athlete burnout, self-oriented perfectionism to avoidant coping to athlete burnout, and socially prescribed perfectionism to avoidant coping to athlete burnout). The partial mediation model included these pathways and two direct pathways from self-oriented and socially prescribed perfectionism to athlete burnout. Both models provided acceptable fit. However, the two direct pathways in the partial mediation model were not statistically significant (self-oriented perfectionism to athlete burnout  $\beta = -.02$ , socially prescribed perfectionism to athlete burnout  $\beta = .07, p > .05$ ). A chi-square difference test also indicated that there was no statistically significant difference between the fit of the partial and full mediation models:  $\Delta\chi^2(2) = 0.70 (p > .05)$ . Full mediation was therefore supported. The final model is displayed in Figure 2.

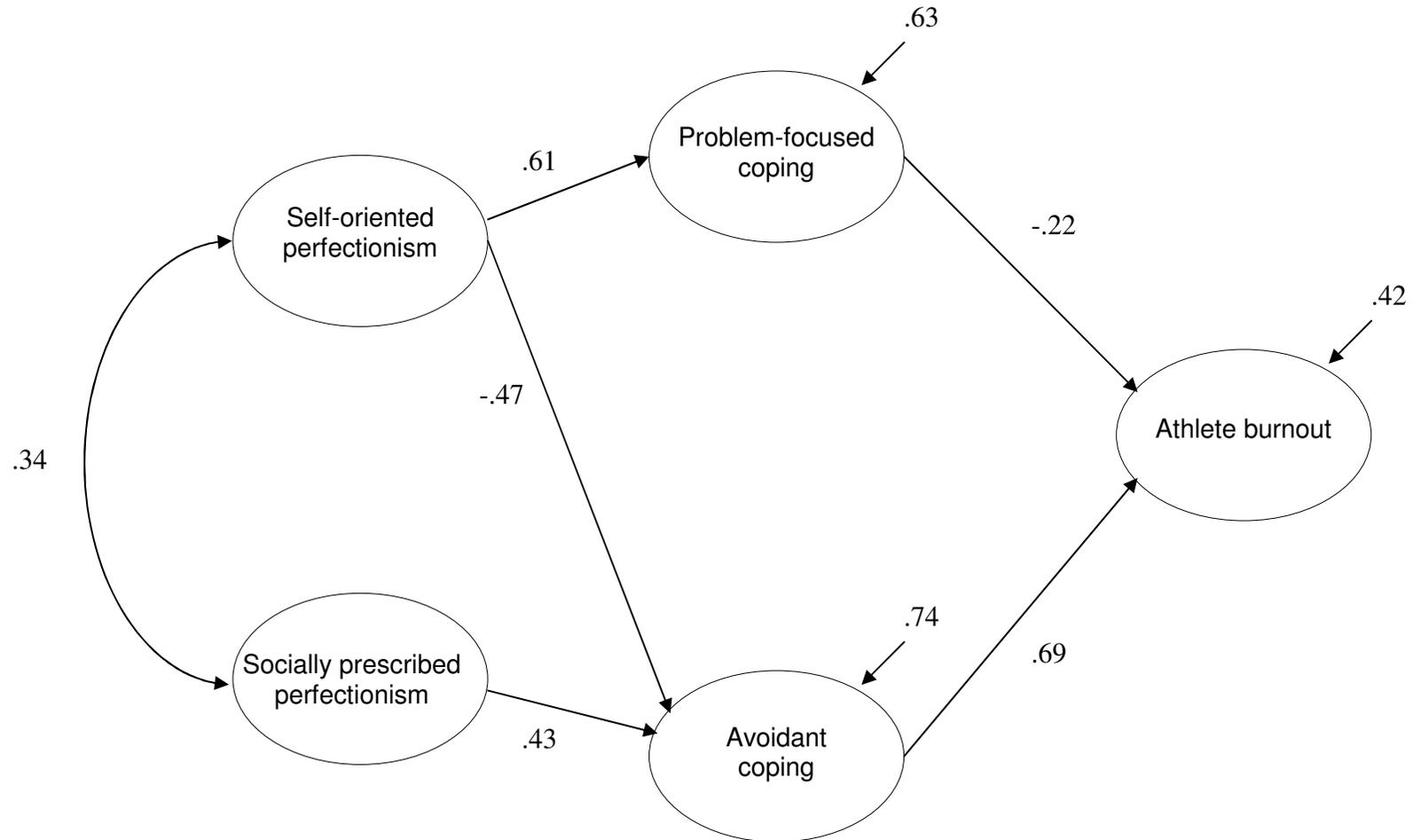
Specific indirect effects and total indirect effects of dimensions of

perfectionism on athlete burnout for the final model are displayed in Table 5. Specific indirect effects are the product of the unstandardised path coefficients in each individual mediational pathway, whereas the total indirect effect is the sum of all specific indirect effects between one exogenous latent factor (e.g., self-oriented perfectionism) and the endogenous latent factor (e.g., athlete burnout) (Preacher & Hayes, 2008). By calculating both specific indirect effects and total indirect effects the magnitude and statistical significance of each individual mediational pathway and the total mediation can be ascertained. Following the recommendations of Shrout and Bolger (2002), approximate standard errors for the total indirect effects and individual path standard errors were estimated using bias-corrected bootstrap analysis (1000 random samples from the observed covariance matrix). The standard errors for specific indirect effects were then estimated using the procedure described by MacKinnon (2008). All specific indirect and total indirect effects were statistically significant ( $p < .05$ ). The final model indicated that dimensions of perfectionism explained 37% and 26% of variance in problem-focused coping and avoidant coping and, in turn, coping explained 58% of variance in athlete burnout.

### 3.6 *Discussion*

The present investigation sought to extend study one and the findings from previous research (e.g., Hill et al., 2008) by examining whether different coping tendencies mediate the relationship between self-oriented and socially prescribed perfectionism and athlete burnout. It was hypothesised that the relationship between self-oriented and socially prescribed dimensions of perfectionism and athlete burnout would be partially mediated by associations with problem-focused

Figure 2 Final structural equation model: The full mediating influence of problem-focused and avoidant coping on the relationship between self-oriented and socially prescribed perfectionism and athlete burnout. The disturbances of two coping factors were free to covary. Standardized parameter estimates and disturbances are displayed. All parameter estimates are significant at  $p < .01$ .



and avoidant coping. Specifically, socially prescribed perfectionism would have a positive direct relationship with athlete burnout and a positive indirect relationship with athlete burnout via a positive relationship with avoidant coping. Further, self-oriented perfectionism would have an inverse direct relationship with athlete burnout and an inverse indirect relationship with athlete burnout via a positive relationship with problem-focused coping.

In partial support of this model the analyses indicated that the relationship between both self-oriented and socially prescribed perfectionism and athlete burnout was fully mediated by problem-focused and avoidant coping tendencies. The relationship between self-oriented perfectionism and athlete burnout was mediated by a positive relationship with problem-focused coping and an inverse relationship with avoidant coping. In contrast, the relationship between socially prescribed perfectionism and athlete burnout was mediated by a positive relationship with avoidant coping only. All specific indirect and total indirect effects were statistically significant. The final model accounted for 37% of variance in problem-focused coping, 26% in avoidant coping, and 58% of variance in athlete burnout.

### 3.6.1 *Socially prescribed perfectionism, coping and athlete burnout*

The finding that the relationship between socially-prescribed perfectionism and burnout was explained by the tendency to employ avoidant coping, and an absence of the use of problem-focused coping, supports and extends previous research (e.g., Dunkley & Blankstein, 2000; Dunkley et al., 2000; Dunkley et al., 2003) in two ways. Firstly, it suggests that the mediating influence of avoidant coping extends beyond the perfectionism-psychological distress relationship

(anxiety, negative affect, anger and depression) to perfectionism-athlete burnout relationship. Secondly, it further demonstrates that dimensions of perfectionism which entail socially prescribed standards are not associated with problem-focused coping (Dunkley et al. 2000; Dunkley et al., 2003). As Dunkley and colleagues (Dunkley et al., 2003) have suggested, socially prescribed perfectionism may be unrelated to problem-focused coping as these coping strategies are considered ineffective. This is because the standards that are believed to be imposed by others are perceived to be uncontrollable and unrealistic. A further explanation is that because problem-focused coping entails reengagement with stressful activities, problem-focused coping also poses a significantly greater risk of future achievement difficulties and negative evaluation by others. Consequently, problem-focused strategies are not considered when coping with achievement stress. The avoidant coping tendencies that are used may have the potential to reduce the experience of stress in the short term but by not making any direct attempt to overcome stressors these strategies may undermine future coping efforts (Ntoumanis, Biddle, & Haddock, 1999; Carver et al., 1989). In this sense, the coping tendencies associated with this dimension of perfectionism do little to alleviate the stress that accompanies a belief that achievement is necessary for the approval of others. Based on current understanding of the burnout process, overtime the accrual of such stress may lead to higher levels of burnout symptoms in athletes.

### 3.6.2 *Self-oriented perfectionism, coping and athlete burnout*

In contrast to the solely avoidant coping tendencies that mediated the socially prescribed perfectionism-burnout relationship, the relationship between

self-oriented perfectionism and athlete burnout was explained by both problem-focused and avoidant coping tendencies. As hypothesised, problem-focused coping was a significant mediator of the inverse relationship between this dimension of perfectionism and athlete burnout. Utilizing problem-focused coping may lead to lower levels of burnout directly by reducing stress associated with perfectionistic self-demands (Flett & Hewitt, 2006), as well as indirectly by increasing goal attainment (Gaudreau & Antl, 2008; Gaudreau & Blondin, 2001). Contrary to the hypotheses, however, the model also suggests that avoidant-coping is a significant mediator of the self-oriented perfectionism-burnout relationship. Moreover, the specific indirect effects indicate that it is the tendency to spurn the use of avoidant coping, rather than the use of problem-focused coping, that is the largest contributor to the inverse relationship between self-oriented perfectionism and athlete burnout. Previous research has not found an association between dimensions of perfectionism that include self-oriented perfectionism and avoidant coping (Dunkley et al., 2003; Dunkley et al., 2000; Gaudreau & Antl, 2008).

There are a number of possible explanations for this discrepancy. For example, there may be conceptual differences between self-oriented perfectionism and the personal standards perfectionism latent factor used by Dunkley and colleagues which also encompasses other-oriented perfectionism and personal standards in addition to self-oriented perfectionism as its indicators. Alternatively, this finding may simply reflect the inverse relationship between the sense of control and coping efficacy associated with internal standards and the belief that one is unable to implement effective action which underpins avoidant coping

(Flett et al., 1991; Ntoumanis et al., 1999). It is currently, unclear which explanation is most plausible. These possibilities remain important considerations for future research examining the relationship between perfectionism and coping.

Also contrary to the hypotheses, full mediation rather than partial mediation was supported for both self-oriented and socially prescribed perfectionism. This is surprising because previous research has found that coping is only one of a number of mediating factors in the relationship between perfectionism and psychological distress. Others include perceived social support, hassles, and stress. Moreover, these mediating variables are considered to be involved in the burnout process (e.g., Raedeke & Smith, 2004) and should therefore be important adjuncts to the model. It may be that full mediation was observed in the current investigation because coping is an especially influential variable in the burnout process; however, until research examining the relative contribution of these mediating variables this is unclear.

### 3.7 *Conclusion*

The findings of the current study suggest that coping tendencies explain the positive direct relationship between socially prescribed perfectionism and athlete burnout and the inverse direct relationship between self-oriented perfectionism and athlete burnout observed in study one and elsewhere (Hill et al., 2008). Differences in terms of regulatory mechanisms (validation and growth-seeking) and the manner in which athletes typically cope with the stress that arises as a consequence of perfectionist standards are clearly central to understanding the divergent relationship between these dimensions of perfectionism and athlete burnout. Socially prescribed perfectionism encourages coping tendencies that are

likely to exacerbate the stress associated with pursuing perfectionistic standards, whereas self-oriented perfectionism encourages coping tendencies that are likely to ameliorate stress. Moreover, the positive direct relationship between self-oriented perfectionism and athlete burnout observed in study one and Hill et al. (2008) is attributable to the coping tendencies associated with this dimension of perfectionism. However, rather than coping merely offsetting the negative consequences self-oriented perfectionism, the findings of studies one and two can also be interpreted in a manner that suggests self-oriented perfectionism may be primarily adaptive for athletes. Specifically, while Flett and Hewitt (2005, 2006) have maintained that self-oriented perfectionism inevitably leads to psychological difficulties, the findings of study one and two found minimal evidence to support this contention. In both studies self-oriented perfectionism was inversely related to athlete burnout via direct or indirect pathways. However, it is also possible that growth-seeking and the tendency to utilise problem-focused coping and eschew avoidant coping are qualities that are likely to contribute to a number of positive outcomes beyond increased resiliency to athlete burnout (see Hoar et al., 2006, and Dykman, 1998). Consequently, to examine the contentions of Flett and Hewitt (2005, 2006), study three sought to identify the core features of self-oriented perfectionism, elements that may lead to debilitating consequences, and the differences between this dimension of perfectionism and conscientious achievement striving.

#### Endnotes

<sup>1</sup> The word seldom was replaced with rarely in item 12 (original MPS).

<sup>2</sup> For comparative purposes, the primary analysis was also conducted using just complete cases (Tabachnick & Fidell, 2007). The minimal impact of the imputation strategy is illustrated by model invariance across the two groups: Baseline invariance model  $\chi^2 (141) = 325.96, \chi^2/df = 2.31, SRMS = .09, CFI = .91, NNFI = .88, RMSEA = .06, 90\% CI = .05 \text{ to } .07$  and Equality constrained model:  $\chi^2 (142) = 326.05, \chi^2/df = 2.30, SRMS = .09, CFI = .91, NNFI = .88, RMSEA = .06, 90\% CI = .05 \text{ to } .07: \Delta\chi^2 (1) = 0.09, p > .05$ .

<sup>3</sup> When conducting the internal consistency analyses (Cronbach's  $\alpha$ ), a criterion of .60 was used to indicate sufficient internal consistency with scales less than 5 items and .70 for scales with more items (Loewenthal, 2001).

<sup>4</sup> The three parcels for self-oriented perfectionism contained items 1, 6, 17, 18, 36 (parcel one  $\alpha = .67$ ), 14, 12, 20, 32, 40 (parcel two  $\alpha = .66$ ), and 8, 15, 23, 34, 42 (parcel three  $\alpha = .66$ ). The three parcels for socially prescribed perfectionism contained items 18, 33, 35, 39 (parcel one  $\alpha = .78$ ), 9, 13, 21, 30 (parcel two  $\alpha = .61$ ), and 5, 11, 25, 31, 41 (parcel three  $\alpha = .63$ ). To ensure sufficient internal consistency, two items were excluded from the socially prescribed perfectionism parcels (37 and 44 in the original MPS).

<sup>5</sup> Residual terms of the mediators were permitted to covary in all models assessing structural relationships (see Preacher & Hayes, 2008).

Chapter Four: A comparative examination of the correlates of self-oriented perfectionism and conscientious achievement striving in cricket academy players

“I complete each session with six kicks at goal from different positions. I have to make every one before I can go home. If I don’t, the sequence starts again. My conscience doesn’t allow me to stop before the set is complete. My record, and it is not one I’m particularly proud of, stands at five hours, set when I was seventeen.”

*Jonny Wilkinson*

The findings of studies one and two were consistent with the notion that socially prescribed perfectionism is likely to be principally debilitating for athletes. However, these studies provided little evidence to support the contention that self-oriented perfectionism will lead to psychological or motivational difficulties for athletes. On the contrary, studies one and two indicated that self-oriented perfectionism entails a number of positive qualities (growth-seeking and problem-focused coping) that may contribute to adaptive consequences. In this chapter research is reviewed that has debated the nature of self-oriented perfectionism (e.g., Flett & Hewitt, 2006; Slade & Owens, 1998). Consistent with the arguments provided by Flett and Hewitt (2005, 2006, 2007), it is argued that while this dimension of perfectionism may share some similarities with

conscientious achievement striving, it is also likely to entail less adaptive motives and goals that may underpin a number of negative consequences for athletes. The purpose of study three was to examine the contentions of Flett and Hewitt (2005, 2006, 2007) by identifying the core features of self-oriented perfectionism, elements that may lead to debilitating consequences, and the differences between this dimension of perfectionism and conscientious achievement striving. The similarities and differences between self-oriented perfectionism and conscientious achievement striving are first discussed. This is followed by an empirical examination of the relationship between self-oriented perfectionism and conscientious achievement striving with variables that constitute the nomological network of perfectionism.

#### 4.1 *Is self-oriented perfectionism adaptive achievement striving?*

Flett and Hewitt (2006, 2007; Hewitt & Flett, 2002) have argued that because a core characteristic of self-oriented perfectionism is the pursuit of exceedingly high personal standards, it is often mislabeled as a dimension of positive perfectionism. Flett and Hewitt do not define self-oriented perfectionism as adaptive achievement striving, but suggest that it is characterised by compulsive striving for perfection and self-improvement and the tendency to respond to substandard performance with self-criticism. Moreover, although the endorsement of perfectionistic standards carries the potential for high levels of achievement behaviour, it also corresponds with the experience of psychological difficulties. In accord, Flett, Hewitt and colleagues (Besser et al., 2004; Flett et al., 2003) have found that while this dimension of perfectionism may energise achievement striving and may contribute to positive outcomes, it will eventually

lead to distress, psychological maladjustment and motivational deficits. Recently, however, research aimed at classifying perfectionism dimensions using factor analytical strategies has challenged arguments made by Flett and Hewitt. The findings of this research suggest that because self-oriented perfectionism has been found to be associated with many predominantly adaptive qualities, it may be better considered a component of adaptive achievement striving (e.g., Bieling et al., 2004; Enns et al., 2002; Frost et al., 1993; Slade & Owens, 1998).

Some of those who have suggested that self-oriented perfectionism represents an adaptive dimension of striving have emphasised the similarities between the pursuit of high personal standards associated with this dimension of perfectionism and conscientiousness (see Hill, McIntire, & Bacharach, 1997; Cox et al., 2002; Slade & Owens, 1998). Conscientiousness is a broad personality factor characterised by the purposeful and determined pursuit of personal goals (Costa & McCrae, 1992). Conscientiousness entails a number of facets that include a sense of competence, self-deliberation, self-discipline, dutifulness, orderliness, and high levels of achievement striving. It is considered, therefore, to be reflective of a healthy commitment to high personal standards (Costa & McCrae, 1992). Self-oriented perfectionism and conscientiousness clearly share a number of characteristics. In particular, both are likely to engender a commitment to high standards and lead to the ordered and tenacious pursuit of personal goals. In some instances, therefore, it may be difficult to distinguish between these two achievement related personality dispositions.

The findings of research which has examined the relationship between self-oriented perfectionism and conscientiousness suggest that the two constructs

are typically moderately to highly positively correlated, particularly the achievement striving facet of conscientiousness (see Dunkley, Blankstein, Zuroff, Lecce, & Hui, 2006; Dunkley & Kyparissis, 2008; Cox et al., 2002; Enns et al., 2001; Flett, Russo, & Hewitt, 1994; Hill, et al. 1997; Rice, Ashby, & Slaney, 2007). Stoeber, Otto and Dalbert (2009) have also recently found that conscientiousness predicts an increase in self-oriented perfectionism over time. However, according to Flett and Hewitt (2006; Hewitt & Flett, 2002) self-oriented perfectionism entails a characteristically more extreme form of striving that is underpinned by a complex set of achievement related beliefs and a combination of goals not associated with conscientiousness, and it is these which may ultimately lead to debilitating consequences. These include simultaneous approach and avoidance tendencies (see Kaye et al., 2008; Speirs Neumeister & Finch, 2006; Van Yperen, 2006) and both intrinsic and extrinsic forms of motivational regulation (see Mills & Blankstein, 2000; Miquelon et al., 2005). Furthermore, because perceived achievement is necessary for feelings of acceptance in those with higher levels of self-oriented perfectionism, this characteristic is associated with a vulnerability to distress in the absence of positive achievement experiences (see Flett, et al., 2003; Hill et al., 2008). This pattern is not typically associated with conscientiousness. Consequently, the forms of achievement striving associated with self-oriented perfectionism and conscientiousness ought to be considered as distinct (Flett & Hewitt, 2006, 2007; Hewitt & Flett, 2002).

This distinction is further illustrated by the research of Campbell and Di Paula (2002) who have argued that self-oriented perfectionism may be subdivided into motivational and evaluative self-beliefs. The first reflects the perception that

one actively strives for perfection (perfectionistic striving facet) and the second reflects the belief that it is important to be perfect (importance of being perfect facet). Both of these facets are positively related to conscientiousness; however, these facets can be distinguished in terms of their relationship with self-esteem, positive affect, negative affect, self-concept clarity, and goal instability (Campbell & Di Paula, 2002; Stoeber, Kempe, & Keogh, 2008; Van Yperen, 2006). Moreover, research suggests that while the perfectionistic striving facet is responsible for the effortful pursuit of personal goals, the importance of being perfect facet is responsible for shame and guilt experienced following failure (Campbell & Di Paula, 2002; Stoeber, Kempe, & Keogh, 2008). Consequently, when considering why self-oriented perfectionism may lead to psychological and motivation difficulties uncharacteristic of conscientiousness, the importance of being perfect facet may be particularly important distinguishing feature.

#### 4.2 *The purpose of study three*

Flett and Hewitt (2006) have argued that a comparative analysis of conscientiousness and self-oriented perfectionism would provide much needed insight into the conceptual and empirical differences between the achievement striving associated with these two personality factors. Within the context of this thesis, a comparative examination of conscientiousness achievement striving and self-oriented perfectionism will provide an initial indication of whether the inverse relationship between this dimension of perfectionism and burnout observed in study one and two is a consequence of the adaptive achievement striving reflected in self-oriented perfectionism. Therefore, the first purpose of the current study is to compare the relationship between self-oriented perfectionism,

conscientious achievement striving and a number of dimensions of other typically assessed aspects of perfectionism that reflect its nomological network. Consistent with the arguments of Flett and Hewitt (2006), it is hypothesised that self-oriented perfectionism and conscientious achievement striving would demonstrate a strong positive association in a sample of elite junior athletes. It was also hypothesised that the two constructs would display a divergent relationship with core qualities of perfectionism. That is, conscientious achievement striving will be associated with the setting of high standards and perfectionistic striving but will not be associated with the more negative features of perfectionism such as fear of failure, concern over mistakes, doubts about action, self-criticism, and negative reactions to imperfection. In contrast, self-oriented perfectionism will be associated with both adaptive and maladaptive facets of perfectionism and confirm the views of Flett and Hewitt (2006) that self-oriented perfectionism is a dimension of overstriving that goes beyond conscientiousness. As there is sufficient theoretical and empirical evidence to suggest that self-oriented perfectionism entails more than an endorsement of the high aspirations, diligence and desire for success associated with conscientiousness (see Flett & Hewitt, 2006), it is further hypothesised that self-oriented perfectionism will retain its relationship with personal standards and perfectionistic striving when its association with conscientiousness achievement striving is statistically controlled. Finally, because Campbell and Di Paula (2002) have demonstrated that the importance of being perfect facet of self-oriented perfectionism may be responsible for its negative consequences, it was hypothesised that the relationship between self-oriented perfectionism and negative dimensions of perfectionism (fear of failure, concern

over mistakes, doubts about action, self-criticism, and negative reactions to imperfection) would decrease significantly when the importance of being perfect facet is statistically controlled.

### 4.3 *Method*

#### 4.3.1 *Participants*

A sample comprising 256 junior cricketers (255 males, 1 female; age  $M = 15.54$   $SD = 1.71$ ) was recruited from a number of British county cricket academies. Immediately following a preseason training session, athletes completed a multi-section questionnaire that included the instruments described below. Informed consent was gained from each participant or parent/guardian when appropriate. The athletes reported that they had been affiliated with the cricket academy for an average of 4.17 years ( $SD = 2.35$ ) and had trained for an average of 6.77 hours per week ( $SD = 5.66$ ). They also indicated that in comparison to other activities in their lives, their participation in cricket was considered very important ( $M = 8.05$ ,  $SD = 1.04$  on a nine-point Likert scale 1 = *not at all Important* to 9 = *extremely important*).

#### 4.3.2 *Instruments*

*Self-oriented perfectionism.* Self-oriented perfectionism was assessed using Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (HMPS). The stem of the instrument was adapted to focus the athletes on their participation in sport ("Listed below are a number of statements concerning the way some people feel about their participation when they are practicing or playing their sport."). As discussed previously, responses to the Self-Oriented Perfectionism subscale reflect self-directed perfectionistic cognition and behaviours such as the

pursuit of exceedingly high standards and stringent self-evaluation (e.g. “I must always be successful in activities that are important to me.” “I demand nothing less than perfection of myself.”). The subscale has 15-items and responses are measured on a seven-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). The findings of research which has examined the psychometric properties of the subscale have supported the validity and reliability of measure ( $\alpha = .89$  and test-retest reliability  $r = .88$ ; Hewitt & Flett, 1991, 2004). Two discrete composite scores were also calculated from the H-MPS based on Campbell and Di Paula’s suggestions. Perfectionistic Striving (SOP-PS) and the Importance of Being Perfect (SOP-IBP) each comprise 5-items (SOP-PS “I strive to be as perfect as I can be.”; SOP-IBP “It is very important that I am perfect in everything I attempt.”). In previous research, these subscales have demonstrated acceptable levels of internal consistency in student samples (SOP-PS  $\alpha = .78$  and SOP-IBP  $\alpha = .87$ ; Stoeber, Kempe, & Keogh, 2008; Van Yperen, 2006).

*Conscientious achievement striving.* Conscientious achievement striving was assessed using the Achievement Striving subscale (C-AS) of Costa and McCrae’s (1992) Revised NEO Personality Inventory (NEO-PI-R). This subscale reflects high aspirations, diligence and a desire for success (e.g. “I strive to achieve all I can.” “I strive for excellence in everything I do.”). Of the conscientiousness subscales on the NEO-PI-R this scale was considered to be the closest measure of the positive achievement behaviours associated with self-oriented perfectionism (see Stoeber & Kersting, 2007). The subscale contains 8-items and is scored on a five-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). Findings from research that has examined the psychometric

properties of this subscale supports both the validity and reliability of the measure ( $\alpha = .67$ ; Costa & McCrae, 1992).

*Multidimensional perfectionism.* Three subscales from Frost et al.'s (1990) Multidimensional Perfectionism Scale (FMPS) were used to assess three core dimensions of perfectionism. The Pursuit of High Personal Standards (PS) subscale reflects the setting of exceedingly high standards and their importance for self evaluation ("It is important to me that I be thoroughly competent in everything I do." "I set higher goals than most people." 7-items). The Concern Over Mistakes (CM) subscale reflects negative reactions to mistakes, a tendency to interpret mistakes as failure, and the belief that others will withdraw respect following failure ("People will probably think less of me if I make a mistake." "The fewer mistakes I make, the more people will like me." 9-items). The Doubts About Actions (DA) subscale reflects a vague sense of doubt about the ability to fulfil the requirements of tasks completely ("Even when I do something very carefully, I often feel that it is not quite right." "It takes me a long time to do something 'right'." 4-items). Three other subscales that measure the need for organisation, parental criticism and parental expectations were excluded from this investigation because questions remain regarding whether these dimensions capture the central features of the perfectionism construct (see Stoeber & Otto, 2006). Participants were instructed to focus on their participation in sport and they responded to the items on a five-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). Initial examination of the psychometric properties of these subscales support their validity and reliability (PS  $\alpha = .83$ , CM  $\alpha = .88$ , and DA  $\alpha = .77$ ; Frost et al., 1990).

*Multidimensional inventory for perfectionism for sport.* Two further measures of perfectionism were assessed using the Multidimensional Inventory of Perfectionism in Sport (MIPS; Stöber et al., 2004). The instrument contains two subscales; Striving for Perfectionism (SP) and Negative Reactions to Imperfection (NRI). The Striving for Perfection subscale differs conceptually from the Personal Standards subscale of Frost et al. (1991) in that athletes responses reflect the pursuit of perfection rather than the pursuit of high standards (“I strive to be as perfect as possible.”). Similarly, the response to the Negative Reactions to Imperfection subscale reflect reactions to falling short of perfectionistic standards rather than reactions to mistake’s per se (“I feel extremely stressed if everything does not go perfectly.”). Participants respond to 5-items for each subscale on a five-point Likert scale (1 = *never* to 5 = *always*). Participants were asked to focus their response on how they feel during competition. Previous research findings indicate that the two subscales are internally consistent in athlete samples (SP  $\alpha = .90$ , NRI  $\alpha = .84$ ; Stoeber et al., 2007).

*Fear of failure.* Fear of failure was included as it is considered a central regulatory feature of perfectionism (Blatt, 1995). To measure fear of failure Conroy, Willow and Metzler’s (2002) short version of the Performance Failure Appraisal Inventory was used. The scale is a measure of cognitive appraisals associated with the fear of failure (“When I am failing I am afraid that I might not have enough talent.”). The scale contains 5-items to which participants respond on a 5-point Likert scale (1 = *do not believe at all* to 5 = *believe 100% of the time*). Initial examination of the psychometric properties of the scale supports the reliability and validity of scales ( $\alpha = .72$ ; Conroy et al., 2002). The short-form of

the scale is also highly correlated with the long-form supporting the concurrent validity of the scale ( $r = .92$ ; Conroy et al., 2002).

*Self-criticism.* A measure of self-criticism was included as it is considered a central feature of self-critical, and motivationally debilitating, dimensions of perfectionism (Dunkley, Zuroff, & Blankstein, 2006). Self-criticism was assessed using the Self-Criticism subscale of the Attitudes Toward Self Scale (ATS; Carver & Ganellen, 1983). Responses to this subscale reflect an intolerance of a discrepancy between attainment and desired standards and the tendency to engage in self-criticism in response (4-items) (“I get unhappy with anything less than what I expected of myself.” “I get angry with myself if my efforts don’t lead to the results I wanted.”). The subscale has 4-items to which participants respond on a five-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). Initial examination of the psychometric properties of the subscale supported its validity and reliability ( $\alpha = .65$ ; Carver & Ganellen, 1983).

#### 4.4 *Results*

##### 4.4.1 *Preliminary analysis*

Participants were removed who did not respond to all the items in the instrument ( $n = 39$ ). The data were then screened for univariate outliers using the protocol described by Tabachnick and Fidell (2007). Standardised z-scores were inspected and those larger than 3.29 ( $p < .001$ , two-tailed) were considered to be univariate outliers and removed. This procedure led to the removal of 3 participants. The remaining data ( $n = 213$ ) were deemed to be approximately univariate normal (absolute skewness  $M = .34$ ,  $SD = 0.23$ ,  $SE = .17$ , absolute kurtosis  $M = 0.24$ ,  $SD = 0.60$ ,  $SE = .33$ ). Internal reliability analyses were

conducted on each scale (Cronbach's  $\alpha$ ) (Table 1). A criterion of .60 was used to determine sufficient internal consistency with scales less than 5 items and .70 for subscales with more items (Loewenthal, 2001). Although the internal reliability of the conscientious achievement striving scale was below .70, this scale has 8 items and the level of internal consistency demonstrated in the current investigation is consistent with its initial validation. Therefore, the internal reliability of this scale was considered acceptable.

#### 4.4.2 *Descriptive Analyses*

Descriptive statistics for all the measured variables are displayed in Table 1. Participants reported moderate to high levels of self-oriented perfectionism (seven-point Likert scale). Moderate levels of conscientious achievement striving and other dimensions of perfectionism were also generally reported (five-point Likert scale). The sample tended to report higher levels of the personal standards and striving dimensions of perfectionism (e.g., personal standards, perfectionistic striving) than the maladaptive dimensions (e.g., concern over mistakes, fear of failure, negative reactions to imperfection). The descriptive statistics of these variables are generally comparable to those reported elsewhere in similar samples (e.g., Hill et al., 2008; Stoeber, Stoll et al., 2008; McArdle & Duda, 2004).

#### 4.4.3 *Bivariate and semi-partial correlations*

The aim of this investigation was to examine the differences between self-oriented perfectionism and conscientious achievement striving in terms of their relationship with core dimensions of perfectionism. To do so, it was first necessary to examine the degree of association between self-oriented perfectionism and conscientious achievement striving. Second, it was necessary to

Table 1 *Descriptive Statistics of Dimensions of Perfectionism, Contentiousness, Fear of Failure and Self-criticism.*

	Likert Scale	<i>M</i>	<i>SD</i>	$\alpha$
1. Self-Oriented Perfectionism	1-7	5.12	0.82	.85
2. SOP-Perfectionistic striving	1-7	5.72	0.86	.68
3. SOP-Importance of Being Perfect	1-7	4.46	1.07	.73
4. Conscientiousness-Achievement Striving	1-5	3.61	0.49	.69
5. FMPS-Personal Standards	1-5	3.48	0.59	.72
6. FMPS-Concern Over Mistakes	1-5	2.50	0.67	.79
7. FMPS-Doubts About Action	1-5	2.75	0.70	.65
8. Fear of Failure	1-5	2.70	0.84	.81
9. Self-Criticism	1-5	2.55	0.77	.79
10. MIPS-Perfectionstic Striving	1-5	4.09	1.00	.87
11. MIPS-Negative Reactions to Imperfection	1-5	3.49	1.07	.85

examine the association between self-oriented perfectionism, conscientious achievement striving and core components of perfectionism that are typically considered adaptive and maladaptive dimensions of the construct. In order to examine these relationships a series of zero-order and semi-partial correlational analyses were undertaken. Table 2 displays the zero-order and semi-partial correlation coefficients between dimensions of perfectionism and conscientious achievement striving.

Zero-order correlations indicate that self-oriented perfectionism displayed a large significant positive relationship with conscientious achievement striving (self-oriented perfectionism  $r = .52$ , self-oriented perfectionism-personal standards  $r = .50$ , self-oriented perfectionism-importance of being perfect  $r = .37$ ,  $ps < .01$ ). As hypothesised, self-oriented perfectionism displayed a pattern of zero-order correlations that included significant positive relationships with both adaptive (personal standards, imperfection). Whereas the associations between self-oriented perfectionism and measures of personal standards and perfectionistic striving were large in magnitude, the relationship between self-oriented perfectionism and maladaptive dimensions of perfectionism were moderate to large (Cohen, 1992). In contrast, conscientious achievement striving demonstrated a more limited relationship with core dimensions of perfectionism. It was positively associated with adaptive dimensions (personal standards, perfectionistic striving) and unrelated to maladaptive dimensions (concern over mistakes, doubts about actions, fear of failure, and negative reactions to imperfection). Unexpectedly, conscientious achievement striving was found to have a small to moderate significant positive relationship with self-criticism. Neither

Table 2 Zero-order Correlation Coefficients and Semi-partial Correlation Coefficients Between Dimensions of Perfectionism, Contentiousness, Fear of Failure and Self-criticism.

	Zero-order Correlations				Semi-partial correlations controlling for C-AS			Semi-partial correlations controlling for SOP-IBP
	SOP	SOP- PS	SOP-IBP	C-AS	SOP	SOP-PS	SOP-IBP	SOP
1. FMPS-PS	.65**	.61**	.52**	.54**	.42**†	.39**†	.35**†	.40**†
2. FMPS-CM	.38**	.15*	.49**	.03	.44**	.14*	.51**	-.08†
3. FMPS-DA	.10	.00	.17**	-.07	.17**	.04	.21**	-.10†
4. Fear of Failure	.20**	.06	.24**	-.10	.31**†	.12	.30**†	-.01†
5. Self-Criticism	.37**	.29**	.33**	.24**	.28**†	.19**†	.26**†	.17**†
6. MIPS-PS	.71**	.51**	.66**	.44**	.56**†	.33**†	.53**†	.27**†
7. MIPS-NRI	.43**	.22**	.47**	.12	.43**	.17**	.46**	.04†

Note: SOP = Self-oriented perfectionism; SOP-PS = Self-oriented perfectionism Perfectionistic striving; SOP-IBP = Self-oriented perfectionism Importance of Being Perfect; C-AS = Conscientiousness achievement striving; FMPS\_PS = Personal standards; FMPS-CM = Concern over mistakes; FMPS-DA = Doubts about Action; MIPS-PS = Perfectionistic Striving; MIPS-NRI = Negative reactions to imperfection.

† denotes a significant difference between semi-partial correlation coefficient and zero-order correlation coefficient derived ( $p < .01$ ).

\*\*  $p < .01$

\*  $p < .05$

conscientious achievement striving or self-oriented perfectionism had significant relationships with doubts about action

To further assess these relationships and examine whether self-oriented perfectionism had a significant association with dimensions of perfectionism beyond variance shared with conscientious achievement striving, semi-partial correlation coefficients were calculated that controlled for the relationship between self-oriented perfectionism and conscientious achievement striving. Assessment of whether differences between semi-partial correlation coefficients and zero-order correlations were statistically significant was then estimated using Hotelling's *t* with Malgady's (1987) modification (see Hittner, Finger, Mancuso, & Silver, 1995). The results of these analyses indicated that the relationship between self-oriented perfectionism, personal standards, perfectionistic striving and self-criticism decreased significantly. There was no significant change in the relationship between self-oriented perfectionism, concern about mistakes, doubts about actions and negative reactions to imperfection. The relationship between self-oriented perfectionism and a fear of failure increase significantly. All semi-partial correlations were statistically significant.

Additional analyses were also undertaken to further examine the potential source of the association between self-oriented perfectionism and dimensions of perfectionism. Semi-partial correlations between self-oriented perfectionism and core dimensions of perfectionism were estimated controlling for the relationship between self-oriented perfectionism and its importance of being perfect facet. The association between self-oriented perfectionism and all dimensions of perfectionism decreased significantly. Self-oriented perfectionism was no longer

significantly related to a fear of failure and negative reactions to imperfection and its relationship with concern over mistakes became negative. The relationship between self-oriented perfectionism, personal standards, doubts about action, self-criticism, and perfectionistic striving were statistically significant. The zero-order and partial-correlation coefficients are displayed in Table 2.

#### 4.5 *Discussion*

The findings of study one and study two found little evidence of the negative consequences of self-oriented perfectionism for athletes. These findings are indicative of a debate regarding self-oriented perfectionism that is similar to the broader debate about the nature of perfectionism. Because self-oriented perfectionism energises the pursuit of high personal standards, and has been found to contribute to various positive outcomes, it may be construed as a positive dimension of perfectionism, similar to conscientious achievement striving (e.g., Bieling et al., 2004; Frost et al., 1990). However, Flett and Hewitt (2006, 2007; Hewitt & Flett, 2002) have argued that there are critical differences between the patterns of achievement behaviour that arise as a consequence of self-oriented perfectionism and those associated with conscientious achievement striving. In order to investigate the theoretical and empirical differences between these two personality characteristics and examine the possibility that the findings of study one and study two are indicative of the adaptive nature of self-oriented perfectionism for athletes, the current study examined the relationship between conscientious achievement striving and self-oriented perfectionism and compared the degree to which both constructs were associated with a number of core dimensions of perfectionism in a sample of elite junior athletes.

#### 4.5.1 *Self-oriented perfectionism and conscientious achievement striving*

Consistent with previous research, it was hypothesised that self-oriented perfectionism and conscientious achievement striving would demonstrate a large positive relationship. Based on the arguments of Flett and Hewitt (2006), it was further hypothesised that the association between conscientious achievement striving and core dimensions of perfectionism would be limited to dimensions of perfectionism that reflect adaptive motivational qualities (i.e., the pursuit of high standards and striving for perfection). Self-oriented perfectionism, on the other hand, was hypothesised to be associated with a broad array of core perfectionism dimensions that include both adaptive and maladaptive dimensions. Finally, it was also hypothesised that the strength of association between self-oriented perfectionism and the pursuit of exceedingly high personal standards and perfectionistic striving would remain high following the removal of the shared variance between self-oriented perfectionism and conscientious achievement striving.

Examination of the zero-order and semi-partial correlation coefficients supported these assertions. Specifically, conscientious achievement striving and self-oriented perfectionism demonstrated a large positive correlation. In addition, both personality factors were positively related to personal standards, perfectionistic striving and self-criticism. However, only self-oriented perfectionism demonstrated a positive association with concern over mistakes, fear of failure and negative reactions to imperfection. After controlling for self-oriented perfectionism's association with conscientious achievement striving, the strength of its relationships with personal standards and perfectionistic striving

decreased significantly. However, these correlations remained statistically significant. Supplementary semi-partial correlational analysis indicated that the relationship between self-oriented perfectionism and maladaptive dimensions of perfectionism (concern over mistakes, fear of failure, and negative reactions to imperfection) was largely a function of the belief that it was important to be perfect.

The findings support previous research that indicate that self-oriented perfectionism is not only associated with conscientious achievement striving but also with a fear of failure, self-criticism, and other dimensions of perfectionism typically considered to have negative consequences (e.g., Dunkley, Zuroff, & Blankstein, 2006; Frost et al., 1993; Hill, et al., 1997; Kaye et al., 2008). The findings also extend previous research by indicating that self-oriented perfectionism is strongly associated with both perfectionistic striving and negative reactions to imperfection. Together the findings suggest that rather than being similar to conscientious achievement striving, self-oriented perfectionism entails a commitment to the pursuit of exceedingly high standards, a tendency to engage in self-criticism and an aversion to mistakes and failure. The multifarious consequences of endorsing these particular qualities in achievement contexts is provided by the work of Stoeber and colleagues (e.g., Stoeber, & Kersting, 2007; Stoeber et al., 2007; Stoeber et al., 2008). The findings of their research have demonstrated convincingly that perfectionistic striving can contribute to positive motivational consequences but negative reactions to imperfection are indicative of the potential for psychological impairment. Therefore, the current findings provide some support for Flett and Hewitt's (2005) arguments that self-oriented

perfectionism may be best considered a vulnerability factor.

The relationship between self-oriented perfectionism and core dimensions of perfectionism beyond any shared variance with conscientious achievement striving provides some insight in to the motivational processes associated with this dimension of perfectionism. In particular, although the commitment to the pursuit of exceedingly high standards associated with self-oriented perfectionism can, in part, be attributed to the lofty aspirations, diligence and desire for success associated with conscientiousness, it is also likely to be underpinned by a number other less adaptive regulatory factors. These include a heightened concern over mistakes, a fear of failure and the possibility of imperfect performance (see Kaye et al., 2008; Spiers Neumeister & Finch, 2006; Van Yperen, 2006). The supplementary analysis suggested that the origins of these less adaptive regulatory factors may be the belief that it is important to perform perfectly which also contributed significantly to the high standards and perfectionistic striving associated with self-oriented perfectionism. Consequently, it appears that it is a combination of motivational and evaluative components of self-oriented perfectionism that energises achievement behavior. However, this permutation is also likely to provide the basis for numerous psychological problems experienced by athletes as a result of achievement difficulties (see Besser et al., 2004; Frost et al., 1995; Frost et al., 1997). While the proposed vulnerability associated with self-oriented perfectionism has been examined in student and clinical samples, it has yet to be tested in athletes.

#### 4.6 *Conclusion*

The findings of the current study suggest that although study one and

study two can be interpreted in a manner that suggests self-oriented perfectionism may be primarily adaptive for athletes, self-oriented perfectionism entails achievement striving that is distinct from adaptive conscientious achievement striving. Self-oriented perfectionism appears to entail less adaptive motives that are absent from conscientious achievement striving. In particular, higher levels of self-oriented perfectionism will impart an irrational belief that it is important to perform perfectly for athletes. This, in turn, underpins an association with a concern over mistakes, fear of failure and negative reactions to imperfections that are likely to exert an important influence on psychological adjustment in a sport context. It is also possible that this belief may imperil the adaptive desire for personal development that is shared between self-oriented perfectionism and conscientious achievement striving (see Flett, Hewitt, Blankstein & Mosher, 1991). The presence of such beliefs may therefore be a distinguishing feature of perfectionistic achievement striving, as opposed to a healthy commitment to excellence (Greenspon, 2000). In context of Hewitt and Flett's (1991) model, beliefs regarding the irrational importance of performance provide the basis for numerous psychological problems when athletes experience achievement difficulties (see Besser et al., 2004; Frost et al., 1995; Frost et al., 1997). It may be that these negative consequences may only be evident in athletes over time when coping efforts are unsuccessful and achievement difficulties continue. The consequences of higher levels of self-oriented perfectionism under these circumstances were assessed in study four of this thesis.

Chapter Five: The cognitive, affective and behavioural responses of self-oriented perfectionists following successive failure on a muscular endurance task

"I wish I could have played a better game today but I had a bad day in the office...I got so annoyed with myself that I lost my patience and walked away from a game that, with hindsight, I should have continued...At this moment I am feeling disappointed with myself and I am hurt and numb."

*Ronnie O'Sullivan*

Study three provided some initial evidence that self-oriented perfectionism is distinct from conscientious achievement striving. In particular, self-oriented perfectionism appears to entail beliefs about the importance of performing perfectly that is not shared by conscientious achievement striving. In this chapter it is argued that the negative consequences of self-oriented perfectionism are likely to be most evident when attempts to attain personally meaningful standards are frustrated (vulnerability hypothesis; Flett & Hewitt, 2005, 2006). It is argued that while this possibility has been examined in other achievement contexts, the limitations of this research may prevent extrapolation to a sport setting and therefore requires further examination. The purpose of the following study was to extend study three by examining whether higher levels of self-oriented perfectionism render student-athletes vulnerable to the experience

of psychological and motivational deficits following achievement difficulties. Theoretical and empirical evidence examining the possibility that self-oriented perfectionism is a vulnerability factor is first reviewed. This includes a consideration of the limitations of extant research. This is followed by an empirical examination of the interaction between self-oriented perfectionism and two successive failures on a muscular endurance task in which cognitive, affective and behavioural responses were measured.

### 5.1 *Is self-oriented perfectionism a vulnerability factor?*

One possible explanation for the mixed findings observed in the previous three studies in the thesis is that self-oriented perfectionism may be a vulnerability factor (Flett & Hewitt, 2005, 2006). Specifically, it is thought that individuals high in this dimension of perfectionism are predisposed to the experience of depression, anxiety and neuroticism through an interaction with stress (Flett et al., 1995). This is because self-oriented perfectionism is in part energised by a sense of conditional self-acceptance and a fear of failure (Conroy, Kaye, & Fifer, 2007; Hill et al., 2008). Consequently, failure is considered irrationally aversive (Ellis, 2002). While this possibility has yet to be examined in a sport-related context, attempts to empirically verify the expected interaction between self-oriented perfectionism and stress in non-clinical samples using correlational designs has produced mixed findings. Some research has provided support for the vulnerability hypothesis (Blankstein et al., 2007; Flett et al., 1995; Hewitt et al., 2002), while other studies have not (Chang & Rand, 2000; Enns et al., 2005). Further, there has been limited support for the proposed interaction between self-oriented perfectionism and achievement stress (see

Blankstein et al., 2007; Enns, et al., 2005; Hewitt et al., 2002; Sherry et al., 2003).

A small number of studies have examined the manner in which perfectionists respond to achievement difficulties by manipulating failure, or providing negative feedback indicative of possible failure, on simple mental (Besser et al., 2004; Besser, Flett, Hewitt, & Guez, 2008; Hewitt, Mittelstaedt, & Wollert, 1989; Frost, Turcotte, Heimberg, Mattia, Holt, & Hope, 1995; Stoeber, Harris, & Moon, 2007; Stoeber, Kempe, & Keogh, 2008) and motor tasks (Anshel & Mansouri, 2005). In contrast to the findings of research using correlational designs, the findings of these studies largely corroborate Flett and Hewitt's (2006) suggestion that the potential for self-oriented perfectionism to lead to negative psychological and emotional states may only be observable under conditions of achievement difficulty. Besser et al. (2004), for example, found that those higher in self-oriented perfectionism responded to negative feedback on an achievement task with increased levels of anxiety, hostility, and decreased positive affect. Similarly, Anshel and Mansouri (2005) found that performance deteriorated in student-athletes with higher personal standards and concern over mistakes following negative feedback. Consequently, there is some indication that beyond the encouragement of reflective performance appraisal, failure may have negative psychological, emotional and behavioural consequences for those higher in self-oriented perfectionism.

A number of limitations may prevent direct extrapolation from the findings of these studies to a sport setting that is characterised by personal and interpersonal competition, however. First, one might question how well the

simple mental and motor tasks used within these studies generalise to competitive sport. This would appear particularly important as a lack of correspondence between affective experience and successful versus failed performance in previous studies indicates that such tasks may not be personally salient (e.g., Anshel & Mansouri, 2005). Second, these studies have only examined the response of self-oriented perfectionists to single failure experiences. It is possible that a single failure may not be sufficient to evoke psychological difficulties because a history of athletic or academic success has been proposed to provide resiliency against the negative consequences of perfectionism (Blankstein & Winkworth, 2004). Moreover, a pattern of increased effort following initial failure is typical for individuals who perceive themselves to be competent and have little reason to seek strategies to protect ability (Dweck & Leggett, 1988). Any attempt to examine the interaction between self-oriented perfectionism and achievement difficulties for athletes must consider these issues.

Finally, examining the consequences of self-oriented perfectionism is complicated further because it is positively related to dimensions of perfectionism that are consistently associated with psychological difficulties (e.g., concern over mistakes, doubts about action; Frost et al., 1993). In particular, self-oriented perfectionism is related to socially prescribed perfectionism. This dimension of perfectionism is characterised by the belief that the acceptance of significant others is contingent on the attainment of externally imposed perfectionistic standards. Unlike self-oriented perfectionism, socially prescribed perfectionism is invariably associated with psychological

maladjustment. Therefore, it is possible that the association between self-oriented and socially prescribed perfectionism provides the basis for the psychological difficulties associated with self-oriented perfectionism (see Flett & Hewitt, 2006 for a discussion of this issue). Although examining the consequences of constructs after partialing out shared variance, especially when dealing with intact groups, is a contentious issue (see Chapman & Miller, 2001), examining the relative contribution of socially prescribed perfectionism to any negative psychological consequences would, in this instance, further our understanding of the origins of the proposed vulnerability associated with self-oriented perfectionism.

## 5.2 *The purpose of study four*

To address these issues, and extend study three, the purpose of the current study was to examine differences in cognitive, affective and behavioural responses between student-athletes with higher and lower self-oriented perfectionism following the experience of two successive failure experiences on a muscular endurance task using a cycle ergometer. Consistent with the assertions of Flett and Hewitt (2005, 2006), and the findings of study three, it was hypothesised that the experience of failure would be characterised by a more extreme pattern of debilitating cognition, affect and behaviour for athletes higher in self-oriented perfectionism. Specifically, higher levels of perceived threat, negative affect, and thoughts of escape, as well as lower levels of positive affect, satisfaction, effort and performance were expected. In addition, in order to examine whether any significant findings could be attributed to socially prescribed perfectionism, analyses were repeated controlling for levels of

socially prescribed perfectionism.

### 5.3 *Method*

#### 5.3.1 *Participants*

Participants comprised 68 (48 males, 20 females) student-athletes recruited from a large university in the UK ( $M$  age = 19.75 years,  $SD$  = 1.25 years, range 18-24). The participants reported that they practiced their sports (hockey  $n$  = 35, football  $n$  = 14, rowing  $n$  = 6, rugby  $n$  = 6, swimming  $n$  = 2, taekwondo  $n$  = 1, tennis  $n$  = 1, athletics  $n$  = 1, lacrosse  $n$  = 1, netball  $n$  = 1) for 5.88 hours per week ( $SD$  = 3.69) and considered participation very important in comparison to other activities in their lives ( $M$  = 7.79,  $SD$  = .97; 1 = *Not at all Important* to 9 = *Extremely Important*). Some participants were eligible for course credit for participation.

#### 5.3.2 *Design*

All participants engaged in a muscular endurance task using a cycle ergometer (Lode™ Examiner). This involved a personal goal setting exercise and the experience of two successive failures to attain personal performance targets. Subsequent analyses were based on a median-split of responses to the self-oriented perfectionism subscale of the Multidimensional Perfectionism Scale (Hewitt & Flett, 1991). To promote the self-oriented nature of the task, and reduce social evaluative threat, the intra-personal competitive nature of the task was emphasised throughout and all testing was conducted individually (see Besser et al., 2004).

#### 5.3.3 *Procedure*

Upon arrival at the laboratory, participants were requested to complete

informed consent, a general health questionnaire, and Hewitt and Flett's (1991) Multidimensional Perfectionism Questionnaire. Providing the participants reported no cardiovascular, respiratory or muscular problems, they then participated in a sub-maximal test to identify heart rate at varying workloads and predict participants' maximal VO<sub>2</sub> workload (see American College of Sports Medicine, 2006). Following the sub-maximal test, the participants were requested to take part in three 6-minute intermittent time trials on a cycle ergometer set at 35% of their estimated VO<sub>2</sub> maximal level when at 60 revolutions per minute (RPM).

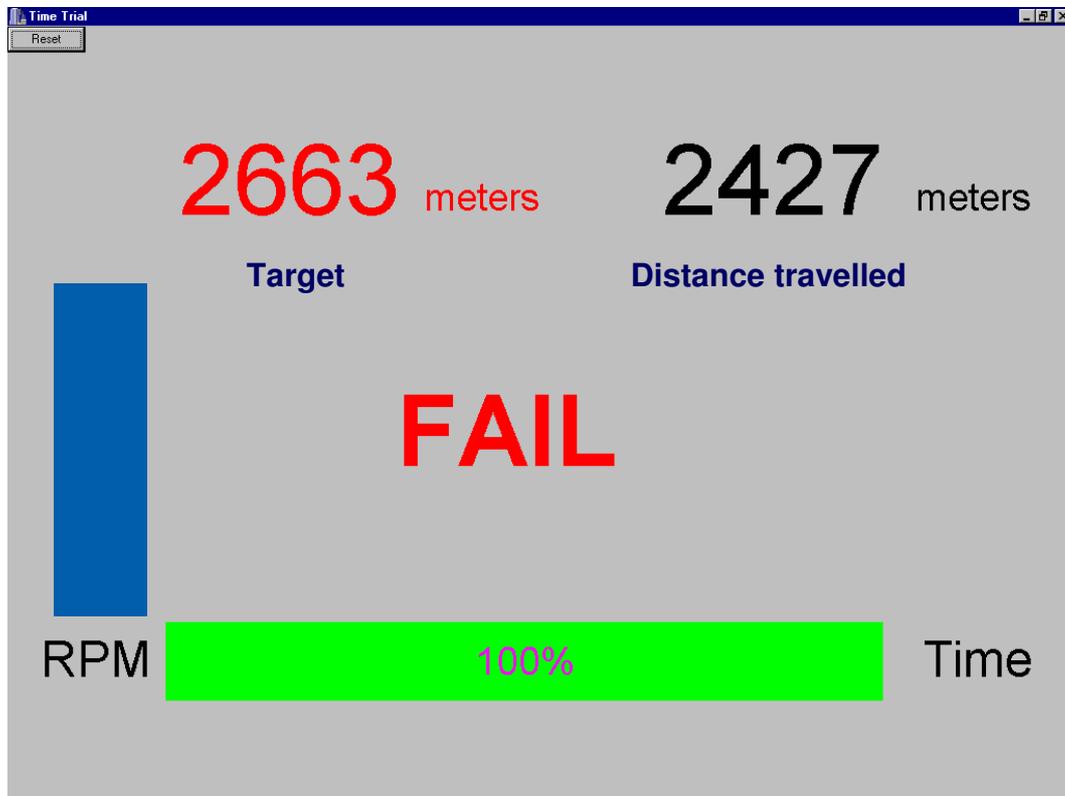
For the first of the 6-minute trials, participants were asked to perform under 'do your best' conditions. Recorded instructions prior to this trial emphasised that at the end of the trial they should be satisfied that this represented their best possible performance. During the trial, the participants were provided with visual feedback of the distance covered, current RPM, and time lapsed. Following their performance, participants had a 10 minute rest period. At the end of this period, participants were given a second set of recorded instructions which requested them to set a personal goal for the next 6-minute trial based on their previous performance. These instructions stated that they may wish to strive to replicate their previous performance or improve it. Further, it was mentioned that performance can typically be improved by up to 5%. The potential distances that corresponded to performance increments were displayed on a computer screen. In addition to the visual feedback provided in the previous trial, the selected personal target was also displayed on screen during the

subsequent trial. Following this goal setting exercise, participants completed pre-trial measures of affect and cognitive appraisals.

Immediately prior to the second trial, further recorded instructions were given to each participant. These instructions emphasised that success on the task would be determined by the participants' cycling competence, physical endurance, effort and pedalling technique. In addition, it was also stated that as the personal target was based on the previous performance, it was likely to be attainable within the 6-minute trial. During the 10 minute rest period following performance on this trial, participants completed post-trial measures of affect and performance appraisals. The goal setting exercise and pre-trial and post-trial measures were then repeated for a third cycling trial.

To ensure that participants failed to meet their personal goals on the two trials, performance feedback was manipulated so that distances were electronically reduced as conveyed visually through the displayed distance travelled. Specifically, the displayed distance travelled on the two goal setting trials were reduced by 5% and 6% progressively through each trial. Failure feedback given to participants is illustrated in Figure 1. Pre-testing indicated that these reductions were sufficient to ensure failure and were subtle enough to make it most probable that the manipulation would be unnoticed. The slight increase in the degree to which performance was impeded in the final trial was to compensate for an increase in effort following failure on the first trial. Following completion of the study, all participants were debriefed regarding the aim of the investigation and the nature of the manipulation.

Figure 1 An example of the failure feedback given to participants following performance in the 6 minute trials



#### 5.3.4 Instruments

*Multidimensional Perfectionism:* Self-oriented (SOP) and socially prescribed perfectionism (SPP) were assessed using Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (HMPS). See chapter two for a discussion of this measure.

*Affective response:* The affective responses of the participants were assessed using the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988). Responses on the positive affect subscale reflect high energy, concentration, and pleasurable engagement, while responses on the negative affect subscale are indicative of distress and unpleasurable engagement (Watson et al., 1988). Participants were asked to indicate the extent to which they felt the emotions listed at that particular moment (e.g. "Interested" "Enthusiastic" "Distressed" "Hostile"). Each response is measured on a five-point Likert scale (1 = *very slightly or not at all* to 5 = *extremely*). Previous research has provided evidence to support the validity and reliability of the scale (Watson et al., 1988). The two scales have also demonstrated acceptable internal consistency when used as state measures of affect ( $\alpha = \text{PA } .89$  and  $\text{NA } .85$ ; Watson et al., 1988). In the current study, both PA and NA were considered to have acceptable levels of internal consistency at each point of measurement ( $\alpha = \text{PA } .88$   $.86$   $.85$  and  $\text{NA } .84$   $.88$   $.86$ ).

*Thoughts of escape:* The Thoughts of Escape subscale of the Thought Occurrence Questionnaire for Sport scale (Hatzigeorgiadis & Biddle, 2000) was used to further assess the distress experienced by the participants during each trial. The scale requires participants to indicate the degree to which they

experienced thoughts consistent with the desire to escape during the previous trial (e.g. “That I do not want to take part in this competition any more.” “That I cannot stand it any more.”). The subscale contains 6-items and is measured on a seven-point Likert scale (1 = *never* to 7 = *very often*). Previous research has provided evidence of the validity and reliability of the scale ( $\alpha = .90$ ; Hatzigeorgiadis & Biddle, 2000). In the current study the scale was considered to have acceptable levels of internal consistency at both points of measurement ( $\alpha = .93$  and  $.96$ ).

*Effort:* Self-reported effort was assessed using the Effort-Importance subscale of the Intrinsic Motivation Inventory (McAuley, Duncan, & Tammen, 1989). The subscale required participants to indicate the amount of effort they invested in the performance on the previous trial (e.g. “I put a lot of effort into this.” “I didn’t try very hard to do well at this activity.” reversed). The subscale contains 5-items and is measured on a seven-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). Research supports the validity and reliability of the scale ( $\alpha = .84$ ; McAuley et al, 1989). In the current study, the scale was considered to have acceptable levels of internal consistency at both points of measurement ( $\alpha = .76$  and  $.92$ ).

*Cognitive and performance appraisals:* Two single items developed by Besser et al. (2004) were used to assess pre-trial and post-trial cognitive appraisals regarding personal performance. The pre-trial assessment measured perceived threat (“To what extent do you regard performing this task as threatening?”) and the post-trial assessment measured satisfaction with performance (“How satisfied are you with your performance?”). Responses were

assessed on a seven-point Likert scale (1 = *not at all* to 7 = *very much*).

*Objective performance:* To assess objective performance, the distance travelled in each trial and average RPM in each trial were recorded.

### 5.3.5 *Analytical strategy*

The hypothesis that student-athletes higher in self-oriented perfectionism would experience greater levels of perceived threat, negative affect, and thoughts of escape, as well as lower levels of positive affect, satisfaction, effort and performance was examined using a median-split to create two groups with higher and lower levels of self-oriented perfectionism and then conducting a series of repeated measures ANOVAs (Group x Time/Trial)<sup>1</sup>. In each, the cognitive, affective and behavioural measures were used as dependent variables. Interaction terms (Group x Time/Trial) were given precedence over main effects (Pedhazur & Pedhazur-Schmelkin, 1991). As alluded to earlier, although the use of ANCOVA in quasi-experimental designs is controversial (see Chapman & Miller, 2001), in this instance such analyses provides a means of further understanding the origins of any negative consequences of self-oriented perfectionism. Consequently, repeated measures ANCOVA (2 Group x 2 Time/Trial) with socially prescribed perfectionism as a covariate were used in a strictly confirmatory manner to re-examine any significant findings. Because the sample size in the current study was relatively small, precise *p*-values and effect sizes are reported to aid interpretation of the effects (Kramer & Rosenthal, 1999). Partial eta<sup>2</sup> provides an estimate of the proportion of total variance attributable to each individual main and interaction effect after controlling for other effects (Cohen, 1973). Cohen's (1988) guidelines for interpreting strength of association

effect sizes were used to evaluate the effect size (small partial  $\eta^2 = .01$ , medium partial  $\eta^2 = .09$ , large partial  $\eta^2 = .25$ ). Observed means for all analyses are displayed in Table 1.

## 5.4 Results

### 5.4.1 *Manipulation check*

Participants reported that the feedback they received was believable ( $M = 5.70$ ,  $SD = 1.39$ ). (“To what extent did you see the feedback you received as believable” Likert scale 1 = *not at all* to 7 = *very much*). Five participants reported below the mid-point on this item; however, in response to a follow-up open ended question asking them to explain their response, all indicated that they believed they had failed on both trials.

### 5.4.2 *Establishing higher and lower self-oriented perfectionism groups*

An independent t-test indicated that the median-split established two groups that differed significantly in reported self-oriented perfectionism ( $M = 5.50$ ,  $SD = 0.33$  versus  $M = 4.31$ ,  $SD = 0.51$ ):  $t(56.17) = 11.41$ ,  $p < .001$ , partial  $\eta^2 = .699$  (equal variances not assumed, Levene’s test  $F[1,66] = 14.01$ ,  $p < .001$ , variance ratio = 2.45). The size of the effect was extremely large. The two groups were screened for univariate outliers across the measured variables ( $zscore > 3.29$ ) and one participant was removed from each group (see Tabachnick & Fidell, 2007). The two groups remained statistically different in terms of self-oriented perfectionism and extremely large in effect size ( $M = 5.51$ ,  $SD = 0.32$  versus  $M = 4.33$ ,  $SD = 0.50$ ):  $t(54.26) = 11.37$ ,  $p < .001$ , partial  $\eta^2 = .704$  (equal variances not assumed, Levene’s test  $F[1,64] = 13.36$ ,  $p = .001$ , variance ratio = 2.47).

Differences between the two groups in terms of the goals set in the two trials were examined using repeated measures ANOVA (2 Group x 2 Trial). The selected percentage increase from performance in the initial trial was used as the dependent variable. There were no statistically significant main effects for group,  $F(1, 64) = 0.71, p = .402, \text{partial } \eta^2 = .011$  (Levene's tests  $F[1,64] = 1.11, p = .296$ , and  $9.31, p = .003$ , variance ratios = 1.14 and 2.94), or interaction effect,  $F(1, 64) = 0.32, p = .572, \text{partial } \eta^2 = .005$ . The size of these effects was small in size. There was a statistically significant main effect for time which was large in size that indicated that following the failure in trial one, both groups significantly reduced their goal for trial two,  $F(1, 64) = 95.94, p < .001, \text{partial } \eta^2 = .600$ . The absence of any difference between the two groups in terms of personal goals set in the two trials is surprising as one might expect the higher self-oriented perfectionism group to set higher goals than the lower self-oriented perfectionism group. In this instance, the median-split therefore did not capture any group differences in terms of goal setting.

Finally, the equivalency of the two groups in terms of the degree of failure they experienced in the two trials was examined using repeated measures ANOVA (2 Group x 2 Trial). Participants' personal target (metres) minus the reported distance travelled (metres) in each trial was used as the dependent variable. There was no statistically significant main effect for group,  $F(1, 64) = 1.06, p = .306, \text{partial } \eta^2 = .016$  (Levene's tests  $F[1,64] = 0.47, p = .497$ , and  $1.81, p = .184$ , largest variance ratio = 1.65), or interaction effect,  $F(1, 64) = 1.58, p = .214, \text{partial } \eta^2 = .024$ . There was a statistically significant main effect for time that indicated that both groups fell short of their personal target in the

second trial by a greater degree than in the first trial,  $F(1, 64) = 7.21, p = .009$ , partial  $\eta^2 = .101$ . Collectively, these analyses support the existence of two groups that are distinguishable in terms of their reported self-oriented perfectionism but experienced the same degree of objective failure in the two trials.

#### 5.4.3 *Analysis of potential confounding variables*

The equivalency of the two groups across gender, sport, age, and socially prescribed perfectionism was also assessed. A chi-square test indicated that the proportion of males and females in the higher and lower self-oriented perfectionism groups were the same,  $\chi^2(1) = 0.00, p = 1.00$  (males  $n = 23$  and females  $n = 10$  in each group). Similarly, distribution of sport type across the two groups was the same,  $\chi^2(9) = 6.20, p = .720$ . Three independent samples t-tests indicated that the two groups did not significantly differ in terms of age ( $M = 19.70, SD = 1.21$  versus  $M = 19.79, SD = 1.34$ ),  $t(64) = 0.29, p = .774$ , partial  $\eta^2 = .000$  (equal variances assumed, Levene's test  $F[1,64] = 1.43, p = .236$ , variance ratio = 1.22), years spent participating in their sport ( $M = 8.12, SD = 3.66$  versus  $M = 9.41, SD = 3.80$ ),  $t(64) = 1.40, p = .166$ , partial  $\eta^2 = .030$  (equal variances assumed, Levene's test  $F[1,64] = 0.02, p = .904$ , variance ratio = 1.08), and hours spent practicing their sport ( $M = 6.73, SD = 3.95$  versus  $M = 5.06, SD = 3.39$ ),  $t(62.56) = 1.84, p = .071$ , partial  $\eta^2 = .051$  (equal variances not assumed, Levene's test  $F[1,64] = 6.23, p = .015$ , variance ratio = 1.36). However, as expected, the higher self-oriented perfectionism group reported significantly higher socially prescribed perfectionism ( $M = 3.68, SD = 0.58$  versus  $M = 3.37, SD = 0.47$ ),  $t(64) = 2.36, p = .021$ , partial  $\eta^2 = .080$  (equal variances assumed, Levene's test  $F[1,64] = 0.26, p = .615$ , variance ratio = 1.54). It is therefore

possible that any differences between the higher and lower self-oriented perfectionism group in terms of cognitive, affective and behaviour responses to the successive failures may be attributed to level of socially prescribed perfectionism. This possibility was examined in supplementary analyses.

#### 5.4.4 *Differences between higher and lower self-oriented perfectionism groups in terms of cognitive, affective and behavioural response to successive failure<sup>1</sup>*

##### 5.4.4.1 *Negative and positive affect before and after performance in each trial*

A 2 x 3 (group by time) repeated measures MANOVA examined whether the higher and lower self-oriented perfectionism groups differed in a linear combination of reported negative and positive affect measured across pre-trial one, pre-trial two, and post-trial two. This indicated that the multivariate main effect for group, Wilks'  $\Lambda = .928$ ,  $F(2, 63) = 2.44$ ,  $p = .095$ , partial  $\eta^2 = .072$ , and the interaction effect, Wilks'  $\Lambda = .960$ ,  $F(4, 61) = 0.64$ ,  $p = .634$ , partial  $\eta^2 = .040$ , were not statistically significant. However, the multivariate main effect for time was statistically significant, Wilks'  $\Lambda = .524$ ,  $F(4, 61) = 13.84$ ,  $p < .001$ , partial  $\eta^2 = .476$ . These effects were examined further using univariate analyses.

A repeated measures ANOVA (2 Group x 3 Time) examined whether the higher and lower self-oriented perfectionism groups differed in reported negative affect measured pre-trial one, pre-trial two, and post-trial two. The main effect for group fell marginally outside of statistical significance and was small-to-medium in size,  $F(1, 64) = 3.73$ ,  $p = .058$ , partial  $\eta^2 = .055$  (Levene's tests  $F[1, 64] = 2.57$ ,  $p = .114$ ,  $2.57$ ,  $p = .114$ , and  $0.70$ ,  $p = .407$ , variance ratios = 1.57, 1.75, and 1.18). The interaction effect was not statistically significant and the size of the effect was extremely small,  $F(1.81, 116.01) = 0.39$ ,  $p = .657$ , partial

$\eta^2 = .006$  (sphericity not assumed,  $\chi^2 [2] = 6.87, p = .032$ , therefore df were corrected using Greenhouse-Geisser estimate of sphericity  $\epsilon = .91$ ). However, the main effect for time was statistically significant and medium in size,  $F(1.81, 116.01) = 5.56, p = .006$ , partial  $\eta^2 = .080$ . Contrasts indicated that negative affect increased linearly over time,  $F(1, 64) = 6.89, p = .011$ , partial  $\eta^2 = .097$ . The size of this effect was medium in size.

A second repeated measures ANOVA (2 Group x 3 Time) was used to examine whether the higher and lower self-oriented perfectionism groups differed in reported positive affect measured pre-trial one, pre-trial two, and post-trial two. The main effect for time was not statistically significant and was small in size,  $F(1, 64) = 1.07, p = .304$ , partial  $\eta^2 = .016$  (Levene's tests  $F[1, 64] = 1.22, p = .273, 0.02, p = .894$ , and  $0.14, p = .712$ , variance ratios = 1.23, 1.09, and 1.01). The interaction effect was not statistically significant and the size of the effect was small,  $F(2, 128) = 0.15, p = .406$ , partial  $\eta^2 = .014$  (sphericity assumed,  $\chi^2 [2] = 2.51, p = .286$ ). The main effect for time was statistically significant and was large in size,  $F(2, 128) = 25.49, p < .001$ , partial  $\eta^2 = .285$ . Contrasts indicated that positive affect decreased linearly over time,  $F(1, 64) = 40.37, p < .001$ , partial  $\eta^2 = .387$ . The size of this effect was extremely large.

#### 5.4.4.2 *Threat, escape, effort, and satisfaction in response to performance in each trial*

A 2 x 2 (group by time) repeated measures MANOVA examined whether the higher and lower self-oriented perfectionism groups differed in a linear combination of reported threat, escape, effort, and satisfaction associated with performance in both trials. This indicated that the multivariate main effect for

group was not statistically significant, Wilks'  $\Lambda = .874$ ,  $F(4, 61) = 2.20$ ,  $p = .079$ , partial  $\eta^2 = .126$ . However, the multivariate main effect for time, Wilks'  $\Lambda = .827$ ,  $F(4, 61) = 3.19$ ,  $p = .019$ , partial  $\eta^2 = .173$ , and interaction effect, Wilks'  $\Lambda = .759$ ,  $F(4, 61) = 4.85$ ,  $p = .002$ , partial  $\eta^2 = .241$ , were statistically significant. These effects were examined further using univariate analyses.

A repeated measures ANOVA (2 Group x 2 Time) was used to examine whether the higher and lower self-oriented perfectionism groups differed in perceived threat pre-trial one and pre-trial two. The main effect for both group,  $F(1, 64) = 5.85$ ,  $p = .018$ , partial  $\eta^2 = .084$  (Levene's tests  $F[1, 64] = 2.64$ ,  $p = .109$ , and  $8.50$ ,  $p = .005$ , variance ratios = 2.01 and 2.76), and time,  $F(1, 64) = 8.32$ ,  $p = .005$ , partial  $\eta^2 = .115$ , were statistically significant and were medium in size. These effects were superseded by a statistically significant interaction effect that was medium in size,  $F(1, 64) = 5.87$ ,  $p = .018$ , partial  $\eta^2 = .084$ . The interaction is displayed in Figure 2 and illustrates that, while the pre-trial one perceived threat level was similar for both groups, following failure on the first trial the higher self-oriented perfectionism group experienced a more pronounced increase. Simple effects analysis examining changes in threat within each group across trials indicated that the threat reported by the higher self-oriented perfectionism group significantly increased from pre-trial one to pre-trial two,  $F(1, 64) = 14.08$ ,  $p < .001$ , partial  $\eta^2 = .180$ , whereas no significant change was observed for the lower SOP group,  $F(1, 64) = 0.11$ ,  $p = .745$ , partial  $\eta^2 = .001$ . Examination of differences between groups within each trial indicated that the two groups did not significantly differ in perceived threat prior to trial one,  $F(1, 64) = 1.66$ ,  $p = .203$ , partial  $\eta^2 = .025$ , however the higher self-oriented

Table 1 *Observed descriptive statistics for measures of cognitive, behavioural and performance appraisals following performance*

		Pre-trial 1		Post-trial 1/Pre-trial 2		Post-trial 2	
		Mean	SD	Mean	SD	Mean	SD
High SOP	Positive affect	2.98	0.65	2.61	0.59	2.56	0.62
	Negative affect	1.77	0.55	1.96	0.76	1.91	0.74
	Perceived threat	2.58	1.44	3.27	1.66	--	--
	Satisfaction	--	--	4.09	1.70	3.68	1.67
	Reported effort	--	--	5.87	0.84	5.33	1.56
	Desire for escape	--	--	3.04	1.60	3.29	1.89
	Distance covered (m)	--	--	2938.45	318.92	2788.39	295.17
	Average RPM			84.66	8.92	81.04	8.08
Low SOP	Positive affect	2.89	0.58	2.54	0.62	2.34	0.63
	Negative affect	1.50	0.43	1.64	0.57	1.69	0.68
	Perceived threat	2.18	1.01	2.24	1.00	--	--
	Satisfaction	--	--	3.27	1.28	3.63	1.34
	Reported effort	--	--	5.65	0.70	5.72	0.82
	Desire for escape	--	--	2.75	1.05	3.11	1.60
	Distance covered (m)	--	--	2916.39	246.32	2820.14	251.26
	Average RPM			85.25	6.86	83.61	7.65

Figure 2 The interaction between time and level of self-oriented perfectionism predicting perceived threat associated with upcoming performance. Note: Estimated means are adjusted for covariate socially prescribed perfectionism.

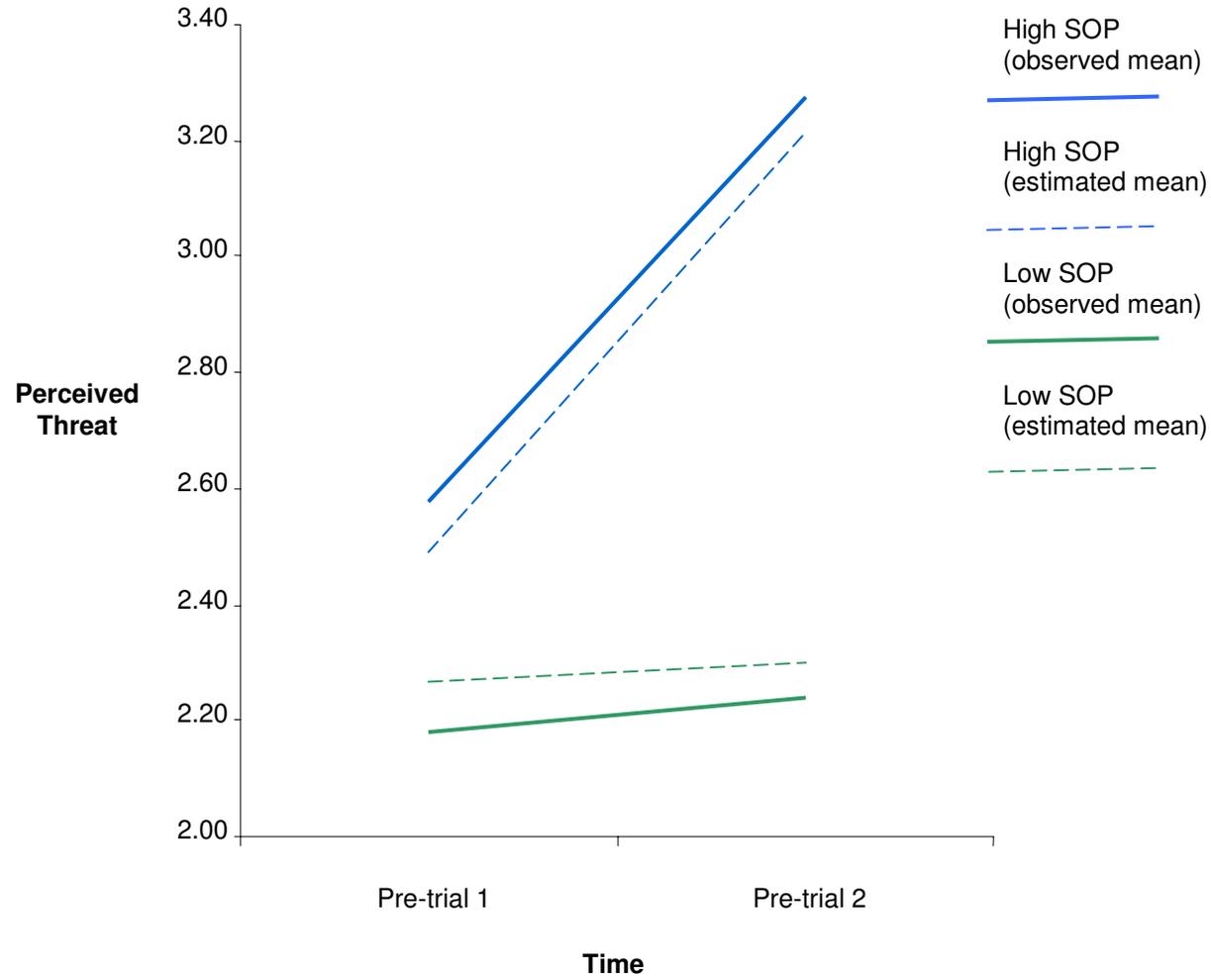


Figure 3 The interaction between time and level of self-oriented perfectionism predicting level of reported effort during the two trials.  
Note: Estimated means are adjusted for covariate socially prescribed perfectionism.

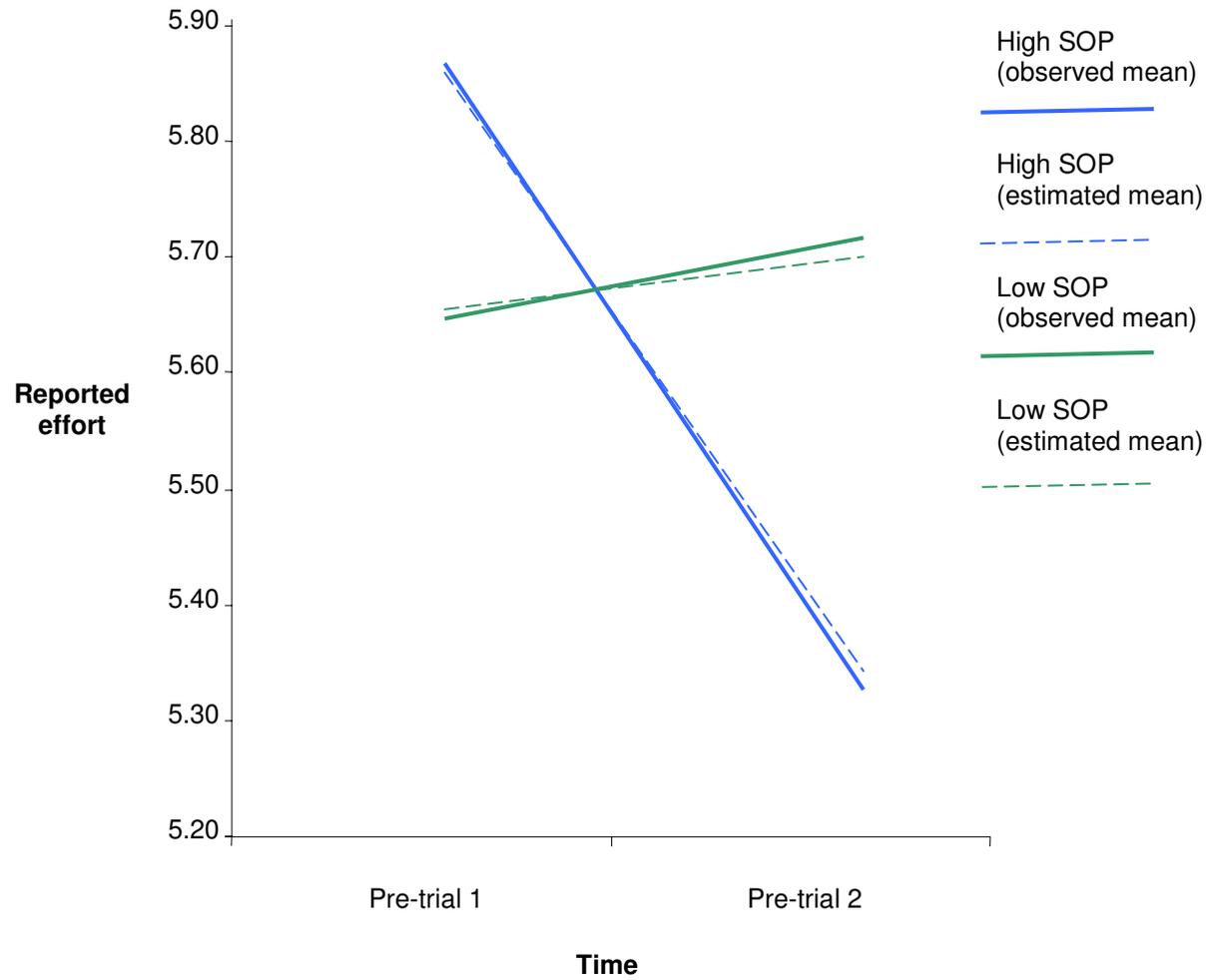
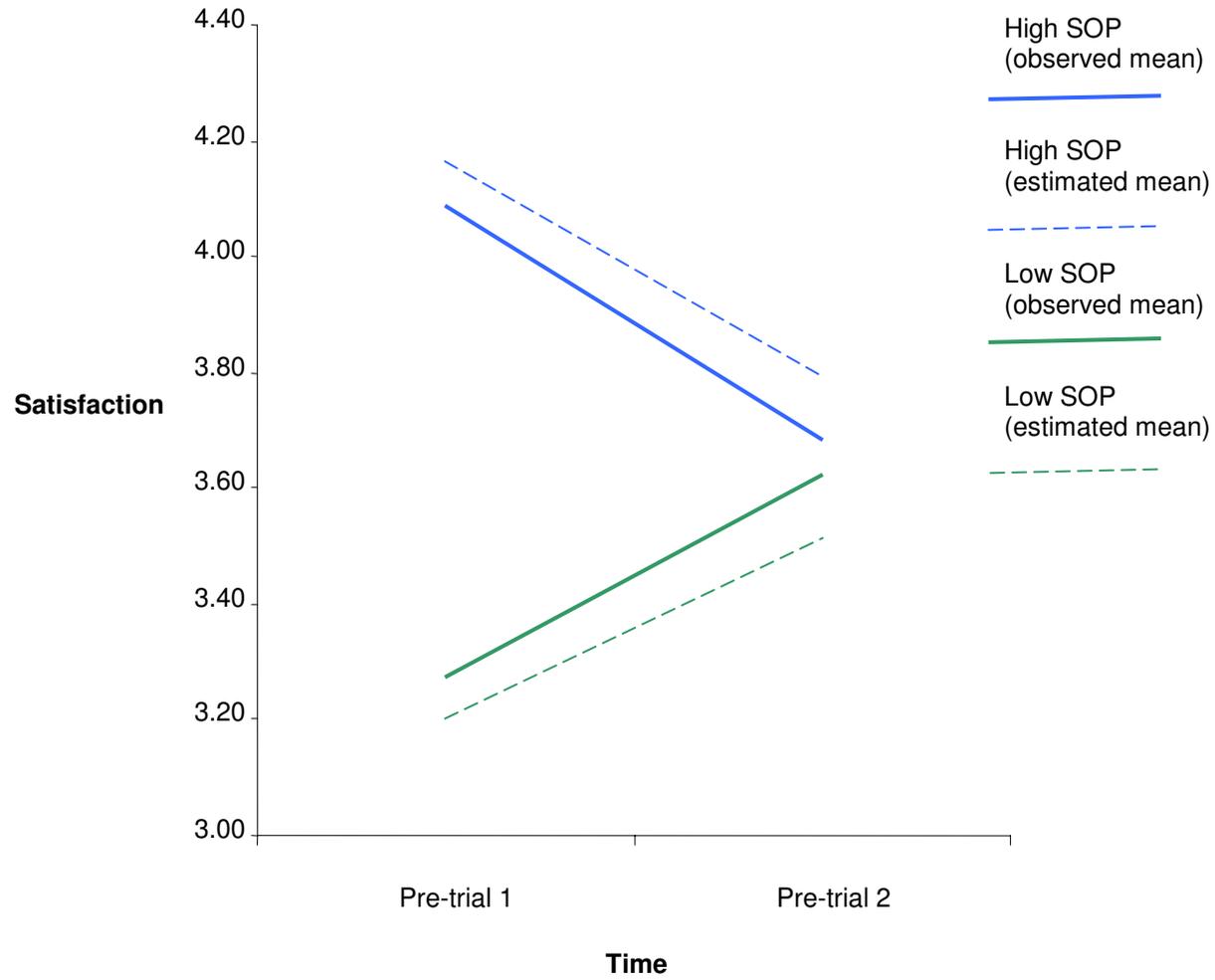


Figure 4 *The interaction between time and level of self-oriented perfectionism predicting level of satisfaction with performance. Note: Estimated means are adjusted for covariate socially prescribed perfectionism.*



perfectionism group reported significantly greater threat than the lower self-oriented perfectionism group prior to trial two,  $F(1, 64) = 9.29, p = .003$ , partial  $\eta^2 = .107$ .

A repeated measures ANOVA (2 Group x 2 Time) was used to examine whether the higher and lower self-oriented perfectionism groups differed in thoughts of escape during each trial (measured post-trial one and post-trial two). No statistically significant main effect for group,  $F(1, 64) = 0.45, p = .506$ , partial  $\eta^2 = .007$  (Levene's tests  $F[1, 64] = 13.66, p < .001$ , and  $2.43, p = .124$ , variance ratios = 2.33 and 1.40), time,  $F(1, 64) = 3.31, p = .074$ , partial  $\eta^2 = .049$ , or interaction effect,  $F(1, 64) = 0.91, p = .764$ , partial  $\eta^2 = .001$ , was observed. The size of these effects ranged between extremely small to small-to-moderate.

A repeated measures ANOVA (2 Group x 2 Time) was used to examine whether the higher and lower self-oriented perfectionism groups differed in reported effort in each trial (measured post-trial one and post-trial two). The main effect for group was not statistically significant and was extremely small in size,  $F(1, 64) = .142, p = .708$ , partial  $\eta^2 = .002$  (Levene's tests  $F[1, 64] = 0.66, p = .419$ , and  $23.91, p < .001$ , variance ratios = 1.42 and 3.67). There was a significant main effect for time that was small-to-medium in size,  $F(1, 64) = 4.09, p = .047$ , partial  $\eta^2 = .060$ . However, this effect was superseded by a statistically significant interaction effect that was medium in size,  $F(1, 64) = 6.87, p = .011$ , partial  $\eta^2 = .097$ . The interaction is displayed in Figure 3 and illustrates that, while the reported effort of the lower self-oriented perfectionism group remained similar in the two trials, the reported effort of the higher self-oriented perfectionism group decreased sharply from trial one to trial two. Simple effects analysis examining

within group changes in effort across trials indicated that the decrease in reported effort for the higher self-oriented perfectionism group was significant,  $F(1, 64) = 10.78, p = .002, \text{partial } \eta^2 = .144$ . In contrast, there was no significant change in reported effort for the lower self-oriented perfectionism group,  $F(1, 64) = 0.18, p = .673, \text{partial } \eta^2 = .003$ . Examination of between group differences within each trial indicated that the two groups did not significantly differ in reported effort following trial one,  $F(1, 64) = 1.32, p = .255, \text{partial } \eta^2 = .020$ , or following trial two,  $F(1, 64) = 1.61, p = .208, \text{partial } \eta^2 = .024$ .

A repeated measures ANOVA (2 Group x 2 Time) was used to examine whether the higher and lower self-oriented perfectionism groups differed in satisfaction with performance in each trial (measured post-trial one and post-trial two). There was no statistically significant effect for group,  $F(1, 64) = 1.82, p = .182, \text{partial } \eta^2 = .028$  (Levene's tests  $F[1, 64] = 3.81, p = .055$ , and  $2.44, p = .123$ , variance ratios = 1.76 and 1.55), and time,  $F(1, 64) = 0.03, p = .876, \text{partial } \eta^2 = .000$ . The size of the effect for group was small and the size of the effect for time was extremely small. There was a statistically significant interaction effect that was small-to-medium in size,  $F(1, 64) = 4.42, p = .039, \text{partial } \eta^2 = .065$ . The interaction is displayed in Figure 4 and illustrates that, in comparison to the lower self-oriented perfectionism group, the higher self-oriented perfectionism group reported higher levels of satisfaction with performance in trial one. However, similar levels of satisfaction with performance in trial two were reported by both groups as satisfaction decreased for the higher self-oriented perfectionism group and increased for the lower self-oriented perfectionism group. Simple effects analysis examining within group changes in satisfaction across trials indicated

that, despite some change in both groups, the levels of satisfaction did not change significantly for trial one and two for either the higher self-oriented perfectionism group,  $F(1, 64) = 2.55, p = .115, \text{partial } \eta^2 = .038$ , or the lower self-oriented perfectionism group,  $F(1, 64) = 1.89, p = .174, \text{partial } \eta^2 = .028$ . Examination of between group differences within each trial indicated that the two groups differed significantly in satisfaction with performance in trial one,  $F(1, 64) = 4.87, p = .031, \text{partial } \eta^2 = .071$ , but did not differ significantly in satisfaction with performance in trial two,  $F(1, 64) = 0.02, p = .879, \text{partial } \eta^2 = .000$ .

#### 5.4.4.3 *Performance in each trial*

A 2 x 2 (group by trial) repeated measures MANOVA examined whether the higher and lower self-oriented perfectionism groups differed in a linear combination of distance travelled and average RPM in trial one and trial two. This indicated that the multivariate main effect for group, Wilks'  $\Lambda = .978, F(2, 63) = 0.72, p = .490, \text{partial } \eta^2 = .022$ , and the interaction effect, Wilks'  $\Lambda = .963, F(2, 63) = 1.20, p = .308, \text{partial } \eta^2 = .037$ , were not statistically significant. However, the multivariate main effect for time was statistically significant, Wilks'  $\Lambda = .693, F(2, 63) = 13.96, p < .001, \text{partial } \eta^2 = .307$ . These effects were examined further using univariate analyses.

A 2 x 2 (group by trial) repeated measures ANOVA was conducted to examine differences in the distance travelled between the higher and lower self-oriented perfectionism groups in the two trials. There was no statistically significant effect for group,  $F(1, 64) = 0.01, p = .941, \text{partial } \eta^2 = .000$  (Levene's tests  $F[1, 64] = 1.31, p = .258$ , and  $0.17, p = .682$ , variance ratios = 1.68 and 1.38), or interaction effect,  $F(1, 64) = 1.35, p = .250, \text{partial } \eta^2 = .021$ . There was

a statistically significant effect for trial that was large in size,  $F(1, 64) = 28.21, p < .001$ , partial  $\eta^2 = .306$ , indicating that both groups travelled further in trial one than in trial two.

A 2 x 2 (group by trial) repeated measures ANOVA was conducted to examine differences in the average RPM between the higher and lower self-oriented perfectionism groups in the two trials. There was no statistically significant main effect for group,  $F(1, 64) = 0.74, p = .394$ , partial  $\eta^2 = .011$  (Levene's tests  $F[1, 64] = 2.32, p = .133$ , and  $0.46, p = .499$ , variance ratios = 1.69 and 1.12), and interaction effect,  $F(1, 64) = 2.41, p = .126$ , partial  $\eta^2 = .036$ . There was a statistically significant main effect for time that was large in size,  $F(1, 64) = 16.87, p < .001$ , partial  $\eta^2 = .209$ , indicating greater average RPM in trial one than in trial two.

#### *5.4.4.4 Re-examination of findings controlling for level of socially prescribed perfectionism.*

To test whether the observed effects of self-oriented perfectionism on perceived threat, reported effort and satisfaction were attributable to differences in level of socially prescribed perfectionism, the analyses of these dependent variables were repeated using a repeated measures ANCOVA (2 Group x 2 Time) with level of socially prescribed perfectionism as a covariate<sup>2</sup>. The interaction effect for perceived threat,  $F(1, 64) = 5.30, p = .025$ , partial  $\eta^2 = .078$ , and reported effort,  $F(1, 64) = 6.31, p = .015$ , partial  $\eta^2 = .091$ , remained statistically significant and medium in size. The interaction effect for satisfaction moved marginally outside of conventional statistical significance,  $F(1, 64) = 3.24, p = .077$ , partial  $\eta^2 = .049$ . Estimated means for these effects, adjusted for level of

socially prescribed perfectionism, are displayed on Figures 2-4. The findings of this analysis indicate that the effects of self-oriented perfectionism on perceived threat and reported effort are unaffected by level of socially prescribed perfectionism.

### 5.5 *Discussion*

Study three illustrated that while there are some similarities between self-oriented perfectionism and conscientious achievement striving, the two personality factors are distinct. Flett and Hewitt (2005, 2006) have argued that while this dimension of perfectionism may appear to have some desirable motivational consequences, it is the other distinct qualities of the construct that render those with higher levels of self-oriented perfectionism vulnerable to psychological and motivational difficulties when personal standards are not met. The purpose of this study was to extend study three and test the contentions of Flett and Hewitt (2005, 2006) by examining the responses of student-athletes higher and lower in self-oriented perfectionism to two successive failures on a muscular endurance task. Based on the assertions of Flett and Hewitt (2005, 2006), it was hypothesised that the experience of failure would be characterised by a more extreme pattern of debilitating cognition, affect and behaviour for those higher in self-oriented perfectionism. That is, it was expected that student-athletes higher in self-oriented perfectionism to exhibit greater levels of threat, negative affect, and thoughts of escape, as well as lower levels of positive affect, satisfaction, effort and performance in comparison to student-athletes reporting lower self-oriented perfectionism. The possibility that these differences were attributable to differences in level of socially prescribed perfectionism was also

examined.

No differences were found between those higher and lower in self-oriented perfectionism in terms of reported affect, thoughts of escape, and performance as a consequence of the two failures. However, the analyses did indicate that following failure in the first trial, those higher in self-oriented perfectionism experienced a more pronounced increase in threat, reported significantly greater reduction in effort from the subsequent trial, and a reported decrease in satisfaction. Moreover, the effects on threat and effort remained statistically significant when controlling for differences between the two groups in level of socially prescribed perfectionism. Although individuals higher and lower in self-oriented perfectionism did not exhibit a wide range of differences in their responses to successive failures, there is evidence within the current study that individuals higher in self-oriented perfectionism find failure, and the possibility of future failure, more aversive than those who are lower in this personality characteristic. These findings are, therefore, broadly consistent with the assertions of Flett and Hewitt (2005, 2006).

#### *5.5.1 The interaction between self-oriented perfectionism and successive personal failure*

The increase in reported threat following initial failure corroborates previous research which has found that personal failure is associated with greater levels of distress (e.g., hostility, shame, rumination, decreased positive affect) for those higher in perfectionism (e.g., Besser et al., 2004, 2008; Frost et al., 1997; Frost et al., 1995; Stoeber, et al., 2008). The aversion to personal failure exhibited by individuals with higher self-oriented perfectionism may reflect the belief that

acceptance is conditional on achievement (Greenspon, 2000). For this reason, achievement striving and personal performance outcomes may carry irrational personal importance (Besser, et al., 2004; Hewitt et al, 1989), and failure in meaningful activities may be perceived to have a number of negative consequences that include shame and embarrassment (Conroy et al., 2007; Flett, Blankstein, Hewitt & Koledin, 1992). The findings from the current investigation suggest that the negative consequences of personal failure may be considered so salient by those higher in self-oriented perfectionism that a single failure, and the possibility of future failure, is enough to evoke elevated levels of anticipatory threat.

This increase in perceived threat was accompanied by a reported decrease in effort on the second trial. It is noteworthy, however, that there was no difference in objective effort (performance and RPM) across the trials above that observed in the other group. This suggests the possibility that, rather than indicating behavioural reduction in effort, the reported reduction in effort may be a self-protective strategy. A number of theoretical models suggest that when achievement carries irrational personal importance, individuals will utilise various defensive strategies and self-serving biases to protect themselves from negative self-perceptions (see Covington, 2000; Crocker & Park, 2003). This is because when achievement striving is regulated in part by a fear of failure, a tension can arise between the need to exert effort in order to attain high personal standards and the possibility that by exerting effort failure may be attributed to low ability (Thompson, 1993). Support for this explanation is provided by field studies revealing individuals higher in self-oriented perfectionism to be more likely to

attribute failure in achievement scenarios to a lack of effort (Blankstein & Winkworth, 2004; Flett, Hewitt, Blankstein, & Pickering, 1998; Spiers Neumeister, 2004). There is also evidence that suggests individuals higher in self-oriented perfectionism may use self-handicapping behaviours when they perceive a lack of control over successful outcomes (Hobden & Pliner, 1995) or experience failure (Doebler, Schnick, Beck, & Astor-Stetson, 2000). Consequently, the current study extends previous research by indicating that individuals higher in self-oriented perfectionism may utilise protective cognitive responses or self-serving attributions in order to avoid perceptions of incompetence.

There were also differences between the higher and lower self-oriented perfectionism group in terms of satisfaction with performance. In comparison to the lower self-oriented perfectionism group, the higher self-oriented perfectionism group reported significantly higher levels of satisfaction with performance in trial one. This difference was no longer present for trial two because, relative to the initial reported satisfaction reported for performance in trial one, the higher self-oriented perfectionism demonstrated a trend towards reporting less satisfaction in trial two whereas the lower self-oriented perfectionism demonstrated a trend towards reporting an increase in satisfaction in trial two. The pattern of these differences was somewhat unexpected. Self-oriented perfectionism is purported to be associated with difficulty deriving a sense of satisfaction from performance because of the degree of goal rigidity they exhibit and an increased sensitivity to discrepancies between performance and personal standards (Besser et al., 2004). It may be that those with higher levels of self-oriented perfectionism are able to gain a sense of satisfaction from their efforts but this is fleeting in the continued

absence of objective success. Because research examining the relationship between self-oriented perfectionism and satisfaction has produced mixed findings (e.g., Hill et al., 2008; Mor et al., 1995), further research is required before this findings can be more clearly understood.

The cognitive, affective and behavioural response to failure observed in the current investigation was limited to perceived threat, reported effort and satisfaction. Why no other differences between the groups were observed is unclear. It may be that the achievement task was not sufficiently meaningful to evoke substantial differences between the two groups. However, the increase in perceived threat reported by the higher group suggests that this is unlikely to be the case. An alternative explanation is that the impact of personal failure on some of the individuals higher in self-oriented perfectionism was attenuated by third-order variables not assessed in the current investigation. Flett and Hewitt (2005) have argued that a number of situational variables (e.g., perceived competence, perceived task difficulty, nature of evaluative threat, task focus) may be influential in determining the consequences of self-oriented perfectionism. The current findings indicate that self-serving attributions may be used by those higher in self-oriented perfectionism to protect against perceptions of incompetence. It is likely that other psychological mechanisms can also offset the experience of failure. It may therefore take more than two failures to substantially undermine perceptions of competence and other factors that lead to resiliency, especially on a contrived task. A further possibility is that the consequences of personal failure extend beyond the cognitive, affective and behavioural measures that were assessed. For example, the experience of guilt, shame and anger, may be more important

affective outcomes than generic affect when those higher in self-oriented perfectionism contend with personal failure (see Stoeber et al., 2008).

## 5.6 *Conclusion*

The finding of study three provided some initial evidence that suggested that self-oriented perfectionism may have some negative consequences for athletes. The current study demonstrated that this dimension of perfectionism is likely to lead to a number of psychological and motivational difficulties when athletes experience failure. Consequently, the findings of the current study are broadly consistent with Flett and Hewitt's (2005, 2006) suggestions that self-oriented perfectionism may represent a vulnerability factor. In the current study, the proposed motivational and psychological difficulties manifested in elevated levels of threat appraisal and reported withdrawal of effort. Consequently, personal failure and the possibility of future personal failure appear to be a potential source of distress for those higher in this dimension of perfectionism. This remained the case even after controlling for levels of socially-prescribed perfectionism. The source of these psychological difficulties is presumed to be, at least in part, an irrational importance attached to performance which may stem from a conditional sense of self-acceptance, or contingent self-worth (Lundh, 2004; Lundh, Saboonchi, & Wangby, 2008). Interestingly, both self-oriented and socially prescribed perfectionism are associated with contingent self-worth; however, clearly, these two dimensions of perfectionism are likely to have divergent consequences for athletes. A potential explanation for why contingent self-worth manifests in different consequences for these two dimensions of perfectionism is examined in study five.

## Endnotes

<sup>1</sup> Preliminary analysis indicated that some of the variables were not normally distributed in each group. However, because ANOVA is generally considered robust when (i) groups are equal group size, (ii) there are 20 degrees of freedom for error and (iii) non-normality is not caused by the presence of outliers (Tabachnick & Fidell, 2007), we proceeded with the intended analyses. In some instances homogeneity of variances was also not supported. In all cases, however, variance ratios were below four. Because the group sizes were equal and variance ratios are below four, the degrees of heterogeneity of variances were considered unproblematic (Myers & Well, 2003).

<sup>2</sup> Prior to conducting these analyses the additional assumptions of ANCOVA were examined (linear relationship between dependent variables and covariates, homogeneity of regression slopes, reliable measurement of covariate). Correlations between socially prescribed perfectionism (covariate) and the dependent variables were small for both threat ( $r = .27, p < .05$ , and  $r = .23, p = .065$ ) and satisfaction ( $r = -.08, p = .527$  and  $r = -.242, p = .051$ ) and nominal for effort ( $r = .07, p = .561$ , and  $r = -.09, p = .480$ ). The homogeneity of regression slopes (independent variable x Covariate interaction) assumption was checked for each ANCOVA. None of the interactions between self-oriented perfectionism group and socially prescribed perfectionism were statistically significant indicating that the regression slopes for each group are similar. In other words, the effect of self-oriented perfectionism on the dependent variables was not dependent

on the level of socially prescribed perfectionism. Finally, the measurement of the covariate was considered sufficiently reliable ( $\alpha = .74$ ).

Chapter Six: The relationship between perfectionism and contingencies of self-worth

“Graham Poll blows the final whistle. The sense of relief is overwhelming...The fear of failure which drives us is exorcized...I don't play football to be famous or celebrated...Happiness is not being afraid.”

*Roy Keane*

The four previous studies of the thesis suggest that self-oriented and socially prescribed perfectionism are likely to have distinct consequences for athletes. While socially prescribed perfectionism appears uniformly debilitating, self-oriented perfectionism appears to be best considered a vulnerability factor. In the current chapter the similarities and differences between self-oriented and socially prescribed perfectionism are examined further using Crocker and colleagues' model of contingencies of self-worth (Crocker et al., 2003; Crocker & Wolfe, 2001; Crocker & Park, 2004). It is argued that while both share an association with contingent self-worth (Besser et al., 2003; Hill et al., 2008; Scott, 2007), socially prescribed perfectionism invariably leads to psychological difficulties because the domains in which self-worth is staked are external and entail relatively little personal control (e.g., approval of others). Self-oriented perfectionism, on the other hand, leads to vulnerability to psychological

difficulties because self-worth is staked in domains over which individuals have a greater degree of personal control (e.g., personal competencies). The purpose of study five was to examine the relationship between self-oriented and socially prescribed perfectionism and contingencies of self-worth and test the contention that, while they both entail contingent self-worth, the type of contingencies are different. First, theoretical and empirical evidence that suggests that contingent self-worth is a core characteristic of dimensions of perfectionism is reviewed. This is followed by a discussion of the possibility that different contingencies of self-worth underpin self-oriented and socially prescribed perfectionism. An empirical study that examined the relationship between self-oriented and socially prescribed perfectionism and contingencies of self-worth is then provided.

#### 6.1 *Multidimensional perfectionism and contingent self-worth*

A number of early theorists suggested that perfectionism may be a strategy to compensate for a perceived lack of self-worth (e.g., Alder, 1956; Burns, 1980; Hollander, 1965). More recently, Greenspon (2000, 2008) has argued that feelings of conditional self-acceptance are central to both the etiology and maintenance of perfectionism. Research has provided some support for these assertions by demonstrating a positive association between various dimensions of perfectionism and the belief that acceptance is conditional, meaning that self-worth can only be established through recognised accomplishment (e.g., Flett et al., 2003; Koivula et al., 2002; Scott, 2007). For example, Koivula and colleagues (Koivula et al., 2002) found that aspiring Olympic athletes who were considered to have a perfectionist profile (higher personal standards, higher concern over mistakes and higher doubts about action) were characterised by lower levels of unconditional

acceptance (basic self-esteem) and higher levels of self-acceptance based on the appreciation of others, personal competence and control over others (earning self-esteem). Similarly, as discussed earlier, Hill et al. (2008) also recently found that both self-oriented and socially prescribed perfectionism were negatively related to unconditional self-acceptance in junior elite soccer players.

Ordinarily, striving to reach exceedingly high goals ought to have few negative consequences for athletes. In fact, the pursuit of high standards is necessary in order to develop athletic competence (Weinberg, et al., 2000). However, when the pursuit of exceptionally high standards is tied to perceptions of self-worth it may lead to a more extreme pattern of achievement striving. Moreover, when nothing but perfection is considered acceptable, conditional self-acceptance is likely to render individuals vulnerable to psychological difficulties when the goal of proving ones worth is thwarted (DiBartelo, Frost, Chang, LaSota, & Grills, 2004; Lundh, 2004, Lundh et al., 2008). This means that, while the pursuit of conditional self-acceptance may be an energising factor regulating achievement striving in perfectionists, it may also be the basis for impending psychological difficulties (Hill et al., 2008).

The prominence of a conditional sense of self-worth is evident in conceptualisations of both self-oriented and socially prescribed perfectionism. Self-oriented perfectionism involves the belief that *self*-acceptance is based on the attainment of exceedingly high *personal* standards. In contrast, socially prescribed perfectionism involves the belief that *self* and *other*-acceptance is contingent upon the attainment of exceedingly high standards that are perceived to be *externally* imposed by others. Empirical findings have confirmed their positive association

with a conditional sense of self-acceptance. Further, in support of the assertions of Hewitt, Flett and colleagues, this research also suggests that conditional acceptance is a significant source of the psychological and emotional difficulties associated with these dimensions of perfectionism (Flett et al., 2003; Flett, Russo, & Hewitt, 1994; Hill et al., 2008; Scott, 2007; Stoeber, Kempe, & Keogh, 2008; Campbell & DiPaula, 2002).

The notion that conditional self-acceptance provides the basis for psychological difficulties for individuals with higher levels of self-oriented and socially prescribed perfectionism is consistent with a number of approaches to the examination of self-worth in social and counselling psychology (e.g., Deci & Ryan, 1995; Ellis, 2003; Kernis, 2003; Rogers, 1996). Deci and Ryan (1995) defined contingent self-worth as worth based upon the attainment of generalised inter-personal or intra-psychic expectations. In comparison, non-contingent self-worth (true self-worth) is described as self-worth that is secure and independent from the attainment of these generalised inter-personal or intra-psychic expectations. According to these models it is whether self-worth is contingent or not that strongly influences psychological and emotional adjustment (see Kernis, 2003). From this perspective, self-oriented and socially prescribed perfectionism are both expected to lead to psychological difficulties because they are associated with contingent as opposed to non-contingent self-worth. This approach, however, provides little opportunity to distinguish between self-oriented and socially prescribed perfectionism and explain why conditional acceptance manifests in different consequences depending on the dimension of perfectionism that is examined.

The work of Crocker and colleagues (Crocker et al., 2003; Crocker & Wolfe, 2001; Crocker & Park, 2004) may serve to explain why the contingent self-worth associated with self-oriented and socially prescribed perfectionism lead to divergent consequences. This is because rather than emphasising between-person differences in contingent or non-contingent self-worth, their approach considers the domains in which worth is contingent as more important. Contingencies of worth are the domains in which self-esteem is staked, enhanced and threatened (Crocker et al., 2003). Although contingencies of self-worth are wide and varied, Crocker and colleagues (Crocker et al., 2003; Crocker & Park, 2004; Crocker & Wolfe, 2001) have identified a number of common and important contingencies of worth that include personal competencies, interpersonal competition, and the approval of others. They argue that attempts to satisfy any contingency of self-worth are likely to have personal and interpersonal costs such as thwarting psychological needs and poorer mental and physical health (see Crocker & Park, 2004); however, in this model some contingencies are considered to be more divisive than others. In particular, contingencies that involve external validation (e.g., approval of others) are suggested to be associated with greater psychological maladjustment than those that can be internally referenced (e.g., personal competence) (see Crocker, 2002; Crocker & Park, 2004). This is because internal contingencies entail a greater degree of personal control and are therefore more easily satisfied than external contingencies (Crocker, 2002; Crocker & Wolfe, 2001). As a result, in comparison to external contingencies, internal contingencies can provide a more stable sense of self-esteem and lead to fewer psychological difficulties (see also

Kernis, 2003). In contrast, external contingencies are both more difficult to satisfy and maintain, and are perceived to need to be pursued more frequently and intensely (Crocker & Park, 2004). As a result, they are also associated with greater labile self-esteem and poorer adjustment (see also Kernis, 2003).

Differences in the contingencies of self-worth associated with socially prescribed perfectionism and self-oriented perfectionism may explain why socially prescribed perfectionism is invariably associated with psychological difficulties, while self-oriented perfectionism is only considered to render athletes vulnerable to debilitating consequences when achievement difficulties are experienced. Because both self-oriented and socially prescribed perfectionism are associated with an ego-orientation (e.g., Appleton, et al., 2009; Dunn et al., 2002), it is probable that both will include the desire to establish a sense of self-worth through superior performance in inter-personal competition. However, unlike self-oriented perfectionism, socially prescribed-perfectionism is also likely to be associated with contingencies that pertain to the importance of the acceptance of others (e.g., the approval of others). This is because this interpersonal dimension of perfectionism is purported to partly reflect a neurotic need to please others (Hewitt & Flett, 1991). This is evident in previous research which has demonstrated that this dimension of perfectionism is related to a strong desire for approval and a fear of negative evaluation (Hewitt & Flett, 1991). Conversely, self-oriented perfectionism is more likely to be associated with contingencies that pertain to personal competencies (e.g., academic competence, sport competence) because of the intrapersonal nature of the personal standards pursued (Hewitt & Flett, 1991, 1993). In addition, self-oriented perfectionism appears unrelated to

the desire for approval from others or fear of negative evaluation although is associated with facets of Type A personality that reflects a preoccupation with personal accomplishment (Hewitt & Flett, 1991; Flett, Hewitt, Blankstein, & Dynin, 1994).

## 6.2 *Purpose of study six*

The purpose of this study is to build on the previous four studies of the thesis by examining the possibility that the divergent consequences of self-oriented and socially prescribed perfectionism are explained by different contingencies of self-worth. Based on the preceding conceptual argument, it was hypothesised that socially prescribed perfectionism would be predicted by contingencies of self-worth based on outperforming others and the approval of others whereas self-oriented perfectionism would be predicted by contingencies of self-worth based on outperforming others and personal competence.

## 6.3 *Method*

### 6.3.1 *Participants*

Participants were 248 (134 males, 86 females, 28 non-respondents) student athletes enrolled on sport science degrees (age  $M = 19.08$ ,  $SD 2.36$ , range 18-49). Participants complete a multi-sectional questionnaire that contained measures of self-oriented and socially prescribed perfectionism and contingencies of self-worth prior to a research methods class. Informed consent was gained from each participant prior to completion of the questionnaire.

### 6.3.2 *Instruments*

*Multidimensional Perfectionism:* Self-oriented (SOP) and socially prescribed perfectionism (SPP) were assessed using Hewitt and Flett's (1991)

Multidimensional Perfectionism Scale (HMPS). See chapter two for a discussion of this measure.

*Contingences of self-worth:* Contingencies of self-worth were measured using two subscales from Crocker et al.'s (2003) Contingencies of Self-Worth Scale and a subscale from Kernis and Paradise's (Kernis, 2003; Paradise & Kernis, 1999) Contingent Self-esteem Scale. The Contingencies of Self-Worth Scale contains seven subscales that measure sources of self-esteem. These are academic performance, competitive superiority, approval from generalized others, physical appearance, affection of family, God's love and virtue. Each subscale contains 5-items that are scored on a seven-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). The approval from generalised others subscale (C-OA) (e.g., "My self-esteem depends on the opinions others hold of me." "I can't respect myself if others don't respect me.") and the competitive superiority subscale (C-CS) (e.g., "My self-worth is affected by how well I do when competing with others." "Knowing that I am better than others on a task raises my self-esteem.") were selected from this scale to be used in the current study. Kernis and Paradise's (Kernis, 2003; Paradise & Kernis, 1999) Contingent Self-esteem Scale assesses a generalised contingent self-worth, rather than domain specific measure of contingent self-worth. However, the items in the scale can be divided in to subscales that reflect competence based, social based and physical appearance based sources of self-esteem. The subscale that assesses contingent self-worth derived from a general sense of personal competence was used in the current study (K-PC) (e.g., "When my actions do not live up to my expectations, it makes me feel dissatisfied with myself." "An important measure of my worth is

how competently I perform.”). This subscale contains 5-items that are scored on a five-point Likert scale (1 = *not at all like me* to 5 = *very much like me*). These three subscales (competence based, approval from generalised others, and competitive superiority) were selected as they were considered to measure the contingencies that were most likely to capture the differences between self-oriented and socially prescribed perfectionism.

Crocker et al. (2002) have provided evidence to support the validity and the reliability of the measurement associated with the two subscales of the Contingencies of Self-Worth Scale. This includes acceptable factor stability, internal consistency ( $\alpha = \text{C-OA } .82$  and  $\alpha = \text{C-CS } .87$ ) and test-retest reliability ( $r = \text{C-OA } .61$  and  $r = \text{C-CS } .61$ ). Similar evidence of the reliability and validity of the measurement associated with the Contingent Self-esteem Scale has also been provided by those that have used the scale (Patrick, Neighbors, & Knee, 2004; Knee, Canevello, Bush, & Cook, 2008). This includes acceptable levels of internal consistency ( $\alpha = \text{K-PC } .85$ ) and test-retest reliability ( $r = \text{K-PC } .77$ ) (Kernis, 2003; Paradise & Kernis, 1999).

## 6.4 *Results*

### 6.4.1 *Preliminary analysis*

Prior to the main analyses, a missing value analysis was conducted on the data. Due to large amounts of missing data from individual respondents (> 5%), six participants were removed from the sample. There were 203 complete cases and 39 cases with incomplete data. For those with incomplete data, the average percentage of missing values due to item non-response was 2.54% ( $SD = 0.80$ , range = 2.20 to 4.40%). This percentage of missing data is the equivalent of just

over 1 item ( $M = 1.15$ ,  $SD = 0.37$ , range 1 to 2). Because there was a relatively high ratio of unique patterns of missing data to the number of participants with missing data ( $= .62$ ) and the majority of the shared patterns involved one or two missing items (79%), the mechanism that underpins the missing data is likely to be a non-systematic. Each missing item was therefore replaced using the mean of each case's available non-missing items from the relevant subscale. This method of imputation is considered to be an appropriate strategy when the amount of missing data is low and items are highly correlated (Graham et al., 2000).

Next, the data was screened for univariate outliers (see Tabachnick & Fidell, 2007). Standardised z-scores larger than 3.29 ( $p < .001$ , two-tailed) were used as criteria for univariate outliers. This procedure led to the removal of three participants. Two further outliers were also removed as they were clear outliers relative to the remaining data (zscores = 3.27). The remaining data ( $n = 239$ ) were considered to be approximately univariate normal (absolute skewness  $M = 0.82$ ,  $SD = 0.31$ ,  $SE = 0.16$ , absolute kurtosis  $M = 0.70$ ,  $SD = 0.56$ ,  $SE = 0.31$ ). Finally, internal reliability analysis (Cronbach's alpha) was performed on each scale. All instruments demonstrated sufficient internal consistency (above 10 items  $\alpha = .70$  >, above 5 items  $\alpha = .60$ ; Loewenthal, 2001). The values are displayed in Table 1.

#### 6.4.2 *Descriptive Analyses*

The descriptive statistics are displayed in Table 1. As with the samples recruited in the other studies of the thesis, participants reported moderate-to-high levels of self-oriented perfectionism and low-to-moderate levels of socially prescribed perfectionism (seven-point Likert scale). The sample reported

Table 1 *Descriptive statistics, bivariate correlations, and internal reliability coefficients for dimensions of perfectionism and contingencies of self-worth*

Variable	1	2	3	4	<i>M</i>	<i>SD</i>	$\alpha$
1. Self-oriented perfectionism					4.67	0.76	.82
2. Socially prescribed perfectionism	.25**				3.62	0.62	.71
3. Self-worth contingent on outperforming others	.31**	.33**			4.54	1.02	.82
4. Self-worth contingent on the approval of others	.04	.21**	.09		3.80	1.19	.72
5. Self-worth contingent on personal competence	.26**	.29**	.47**	.39**	3.43	0.61	.60

\*\*  $p < .01$       \*  $p < .05$

moderate levels across all of the contingencies of self-worth scales (seven-point and five-point Likert scales). The size and pattern of these mean scores are similar to those reported elsewhere (e.g., Crocker et al., 2002).

#### 6.4.3 *Bivariate Correlations*

The bivariate relationships between dimensions of perfectionism and contingencies of self-worth are displayed in Table 1. Self-oriented perfectionism was positively related to self-worth contingent on outperforming others and self-worth contingent on personal competence. It was unrelated to self-worth contingent on others' approval. Socially prescribed perfectionism, on the other hand, was positively related to all contingencies of self-worth. The relationships between dimensions of perfectionism and contingencies of self-worth were generally moderate in size (Cohen, 1993).

#### 6.4.4 *Regression analyses*

Regression analyses were used to examine whether different contingencies of worth predict self-oriented and socially prescribed perfectionism. Preliminary analysis indicated that multicollinearity between variables were unproblematic (tolerance). There was a lack of autocorrelation (Durbin-Watson) and residuals were normally distributed and homoscedastic (based on standardised predicted values-standardised residuals plots). The results of these analyses are displayed in Table 2. Socially prescribed perfectionism was predicted by contingencies of self-worth based on outperforming others and the approval of others. Self-worth contingent on personal competence was not a significant predictor of socially prescribed perfectionism. Self-oriented perfectionism was predicted by

Table 2 *The prediction of self-oriented and socially prescribed perfectionism using contingencies of self-worth*

Criterion Variable	Predictor variables	<i>F</i>	df	<i>R</i> <sup>2</sup>	Adjusted <i>R</i> <sup>2</sup>	$\beta$	<i>t</i>
Socially prescribed perfectionism		13.62**	3, 238	.15	.14		
	Outperforming others					.27	4.90**
	Approval of others					.15	2.25**
	Personal competence					.10	1.38
Self-oriented perfectionism		10.12**	3, 238	.11	.10		
	Outperforming others					.23	3.25**
	Approval of others					-.05	0.74
	Personal competence					.18	2.35**

Regression one Durbin-Watson = 1.97, Tolerance = .66 to .74.

Regression two Durbin-Watson = 1.97, Tolerance = .66 to .74.

\*\*  $p < .01$       \*  $p < .05$

contingencies of self-worth based on outperforming others and personal competence. Self-worth contingent on the approval of others was not a significant predictor of self-oriented perfectionism.

## 6.5 *Discussion*

The studies of the thesis so far have demonstrated that self-oriented and socially prescribed perfectionism are likely to have divergent consequences for athletes. Consistent with research outside of the sport domain, socially prescribed perfectionism appears to be uniformly debilitating while self-oriented perfectionism appears to be best considered a vulnerability factor. The present study sought to extend this line of research by examining whether differences in their consequences can be explained by differences in contingencies of self-worth. Utilising Crocker and colleagues (Crocker, 2002; Crocker et al., 2002) model of contingencies of self-worth, it was hypothesised that self-oriented perfectionism would be predicted by contingencies of self-worth based on outperforming others and personal competence, whereas socially prescribed perfectionism would be predicted by contingencies of self-worth based on outperforming others and the approval of others. Regression analyses supported this hypothesis.

### 6.5.1 *Contingencies of self-worth and multidimensional perfectionism*

One of the central tenets of Crocker's model is that while contingencies of self-worth represent important psychological vulnerabilities (Crocker, 2002), some contingencies render individuals more vulnerable to maladjustment than others. Therefore, while the perceived need to defend, maintain and enhance self-worth will place strain on the cognitive, emotional and physical resources of both athletes with higher levels of self-oriented and socially prescribed perfectionism

(see Kernis, 2003), because some of the contingencies of worth associated with self-oriented perfectionism entail a greater degree of personal control (personal competence versus approval of others), they are comparatively easier to satisfy. Consequently, those with higher levels of self-oriented perfectionism are likely to experience relatively fewer psychological difficulties as a consequence of the contingencies of self-worth it is associated with in than those with higher levels of socially prescribed perfectionism who stake self-worth in domains over which they have little or no control (approval of others). Both the type of the contingencies of self-worth that are associated with these dimensions of perfectionism and the chronic tendency to construe them as successfully fulfilled may therefore be important moderating factors in determining the negative consequences of self-oriented and socially prescribed perfectionism.

Outperforming others is a self-worth contingency associated with both self-oriented and socially prescribed perfectionism. This suggests that competitive outcomes and comparative ability appraisals are potential sources of psychological distress for athletes with higher levels of either self-oriented or socially prescribed perfectionism. It is clear that when these athletes are able to demonstrate and maintain perceptions of comparative superiority they will experience few psychological difficulties. However, in comparison to athletes with higher levels of self-oriented perfectionism, those with higher levels of socially prescribed perfectionism are likely to find it difficult to maintain such perceptions. This is because this dimension of perfectionism is associated with a sense of helplessness and a chronic sense of falling short of comparative standards (Flett, Hewitt, Blankstein, & O'Brian, 1991; Thompson & Zuroff, 2004;

Trumpeter et al., 2006) that is not evident in self-oriented perfectionism.

Therefore, athletes with higher levels of self-oriented perfectionism have greater opportunity to mitigate the effects of this particular contingency of self-worth.

Moreover, this particular contingency of self-worth is likely to be comparatively more problematic for those with higher levels of socially prescribed perfectionism than those with higher level of self-oriented perfectionism.

Socially prescribed perfectionism was also associated with the self-worth based on the approval of others. The approval of others is suggested to be an especially problematic domain in which to stake self-worth as is difficult to always avoid the disapproval of others, especially when the approval of generalised others is sought rather than any specific individual or group (Crocker & Park, 2004). There is also reason to suspect that this contingency may be particularly challenging for those with higher levels of socially prescribed perfectionism. This is because this dimension of perfectionism entails both negative perceptions of interpersonal relationships and problematic interpersonal behaviours that may undermine the positive relationships required to gain the approval of others. These include perceptions of lower social skills (Flett, Hewitt, & De Rosa, 1996), perceptions of higher frequency of negative social interactions (Flett, Hewitt, Garshowitz, & Martin, 1997), general hostile-dominant characteristics (Hill et al., 1997), over-controlling and conflict oriented coping behaviours in close relationships (Hewitt et al., 2000; Haring, Hewitt, & Flett, 2003), other blame (Hewitt and Flett, 1991), and outward focused anger (Flett, Hewitt, Blankstein, & Dynin, 1994). Consequently, the presence and inability to

satisfy this contingency may be a significant source of negative psychological consequences for athletes with higher levels of socially prescribed perfectionism.

Self-oriented perfectionism, in contrast, was associated with a generalised competence based contingency of self-worth. In comparison to staking self-worth on the approval of others, this contingency entails a greater degree of control, may be more easily satisfied and lead to relatively fewer psychological difficulties (Crocker, 2002; Crocker & Wolfe, 2001). However, it is noteworthy that the pursuit of competence based contingencies are also purported to have negative consequences that include learning and performance deficits (Crocker & Park, 2004; Kernis, 2003). This is primarily because in some circumstances defensive strategies aimed at maintaining and protecting self-worth (e.g., avoidance, self-handicapping) undermine the development of competence (Crocker & Park, 2004; Kernis, 2003). This provides further evidence for the possibility that, while this dimension of perfectionism may appear to energise desirable behaviours, in some instances it may also lead to self-defeating behaviours (Flett & Hewitt, 2006). It may be that the reported withdrawal of effort by those with higher levels of self-oriented perfectionism in study four is an example of the self-protective strategies used to avoid perceptions of incompetence. Moreover, as discussed in study four, there is evidence that suggests self-oriented perfectionism is associated with self-handicapping behaviours when they perceive a lack of control over successful outcomes or experience failure (Hobden & Pliner, 1995; Doebler et al., 2000). Consequently, the findings suggest that while the costs of pursuing self-worth associated with self-oriented perfectionism are likely to be comparatively fewer than those associated with socially prescribed perfectionism, the contingencies

associated with self-oriented perfectionism may still undermine the ability of athletes to develop their potential fully.

## 6.6 *Conclusion*

The previous four studies of the thesis suggest that self-oriented and socially prescribed perfectionism will have divergent consequences for athletes. Building upon this, the findings of the current study suggests that these dimensions of perfectionism entail a number of domain-specific contingencies of self-worth that are likely to contribute to these different consequences. The presence of these contingencies will render individuals with higher levels of either self-oriented or socially prescribed perfectionism vulnerable to psychological and motivational difficulties when self-worth is brought in to question. However, in comparison to the contingencies of self-worth associated with socially prescribed perfectionism, the type of contingencies that underpin self-oriented perfectionism entail a greater degree of personal control and will lead to comparatively fewer psychological difficulties. The type of contingencies of self-worth and ease with which they can be satisfied appear therefore to be important moderating factors with the potential to mitigate the negative consequences of self-oriented and socially prescribed perfectionism. In an attempt to begin to identify possible situational strategies that may mitigate the negative consequences of these dimensions of perfectionism, the final study of the thesis sought to examine the relationship between self-oriented and socially prescribed perfectionism and a negative self-critical cognitive style and whether their relationships can be moderated by perceptions of the achievement climate.

Chapter Seven: Perfectionism and self-criticism: The moderating influence of the achievement climate

“I am emotional. I am a self-critical perfectionist...I’m striving for something I’ll never achieve - I’m a mess.”

*Victoria Pendleton*

The findings of study five suggested that the self-oriented and socially prescribed perfectionism are underpinned by different contingencies of self worth that are likely to strongly influence their consequences. In this chapter it is argued that this is likely to include the experience of chronic self-focused attention and a negative self-critical cognitive style that is suggested to be a significant source of psychological maladjustment amongst perfectionists (Dunkley, Zuroff & Blankstein, 2006). It is also argued that if the negative consequences of perfectionism are to be moderated, strategies are required that mitigate the negative self-critical cognitive style by promoting task focus, rather than focus on the fulfilment of self-worth contingencies (Kaplan & Maehr, 2007). The purpose of the final study of the thesis was to examine the relationship between self-oriented and socially prescribed perfectionism and disparate negative self-critical cognitive styles (comparative versus internal self-criticism), and whether these relationships could be moderated by perceptions of a task-involving or an ego-

involving motivational climate. The association between contingencies of self-worth, perfectionism, self-focused attention and a negative self-critical cognitive style are first discussed. A theoretical explanation for the potential moderating role of the achievement climate is then provided. This is followed by an empirical study that examines the interaction between dimensions of perfectionism and perceptions of the achievement climate when predicting disparate negative self-critical cognitive styles (internal versus comparative).

### *7.1 Contingencies of self-worth, perfectionism, self-focused attention and self-criticism*

The presence of contingencies of self-worth are likely to have an important influence on the cognition, affect and behaviour exhibited by athletes with higher levels of self-oriented and socially prescribed perfectionism (Crocker, 2002; Crocker & Park, 2004; Crocker & Wolfe, 2001). In particular, the dependence of positive self perceptions on outperforming others, personal competence and the approval of others may be responsible for the cognitive preoccupation with perfection and self-criticism reported by perfectionists (Barrow & Moore, 1986; Burns, 1980). Flett, Hewitt and colleagues (Flett, Hewitt, Blankstein, & Gray, 1998) have argued that at a state level self-oriented and socially prescribed perfectionism manifest in the experience of intrusive and negative thoughts that revolve around the desire for perfection. Empirical examination of the relationship between these dimensions of perfectionism and ruminative cognitions provide some support for these suggestions. Specifically, self-oriented and socially prescribed perfectionism are associated with prolonged periods of mental perseveration about mistakes, failure and potential failure

(Ferrari, 1995; Flett, Hewitt, Blankstein, & Gray, 1998; Flett & Genest, 1990; Flett, Greene, & Hewitt, 2004; Flett, Madorsky, Hewitt, & Heisel, 2002).

According to Mor and Winquist (2002), within self-regulatory models (e.g., Carver & Scheier, 1986, 1990; Duval & Wicklund, 1972; Marten & Tesser, 1996; Pyszczynski & Greenberg, 1987) this rumination can be viewed as a unique form of self-focused attention that is instrumental in instigating self-evaluation (Duval & Wicklund, 1972; Carver & Scheier, 1986, 1990) and monitoring self-standard discrepancies (Scheier & Carver, 1983; Gibbons, 1990; Ickes et al., 1973). Under normal circumstances, self-focused attention serves an adaptive self-regulatory function that aids achievement striving (Carver & Scheier, 1990); however, when it becomes rigid, chronic or excessive it can lead to various dysfunctional outcomes (Ingram, 1990; Marten & Tesser, 1996; Pyszczynski & Greenberg, 1987). In Pyszczynski and Greenberg's (1987) self-perseveration model, this can become the case when failure to attain desired goals reflects a loss of a central source of self-worth or emotional security. Under these circumstances individuals can be unwilling or unable to exit the self regulatory cycle, and are stuck trying to reduce an irreducible discrepancy. At this point, individuals experience intense negative affect, self-criticism, self-blame, and the eventual adoption and acceptance of a negative self-image (Pyszczynski & Greenberg, 1987). As the goals that self-oriented and socially prescribed pursue are tied to a sense of self-worth, in the face of achievement difficulties disengagement from self-focused attention is effectively blocked by the importance of the goal to a sense of self (Carver & Scheier, 1990; Koole, Smeets, Van Knippenberg, & Dijksterhuis, 1999). So while behavioural pursuit may have ended, pursuit

continues in the form of rigid cognitive perseveration of their goals and a negative self-critical cognitive style associated with their lack of goal attainment (Carver & Scheier, 1990). Moreover, it is this enduring negative self-critical cognitive style that has been found to explain a number of their negative effects outside of sport (Dunkley, Zuroff & Blankstein, 2006). Understanding the relationship between self-oriented and socially prescribed perfectionism and this negative self-critical cognitive style, and identifying factors that moderate their relationship, is therefore central to attempting to manage the negative effects of these dimensions of perfectionism for athletes.

### *7.2 Multidimensional perfectionism and its association with different levels of self-criticism*

Dunkley and colleagues (Dunkley & Blankstein, 2000; Dunkley, Zuroff & Blankstein, 2003; Dunkley, Zuroff & Blankstein, 2006; Powers, Zuroff, & Topciu, 2004; Dunkley & Kyparissis, 2008; Dunkley, Blankstein, Zuroff, Leece & Hui, 2006) have recently begun to examine the association between dimensions of perfectionism and Blatt's (DEQ-SC; Blatt's 1974; Blatt, D'Afflitti & Quinlan, 1976) negative self-critical cognitive style (labelled self-criticism by Blatt et al.). Self-criticism entails concerns about feeling guilt, hopeless, and unsatisfied as a consequence of failing to meet important standards, as well as assuming blame and being self-critical in response (Blatt, D'Afflitti & Quinlan, 1976). The findings from this research suggest that both self-oriented and socially prescribed perfectionism have a robust association with self-criticism (Dunkley & Blankstein, 2000; Dunkley, Blankstein, Zuroff et al., 2006; Dunkley, Zuroff, and Blankstein, 2006; Powers et al., 2004) and that self-criticism explains a number of

the negative consequences of dimensions of perfectionism (FMPS and HMPS) in student samples. This includes affective experiences (affect, general anxiety symptoms, general depressive symptoms), coping strategies (avoidant coping) and appraisal of coping resources (perceived social support) (Dunkley, Blankstein, Masheb, & Grilo, 2006; Dunkley, Sanislow et al., 2006; Dunkley, Zuroff and Blankstein, 2006; Gilbert, Durrant, & McEwan, 2006). Consequently, Dunkley and colleagues have argued that many of the negative consequences of perfectionism may be accounted for by the negative cognitive style captured by Blatt and colleagues' self-criticism measure.

As seen in study five, however, self-oriented and socially prescribed perfectionism entail different contingencies of self-worth that are likely to lead to divergent self-evaluative processes. While self-oriented perfectionism includes internal standards (personal competence), socially prescribed perfectionism includes external standards (approval of others). The influence of these differences on the self-critical appraisals associated with these dimensions of perfectionism is evident in research by Thompson and Zuroff (2004) who has distinguished between a self-critical cognitive style based upon personal and interpersonal standards. Comparative self-criticism is characterised by the perception that one is falling short of the relative standards of others, that others are overly critical and subsequent feelings of relative inferiority. Internal self-criticism, on the other hand, is characterised by a combination of a chronic sense of failure against one's own exceedingly high standards and a self-critical response in which failure is considered as an indication of worthlessness and success is reappraised as failure. Research suggests socially prescribed perfectionism is

associated with both internal and comparative self-criticism but more so with comparative self-criticism. Self-oriented perfectionism, on the other hand, is principally associated only with internal self-criticism (Thompson & Zuroff, 2004; Trumpeter, Watson, & O’Leary, 2006). The relationship between self-oriented perfectionism and comparative self-criticism remains unclear because research has found both positive and negative relationships between them (Thompson & Zuroff, 2004; Trumpeter et al., 2006). Clearly, the consequences of self-oriented and socially prescribed perfectionism must be understood in terms of potentially divergent negative cognitive styles based on comparative versus internal standards.

Research examining the consequences of internal and comparative self-criticism suggests that both of these cognitive styles are associated with negative consequences (Ongen, 2006; Katz & Nelson, 2007; Thompson & Zuroff, 2004; Trumpeter et al., 2006). Both are positively related to neuroticism, distress, depression, avoidant and anxious attachment styles, submissive social behaviour and poorer interpersonal coping, and both are inversely related to self-esteem. However, the relationship between comparative self-criticism and these maladaptive outcomes are typically larger than those associated with internal self-criticism. In addition, unlike internal self-criticism, comparative self-criticism is also inversely related to conscientiousness, extraversion and self-control. Consequently, while both are problematic, internal self-criticism appears to be associated with marginally fewer psychological difficulties (Ongen, 2006; Katz & Nelson, 2007; Thompson & Zuroff, 2004; Trumpeter et al., 2006). Research has yet to examine the consequences of these negative cognitive styles for athletes;

however, a substantial amount of research suggests that utilising external and comparative standards as the basis for personal success is especially debilitating for athletes, particularly when coupled with doubts about ability (see Duda, 1992, 2001, 2005). It is also noteworthy that one of the consequences of the use of external standards is elevated levels of anxiety that is purported to precede the development of burnout (e.g., Hall & Kerr, 1998; Hall et al., 1998; White & Zellner, 1996). Higher levels of comparative self-criticism may therefore be a further explanation for why socially prescribed perfectionism is positively related to burnout, while self-oriented perfectionism is inversely related to burnout, in studies one and two.

### 7.3 *Perfectionism, achievement goals, achievement climate and self-criticism*

If the negative consequences of self-oriented and socially prescribed perfectionism are to be managed, strategies are required that address the irrational beliefs regarding the nature of self-worth and its relationship with performance. However, the inter-relationship between contingencies of self-worth, perfectionism, and a negative self-critical cognitive style reflect a largely intrapsychic process characterised by securely embedded beliefs which provide limited opportunity for intervention outside the use of cognitive restructuring (Crocker & Park, 2003). However, in the majority of cases, this type of intervention is impractical as coaches, parents and others responsible for the welfare and development of athletes typically do not have the expertise to do so. Because perfectionism has been linked to patterns of achievement goals indicative of overstriving (see Spiers Neumeister & Finch, 2006; Van Yperen, 2006), an alternative strategy may be to socialise the propensity for more adaptive goals,

motives and beliefs through the development of a consistent achievement environment that promotes task focus, rather than focus on the fulfilment of self-worth contingencies. This may subsequently mitigate the negative self-critical cognitive style associated with perfectionism (Brophy, 1987; Kaplan & Maehr, 2007).

Kaplan and Maehr (2007) have recently argued that promoting task and ego-involvement may be associated with different levels of self-awareness. Task-involvement and ego-involvement are believed to be a function of the interaction between an athlete's dispositional achievement goals and perceptions of the achievement climate (Nicholls, 1989). Dispositional achievement goals reflect orthogonal achievement beliefs about what constitutes success and how it is achieved (Maehr & Braskamp, 1986; Nicholls, 1989; Roberts, 2001). A task-orientation is characterised by the belief that success is attained through the development of personal competence and caused by personal effort. In contrast, an ego orientation is characterised by the belief that success is attained through the demonstration of personal competence and is caused by the possession of superior comparative ability. Achievement climates, on the other hand, are perceptions of environmental cues that promote either task-involvement or ego-involvement. Task-involving climates encourage individuals to perceive that success will be accomplished through personal development, effort, and co-operation, whereas ego-involving climates engender the belief that success can only be achieved through competitive outcomes, social comparison of ability and inter-team rivalry (Newton, Duda, & Yin, 2000).

It is possible that task and ego-involvement may moderate the relationship between perfectionism and self-criticism by influencing the degree of self-focused attention on the fulfilment of contingencies of self-worth and perceived adequacy of personal competence (Kaplan & Maehr, 2007). When emphasis is placed upon personal improvement and effort is considered the principal cause of success (task-involving), failure is perceived to indicate a lack of effort and has minimal ramifications for self-evaluation. Consequently, attention is focused on the task and is away from the fulfilment of contingencies of self-worth and the perceived adequacy, or inadequacy, of personal and comparative competence (Kaplan & Maehr, 2007). In contrast, when emphasis is placed upon comparative superiority and the adequacy of fixed ability is considered the principal cause of success (ego-involving), failure is considered to indicate inadequate ability and, in turn, self-worth is threatened (Kaplan & Maehr, 2007). This will lead to heightened introspection and a focus on contingencies of self-worth, as well as personal and comparative shortcomings (Kaplan & Maehr, 2007).

A number of sport psychologists have suggested that promoting task-involvement, and reducing ego-involvement, may ameliorate some of the negative consequences associated with perfectionism for athletes (Appleton et al. 2009; Dunn et al., 2002; Hall et al., 1998). The possibility that achievement goals moderate the relationship between these dimensions of perfectionism and anxiety and burnout for athletes has been examined by Hall et al. (1998) and Appleton et al. (2009). However, no support was found for the moderating role of dispositional achievement goals. Appleton et al. suggested that rather than being moderating variables, dispositional achievement goals may represent relatively

stable and defining characteristics of perfectionism. In which case they are likely to be best considered regulators of the achievement striving associated with perfectionism, rather than moderating variables (Appleton et al., 2009). It remains possible, however, that perceptions of the achievement climate may do so. This is because perceptions of the achievement climate are presumed to prime dispositional achievement goals, influence the goal-involvement adopted by athletes and, over time, espouse dispositional achievement goals (Ames, 1992; Dweck & Leggett, 1988). In accord, empirical examination of the influence of perceptions of the achievement climate has found that the motivational climate contributes to achievement related outcomes above the variance accounted for by dispositional goals (e.g., Seifriz, Duda & Chi, 1992; Treasure & Roberts, 1998, 2001) and has been found to moderate the relationship between dispositional achievement goals and achievement related outcomes (e.g., Swain & Harwood, 1996; Treasure & Roberts, 1998; Newton & Duda, 1999). Consequently, perceptions of the achievement climate may have the potential to promote task involvement directly, as well as indirectly through its influence on dispositional achievement goals.

#### 7.4 *The purpose of study six*

In summary, the purpose of the current investigation was to examine the relationship between self-oriented and socially prescribed perfectionism and internal and comparative levels of self-criticism, and whether these relationships were moderated by the perceived motivational climate. Based on previous research examining the relationship between these forms of perfectionism and types of self-criticism (Thompson & Zuroff, 2004; Trumpeter et al., 2006), it was

hypothesised that socially prescribed perfectionism will predict higher levels of internal and comparative self-criticism, whereas self-oriented perfectionism will predict higher levels of internal self-criticism. Because the relationship between self-oriented perfectionism and comparative self-criticism is unclear, no hypotheses were posited. It was also hypothesised that perceptions of the achievement climate will moderate the relationship between both self-oriented and socially prescribed perfectionism and comparative and internal self-criticism. Specifically, the relationship between self-oriented and socially prescribed perfectionism and both comparative and internal self-criticism will be larger when perceptions of an ego-involving climate are higher and smaller when perceptions of a task-involving climate are higher. If this is the case, this would suggest that the achievement climate may be one means of managing these dimensions of perfectionism.

## 7.5 *Method*

### 7.5.1 *Participants*

Two-hundred and six athletes (114 males, 92 females) ( $M$  age = 19.41 years,  $SD$  = 2.53 years, range = 12-25 years). Participants were recruited on the basis of participation in their sports at a regional level. A wide range of sports were represented in the sample (cricket  $n$  = 6, football  $n$  = 32, squash  $n$  = 4, hockey  $n$  = 30, athletics  $n$  = 20, netball  $n$  = 21, table tennis  $n$  = 2, rugby  $n$  = 27, pool  $n$  = 3, tennis  $n$  = 11, badminton  $n$  = 2, water polo  $n$  = 1, swimming  $n$  = 11, rowing  $n$  = 16, basketball  $n$  = 3, golf  $n$  = 2, volleyball  $n$  = 4, martial arts  $n$  = 4, ski  $n$  = 1, 2 non-respondents). They completed a multi-sectional questionnaire at their own leisure. Informed consent was gained from each participant or

parent/guardian when appropriate prior to completing the questionnaire. On average, members of the sample spent 7.58 ( $SD = 5.52$ ) hours per week training and competing, had participated in the sport for an average of 9.03 years ( $SD = 4.24$ ), and considered their participation extremely important relative to other things in their lives ( $M = 7.61$ ,  $SD = 1.43$ , 1 = *extremely unimportant* to 9 = *extremely unimportant*).

### 7.5.2 Instruments

*Multidimensional Perfectionism:* Self-oriented (SOP) and socially prescribed perfectionism (SPP) were assessed using Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (HMPS). See chapter two for a discussion of this measure.

*Level of Self-Criticism:* Thompson & Zuroff's (2004) Levels of Self-Criticism Scale (LOSC) was used to measure internal ("I frequently compare myself with my goals and ideals." "If I fail in one area, it reflects poorly on me as a person.") and comparative self-criticism ("I am confident that most of the people I care about will accept me for who I am." "I don't spend much time worrying about what other people will think of me" reversed). The Levels of Self-Criticism Scale contains 22-items that assess negative self-evaluation based on either internal (10 items) or comparative standards (12 items). Participants indicate the degree to which the items describe them on a seven-point Likert scale (1 = *not at all* to 7 = *very well*). Evidence to support the reliability and validity of the scale has been provided by Thompson & Zuroff (2004). This includes sufficient internal consistency ( $\alpha = ISC .87$  &  $\alpha = CSC .81$ ) and an assessment of the convergent and discriminant validity of the scale (Thompson & Zuroff, 2004).

*Perceived Motivational Climate: Newton, Duda, and Yin's (2000)*

Perceived Motivational Climate in Sport Questionnaire-2 (PMCIS-2) was used to assess the motivational climate perceived by the athletes. This consists of a number of discrete facets that assess components of a task-involving or ego-involving achievement climate that can be combined to form higher-order composites of task and ego-involving climates. Task-involving components include (i) whether effort and improvement are emphasised, (ii) whether co-operative learning is encouraged and (iii) a sense of equal player importance. Ego-involving components include (i) whether mistakes are punished, (ii) whether rivalry is encouraged amongst team-mates and (iii) a sense of unequal player importance. Consistent with studies examining overall ego-involving (EI) or task-involving (TI) climates, the composite score for each scale were analysed (Reinboth & Duda, 2004). Responses are measured on a five-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). Evidence to support the reliability and validity of the scale has been provided by Newton, Duda and Yin (2000). This includes sufficient internal consistency ( $\alpha = \text{TI } .88$  and  $\text{EI } \alpha = .87$ ), factorial structure and concurrent validity.

## 7.6 *Results*

### 7.6.1 *Preliminary analysis*

Prior to the main analyses, a missing value analysis was conducted on the data. Due to large amounts of missing data (> 5%), three participants were removed from the sample. The missing value analysis indicated that for the remaining sample the percentage of missing data due to item non-response was extremely small ( $M = 0.18$ ,  $SD = 0.61$ , range = 0 to 3.70%). There were 182

complete cases and 21 cases with incomplete data. For those with incomplete data, the average percentage of missing values due to item non-response was 1.53% ( $SD = 0.67$ , range = 1.23 to 3.70%). This was the equivalent of less than 2 items ( $M = 1.43$ ,  $SD = 0.75$ , range 1 to 3). An inspection of the pattern of missing data suggested a non-systematic mechanism for the missing data. Specifically, there were only two common missing data patterns (the same two items missing). The unique patterns of missing data to the number of participants with missing data indicated this (.95). Consequently, each missing item was replaced using the mean of the each case's available non-missing items from the relevant subscale. This is considered to be an appropriate strategy when the amount of missing data is low and items are highly correlated (Graham, Cumsille & Elek-Fisk, 2000). The data was then screened for univariate outliers (standardised z-scores larger than 3.29,  $p < .001$ , two-tailed) using the procedure described by Tabachnick and Fidell (2007). This did not lead to the removal of any participants. The remaining data ( $n = 203$ ) was considered to be approximately univariate and multivariate normal (absolute skewness  $M = .24$ ,  $SD = .16$ ,  $SE = .20$ , absolute kurtosis  $M = .28$ ,  $SD = .21$ ,  $SE = .41$ ). Finally, internal reliability analysis (Cronbach's alpha) indicated that all instruments demonstrated adequate internal consistency ( $\alpha = .73$  to .95). The details are displayed in Table 1

### 7.6.2 *Descriptive analysis and bivariate correlations*

Descriptive statistics are reported in Table 1. The participants reported moderate-to-high levels of self-oriented perfectionism and low-to-moderate levels of socially prescribed perfectionism (seven-point Likert scale). They also reported low-to-moderate levels of comparative self-criticism and moderate levels of

Table 1 *Descriptive statistics, bivariate correlations, and internal reliability coefficients for dimensions of perfectionism, levels of self-criticism and motivational climate.*

Variable	1	2	3	4	5	<i>M</i>	<i>SD</i>	$\alpha$
1. Self-oriented perfectionism						4.83	0.88	.88
2. Socially prescribed perfectionism	.27**					3.64	0.64	.75
3. Internal self-criticism	.47**	.41**				4.51	1.00	.60
4. Comparative self-criticism	.05	.46**	.38**			3.26	0.67	.85
5. Mastery climate	.14*	-.10	-.06	-.17*		4.07	0.50	.86
6. Performance climate	.25**	.44**	.40**	.30**	-.38**	2.88	0.75	.89

\*\*  $p < .01$       \*  $p < .05$

internal self-criticism (seven-point Likert scale). Finally, the sample reported high levels of a perceived mastery climate and moderate levels of a perceived performance climate (five-point Likert scale). Scores across the perfectionism scales and motivational climate are similar to those reported by previous research (e.g., Hill et al., 2008; Newton, Duda, & Yin, 2000). In comparison to the student sample used by Trumpeter et al. (2006), the current sample scored higher levels of both internal and comparative self-criticism.

Self-oriented perfectionism was positively related to internal self-criticism, unrelated to comparative self-criticism, and positively related to perceptions of both a mastery and performance climate. Socially prescribed perfectionism was positively related to both internal and comparative self-criticism, unrelated to perceptions of a mastery climate and positively related to perceptions of a performance climate. The pattern of correlations between socially prescribed perfectionism and comparative self-criticism replicates those observed by previous research (Thompson & Zuroff, 2004; Trumpeter et al., 2006). Previous research has reported both positive and negative correlation between self-oriented perfectionism and comparative self-criticism (Thompson & Zuroff, 2004; Trumpeter et al., 2006). However, in the current study self-oriented perfectionism was unrelated to comparative self-criticism. As reported in previous research, self-oriented perfectionism was positively related to internal self-criticism.

#### 7.6.2 *The interaction between perfectionism and achievement climate*

To test for an interaction between dimensions of perfectionism and perceptions of the achievement climate two hierarchical regressions were conducted where dimensions of perfectionism, achievement climate and

Table 2 Regression of level of self-criticism on perfectionism, achievement climate and interaction terms.

Criterion Variable	F	df	R <sup>2</sup>	ΔR <sup>2</sup>	Unstandardised Regression Coefficients (Bs)							
					SOP	SPP	TI	EI	SPPxTI	SOPxTI	SPPxEI	SOPxEI
Internal self-criticism												
Step 1	25.52**	4, 202	.34		.40**	.34**	-.00	.29**				
Step 2	12.74**	8, 202	.34	.00	.39**	.34**	-.00	.28**	-.11	.11	.08	-.02
Comparative self-criticism												
Step 1	16.24**	4, 201	.25		-.07	.46**	-.09	.11				
Step 2	9.44**	8, 201	.28	.03	-.09	.46**	-.07	.11	-.09	.07	.24*	-.13

Regression 1 Durbin-Watson = 1.81, Tolerances step 1 = .65 to .85, Tolerances step 2 = .62 to .83.

Regression 2 Durbin-Watson = 2.16, Tolerance step 1 = .65 to .83, Tolerance step 2 = .62 to .81.

\*\*  $p < .01$       \*  $p < .05$

interaction terms were used as predictors of comparative and internal self-criticism. The analyses were conducted using the procedures described by Aiken and West (1991). Dimensions of perfectionism and motivational climate variables were entered in step 1, followed by the interaction terms between these variables in step 2. This method controls for inflated Type 1 error rates. Centred variables were used in the analysis and used to create the interaction terms. Centring the variables provides a more meaningful interpretation of conditional effects where zero *B* values for predictor variables represent the relationship between the predictor variable and the criterion variable at the mean of the moderating variable, rather than at zero (a value not included on the Likert response to the scales used in the current study) (Aiken & West, 1991). Centring the predictors prior to the calculation of the interaction terms also reduces multicollinearity amongst the predictor variables and the interaction terms. Preliminary analysis indicated that in both regressions multicollinearity between variables was unproblematic (tolerance = .65 to .83). There was also a lack of autocorrelation in the two regressions (Durbin-Watson = 1.81 and 2.16). The distribution and homoscedasticity of the residuals was inspected using plots of the standardised predicted values-standardised residuals. One outlier was removed for the second regression. The results of the regression analyses are reported in Table 2.

In the first regression analysis, step one indicated that a linear combination of the predictor variables explained 34% of variance in internal self-criticism,  $F(4, 202) = 25.52, p < .01$ . Self-oriented perfectionism, socially prescribed perfectionism and an ego-involving climate all predicted higher levels of internal self-criticism ( $p < .01$ ). A task-involving climate was, however, unrelated to

internal-self-criticism ( $p > .01$ ). In step two, a linear combination of the predictor variables and interaction terms entered also explained 34% of variance in internal self-criticism,  $F(8, 202) = 12.74, p < .01$ . The introduction of the interaction terms in step two therefore explained no additional variance in internal self-criticism above the first-order effects. The same pattern of conditional effects for the predictor variables in step one was evident in step two. None of the interaction terms were significant predictors of internal self-criticism. Therefore, perceptions of either task-involving or ego-involving climate did not moderate the relationship between dimensions of perfectionism and internal self-criticism.

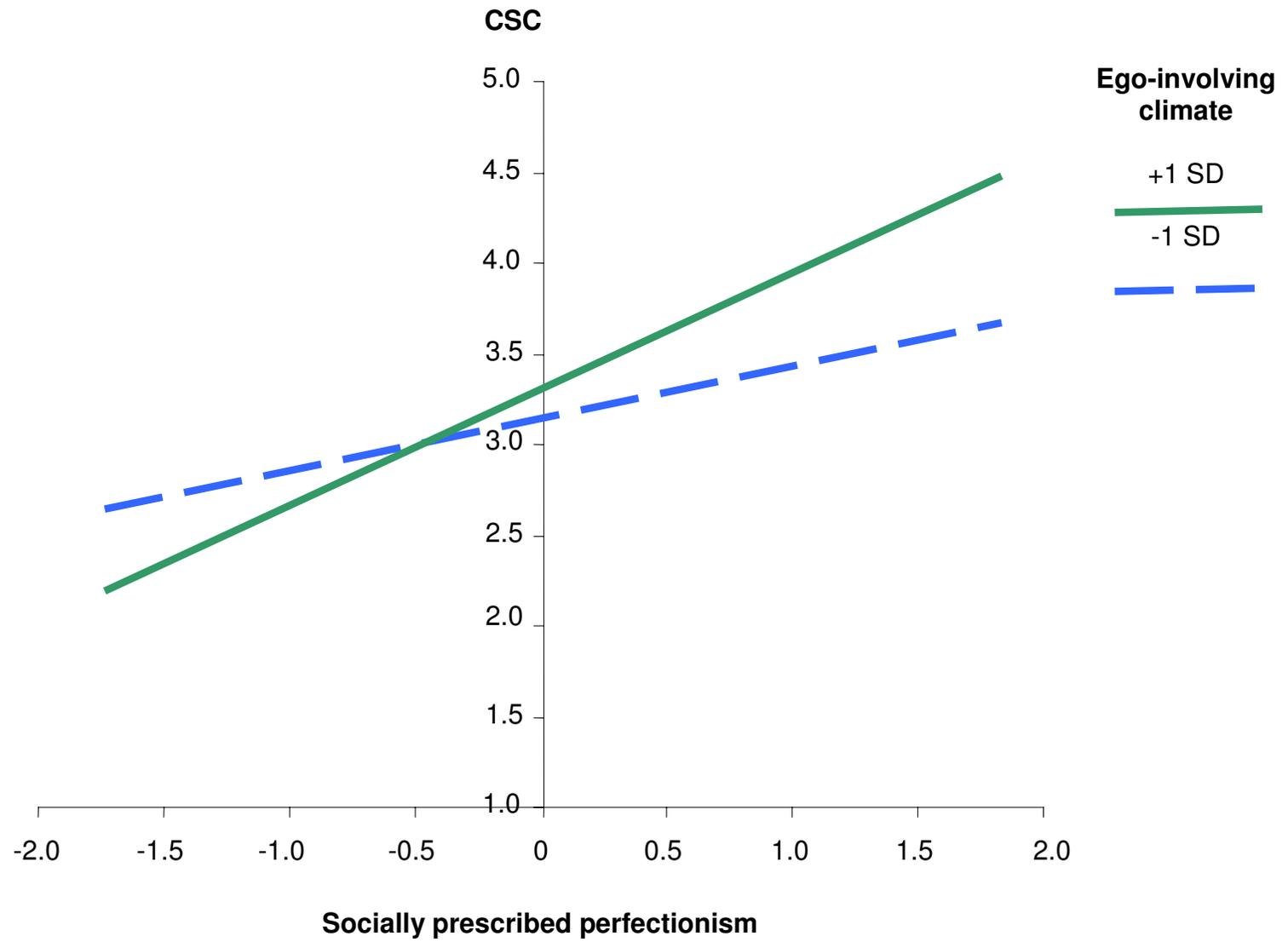
In the second regression analysis, step one indicated that a linear combination of the predictor variables explained 25% of variance in self-criticism,  $F(4, 201) = 16.24, p < .05$ . Socially prescribed perfectionism predicted higher levels of comparative self-criticism ( $B = .46, p < .01$ ). No other variables in step one predicted comparative self-criticism ( $p < .05$ ). A linear combination of the predictor variables and interaction terms entered in step two also explained 28% of variance in internal self-criticism,  $F(8, 201) = 9.44, p < .01$ . The same pattern of conditional effects for the predictor variables in step one was evident in step two. However, the introduction of the interaction terms in step two explained an additional 3% of variance in comparative self-criticism above the first-order effects. Examination of the Beta values indicates that the interaction between socially prescribed perfectionism and perceptions of an ego-involving climate was significant (squared semi-partial correlation = .026). This suggests that the relationship between this dimension of perfectionism and level of self-criticism is conditional on the level of ego involving climate reported. To examine the

interaction further, simple regression equations were created that corresponded with one standard deviation above and one standard deviation below the mean of the centred ego involving climate variable. These are displayed in Figure 1. The graphical representation of the interaction indicates an enhancing effect where higher levels of socially prescribed perfectionism and higher levels of an ego involving climate strengthens the relationship between socially prescribed perfectionism and comparative self-criticism (Cohen et al., 2003). In other words, those with higher levels of socially prescribed perfectionism report higher levels of comparative self-criticism when they also report higher perceptions of an ego-involving climate. Analysis of the two simple slopes indicated that both were significantly different from zero (+1 SD  $B = .53$  and -1 SD  $B = .33$ ,  $p < .01$ ) (Aiken & West, 1991). Consequently the relationship between socially prescribed perfectionism and comparative self-criticism is significant at both higher and lower levels of a perceived ego-involving climate.

### 7.7 Discussion

The negative self-critical cognitive style that emerges as a consequence of contingent self-worth and chronic self-focused attention is a significant source of distress associated with self-oriented and socially prescribed perfectionism (e.g., Dunkley, Blankstein, Masheb & Grilo, 2006; Dunkley & Blankstein, 2000; Dunkley, Zuroff, & Blankstein, 2006). Therefore, identifying factors that may moderate self-focused attention and this self-critical cognitive style provides an opportunity to ameliorate the negative effects of these dimensions of perfectionism for those responsible for athletes. The purpose of the final study of

Figure 1 *The conditional effect of socially prescribed perfectionism on comparative self-criticism as function of perceptions of an ego-involving climate.*



the thesis was to examine the relationship between self-oriented and socially prescribed perfectionism and internal and comparative levels of self-criticism, and whether these relationships were moderated by the perceived motivational climate. Based on previous research, it was hypothesised that socially prescribed perfectionism would predict higher levels of both internal and comparative self-criticism, whereas self-oriented perfectionism would predict higher levels of internal self-criticism. No hypothesis was posited regarding the relationship between self-oriented perfectionism and comparative self-criticism as previous research has found both a positive and negative relationship between the two variables (Thompson & Zuroff, 2004; Trumpeter et al., 2006). Based on the arguments of Kaplan and Maehr (2007), it was also hypothesised that perceptions of the achievement climate would moderate the relationship between self-oriented and socially prescribed perfectionism and comparative and internal self-criticism. Specifically, it was expected that the relationship between both dimensions of perfectionism and levels of self-criticism would be larger when perceptions of an ego-involving climate were higher and smaller when perceptions of a task-involving climate were higher.

These hypotheses received partial support. As hypothesised, socially prescribed perfectionism predicted higher levels of internal and comparative self-criticism, whereas self-oriented perfectionism predicted higher levels of internal self-criticism. No significant relationship was found between self-oriented perfectionism and comparative self-criticism. Limited support was found for the hypothesised moderating influence of perceptions of the achievement climate on the perfectionism-criticism relationship. The only statistically significant

interaction observed was between socially prescribed perfectionism and perceptions of an ego involving climate when predicting comparative self-criticism. This interaction was in the hypothesised direction. The relationship between socially prescribed perfectionism and comparative self-criticism was larger when perceptions of an ego-involving climate were higher.

#### 7.7.1 *Perfectionism and levels of self-criticism*

The hierarchical regression revealed that self-oriented and socially prescribed perfectionism predicted different levels of self-criticism (internal versus comparative). This replicates previous research (Thompson & Zuroff, 2004; Trumpeter et al., 2006) and is consistent with the divergent contingencies of self-worth that underpin this dimension of perfectionism. Socially prescribed perfectionism entails a negative cognitive style in which self-criticism is based on both a sense of comparative inferiority and a chronic sense of personal failure against ones own standards. In contrast, self-oriented perfectionism entails a negative cognitive style in which self-criticism is based primarily on a chronic sense of personal failure. The association between socially prescribed perfectionism and both comparative and internal self-criticism reflects the adoption of a personal goal that involves gaining acceptance from others and the prominence of social evaluative fears (Blankstein, Flett, Hewitt, & Eng, 1993; Hewitt & Flett, 1991; Flett, Hewitt, Blankstein & Pickering, 1998). Conversely, the association between self-oriented perfectionism and internal self-criticism reflects the personal desire for competence, a generalised dissatisfaction with personal accomplishment and an inability to fully attain ideal internal standards (Hewitt & Flett, 1991; Flett & Hewitt, 2006). The relationship between self-

oriented perfectionism and comparative self-criticism remains unclear as they have been both positively and negatively related in previous research, and in the current study they are unrelated. Future research is required to clarify the relationship between this dimension of perfectionism and comparative self-criticism

#### *7.7.2 The interaction between perfectionism and perceptions of the achievement climate*

The interaction between socially prescribed perfectionism and comparative self-criticism indicated that the relationship between these variables was enhanced when accompanied by perceptions of an ego-involving climate. As discussed earlier, it may be that when athletes approach achievement contexts with the belief that failure indicates the possession of inadequate innate ability, they experience higher levels of self-focused attention on self-worth and comparative shortcomings (Kaplan & Maehr, 2007). In these circumstances, those with higher levels of socially prescribed perfectionism are likely to dwell on feelings of inferiority, inadequacy and self-criticism that characterises the comparative self-critical cognitive style. Environments that promote ego-involvement are therefore likely to be especially problematic for athletes with higher levels of socially prescribed perfectionism. Equally, quelling the evaluative practices, reward structures, and interpersonal interactions that characterise an ego-involving climate may provide a means of reducing the comparative self-criticism experienced by athletes with higher levels of socially prescribed perfectionism and, in turn, other related negative consequences (e.g., avoidant coping, anxiety).

There are a number of possible explanations for why the moderation of the perfectionism-self-criticism relationship was limited to this interaction. It may be that when self-criticism is based on personal standards it is less amenable to moderation by environmental characteristics than when self-criticism is based on comparative criteria. This is a possibility as personal contingencies are more internalised than external contingencies (Deci & Ryan, 1995). It is also possible that the information provided in a task-involving climate may be less potent in terms of its influence on competitive and internal self-criticism. Subsequently, perceptions of a task-involving climate may be less likely to moderate levels of self-criticism. This is also possible because the information provided in an ego-involving climate pertains to the importance of outperforming others and contingent self-worth that may be more salient for those with higher levels of self-oriented and socially prescribed perfectionism (see study five). The final possibility is a statistical one. Specifically, when the predictor variable is unrelated to the criterion variable, as was the case between self-oriented perfectionism and comparative self-criticism, moderation is more difficult to detect. Consequently, this may also have contributed to the pattern of the current findings. These explanations are, of course, speculative and require empirical verification by future research.

It is worth noting that although no further interactions were found between dimensions of perfectionism and levels of self-criticism, this does not prevent the motivational climate from being an important moderating variable of other consequences of perfectionism. In fact, there is strong evidence that suggests that perceptions of the motivational climate will be an important moderating variable

across a number of outcomes. In particular, perceptions of a task-involving climate are related with higher levels of personal satisfaction (e.g., Balaguer, Duda, & Crespo, 1999; Treasure, 1997; Walling, Duda, & Chi, 1993) and perceptions of improvement (Balaguer, Duda, Atienza, & Mayo, 2002). Such perceptions are likely to moderate the effects of perfectionism (Flett & Hewitt, 2005, 2006; see also study four and five). In addition, because the development of a consistent achievement climate is suggested to have the potential to change achievement beliefs over time, continual and systematic manipulation of the achievement climate may also have the potential to socialise more adaptive achievement related belief in perfectionists (Ames, 1992; Brophy, 1987).

There are, however, a number of important considerations for future research examining the degree to which the motivational climate moderates the effects of perfectionism. The degree to which criterion variables reflect stable features of perfectionism or transient variables more amenable to change (e.g., affective states, moods, anxiety) is obviously likely to influence whether moderation is present and practically useful for intervention. Also, it is unclear to what degree perfectionism influences perceptions of the achievement climate. It is probable, for example, that the desire to outperform others associated with both self-oriented and socially prescribed perfectionism will contribute to perceptions of inter-team rivalry and, in turn, perceptions of an ego-involving climate. Socially prescribed perfectionism, in particular, may predispose athletes to perceiving the achievement climate as more ego-involving. This is because this dimension of perfectionism entails the generalised perception that others are imposing exceptionally high standards on the self and are critical of their attempts

to obtain these standards. Again, this has important implications for assessing the value of intervening via the achievement climate. Therefore, establishing the veracity of the perceptions associated with the two dimension of perfectionism is important. A final related issue pertains to how amenable to moderation dimensions of perfectionism are by environmental intervention. Perfectionism may be relatively more stable in comparison to achievement goals (Hall et al., 1998), and subsequently less easily moderated. The irrational sense of importance attached to performance is likely to be especially enduring and have a pervasive influence on the manner in which achievement settings are construed. These beliefs are unlikely to be easily amended by situational cues. It is even possible that some components of task-involving climates may in some ways be distressing for those with higher levels of these dimensions of perfectionism. Accepting failure as part of the learning process, for example, may be especially difficult because failure is typically viewed as an indication of worthlessness. Future research should examine these contentions.

### 7.8 *Conclusion*

Given that both socially prescribed and self-oriented perfectionism are likely to have negative consequences for athletes, strategies are required that moderate their negative effects. Research suggests that moderating the experience of a negative self-critical cognitive style may provide an opportunity to do so. The current findings suggest that while self-criticism is central to both self-oriented and socially prescribed perfectionism, the criteria used in the evaluation that precedes self-criticism are different. Self-oriented perfectionism entails self-criticism that is based on a chronic sense of failure against ones own exceedingly

high standards. In contrast, socially prescribed perfectionism entails self-criticism based on a chronic sense of failure against personal and comparative standards. Consequently, athletes with higher levels of socially prescribed perfectionism are likely to experience greater psychological difficulties as a consequence of the negative self-critical cognitive style. An examination of the moderating influence of perceptions of the achievement climate indicated that in some instances the relationship between dimensions of perfectionism and self-criticism may be influenced by perceptions of the motivational climate. Specifically, the socially prescribed perfectionism-comparative self-criticism relationship is significantly enhanced by higher perceptions of an ego-involving climate. Equally, at lower levels of perceptions of an ego involving climate, the relationship between socially prescribed perfectionism and comparative self-criticism is significantly reduced. This suggests that, in this instance, reducing self-focused attention by intervening via the manipulation of the achievement climate may be an effective strategy to reduce the comparative self-criticism associated with socially prescribed perfectionism. However, because no further interactions were found, it is unclear how successful attempts to attenuate other negative consequences of these dimensions of perfectionism through manipulation of the motivational climate are likely to be.

#### Endnotes

<sup>1</sup> The term self-critical orientation is used here to describe the personality factor measured by the Dysfunctional Attitude Scale (DAS-P; Weissman & Beck, 1978).

<sup>2</sup> The term self-critical perfectionism has been used by Dunkley and colleagues to describe both the higher-order construct that contains dimensions of perfectionism (HMPS and FMPS), the self-criticism subscale from the Depressive Experiences Questionnaire (DEQ-SC; Blatt et al., 1976), and the DAS-P subscale from the Dysfunctional Attitude Scale (DAS-P; Weissman & Beck, 1978) (e.g., Dunkley, Zuroff & Blankstein, 2006; Dunkley, Sanislow et al., 2006; Dunkley, Blankstein, Zuroff et al., 2006; Dunkley & Kyparissis, 2008).

## Chapter Eight: General discussion

“I’m the perfectionist. I’m never content and that’s the monster inside me I am always trying to control.”

*Ronnie O’Sullivan*

### 8.1 *Purpose of the thesis*

It is currently unclear whether perfectionism is an important and adaptive characteristic of elite athletes or a debilitating personality disposition that undermines athletic development and psychological well-being. Some researchers have argued that because perfectionism is multidimensional and exceptionally high personal standards are a core feature, it may be a desirable characteristic for athletes to possess (e.g., Anshol & Eom, 2002; Dunn et al., 2002). In contrast, others have argued that because definitions of perfectionism also include harsh self-critical evaluation it is likely to have few genuinely positive effects for athletes (Flett & Hewitt, 2005; Hall, 2006). With few systematic empirical attempts to examine the consequences of perfectionism amongst athletes (see Hall, 2006, for a review), it is currently difficult to draw any firm conclusions regarding the nature and implications of the disposition. Moreover, few studies, to date, have attempted to identify third-order variables that may mediate and moderate the consequences of perfectionism. Identifying the psychological

processes that explain the overall appraisal of the sporting environment is essential prior to drawing conclusions about the effects of perfectionism (Flett & Hewitt, 2005; Hall, 2006). The purpose of the thesis was to build on initial research that has examined the consequences of self-oriented and socially prescribed perfectionism in a sport context (Appleton et al., 2009; Hall et al., 2009; Hill et al., 2008) by further examining their consequences and identifying the variables that may mediate and moderate their divergent motivational consequences for athletes.

## 8.2 *Summary of findings*

The first two studies of the thesis examined whether regulatory factors (growth-seeking and validation-seeking) and coping tendencies (problem-focused and avoidant coping) explain the divergent relationship between self-oriented and socially prescribed perfectionism and athlete burnout. The findings of these two studies indicated that the positive relationship between socially prescribed perfectionism and athlete burnout can be explained by validation-seeking and avoidant coping. In contrast, the inverse relationship between self-oriented perfectionism and athlete burnout was explained by the tendency to utilise problem-focused coping and eschew avoidant coping when dealing with achievement difficulties. The role of regulatory factors in the relationship between self-oriented perfectionism and athlete burnout was unclear. Two subsequent studies sought to examine more closely the motivational processes associated with self-oriented perfectionism that may explain its consequences. A cross-sectional study comparing the correlates of self-oriented perfectionism and conscientious achievement striving, and a quasi-experimental study comparing the response of

student-athletes with higher and lower levels of self-oriented perfectionism following successive personal failure, indicated that this dimension of perfectionism was associated with an aversion to mistakes and failure that may manifest in high levels of threat and the perceived need to use self-protective strategies when confronted by failure. The penultimate study examined differences between self-oriented and socially prescribed perfectionism in terms contingencies of worth. The findings of this study suggested that the type and ease at which contingencies of self-worth that underpin self-oriented and socially prescribed perfectionism can be satisfied provides a further explanation for their divergent effects. Having established the potential for both self-oriented and socially prescribed perfectionism to lead to negative consequences for athletes, the final study examined the moderating influence of perceptions of the achievement climate when predicting disparate self-critical cognitive styles (self-criticism). The findings of this study indicated that perceptions of the achievement climate may in some instances influence the perfectionism-self-criticism relationship. Specifically, the relationship between socially prescribed perfectionism and comparative self-criticism was significantly larger when accompanied by higher perceptions of an ego-involving climate. No other significant interactions were found.

### 8.3 *The consequences of self-oriented and socially prescribed perfectionism for athletes*

It is clear from the findings of the thesis that self-oriented and socially prescribed perfectionism are likely to have divergent consequences for athletes. In this sense, the finding of the thesis correspond will those observed outside of the

sports domain (see Hewitt & Flett, 2002). Socially prescribed perfectionism is proposed to entail an intense desire for social approval that is thwarted by a negative interpersonal style, over-generalisation of failure, sense of helplessness and harsh self-critical tendencies (Hewitt & Flett, 1991, 1993, 1996). These elements were evident across the studies of the thesis. Socially prescribed perfectionism was associated with a strong desire for validation in the domain of sport, self-worth contingent on a combination of the approval of others and outperforming others, and a chronic sense of failure against personal and comparative standards. In addition, despite the importance of performance to self-evaluation, this dimension of perfectionism was also associated with avoidant coping tendencies that are likely to undermine rather than facilitate the fulfilment of contingencies of worth and attainment of meaningful standards.

Initial research examining the consequences of socially prescribed perfectionism for athletes has found a positive relationship between this dimension of perfectionism and burnout (e.g., Appleton et al., 2009; Hill et al., 2008). This finding was replicated in studies one and two of the thesis. Extending previous research, these studies indicated that validation-seeking and avoidant coping explain this relationship. The association between this dimension of perfectionism and a comparative self-critical cognitive style may also contribute to a number of negative consequences that may include anxiety and burnout (Mor & Winquist, 2002; Thompson & Zuroff, 2004; Trumpeter et al., 2006). This dimension is likely to have a negative and pervasive influence on how athletes appraise achievement contexts, cope with achievement difficulties and the motivational patterns they exhibit. Overall, the belief that others are imposing

perfectionist standards on the self and that attainment is important for acceptance of others appears to have few positive consequences for athletes (e.g., Appleton et al., 2009; Hill et al., 2008, Lemyre et al., 2008; Gould et al., 1996).

The findings of the thesis also provide further insight into the likely consequences of self-oriented perfectionism for athletes. Self-oriented perfectionism is described as the tendency to set unrealistic, exacting standards for oneself, evaluate oneself stringently and respond to personal failure with harsh self-criticism (Hewitt & Flett, 1991, 1993). There is currently some debate regarding the nature of this dimension of perfectionism in non-clinical samples (see study four and five). While some researchers have suggested it may be indicative of adaptive achievement striving (e.g., Enns et al., 2002; Frost et al., 1993;), Flett and Hewitt (2005) consider self-oriented perfectionism to be a vulnerability factor for athletes that inevitably leads to psychological and motivational difficulties. The findings of the thesis were consistent with the suggestions of Flett and Hewitt (2005). This was most evident in study four which indicated that higher levels of self-oriented perfectionism interacted with successive achievement difficulties to predict higher levels of threat and reported withdrawal of effort. Studies three and five also supported this contention by indicating that the achievement behaviour associated with self-oriented perfectionism is, at least in part, underpinned by an irrational sense of importance and contingent self-worth based on outperforming others and the development of personal competence. The findings of the thesis suggest that this may be one of the principal reasons why self-oriented perfectionism may render athletes vulnerable to psychological and motivational difficulties following

personal failure.

Unlike socially prescribed perfectionism, however, self-oriented perfectionism also appears to have the potential to contribute to a number of positive consequences for athletes. These included a positive association with growth-seeking tendencies in study one, problem-focused coping in study two and the pursuit of high personal standards in study three. In addition, in the studies of the thesis self-oriented perfectionism was also negatively associated with avoidant coping and symptoms of burnout. These correlated are likely to be indicative of a number of other positive outcomes that arise as a consequence of the determined goal-directed achievement striving associated with self-oriented perfectionism. Therefore, it is understandable why some researchers have erroneously suggested that self-oriented perfectionism may be adaptive and desirable.

The motivational processes that underpin self-oriented perfectionism are clearly more complex than those associated with socially-prescribed perfectionism. In contrast to socially prescribed perfectionism, self-oriented perfectionism appears to be underpinned by both a desire for success and a fear of failure. In this regard, self-oriented perfectionism is similar to Covington's (Covington, 1992; Covington and Omelich, 1991) notion of the 'overstriver' (Flett & Hewitt, 2006; Hall; 2006). Overstrivers invest heavily in proactive behaviours in an attempt to increase the probability of avoiding failure (Covington, 1992; Covington and Omelich, 1991). Covington (1992) has argued that while overstrivers can appear to be engaging in adaptive patterns of motivation, the defensive nature of the striving ultimately undermines adaptive investment patterns. For overstrivers, immediate success can mask fears and doubt about

personal adequacy; however, because these individuals can not moderate their excessive self-demands, they continue to strive for increasingly more difficult goals until their fears are realised (Covington, 1992).

The possibility that self-oriented perfectionism is indicative of overstriving has a number of implications for understanding the likely consequences of this dimension of perfectionism for athletes. Flett and Hewitt (2005) have argued that resiliency may be afforded to athletes who experience personal success and continue to utilise problem-focused coping. However, these factors are unlikely to provide any enduring protection if athletes with higher levels of this dimension of perfectionism are unable to regulate self-demands. In support of this possibility Shafran et al., (2002) have suggested that self-oriented dimensions of perfectionism may entail an evaluative process whereby success can trigger an appraisal of ones personal standards as insufficiently demanding. Similarly, the internal self-critical cognitive style associated with self-oriented perfectionism is purported to involve a self-critical response where success is reappraised as failure. If this is the case, rather than providing resiliency, success will reinforce the use of exceedingly high standards and the potential for psychological difficulties by prompting increasingly more difficult and rigid self-demands (Shafran et al., 2002).

Although studies one and two failed to find a positive relationship between self-oriented perfectionism and burnout, this would suggest that extreme disaffection and burnout is still a possible outcome of the achievement striving exhibited by athletes with higher levels of self-oriented perfectionism. While the use of problem-focused coping and eschewing avoidant coping are qualities that

may delay the onset of athlete burnout, they will not abate the underlying cause of burnout (Raedeke & Smith, 2004). The stringent self-evaluation and the desire for self-acceptance are likely to continue to place excessive strain on athletes (Hill et al., 2008). Ultimately, it is the meaning given to the cognition, affect and behaviour which provides the basis for impeding motivational and psychological difficulties for athletes with higher levels of self-oriented perfectionism (Lemyre, Hall, & Roberts, 2008). When achievement is considered a perceived necessity, there is little protection for the self when athletes experience continuing difficulties, extreme challenge and failure. It is therefore simply a matter of time before athletes with higher levels of self-oriented perfectionism experience negative cognition and affect that engender disaffection and behavioural disengagement.

In order to test these contentions the association between self-oriented perfectionism and athlete burnout must be examined over-time. Unfortunately, to date, research has utilised cross-sectional studies to examine their relationship. While the structural equation modelling used in studies one and two can be used to test the tenability of the implied mechanisms, without temporal precedence it is not possible to begin to examine whether the interaction between self-oriented perfectionism and theoretically important third-order variables (e.g., competence, control, and coping) cause changes in symptoms of burnout and other motivational outcomes. Given that the findings of the thesis imply that some of the negative consequences of self-oriented perfectionism may be offset by adaptive coping tendencies, further examination of the interaction between coping and self-oriented perfectionism may provide further insight into the likely consequences

of this dimension of perfectionism for athletes. The multilevel modelling diary methodologies employed by Dunkley et al. (2003), for example, may capture the influence of perfectionism on coping as a process involving ongoing situational appraisal which over time may lead to the development of athlete burnout. Such an approach, and other prospective designs, would also address common limitations associated with the cross-sectional design and concurrent measurement utilised in the studies of the thesis (see section 8.7 for a discussion of the limitations of the studies within the thesis).

#### 8.4 *Self-oriented perfectionism versus conscientious achievement striving*

The conceptual and empirical similarities between self-oriented perfectionism and conscientiousness are currently being keenly debated (Flett & Hewitt, 2006, 2007; Owens & Slade, 2008; Slade & Owens, 1998). Because the negative psychological and motivational consequences of self-oriented perfectionism may only be apparent under extreme circumstances, it is likely to be difficult to distinguish between this dimension of perfectionism and more adaptive achievement striving when athletes are successfully attaining their goals. As seen in study three, however, an aversion to mistakes and failure appears to be two key distinguishing features of self-oriented perfectionism. The achievement striving associated with conscientiousness and other personality factors typically considered to be adaptive (e.g., task orientation) are also unlikely to entail the contingent self-worth and response to achievement difficulties captured in studies four and five. Consequently, while self-oriented perfectionism may have the potential to contribute to positive achievement behaviours (e.g., Bieling et al., 2003; Mills & Blankstein, 2000), it is clearly not as wholly adaptive as some

researchers have suggested it to be (e.g., Enns et al., 2002; Frost et al., 1993; Hill, et al. 1997).

If the consequences of self-oriented perfectionism for athletes are to be further understood, rather than solely focusing on the motivational consequences of this dimension of perfectionism, research must begin to examine the long-term mental and emotional health of athletes with higher levels of self-oriented perfectionism and compare them with those associated with more adaptive personality factors (e.g., conscientiousness). This requires a distinction between the quantity and quality of engagement (see Duda, 2001, 2005). According to Duda (2001, 2005), while the quantity of motivation reflects current performance and investment, the quality of motivation requires consideration of its broader consequences. These include its influence on psychological welfare, moral functioning, social relations and its consequences when athletes contend with the set-backs associated with striving for elite status. Research has yet to examine the potential psychological costs associated with encouraging self-oriented perfectionism in athletes. This is therefore an important avenue for future research.

#### 8.5 *Moderating psychological processes*

The findings of the thesis suggest that the divergent consequences of self-oriented and socially prescribed perfectionism may to some degree be explained by moderating factors. A number of researchers have argued that third-order variables that influence the overall appraisal of the sporting environment are likely to be important in determining the effects of perfectionism (Flett & Hewitt, 2005; Hall, 2006). Research outside of the sport domain have identified a number

of potentially important moderating variables which include attributions (Chang & Sanna, 2001; Blankstein, & Winkworth, 2004), attachment orientations (Rice & Lopez, 2004), personal control (Mor et al., 1995), coping (Cheng, 2001; Dunkley et al., 2000; Dunkley, Zuroff, & Blankstein, 2003; O'Connor, & O'Connor, 2003), goal re-engagement (O'Connor & Forgan, 2007) and positive future thinking (O'Connor, O'Connor, O'Connor, Smallwood, & Miles, 2004). To date, however, there have been few attempts to examine the interaction between perfectionism and third-order variables in athlete samples (Appleton et al., 2009; Dunn et al., 2002; Hall et al., 1998; Vallance et al., 2006). Study five of this thesis suggested that the type and ease with which contingencies of worth may be satisfied may moderate their effects. Specifically, while the perceived need to defend, maintain and enhance self-worth will place strain on the cognitive, emotional and physical resources of those with higher levels of either of these dimensions of perfectionism, because the contingencies of worth associated with self-oriented perfectionism entail a greater degree of personal control, they are likely to be comparatively easier to satisfy (Crocker, 2002). Consequently, those with higher levels of self-oriented perfectionism are likely to experience relatively fewer psychological difficulties in comparison to those with higher levels of socially prescribed perfectionism.

A similar moderating process was suggested by study six. While self-oriented perfectionism was associated with self-criticism based only on internal standards, socially prescribed perfectionism was associated with self-criticism based on both internal and comparative standards. Therefore, the negative cognitive style associated with self-oriented perfectionism can be mitigated by the

attainment of personal standards but this is not the case for socially prescribed perfectionism which also requires comparative success. As a result, those with higher levels of socially prescribed perfectionism are more vulnerable to psychological difficulties because it involves a self-evaluative process that includes comparative standards over which they have little personal control. The reliance on others for self-verification in terms of contingencies of worth and self-criticism therefore appears an important determinant of why socially prescribed perfectionism is likely to invariably lead to psychological difficulties for athletes and self-oriented perfectionism is only a vulnerability factor.

These findings also highlight the importance of perceptions of control in determining the consequences of self-oriented perfectionism. Flett and colleagues have argued that a disruption to perceptions of control may underpin the vulnerability associated with self-oriented perfectionism (Flett, Hewitt, Blankstein, & Mosher, 1995). In support of this contention, research suggests that self-oriented perfectionism is associated with a desire for control and a fear of a loss of control (Flett, Hewitt, Blankstein, & Mosher, 1995; Blankstein et al., 1993). In addition, a combination of higher levels of self-oriented perfectionism and lower levels of perceived control have been found to predict higher debilitating performance anxiety, lower facilitating performance anxiety and lower satisfaction (Mor et al., 1995). The current findings suggest that this may be because disruptions to perceptions of control compromise the ability of self-oriented perfectionists to fulfil self-worth contingencies and personal standards. Consequently, lower perceptions of control are likely to be extremely distressing for athletes with higher levels of self-oriented perfectionism. Future research

should examine this possibility.

## 8.6 *Remaining questions and future directions*

### 8.6.1 *Is perfectionism adaptive for athletes?*

Inferences about the general nature of perfectionism are difficult because of the multiple conceptualisations and measures currently used to capture the personality factor. Research has demonstrated convincingly that dimensions of perfectionism indicative of a commitment to high personal standards (e.g., personal standards, striving for perfection) have principally positive consequences for athletes (see Stoeber & Otto, 2006). The crux of this issue, however, is whether a commitment to high personal standards warrants the label perfectionism. Those who have discussed the distinction between perfectionism and more adaptive achievement striving suggest that there is a qualitative difference between the achievement striving associated with perfectionism and a healthy commitment to high standards (Greenspon, 2000, 2008; Hall, 2006). Whereas the achievement striving associated with a healthy commitment to high standards is aimed at personal mastery and stems solely from a desire for success, the achievement striving associated with perfectionism is aimed at validating a sense of self and stems in part from a conditional sense of acceptance (Flett & Hewitt, 2007; Greenspon, 2000, 2008; Hall, 2006). From this perspective, using the term perfectionism to label both adaptive and maladaptive achievement striving simply because they both entail high standards creates unnecessary confusion. Until research demonstrates discriminability between a commitment to high standards and the corresponding dimensions of perfectionism that are considered positive, functional or healthy (e.g., personal standard, perfectionistic

striving), reserving the term perfectionism for patterns of achievement striving characterised by the pursuit of conditional acceptance affords greater conceptual clarity in this area of research.

This approach is more consistent with the initial conceptualisations of perfectionism proposed by some early theorists (e.g., Burns, 1980; Pacht, 1985) than the disaggregated or concomitant approaches currently being adopted by some researchers in this area. By examining striving and evaluative concerns independently research fails to capture the inextricable link between the striving exhibited by perfectionists and the belief that attainment reflects the value of an individual. From this perspective, perfectionism is best defined as a set of beliefs about the nature of self-worth and its relationship with accomplishment that equates to an overdependence on personal attainment. Although recent proposals to return to a unidimensional conceptualisation have been met with some fierce criticism (see Shafran et al., 2002; Hewitt, Flett, Besser, & McGee, 2003), it may be that a more narrow definition of perfectionism similar to that described above is required in order to resolve current disagreement. At a minimum, researchers must take a more discerning approach to the measurement of perfectionism and not consider either striving or concerns dimensions independently sufficient to constitute perfectionism.

One issue that continues to contribute to this discord is the current approach taken to the measurement of perfectionism in the sport domain. There are currently two broad approaches to the measurement of perfectionism. The first is a two-factor dimensional approach where a distinction is typically made between personal standards and evaluative concerns dimensions and emphasis is

placed on the quantitative differences within the two dimensions. The second is a person-oriented approach where groups of individuals are identified based upon their scores across multiple dimensions of perfectionism and emphasis is placed on the qualitative differences between individuals. Research examining the consequences of perfectionism amongst athletes has typically utilised the dimensional approach. However, Lundh, Saboonchi, and Wangby (2008) believe that the dimension approach may have a number of drawbacks when attempting to measure perfectionism. First, it is unclear whether the two factors represent two separate dimensions which correlate in opposite directions with positive and negative outcomes. Second, it is unclear how well the two-factor approach translates to a person-oriented level which is characterised by a more complex pattern of values across these dimensions. As discussed earlier, a third limitation is that researchers utilising this approach have yet to agree on whether it is appropriate to make inferences about perfectionism based upon the correlates, processes and consequences associated with each dimension independently.

Researchers outside of sport have utilised both the dimension-oriented approach and the person-oriented approach. Parker and colleagues (Ablard & Parker, 1997; Parker, 1997; Parker & Mills, 1996) and Rice and colleagues (Rice, Bair, Castro, Cohen, & Hood, 2003; Rice & Dellwo, 2002; Rice & Lapsley, 2001; Rice & Lopez, 2001; Rice & Mirzadeh, 2000), for example, have utilised cluster analysis or median splits to generate groups based on scores across dimensions of perfectionism captured by Frost et al.'s (1991) measure (concern over mistakes, doubts about actions, personal standards, organisation, parental expectations and criticism). Similarly, Slaney, Ashby and colleagues (Ashby & Kottman, 1996;

Ashby, Kottman, & DeGraaf, 1999; Grzegorek, Slaney, Franze, & Rice, 2005; Periasamy & Ashby, 2002; Rice & Ashby, 2007; Rice, Ashby, & Slaney, 2007; Stoltz, & Ashby, 2007; Ward, & Ashby, 2008) have established groups based on scores across dimensions of the Almost Perfect Scale-Revised (personal standards, discrepancy, and organisation). The research of these groups has found consistent support for a typology that includes the distinction between three groups that within the current theoretical framework would be considered athletes who are perfectionists, athletes with high personal standards, and athletes with low personal standards. Moreover, although this approach can be criticised because the groups created are sample dependent, Slaney and colleagues (Rice & Slaney, 2007) have recently established cut-off values that can be used to create groups across samples and ensure comparability. Given the limitations of the dimension approach, a person-oriented approach in which the qualitative difference between athletes that are classified as perfectionists and those who are not may provide greater insight into the consequences of perfectionism in a sport domain.

Research has also yet to examine the experience of perfectionist athletes using idiographic methods. This would also provide a means of gaining greater insight in to the experiences of athletes with higher levels of perfectionism. A small number of studies have been conducted outside of the sport domain by Rice and colleagues (Rice et al., 2003; Slaney & Ashby, 1996; Slaney, Chadha, Mobley, & Kennedy, 2000) when validating the Almost Perfect Scale. It is noteworthy that this research suggests that those with higher levels of perfectionism across standards, discrepancy, and organisation dimensions report

an intense desire for success and recognition as well as elevated levels of distress associated with their exacting standards and poor self-regulation (Rice et al., 2003). If this is the case amongst athletes, it would support the notion that perfectionism is best considered a maladaptive personality factor albeit one that can bring about competitive success and tangible rewards (see O'Sullivan, 2004, and Wilkinson, 2008, for examples). This type of research could also be used to compare current models of perfectionism that include a wide range of interpersonal and intrapersonal dimensions, some of which are not considered central to the construct by some researchers (see Shafran et al., 2002; Shafran & Mansell, 2001).

#### 8.6.2 *How can perfectionism be managed?*

As self-oriented and socially prescribed perfectionism are likely to be sources of psychological difficulties for athletes, strategies are required in order for parents, coaches and athletes to effectively manage them. The findings of the thesis suggest a number of possible means of intervention. Study two indicates that encouraging athletes to deal with achievement difficulties using problem-focused coping, and eschewing avoidant coping, may provide direct protection against the development of athlete burnout. The positive consequences of such coping are also likely to extend beyond burnout to other adaptive outcomes such as positive emotional adjustment when dealing with stress (Dunkley, Zuroff, & Blankstein, 2003). However, as indicated earlier, the extent of the resiliency afforded to those with higher levels of perfectionism has been questioned by Hill et al. (2008). They have argued that even though self-oriented perfectionists may utilise adaptive coping strategies, investing a sense of self-worth in achievement

striving is likely to lead to excessive strain on personal resources and, consequently, athletes may be ill equipped to cope with continuing achievement difficulties (see also Dunkley et al., 2000; O'Connor & O'Connor, 2003). Dunkley Zuroff and Blankstein (2003) have also found evidence that suggests problem-focused coping may be ineffective when attempting to mitigate stress for those with higher levels of socially prescribed perfectionism. They suggest that this may be because the standards associated with this dimension of perfectionism are appraised as unrealistic and uncontrollable. Consequently, instrumental behaviours are considered unlikely to lead to the attainment of these goals and are not utilised. The effect of promoting problem-focused coping amongst athletes with higher levels of socially prescribed perfectionism is therefore unclear and requires examination in future research before considering it as a potential intervention strategy.

Study six provided some initial evidence that manipulation of the achievement climate may be another means of effective intervention. The immediate and long-term benefits of promoting perceptions of a task-involving climate in a sport and physical activity context are well established (see Ntoumanis & Biddle, 1999, and Treasure, 2001, for reviews). The systematic manipulation of evaluative practices, reward structures, and interpersonal interactions within achievement settings may provide one means of tempering any immediate negative consequences of perfectionism in achievement settings and, over time, socialise adaptive beliefs regarding the purpose of sport and the causes of success (Dunn et al., 2002; Hall et al., 1998). These potential effects were illustrated by the findings of study six which suggested that manipulating the

achievement climate may be an effective strategy when attempting to reduce the comparative self-criticism associated with socially prescribed perfectionism. It is likely that these effects will extend to other cognitive, affective and behavioural consequences, especially for athletes with higher levels of socially prescribed perfectionism as this dimension appears to entail greater sensitivity to social cues (see discussion of study six).

Models of self-worth offer a number of other possible means of mitigating the effects of perfectionism by directly addressing the sense of conditional acceptance that underpins perfectionism. Alternatives to the pursuit of contingent self-worth include the development of unconditional self-acceptance (Ellis, 2003), unconditional positive regard (Rogers, 1996), authenticity (Kernis, 2003) and true self-esteem (Deci & Ryan, 1995). According to Self-Determination Theory (Ryan & Deci, 2002), true self-esteem is developed through the fulfilment of the psychological needs for competence, autonomy and relatedness. This is achieved by providing social contexts in which an individual can act autonomously and experience a sense of efficacy within the context of authentic relationships. Autonomy-supportive environments in the context of sport include providing choice in tasks, rationales for decisions, acknowledging and valuing athletes' feelings and avoiding controlling behaviours such as self-criticism and controlling competence (Mageau & Vallerand, 2003). The focus is on creating a social context in which individuals are able to feel accepted by others and eventually themselves (Deci & Ryan, 1995). Consequently, autonomy-supportive environments may have the potential to bring about fundamental change in perfectionist athletes by altering the contingencies of self worth through the

fulfilment of an athlete's psychological needs (see Adie, Duda, & Ntoumanis, 2008, Alvarez, Balaguer, Castillo, & Duda, 2009). It may therefore be a more effective form of intervention than the creation of a task-involving climate that focuses primarily on engendering adaptive competence related beliefs.

### 8.7 *Limitations and other future directions*

The findings of the thesis must be considered in light of the limitations of each study. Apart from study four, the studies within the thesis utilised non-experimental and cross-sectional designs. Consequently, while the mechanisms implied in each study are supported by empirical and theoretical evidence, it is not possible to infer causality between perfectionism and the other measured variables. This is particularly important in studies one and two where mediation was tested. As this line of research develops, longitudinal designs are required in order to begin to test the temporal precedence implied by the models. Such research would also allow for meaningful comparisons of alternative models that reflect other potential relations amongst perfectionism, regulatory factors, coping and burnout. For example, it remains a possibility that the pursuit of perfectionistic standards arises as a consequence of validation-seeking, rather than vice-versa. A further limitation of non-experimental and cross-sectional designs is that they can inflate the variance shared amongst measured variables (common method variance). This may explain the large amount of variance accounted for in burnout in study two. Prospective designs and more varied measurement (e.g., objective measures of coping) are one means of addressing this issue in future research.

As a quasi-experimental design was utilised in study four, this study has a

number of different limitations. Notably, because there are currently no objective criteria for identification of high levels of self-oriented perfectionism, it is difficult to identify when levels of self-oriented perfectionism are likely to be especially problematic and whether the levels reported by the higher group in study four would be classified as such. Consequently, the comparisons made are limited to the relative levels of self-oriented perfectionism in the sample. This is particularly important because in this study the median-split did not result in differences between the two groups in terms of the personal goals set in the two trials but was sufficient to capture other differences (threat, satisfaction, and reported effort). Study four also used single items to measure threat and satisfaction associated with performance. While the use of single-item measures have a number of benefits (e.g., simplicity, brevity), their reliability and validity are not easily established. Therefore, findings that involve these variables should be considered especially tentative. Finally, the use of multiple ANOVAs without controlling for an increased probability of an experimentwise error may also be problematic in this study. However, given the relatively small sample size, such a correction in this study is likely to have been overly stringent (Wright, 1992).

Future research should also examine whether the findings of each study replicate and generalise beyond the characteristics of the samples and contexts studied. This is especially important for studies one and two as they included adjustments to the hypothesised models. In particular, future research may wish to examine sport, gender and cultural invariance. Gender differences have been reported by recent research examining perfectionism in sport (e.g., Hall et al., 2007; Dunn et al., 2005) and may be especially important when considering the

relationship between perfectionism and coping as gender differences are common in the area of coping (see Nicholls & Polman, 2007). Whether perfectionism holds similar meaning, and has similar consequences, in different cultural contexts in which athletes reside is also a possibility. Research outside of sport has begun to accrue that suggests that there may be some cultural differences in terms of levels of perfectionism and its consequences (e.g., Castro, & Rice, 2003; Chang, 1998; Gilman, Ashby, Sverko, Florell, & Varjas, 2005). However, research has yet to examine this possibility in athlete samples; therefore, future research may wish to do so.

Finally, the thesis utilised a measure of perfectionism that has not been used widely in a sport context (HMPS; Hewitt & Flett, 1991). The psychometric properties of this scale have yet to be examined thoroughly in athletes. There is some evidence within the current thesis that this instrument can provide reliable measurement of self-oriented and socially prescribed perfectionism (e.g., internal consistencies across studies and acceptable measurement model in study two). However, there is also some evidence that suggests that the psychometric properties of the scale may be improved, especially for the socially prescribed perfectionism subscale (e.g., item removal in study two and in Hill et al., 2008). As stated previously, Hewitt and Flett's model may have a number of advantages over other conceptualisations of perfectionism; therefore, the psychometric properties of this instrument in athletes requires further examination. It may be that a domain-specific scale will provide more valid and reliable measurement and is required to capture any unique elements of these dimensions when manifested in sport (see Dunn, Gotwals, & Causgrove Dunn, 2005).

## 8.8 *General conclusion*

Research has recently begun to examine the effects of self-oriented and socially prescribed perfectionism for athletes. This research has found that these dimensions of perfectionism have a divergent relationship with athlete burnout. The findings of this thesis extend this research by demonstrating that the divergent relationship between self-oriented and socially prescribed perfectionism and burnout can be explained by different regulatory factors (growth-seeking and validation seeking), as well as different coping tendencies (problem-focused and avoidant coping). The findings of the thesis also extend previous research by identifying a number of moderating factors that explain the divergent consequences of self-oriented and socially prescribed perfectionism in athletes. In particular, although previous research suggests that contingent self-worth is a source of the psychological difficulties associated with both of these dimensions of perfectionism, the findings of the thesis suggest a further distinction is required based upon the domains in which self-worth is contingent, as well as the standards utilised in self-critical evaluation. As a result of these differences self-oriented perfectionism entails a greater degree of control over contingencies of worth and personal standards which may have the potential to mitigate its effects. The findings also provide additional insight in to the likely consequences of self-oriented perfectionism. The findings of the thesis provide support for the arguments of Flett and Hewitt (2005, 2006) that self-oriented perfectionism is best considered a vulnerability factor. The findings of the thesis suggest this is the case because a heightened sense of importance is attached to performance as self-worth is considered contingent on personal competence and outperforming others.

Consequently, while self-oriented perfectionism may energise high levels of achievement striving, it is also likely to lead to motivational and psychological difficulties following achievement difficulties.

When commenting on the motivational pattern that highly competent athletes are likely to have to exhibit in order to achieve athletic excellence, Duda (2001) argued that the critical factor is likely to be an athlete's ability to maximise their arduous training and persist beyond setbacks during the years of their sport careers. When reflecting on findings of this thesis, and research that has examined the consequences of self-oriented and socially prescribed perfectionism more broadly, it seems that both of these dimensions of perfectionism are more likely to undermine rather than facilitate the development of elite athletes. For athletes with higher levels of these dimensions of perfectionism, failure is not viewed as learning opportunity but is considered to be indicative of a lack of self-worth. The high levels of achievement striving associated with these dimensions of perfectionism are not the result of a desire for success but are, at least in part, a consequence of a desire to enhance self-worth. Moreover, they may energise high levels of achievement striving in the pursuit of self-worth but the perceived need to defend self-worth will also render athletes vulnerable to motivational and psychological difficulties.

“Every second counted, each performance made a difference to who I was and my identity. If I did well then I felt strong and worthy; if I made a lot of errors then I too was full of faults as a person. I could no longer distinguish between me and

my job, between me and what I did, between me and the rugby-playing me.”

*Jonny Wilkinson*

## References

- Ablard, K. E., & Parker, W. D. (1997). Parents' achievement goals and perfectionism in their academically talented children. *Journal of Youth and Adolescence, 26*, 651-667.
- Ackard, D. M., Henderson, J. B., & Wonderlich, A. L. (2004). The associations between childhood dance participation and adult disordered eating and related psychopathology. *Journal of Psychosomatic Research, 57*, 485-490.
- Adie, J., Duda, J.L., & Ntoumanis, N. (2008). Autonomy support, basic need satisfaction and the optimal functioning of adult male and female sport participants: A test of basic needs theory. *Motivation and Emotion, 32*, 189-199.
- Alvarez, M, S., Balaguer, I., Castillo, I., & Duda, J. L. (2008). Coach autonomy support and quality of sport engagement in young soccer players. *The Spanish Journal of Psychology, 12*, 138-148.
- Aiken, L. S., & West, S. G. (1991). *Multiple Regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Aldea, M. A., & Rice, K. (2006). The role of emotional dysregulation in perfectionism and psychological distress. *Journal of Counselling Psychology, 53*, 498-510.
- American College of Sports Medicine. (2006). *ACSM's Guidelines for Exercise Testing and Prescription* (7th ed). Baltimore, Md: Lippincott Williams and Wilkins.

- Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology, 84*, 261-271.
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin, 103*, 411-423.
- Anshel, M. H., & Eom, H. (2002). Exploring the dimensions of perfectionism in sport. *International Journal of Sport Psychology, 34*, 255-271.
- Anshel, M. H. & Mansouri, H. (2004). Influences of perfectionism on motor performance, affect, and causal attributions in response to critical information feedback. *Journal of Sport Behaviour, 28*, 99-124.
- Appleton, P. R., Hall, H. K., & Hill, A. P. (2009). The influence of perfectionism on junior-elite athlete burnout. *Psychology of Sport & Exercise, 10*, 457-465.
- Arbuckle, J. L. (2006). *Amos 6.0.1*. Chicago, IL: Smallwaters Corporation.
- Ashby, J. S., & Kottman, T. (1996). Inferiority as a distinction between normal and neurotic perfectionism. *Individual Psychology, 52*, 237-245.
- Ashby, J. S., & Kottman, T. & DeGraaf, D. (1999). Leisure satisfaction and attitudes of perfectionists: implications for therapeutic recreation professionals. *Therapeutic Recreation Journal, 33*, 142-151.
- Balaguer, I., Crespo, M. & Duda, J. L (1999). Motivational climate and goal orientations as predictors of perceptions on individual and team improvement, satisfaction and coach ratings among tennis players. *Scandinavian Journal of Medicine and Science in Sports, 9*, 381-388.

- Balaguer, I., Duda, J.L., Atienza, F.L., & Mayo, C. (2002). Situational and dispositional goals as predictors of perceptions on individual and team improvement, satisfaction and coach ratings among elite female handball teams. *Psychology of Sport and Exercise*, 3, 293-308.
- Bandalos, D. L. & Finney, S. J. (2001). Item parceling issues in structural equation modeling. In G. A. Marcoulides and Schumacker, R.E. (Eds.), *New Developments and Techniques in Structural Equation Modeling* (chap. 10, 269-296). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Barrow, J. C., & Moore, C. A. (1983). Group interventions with perfectionistic thinking. *Personnel and Guidance Journal*, 61, 612-615.
- Bentler, P. M. (1995). *EQS: Structural equations program manual*. Encino, CA: Multivariate Software, Inc.
- Bergman, A. J., Nyland, J. E., & Burns, L. R. (2007). Correlates with perfectionism and the utility of a dual process model. *Personality and Individual Differences*, 43, 389-399.
- Besser, A., Flett, G. L., & Hewitt, P. L. (2004). Perfectionism, cognition, and affect in response to performance failure versus success. *Journal of Rational-Emotive & Cognitive Behavior Therapy*, 22, 301-328.
- Besser, A., Flett, G. L., Hewitt, P. L. & Guez, J. (2008). Perfectionism and cognitions, affect, self-esteem, and physiological reactions in a performance situation. *Journal Rational-Emotive & Cognitive-Behaviour Therapy*, 26, 206-228.

- Bieling, P. J., Israeli, A. L., & Antony, M. M. (2004). Is perfectionism good, bad, or both? Examining models of the perfectionism construct. *Personality and Individual Differences, 36*, 1373-1385.
- Bieling, P. J., Israeli, A., Smith, J. & Anthony, M., M. (2003). Making the grade: the behavioural consequences of perfectionism in the classroom. *Personality and Individual Differences, 35*, 163-178.
- Blankstein, K. R., Flett, G. L., Hewitt, P. L., & Eng, A. (1993). Dimensions of perfectionism and irrational fears: An examination with the fear survey schedule. *Personality and Individual Differences, 15*, 323-328.
- Blankstein, K. R., Lumley, C. H., & Crawford, A. (2007). Perfectionism, hopelessness, and suicide ideation: Revisions to diathesis-stress and specific vulnerability models. *Journal of Rational-Emotive & Cognitive-Therapy, 4*, 255-277.
- Blankstein, K. R., & Winkworth, G. R. (2004). Dimensions of perfectionism and levels of attributions for grades: Relations with dysphoria and academic performance. *Journal of Rational-Emotive and Cognitive Behaviour Therapy, 22*, 271-299.
- Blatt, S. J. (1974). Levels of objective representation in anaclitic and introjective depression. *The Psychoanalytic Study of the Child, 29*, 107-157.
- Blatt, S. J. (1995). The destructiveness of perfectionism. *American Psychologist, 50*, 1003-1020.
- Blatt, S. J., D'Afflitti, J. P., & Quinlan, D. M. (1976). Experiences of depression in normal young adults. *Journal of Abnormal Psychology, 85*, 383-389.

- Brandstadter, J., & Renner, G. (1990). Tenacious goal pursuit and flexible goal adjustment: Explication and age related analysis of assimilative and accommodative strategies of coping. *Psychology and Aging, 5*, 58–67.
- Brophy, J. (1987). Socializing students' motivation to learn. In D. A. Kleiber & M. L. Maehr (Eds.), *Advances in motivation and achievement: Enhancing motivation* (Vol. 5, pp. 181-210). Bingley, UK: Emerald Group Press.
- Burns, D. D. (1980, November). The perfectionists script for self-defeat. *Psychology Today, 34*-51.
- Burns, L. R., Dittmann, K., Nguyen, N. & Mitchelson, J. K. (2000). Academic procrastination, perfectionism, and control: Associations with vigilant and avoidant coping. *Journal of social behaviour and personality, 15*, 35-46.
- Burns, L.R., & Fedewa, B.A. (2005). Cognitive styles: links with perfectionistic thinking. *Personality and Individual Differences, 38*, 103-113.
- Caccese, T. M., & Mayerberg, C. K. (1984). Gender differences in perceived burnout of college coaches. *Journal of Sport Psychology, 6*, 279-288.
- Capel, S. A., Sisley, B. L., & Desertrain, G S. (1987). The relationship of role conflict and role ambiguity to bumout in high school basketball coaches. *Journal of Sport Psychology, 9*, 106-117.
- Campbell, J. D., & Di Paula, A. (2002). Perfectionistic self-beliefs: Their relation to personality and goal pursuit. In G. L. Flett & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment*. (pp. 181-198). Washington, DC: American Psychological Association.

- Carver, C. S., & Ganellen, R. J. (1983). Depression and components of self-punitiveness: High standards, self-criticism, and overgeneralization. *Journal of Abnormal Psychology, 92*, 330-337.
- Carver, C. S., & Scheier, M. F. (1986). Functional and dysfunctional responses to anxiety: The interaction between expectancies and self-focused attention. In R. Schwarzer (Ed.), *Self related cognitions in anxiety and motivation* (pp. 111-141). Hillsdale, NJ: Erlbaum.
- Carver., C. S. & Scheier., M. F. (1990). Origins and Functions of Positive and Negative Affect: A Control-Process View. *Psychological Review, 97*, 19-35.
- Carver, S. C., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*, 267-283.
- Castro, J. R., & Rice, K. (2003). Perfectionism and ethnicity: Implications for depressive symptoms and self-reported academic achievement. *Cultural Diversity and Ethnic Minority Psychology, 9*, 64-78.
- Chang, E. C. (1998). Cultural differences, perfectionism, and suicidal risk in a college population: Does social problem solving still matter? *Cognitive Therapy and Research, 22*, 237-254.
- Chang, E. C. (2006). Conceptualisation and measurement of adaptive and maladaptive aspects of performance perfectionism: Relations to personality, psychological functioning, and academic achievement. *Cognitive Therapy and Research, 30*, 677-697.

- Chang, E. C., & Rand, K. L. (2000). Perfectionism as a predictor of subsequent adjustment: Evidence for a specific diathesis-stress mechanism among college students. *Journal of Counselling Psychology, 47*, 129-137.
- Chang, E. C., & Sanna, L. J. (2001). Negative attributional style as a moderator of the link between perfectionism and depressive symptoms: Preliminary evidence for an integrative model. *Journal of Counseling Psychology, 48*, 490-495.
- Cheng, S. K. (2001). Life stress, problem solving, perfectionism and depressive symptoms in Chinese. *Cognitive Therapy and Research, 25*, 303-310.
- Cheung, G. W., & Lau, R. S. (2008). Testing mediation and suppression effects of latent variables: Bootstrapping with structural equation models. *Organizational Research Methods, 11*, 296-325.
- Clough, M., & Wilson, B. (1993). The relationship between eating disorder characteristics and perfectionism amongst twenty two dance students 17-22yrs. *Sport Health, 11*, 5-8.
- Coakley, D. (1992). Burnout among adolescent athletes: A personal failure or social problem. *Sociology, 9*, 271-285.
- Cohen, J. (1973). Eta-squared and partial eta-squared in fixed factor ANOVA designs. *Educational and Psychological Measurement, 33*, 107-112.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2<sup>nd</sup> ed.). Hillsdale, NJ: Erlbaum.
- Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*, 155-159.

- Cohen, J., Cohen, P., Aiken, L. S., & West, S. G. (2003). *Applied multiple regression - correlation analysis for the behavioral sciences* (3rd ed.). Mahwah, NJ: Lawrence Erlbaum.
- Compas, B.E., Connor-Smith, J. K., Saltzman, H., Harding Thomsen, A. & Wadsworth, M. E. (2001). Coping with stress during childhood and adolescence: Problems, progress, and potential in theory and research. *Psychological Bulletin, 127*, 87–127.
- Compas, B. E. (1987). Coping and stress during childhood and adolescence. *Psychological Bulletin, 101*, 393-403.
- Conroy, D. E., Kaye, M. P., & Fifer, A. M., (2007). Cognitive links between fear of failure and perfectionism. *Journal of Rational-Emotive & Cognitive-Therapy, 4*, 237-253.
- Conroy, D. E., Willow, J. P., & Metzler, J. N. (2002). Multidimensional measurement of fear of failure: The Performance Failure Appraisal Inventory. *Journal of Applied Sport Psychology, 14*, 76-90.
- Costa, P. T., & McCrae, R. R. (1992). *NEO PI-R. Professional manual*. Odessa, FL: Psychological Assessment Resources Inc.
- Covington, M. V. (1992). *Making the grade: A self-worth perspective on motivation and school reform*. New York: Cambridge University Press.
- Covington, M. V. (2000). Goal theory, motivation, and school achievement: An integrative review. *Annual Review of Psychology, 51*, 171-200.
- Covington, M. V., & Omelich, C. L. (1991). Need achievement revisited: Verification of Atkinson's original 2 x 2 model. In C. D. Spielberger, I. G. Sarason, Z. Kulcsar, & G. L. Van Heck (Eds.), *Stress and emotion:*

*Anxiety, anger, and curiosity* (Vol. 14, pp.85-105). Washington, DC: Hemisphere.

Cox, B. J., Enns, M. W., & Clara, I. P. (2002). The multidimensional structure of perfectionism in clinically distressed and college student samples.

*Psychological Assessment, 14*, 365-373.

Cresswell, S. L., & Eklund, R., C. (2005a). Motivation and Burnout in Professional Rugby Players. *Research Quarterly for Exercise and Sport, 76*, 370-376.

Cresswell, S. L., & Eklund, R., C. (2005b). Changes in Athlete Burnout and Motivation over a 12-Week League Tournament. *Medicine and Science in Sports & Exercise, 37*, 1957-1966.

Cresswell, S. L., & Eklund, R., C. (2005c). Motivation and burnout among top amateur rugby players. *Medicine & Science in Sports & Exercise, 37*, 469-477.

Cresswell, S. L., & Eklund, R.C. (2006a). Changes in athlete burnout over a thirty-week rugby year. *Journal of Science and Medicine in Sport, 9*, 125-134.

Cresswell, S. L., & Eklund, R.C. (2006b). The nature of player burnout in rugby: Key characteristics and attributions. *Journal of Applied Sport Psychology, 18*, 219-239.

Cresswell, S. L., & Eklund, R. C. (2006c). Athlete burnout: Conceptual confusion, current research and future research directions. In S. Hanton and S. Mellalieu (Eds.), *Literature reviews in sports psychology* (pp.91–126). Hauppauge, NY: Nova Science.

- Crocker, J. (2002). The costs of seeking self-esteem. *Journal of Social Issues, 3*, 597-615.
- Crocker, J., Luhtanen, R. K., Cooper, M. L., & Bouvrett, A. (2003). Contingencies of self-worth in college students: Theory and Measurement. *Journal of Personality and Social Psychology, 85*, 894-908.
- Crocker, J., & Park, L. E. (2004). The costly pursuit of self-esteem. *Psychological Bulletin, 130*, 392-414.
- Crocker, J., & Wolfe, C. T. (2001). Contingencies of self-worth. *Psychological Review, 108*, 593-623.
- Crocker, P. R. E. & Graham, T. R. (1995). Coping by competitive athletes with performance stress: Gender differences and relationships with affect. *The Sport Psychologist, 9*, 325-338.
- Dale, J. & Weinberg, R. S. (1989). The relationship between coaches' leadership style and burnout. *The Sport Psychologist, 3*, 1-12.
- Deci, E. L., & Ryan, R. M. (1995). *Human autonomy: The basis for true self-esteem*. In M. Kernis (Ed.), *Efficacy, agency, and self-esteem* (pp. 31-50). New York: Plenum.
- DePaepe, J., French, R. and Lavay, B. (1985). Burnout symptoms experienced among special physical educators. *Adapted Physical Activity Quarterly, 2*, 189-196.
- DiBartolo, P. M., Frost, R. O., Chang, P., LaSota, M., & Grills, A. E. (2004). Shedding light on the relationship between personal standards and psychopathology: The case for contingent self-worth. *Journal of Rational Emotive and Cognitive Behavior Therapy, 22*, 241-254.

- Doebler, T. C, Schnick, C., Beck., B. L. & Astor-Stetson, E. (2000). Ego protection: The effects perfectionism and gender on acquired and claimed self-handicapping and self-esteem. *College Student Journal*, 34, 524-537.
- Duda, J.L. (1992). Motivation in sport setting: A goal perspective approach. In G. C. Roberts (Ed.), *Motivation In Sport and Exercise* (pp. 57-91). Champaign, IL: Human Kinetics.
- Duda, J.L. (2001). Goal perspectives research in sport: Pushing boundaries and clarifying some misunderstanding. In G. C. Roberts (Ed.), *Advances in Motivation in Sport and Exercise* (pp. 129-182). Champaign, IL: Human Kinetics.
- Duda, J.L. (2005). Motivation in sport: The relevance of competence and achievement goals. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 318-335). New York: Guildford Publications.
- Dunkley, D. M., & Blankstein, K. R. (2000). Self-critical perfectionism, coping, hassles and current distress: A structural equation modeling approach. *Cognitive Therapy and Research*, 6, 713-730.
- Dunkley, D. M., Blankstein, K. R., Halsall, J., Williams, M., & Winkworth, G. (2000). The relation between perfectionism and distress: Hassles, coping and perceived social support. *Journal of Counselling Psychology*, 47, 437-453.
- Dunkley, D. M., Blankstein, K. R., Masheb, R. M. & Grilo, C. M. (2006). Personal standards and evaluative concerns dimensions of “clinical”

- perfectionism: A reply to Shafran et al. (2002, 2003) and Hewitt et al. (2003). *Behaviour Research and Therapy*, *44*, 62-84.
- Dunkley, D. M., Blankstein, K. R., Zuroff, D. C., Lecce, S. & Hui, D. (2006). Self-critical and personal standards factors of perfectionism located within the five-factor model of personality. *Personality and Individual Differences*, *40*, 409-420.
- Dunkley, D. M., & Kyriakidis, A. (2008). What is DAS self-critical perfectionism really measuring? Relations with the five-factor model of personality and depressive symptoms. *Personality and Individual Differences*, *44*, 1295-1305.
- Dunkley, D. M., Zuroff, D. C. & Blankstein, K. R. (2003). Self-critical perfectionism and daily affect: Dispositional and situational influences on stress and coping. *Journal of Personality and Social Psychology*, *84*, 234-252.
- Dunkley, D. M., Zuroff, D. C., & Blankstein, K. R. (2006). Specific perfectionism components versus self-criticism in predicting maladjustment. *Personality and Individual Differences*, *40*, 665-676.
- Dunkley, D. M., Sanislow, C. A., Grilo, C. M., & McGlashan, T. H. (2006). Perfectionism and depressive symptoms 3 years later: negative social interactions, avoidant coping, and perceived social support as mediators. *Comprehensive Psychiatry*, *47*, 106-115.
- Dunn, J. G. H., Causgrove Dunn, J. & Syrotuik, D. G. (2002). Relationship between multidimensional perfectionism and goal orientations in sport. *Journal of Sport & Exercise Psychology*, *24*, 376-395.

- Dunn, J. G. H., Gotwals, J. K., & Causgrove Dunn, J. (2005). An examination of the domain specificity of perfectionism among intercollegiate student-athletes. *Personality and Individual Differences, 38*, 1439-1448.
- Dunn, J.G.H., Gotwals, J.K., Causgrove Dunn, J., & Syrotuik, D.G. (2006). Examining the relationship between perfectionism and trait anger in competitive sport. *International Journal of Sport and Exercise Psychology, 4*, 7-24.
- Duval, S., & Wicklund, R. A. (1972). *A theory of objective self awareness*. New York and London: Academic Press.
- Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review, 11*, 251-269.
- Dykman, B. M. (1998). Integrating cognitive and motivational factors in depression: Initial tests of a goal orientation approach. *Journal of Personality and Social Psychology, 74*, 139-158.
- Eklund, R. C., Grove, J. R., & Heard, N. P. (1998). The measurement of slump-related coping: Factorial validity of the COPE and the Modified COPE inventories. *Journal of Sport and Exercise Psychology, 20*, 157-175.
- Ellis, A. (2002). The role of irrational beliefs in perfectionism. In G. L. Flett & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 217-229). Washington, DC: American Psychological Association.
- Ellis, A. (2003). The relationship of rational-emotive behavior therapy (REBT) to social psychology. *Journal of Rational-Emotive & Cognitive-Behavior Therapy, 21*, 5-20.

- Endler, N. S., & Parker, J. D. (1994). Assessment of multidimensional coping: Task, emotion, and avoidance strategies. *Psychological Assessment, 6*, 50-60.
- Enns, M. W., Cox, B. J., & Clara, I. (2002). Adaptive and maladaptive perfectionism: developmental origins and association with depression proneness. *Personality and Individual Differences, 33*, 921-935.
- Enns, M. W., Cox, B. J., & Clara, I. P. (2005). Perfectionism and Neuroticism: A longitudinal study of specific vulnerability diathesis-stress models. *Cognitive Therapy and Research, 29*, 463-478.
- Enns, M. W., Cox, B. J., Sareen, J. & Freeman, P. (2001). Adaptive and maladaptive perfectionism in medical students: A longitudinal investigation. *Medical Education, 35*, 1034-1042.
- Feigley, D. A. (1984). Psychological Burnout in High-level athletes. The Physician and *Sports Medicine, 12*, 108-119.
- Ferrari, J. R. (1995). Perfectionism cognitions with nonclinical and clinical samples. *Journal of Social Behavior and Personality, 10*, 143-156
- Flett, G. L., Besser, A., Davis, R. A., & Hewitt, P., L. (2003). Dimensions of perfectionism, unconditional self-acceptance, and depression. *Journal of Rational Emotive and Cognitive Behavior Therapy, 21*, 119-138.
- Flett, G. L, Greene, A. & Hewitt, P. L. (2004). Dimensions of perfectionism and anxiety sensitivity. *Journal of Rational-Emotive & Cognitive –Behavior Therapy, 22*, 37-55.
- Flett, G. L., & Hewitt, P., L. (2002). Perfectionism and maladjustment: An overview of theoretical, definitional, and treatment issues. In G. L. Flett &

- P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment*. (pp. 5-31). Washington, DC: American Psychological Association.
- Flett, G. L., & Hewitt, P. L. (2005). The perils of perfectionism in sports and exercise. *Current Directions in Psychological Science, 14*, 14-18.
- Flett, G. L., & Hewitt, P. L. (2006). Positive versus negative perfectionism in psychopathology. *Behaviour Modification, 30*, 472-495.
- Flett, G. L., & Hewitt, P. L. (2007). When does conscientiousness become perfectionism. *Current Psychiatry, 6*, 49-64.
- Flett, G. L., Hewitt, P. L., Blankstein, K. R., & Dynin, C. B. (1994). Dimensions of perfectionism and Type A behaviour. *Personality and Individual Differences, 16*, 477-485.
- Flett, G. L., Hewitt, P. L., Blankstein, K. R., & Gray, L. (1998). Psychological distress and the frequency of perfectionistic thinking. *Journal of Personality and Social Psychology, 75*, 1363-1381.
- Flett, G. L., Hewitt, P. L., Blankstein, K. R., & Koledin, S. (1992). Dimensions of perfectionism and irrational thinking. *Journal of Rational-Emotive & Cognitive Therapy, 9*, 185-201.
- Flett, G. L., Hewitt, P. L., Blankstein, K. R., & Mosher, S. W. (1991). Perfectionism, self-actualization, and personal adjustment. *Journal of Social Behavior and Personality, 6*, 147-160.
- Flett, G. L., Hewitt, P. L., Blankstein, K. R., & Mosher, S. W. (1995). Perfectionism, life events, and depressive symptoms: A test of a diathesis-stress model. *Current Psychology: Research and Reviews, 14*, 112-137.

- Flett, G. L., Hewitt, P. L., Blankstein, K. R., & O'Brien, S. (1991). Perfectionism and learned resourcefulness in depression and self-esteem. *Personality and Individual Differences, 12*, 61-68.
- Flett, G. L., Hewitt, P. L., Blankstein, K. R. & Pickering, D. (1998). Perfectionism in relation to attributions for success and failure. *Current Psychology: Development, Learning, Personality, Social, 17*, 249-262.
- Flett, G. L., Hewitt, P. L., Blankstein, K. R., Solnik, M., & Van Brunschot, M. (1996). Perfectionism, social problem-solving ability, and psychological distress. *Journal of Rationale-Emotive and Cognitive-Behavior Therapy, 14*, 245-274.
- Flett, G. L., Hewitt, P. L., & De Rosa, T. (1996). Dimensions of perfectionism, psychosocial adjustment and social skills. *Personality and Individual Differences, 20*, 143-150.
- Flett, G. L., Hewitt, P. L., Garshowitz, M., & Martin, T. R. (1997). Personality, negative social interactions, and depressive symptoms. *Canadian Journal of Behavioural Science 29*, 28-37.
- Flett, G. L., Madorsky, D., Hewitt, P. L., & Heisel, M. J. (2002). Perfectionism cognitions, rumination, and psychological distress. *Journal of Rational-Emotive & Cognitive Behavior Therapy, 20*, 33-47.
- Flett, G. L., Russo, F. A., & Hewitt, P. L. (1994). Dimensions of perfectionism and constructive thinking as a coping response. *Journal of Rational-Emotive and Cognitive-Behaviour Therapy, 12*, 163-179.
- Folkman, S., and Lazarus, R. S. (1988). Coping as a mediator of emotion. *Journal of Personality and Social Psychology, 54*, 466-475.

- Frost, R. O., Heimberg, R. G., Holt, C. S., Mattia, J. I., & Neubauer, A. L. (1993). A comparison of two measures of perfectionism. *Personality and Individual Differences, 14*, 119-126.
- Frost, R. O., & Henderson, K. J. (1991). Perfectionism and reactions to athletic competition. *Journal of Sport and Exercise Psychology, 13*, 323-335.
- Frost, R. O., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research, 5*, 449-468.
- Frost, J. R., Trepanier, K. L., Brown, E. J., Heimberg, R. G., Juster, H. R., Markis, G. S., & Leung, A. W. (1997). Self-monitoring of mistakes among subjects high and low in perfectionistic concern over mistakes. *Cognitive Therapy and Research, 21*, 209-222.
- Frost, R. O., Turcotte, T. A., Heimberg, R. G., Mattia, J. I., Holt, C. S., & Hope, D. A. (1995). Reactions to mistakes among subjects high and low in perfectionistic concern over mistakes. *Cognitive Therapy and Research, 19*, 195-205.
- Garner, D., Olmstead, M., & Polivy, J. (1983) Development and validation of multidimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders, 2*, 15-34.
- Gaudreau, P., & Antl, S. (2008). Broad dimensions of perfectionism: Examining change in life-satisfaction and the mediating role of motivation and coping. *Journal of Sport and Exercise Psychology, 30*, 356-382.
- Gaudreau, P., & Blondin, J.-P. (2002). Development of a questionnaire for the assessment of coping strategies employed by athletes in competitive sport settings. *Psychology of Sport and Exercise, 3*, 1-34.

- Gaudreau, P., Lapierre, A.-M., & Blondin, J.-P. (2001). Coping at three phases of a competition: Comparison between pre-competitive, competitive, and post-competitive utilization of the same strategy. *International Journal of Sport Psychology, 32*, 369-385.
- Gibbons, F. X. (1990). Self-attention and behaviour: A review and theoretical update. *Advances in Experimental Social Psychology, 23*, 249-303.
- Gilbert, P., Durrant, R., & McEwan, K. (2006). Investigating relationships between perfectionism, forms and functions of self-criticism, and sensitivity to put-down. *Personality and Individual Differences, 41*, 1299-1308.
- Gilman, R., Ashby, J. S., Sverko, D., Florell, D., & Varjas, K. (2005). The relationship between perfectionism and multidimensional life satisfaction among Croatian and American youth. *Personality and Individual Differences, 39*, 155.
- Goodger, K., Gorely, T., Lavallee, D., & Harwood, C. (2007). Burnout in sport: A systematic review. *The Sport Psychologist, 21*, 127-151.
- Gotwals, J. K., & Dunn, J. G. H. (2008). A multi-method multi-analytical approach to establishing internal construct validity evidence: The Sport Multidimensional Perfectionism Scale 2. *Measurement in Physical Education and Exercise Science, 13*, 71-92.
- Gotwals, J. K., Dunn, J. G. H., & Wayment, H. (2003). An examination of perfectionism and self-esteem in intercollegiate athletes. *Journal of Sport Behaviour, 26*, 17-38.

- Gould, D. (1996). Personal motivation gone awry: Burnout in competitive athletes. *Quest*, 48, 275-289.
- Gould, D. R., Dieffenbach, K., & Moffett, A. (2002). Psychological characteristics and their development in Olympic champions. *Journal of Applied Sport Psychology*, 14, 172-204.
- Gould, D., Finch, L. M., & Jackson, S. A. (1993). Coping strategies used by national figure skaters. *Research Quarterly for Exercise and Sport*, 64, 453-468.
- Gould, D., Tuffey, S., Udry, E., & Loehr, J. (1996). Burnout in competitive junior tennis players: I. A quantitative psychological assessment. *The Sport Psychologist*, 10, 332-340.
- Graham, J.W., Cumsille, P.E. & Elek-Fisk, E. (2003) Methods for handling missing data. In Schinka, J.A. and Velicer, W.F. (eds.), *Research Methods in Psychology*, (pp.87-112). New York: Wiley.
- Greenspon, T. S. (2000). "Healthy perfectionism" is an oxymoron! Reflections on the psychology of perfectionism and the sociology of science. *The Journal of Secondary Gifted Education*, 11, 197-208.
- Greenspon, T. S. (2008). Making sense of error: A view of the origins and treatment of perfectionism. *American Journal of Psychotherapy*, 62, 263-282.
- Grzegorek, J. L., Slaney, R. B., Franze, S., & Rice, K. G. (2004). Self-criticism, dependency, self-esteem, and grade point average satisfaction among clusters of perfectionists and nonperfectionists. *Journal of Counseling Psychology*, 51(2), 192-200.

- Haase, A., M., & Prapavessis, H. (2004). Assessing the Factor Structure and Composition of the Positive and Negative Perfectionism Scale in Sport. *Personality and Individual Differences, 36*, 1725-1740.
- Hair, J. F. Jr., Black W. C., Babin, B. J., & Anderson, R. E. (2009). *Multivariate Data Analysis* (7th ed.). Upper Saddle River, NJ: Prentice Hall.
- Hall, H. K. (2006). Perfectionism: A hallmark quality of world class performers, or a psychological impediment to athletic development? In D. Hackfort & G. Tenenbaum (Eds.), *Perspectives in Sport and Exercise Psychology; Essential processes for attaining peak performance* (Vol. 1, pp. 178-211). Oxford, UK: Meyer & Meyer Publishers.
- Hall, H. K., Hill, A. P., Appleton, P. R. & Kozub, S. A. (2009). The mediating influence of unconditional self-acceptance and labile self-esteem on the relationship between multidimensional perfectionism and exercise dependence. *Psychology of Sport & Exercise, 10*, 35-44.
- Hall, H. K., & Kerr, A. W. (1998). Predicting achievement anxiety: A social cognitive perspective. *Journal of Sport and Exercise Psychology, 20*, 100-113.
- Hall, H.K., Kerr, A.W., Kozub, S.A., & Finnie S.B. (2007). Motivational antecedents of obligatory Exercise: The influence of achievement goals and perfectionism. *Psychology of Sport and Exercise, 8*, 297-316.
- Hall, H. K., Kerr, A. W., & Matthews, J. (1998). Precompetitive anxiety in sport: The contribution of achievement goals and perfectionism. *Journal of Sport and Exercise Psychology, 20*, 194-217.

- Hardy, L., Jones, G., & Gould, D. (1996). *Understanding Psychological Preparation for Sport: Theory and Practice of Elite Performers*. Wiley: Chichester.
- Haring, M., Hewitt, P. L., & Flett, G. L. (2003). Perfectionism, coping, and quality of intimate relationships. *Journal of Marriage and Family*, 65, 143-158.
- Harvey, B., Pallant, J., & Harvey, D. (2004). An evaluation of the factor structure of the Frost multidimensional perfectionism scale. *Educational and Psychological Measurement*, 64, 1007-1018.
- Hatzigeorgiadis, A., & Biddle, S. J. H. (2000). Assessing cognitive interference in sport: Development of the thought occurrence questionnaire for sport. *Anxiety, Stress and Coping*, 13, 65-89.
- Henschen K. (2000) Maladaptive fatigue syndrome and emotions in sport. In Hanin YL, (ed.) *Emotions in sport* (pp.231-243). Champaign, IL: Human Kinetics.
- Hewitt, P. L., Caelian, C. F., Flett, G. L., Sherry, S.B., Collins. L., & Flynn, C. A. (2002). Perfectionism in children: associations with depression, anxiety and anger. *Personality and Individual Differences*, 32, 1049-1061.
- Hewitt, P. L., and Flett, G. L. (1993). Dimensions of perfectionism, daily stress, and depression: A test of the specific vulnerability hypothesis. *Journal of Abnormal Psychology*, 102, 58-65.
- Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts: Conceptualization, assessment, and association with psychopathology. *Journal of Personality and Social Psychology*, 60, 456-470.

- Hewitt, P. L. & Flett, G. L. (1996). Personality traits and the coping process. In M. Zeidner and N. S. Endler (Eds.), *Handbook of coping. Theory, research, applications* (pp.410-433). New York: Wiley.
- Hewitt, P. L., & Flett, G. L. (2004). *The Multidimensional Perfectionism Scale: Technical Manual*. Toronto: Multihealth Systems Inc.
- Hewitt, P. L., Flett, G. L., Besser, S. B. and McGee, B. (2003). Perfectionism is multidimensional: a reply to Shafran, Cooper and Fairburn (2002). *Behaviour Research and Therapy*, *41*, 1221-1236.
- Hewitt, P. L., Flett, G. L. & Endler, N. S. (1995). Perfectionism, coping, and depression symptomatology in a clinical sample. *Clinical Psychology and Psychotherapy*, *2*, 47-58.
- Hewitt, P. L., Flett, G. L., Oliver, J. M., & Macdonald, S. (2002). Perfectionism in children and their parents: A developmental analysis. In G. L. Flett & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 89-132). Washington, DC: American Psychological Association.
- Hewitt, P. L., & Genest, M. (1990). Ideal-self: Schematic processing of perfectionistic content in dysphoric university students. *Journal of Personality and Social Psychology*, *59*, 802-808.
- Hewitt, P. L., Mittelstaedt, W. & Wollert, R. (1989). Validation of a measure of perfectionism. *Journal of Personality Assessment*, *53*, 133-144.
- Hill, A. P., Hall, H. K., Appleton, P. R., & Kozub, S. R. (2008). Perfectionism and burnout in junior elite soccer players: The mediating influence of unconditional self-acceptance. *Psychology of Sport and Exercise*, *9*, 630-644.

- Hill, R. W., Huelsman, T. J., Furr, R. M., Kibler, J., Vincente, B. B., & Kennedy, C. (2004). A new measure of perfectionism: The Perfectionism Inventory. *Journal of Personality Assessment, 82*, 80-91.
- Hill, R. W., McIntire, K., & Bacharach, V. R. (1997). Perfectionism and the big five factors. *Journal of Social Behaviour and Personality, 12*, 257-270.
- Hittner, J. B., Finger, M. S., Mancuso, J. P., & Silver, N. C. (1995). A Microsoft fortran 77 program for contrasting part correlations and related statistics. *Educational and Psychological Measurement, 55*, 777-784.
- Hoar, S. D., Kowalski, K.C., C. K., Gaudreau, P., & Crocker, P. R. E. (2006). A Review of coping in sport. In S. Hanton and S. Mellalieu (Eds.), *Literature reviews in sports psychology* (pp.47–90). Hauppauge, NY: Nova Science.
- Hobden, K., & Pliner, P. (1995). Self-handicapping and dimensions of perfectionism: Self-presentation vs. self-protection. *Journal of Research in Personality, 29*, 461-474.
- Hollander, M. H. (1965). Perfectionism. *Comprehensive Psychiatry, 6*, 94-103.
- Holmbeck G. N. (1997). Toward terminological, conceptual, and statistical clarity in the study of mediators and moderators: Examples from the child-clinical and pediatric psychology literatures. *Journal of Consulting and Clinical Psychology, 65*, 599–610.
- Holmbeck, G. N. (2002). Post-hoc probing of significant moderational and mediational effects in studies of pediatric populations. *Journal of Pediatric Psychology, 27*, 87-96.

- Hoyle, R.H., & Panter, A.T. (1995), "Writing about structural equation models",  
in Hoyle, R.H. (Eds), *Structural Equation Modeling: Concepts, Issues,  
and Applications*. Thousand Oaks, CA: Sage Publications Inc.
- Hu, L.-T. & P. Bentler (1995). Evaluating model fit. In R. H. Hoyle (Ed.),  
*Structural Equation Modeling: Concepts, Issues, and Applications* (pp.76-  
99). Thousand Oaks, CA: Sage Publications.
- Ickes, W. J., Wicklund, R. A. & Ferris, C. B. (1973). Objective self-awareness  
and self-esteem. *Journal of Experimental Social Psychology*, 9, 202–219.
- Jöreskog, K. G., & Sörbom, D. (1993), *LISREL 8: Structural Equation Modeling  
with the SIMPLIS Command Language*. Hillsdale, NJ: Lawrence Erlbaum  
Associates.
- Kaplan, A., & Maehr, M. (2007). The contributions and prospects of goal  
orientation theory. *Educational Psychology Review*, 19, 141-184.
- Katz, J., & Nelson, R. (2007). Family experiences and self-criticism in college  
students: Testing a model of family stress, past unfairness, and self-  
esteem. *American Journal of Family Therapy*, 5, 447-457.
- Kaye, M.P., Conroy, D.E., & Fifer, A.M. (2008). Individual differences in  
incompetence avoidance: A comparison of multiple dimensions of  
perfectionism and fear of failure. *Journal of Sport and Exercise  
Psychology*, 30, 110-132.
- Kelley, B., C. (1994). A model of stress and burnout in collegiate coaches: Effects  
of gender and time of season. *Research Quarterly for Sport and Exercise*,  
65, 48-58.

- Kelley, B. C., Eklund, R. C., & Ritter-Taylor, M. (1999). Stress and burnout among collegiate tennis coaches. *Journal of Sport and Exercise Psychology, 21*, 113-130.
- Kelley, B. C., & Gill, D. L. (1993). An examination of personal/situational variables, stress appraisal, and burnout in collegiate teacher-coaches. *Research Quarterly for Exercise Sport, 64*, 94-102.
- Kernis, M. H. (2003). Toward a conceptualization of optimal self-esteem. *Psychological Inquiry, 14*, 1-26.
- Krohne, H. W. (1993). Vigilance and cognitive avoidance as concepts in coping research. In: H.W. Krohne, Editor, *Attention and avoidance* (pp19-50). Gottingen: Hogrefe & Huber.
- Koole, S., Smeets, M., Van Knippenberg, A., & Dijksterhuis, A. (1999). The cessation of rumination through self-affirmation. *Journal of Personality and Social Psychology, 77*, 111-125.
- Krasnow D, Mainwaring L, Kerr G: Injury, stress, and perfection in young dancers and gymnasts. *Journal of Dance Medicine and Science, 3*, 51-58.
- Knee, C. R., Canevello, A., Bush, A. L., & Cook, A. (2008). Appearance-Related Social Comparisons: The Role of Contingent Self-Esteem and Self-Perceptions of Attractiveness. *Journal of Personality and Social Psychology, 95*, 608-627.
- Koivula, N., Hassmen, P., & Fallby (2002). Self-esteem and perfectionism in elite athletes: Effects on competitive anxiety and confidence. *Personality and Individual Differences, 32*, 865–875.

- Kramer, S. H., & Rosenthal, R. (1999). Effect sizes and significance levels in small-sample research. In R. H. Hoyle (Ed.), *Statistical strategies for small sample research* (pp. 60-79). London: Sage.
- Landis, R. S., Beal, D., & Tesluk, P. E. (2000). A comparison of approaches to forming composite measures in structural equation models. *Organizational Research Methods, 3*, 186-207.
- Lazarus, R. S. & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Lemyre, P. -N., Hall, H. K., & Roberts, G. C., (2008). A social cognitive approach to burnout in athletes. *Scandinavian Journal of Medicine & Science in Sports, 18*, 221–234.
- Lemyre, P. -N., Roberts, G. C., & Stray-Gundersen, J. (2007). Motivation, overtraining and burnout: Can Self-Determined Motivation Predict Overtraining and Burnout in Elite Athletes. *European Journal of Sport Sciences, 7*, 115-132.
- Lemyre, P. -N., Treasure, D. C., & Roberts, G. C. (2006). Influence of Variability in Motivation and Affect on Elite Athlete Burnout. *Journal of Sport and Exercise Psychology, 28*, 32-48.
- Liederbach, M., & Compagno, J. M. (2001). Psychological aspects of fatigue-related injuries in dancers. *Journal of Dance Medicine & Science. 5*, 116-120
- Loewenthal, K. M. (2001). *An introduction to psychological tests and scales* (2nd ed.). London: UCL Press.

- Lundh, L. G. (2004). Perfectionism and acceptance. *Journal of Rational Emotive and Cognitive Behavior Therapy*, 22, 255-269.
- Lundh, L-G., Saboonchi, F, & Wangby, M. (2008). The role of personal standards in clinically significant perfectionism. A person-oriented approach to the study of patterns of perfectionism. *Cognitive Therapy Research*, 32, 333-350.
- Lynam, D. R., Hoyle, R. H., & Newman, J. P. (2006). The perils of partialling: Cautionary tales from aggression and psychopathy. *Assessment*, 13, 328-341.
- MacKinnon, D. P. (2008). Path analysis mediation models. In MacKinnon, D. P., *Introduction to statistical mediation analysis* (pp.127-171). Mahwah, NJ: Erlbaum.
- MacKinnon, D. P., Krull, J. L., & Lockwood, C. M. (2000). Equivalence of the mediation, confounding, and suppression effect. *Prevention Science*, 1, 173-181.
- Maehr, M. L., & Braskamp, L. A. (1986). *The motivation factor: A theory of personal investment*. Lexington, MA: Lexington Books.
- Mageau, G. A., & Vallerand, R. J. (2003). The coach-athlete relationship: A motivational model. *Journal of Sports Sciences*, 21, 883-904.
- Malgady, R. G. (1987). Contrasting partial correlations in regression models. *Educational and Psychological Measurement*, 47, 961-965.
- Marsh, H. W. (2007). Application of confirmatory factor analysis and structural equation modeling in sport and exercise psychology. In G. Tenenbaum &

- R. C. Eklund. (Eds.), *Handbook of sport psychology* (3rd Ed.). (pp. 774-798). Hoboken, NJ: John Wiley & Sons Inc.
- Marsh, H. W., Hau, K. T., & Wen, Z. L. (2004). In search of golden rules: Comment on hypothesis testing approaches to setting cutoff values for fit indexes and dangers in overgeneralising Hu & Bentler (1999) findings. *Structural Equation Modeling, 11*, 320-341.
- Martin, J. J., Kelley, B. C., & Eklund, R. C. (1999). A model of stress and burnout in male high school athletic directors. *Journal of Sport and Exercise Psychology, 21*, 280-294.
- Martin, L., & Tesser, A. (1996). Some ruminative thoughts. In R. S. Wyer (Ed.), *Advances in social cognition*. (Vol. 9, pp. 1-48). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Maslach, C. & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Occupational Behavior, 2*, 99-113.
- Maslach, C. & Jackson, S. E. (1986). Maslach burnout inventory manual. Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C., Schaufeli, W., Leiter, M. (2001). Job burnout. *Annual Review of Psychology, 52*, 397-422.
- McArdle, S., & Duda, J. L. (2004). Exploring the social contextual correlates of perfectionism in adolescents: A multivariate perspective. *Cognitive Therapy and Research, 28*, 765-788.
- McAuley, E., Duncan, T., & Tammen, V. V. (1989). Psychometric properties of the Intrinsic Motivation Inventory in a competitive sport setting: A

- confirmatory factor analysis. *Research Quarterly for Exercise and Sport*, 60, 48-58.
- Mitchelson, J. K. & Burns, L. R. (1998). Career mothers and perfectionism: Stress at work and at home. *Personality and Individual Differences*, 25, 477-486.
- Miller, G. A. & Chapman, J. P. (2001) Misunderstanding analysis of covariance, *Journal of Abnormal Psychology*, 110, 40-48.
- Mills, J. S., & Blankstein, K. R. (2000). Perfectionism, intrinsic vs. extrinsic motivation, and motivated strategies for learning: a multidimensional analysis of university students. *Personality and Individual Differences*, 29, 1191-1204.
- Miquelon, P., Vallerand, R. J., Grouzet, F. M. E., & Cardinal, G. (2005). Perfectionism, academic motivation and psychological adjustment: An integrative model. *Personality and Social Psychology Bulletin*, 31, 913-924.
- Montanari, A., & Zietkiewicz, E. A. (2000). Adolescent South African ballet dancers. *South African Journal of Psychology*, 30, 31-35.
- Mor, N. & Winqvist, J. (2002). Self focused attention and Negative affect: A Meta-Analysis. *Psychological Bulletin*, 128, 638-662.
- Mor, S., Day, H. I., Flett, G. L., & Hewitt, P. L. (1995). Perfectionism, control and components of performance anxiety in professional artists. *Cognitive Therapy and Research*, 19, 207-225.
- Myers, J.L. & Well, A.D. (2003). *Research design and statistical analysis* (2<sup>nd</sup> ed.). Mahwah, NJ: Erlbaum.

- Neumärker, K., Bettle, N., Neumärker, U., & Bettle, O. (2000). Age and gender related psychological characteristics of adolescent ballet dancers. *Psychopathology, 33*, 137-42.
- Newton, M., Duda, J.L. & Yin, Z. (2000) Examination of the psychometric properties of the Perceived Motivational Climate in Sport Questionnaire-2 in a sample of female athletes. *Journal of Sport Sciences 18*, 275-290.
- Newton, M., & Duda, J. L. (1999). The interaction of motivational climate, dispositional goal orientations, perceived ability in predicting indices of motivation. *International Journal of Sport Psychology, 30*, 63-82.
- Nicholls, J.G. (1989). *The competitive ethos and democratic education*. Harvard University Press: Cambridge.
- Nicholls, A. R., & Polman, R. C. J. (2007). Coping in sport: A systematic review. *Journal of Sports Sciences, 25*, 11-31.
- Ntoumanis, N., & Biddle, S. J.H. (2000). Relationship of intensity and direction of competitive anxiety with coping strategies. *The Sport Psychologist, 14*, 360-371.
- Ntoumanis, N., & Biddle, S.J.H. (1999). A review of motivational climate in physical activity. *Journal of Sport Sciences, 17*, 643-665.
- Ntoumanis, N., Biddle, S. J. H., & Haddock, G. (1999). The mediating role of coping strategies on the relationship between achievement motivation and affect in sport. *Anxiety, Stress and Coping, 12*, 299-327.
- O'Connor, R. C., & O'Connor, D. B. (2003). Predicting Hopelessness and psychological distress: the role of perfectionism and coping. *Journal of Counselling Psychology, 50*, 362-372.

- O'Connor, R. C., O'Connor, D. B., O'Connor, S. M., Smallwood, J. & Miles, J. (2004). Hopelessness, stress, and perfectionism: The moderating effects of future thinking. *Cognition and Emotion, 18*, 1099-1120.
- O'Connor, R. C., & Forgan, G. L. (2007). Suicidal thinking and perfectionism: The role of goal adjustment and behavioural inhibition/activation systems (BIS/BAS). *Journal of Rational-Emotive & Cognitive-Therapy, 4*, 321-341.
- O'Sullivan, R. (2004). *Ronnie*. London: Orion Books.
- Ommundsen, Y., Roberts, G. C., Lemyre, P.-N., & Miller, B. W. (2005). Peer relationships in adolescent competitive soccer: Associations to perceived motivational climate, achievement goals and perfectionism. *Journal of Sports Sciences, 23*, 977-989.
- Ongen, D.E. (2006). The relationships between self-criticism, submissive behavior and depression among Turkish adolescents, *Personality and Individual Differences, 41*, 793-800.
- Owens, R. G. & Slade, P. D. (2008). So Perfect It's Positively Harmful? Reflections on the Adaptiveness and Maladaptiveness of Positive and Negative Perfectionism. *Behaviour Modification, 32*, 928-397.
- Pacht, A. J. (1984). Reflections on perfection. *American Psychologist, 39*, 386-390.
- Paradise, A. W. & Kernis, M. H. (1999). [Development of the contingent self-esteem scale]. Unpublished data, University of Georgia.
- Parker, W. D. (1997). An empirical typology of perfectionism in academically talented children. *American Educational Research Journal, 34*, 545-562.

- Parker, W. D. & Mills, C. J. (1996). The incidence of perfectionism in gifted students. *Gifted Child Quarterly*, 40, 194-199.
- Patrick, H., Neighbors, C., & Knee, C.R. (2004). Appearance -related social comparisons: The role of contingent self-esteem and perceptions of attractiveness. *Personality and Social Psychology Bulletin*, 30, 501-514.
- Patrick, H., Neighbors, C., & Knee, C. R. (2004). Appearance-Related Social Comparisons: The Role of Contingent Self-Esteem and Self-Perceptions of Attractiveness. *Personality and Social Psychology Bulletin*, 30, 501-514.
- Pedhazur, E. J., & Pedhazur-Schmelkin, L. (1991) *Measurement, design and analysis: An integrated approach*. Hillsdale, NJ: Erlbaum.
- Periasamy, S., & Ashby, J. S. (2002). Multidimensional perfectionism and locus of control: Adaptive vs. maladaptive perfectionism. *Journal of College Student Psychotherapy*, 17, 75-86.
- Purdon, C., Antony, M. M., & Swinson, R. P. (1999). Psychometric properties of the frost multidimensional perfectionism scale in a clinical anxiety disorders sample. *Journal of Clinical Psychology*, 55, 1271-86.
- Powers, T. A., Zuroff, D. C., & Topciu. R. A. (2004). Covert and overt expressions of self-criticism and perfectionism and their relation to depression. *European Journal of Personality*, 18, 61-72.
- Preacher, K. J. & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879-891.

- Pyszczynski, T. & Greenberg, J. (1987). Self-Regulatory Perseveration and the Depressive Self-Focusing Style: A Self-Awareness Theory of Reactive Depression. *Psychological Bulletin*, *102*, 1, 122-138.
- Raedeke, T. D. (1997). Is athlete burnout more than just stress? A sport commitment perspective. *Journal of Sport & Exercise Psychology*, *19*, 396-418.
- Raedeke, T. D., & Smith, A. L. (2001). Development and preliminary validation of an athlete burnout measure. *Journal of Sport and Exercise Psychology*, *23*, 281-306.
- Raedeke, T. D., & Smith, A., L. (2004). Coping resources and athlete burnout: An examination of stress mediated and moderation hypotheses. *Journal of Sport and Exercise Psychology*, *26*, 525-541.
- Reinboth, M., & Duda, J.L. (2004). Relationship of the perceived motivational climate and perceptions of ability to psychological and physical well-being in team sports. *The Sport Psychologist*, *18*, 237-251.
- Rheume, J., Freeston, M. H., Ladouceur, R., Bouchard, C., Gallant, L., Talbot, F., & Vallières, A. (2000). Functional and dysfunctional perfectionists: Are they different on compulsive-like behaviors? *Behavior Research and Therapy*, *38*, 128–199.
- Rice, K. G., & Ashby, J. S. (2007). An efficient method for classifying perfectionists, *Journal of Counseling Psychology*, *54*, 72–85.
- Rice, K. G., Ashby, J. S., & Slaney, R. B. (2007). Perfectionism and the five-factor model of personality. *Assessment*, *14*, 385-398.

- Rice, K. G., Bair, C. J., Castro, J. R., Cohen, B. N., & Hood, C. A. (2003). Meanings of perfectionism: A quantitative and Qualitative analysis. *Journal of Cognitive Psychotherapy, 17*, 39-58.
- Rice, K. G., & Dellwo, J. P. (2002). Perfectionism and self-development: Implications for self-esteem, depression, and college adjustment, *Journal of Counseling and Development, 80*, 188–196.
- Rice, K. G., & Lapsley, D. K. (2001). Perfectionism, coping and emotional adjustment. *Journal of College Student Development, 42*, 157-168.
- Rice, K. G., & Lopez, F. G. (2004). Maladaptive perfectionism, adult attachment, and self-esteem. *Journal of College Counseling, 7*, 118-128.
- Rice, K. G., Mirzadeh, S. A. (2000). Perfectionism, attachment, and adjustment. *Journal of Counseling Psychology, 47*, 238-250.
- Roberts, G. C. (2001). Understanding the dynamics of motivation in physical activity: The influence of achievement goals on motivational processes. In G. C. Roberts (Editor) *Advances in motivation in Sport & Exercise* (pp. 1-50). Champaign, Illinois: Human Kinetics.
- Rogers, C. R. (1996). Client-centred therapy. Bury St Edmunds: St Edmunds-bury Press.
- Roth, S., & Cohen, L. J. (1986). Approach, avoidance, and coping with stress. *American Psychologist, 41*, 813–819.
- Ryan, R. M., & Deci, E. L. (2002). An overview of self-determination theory. In E. L. Deci & R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 3-33). Rochester, NY: University of Rochester Press.

- Sagar, S. S. & Stoeber, J. (in press). Perfectionism, fear of failure, and affective responses to success and failure: The central role of fear of experiencing shame and embarrassment. *Journal of Sport & Exercise Psychology*. ISSN 0895-2779.
- Schaufeli, W. B., & Enzmann, D. (1998). *The burnout companion to study and practice: A critical analysis*. London: Taylor & Francis.
- Schaufeli, W. B., & Buunk, B. P. (2003). Burnout: An overview of 25 years of research and theorizing. In M. J. Schabracq, J. A. M. Winnubst, & C. L. Cooper (Eds.) *The handbook of work and health psychology* (2<sup>nd</sup> ed., pp. 383-425). New York: John Wiley & Sons.
- Scheier, M. F., & Carver, C. S. (1983). Self-directed attention and the comparison of self with standards. *Journal of Experimental Social Psychology*, 19, 205-222.
- Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Test of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research - Online*, 8, 23-74.
- Schmidt, G. W. & Stein, G. L. (1991). Sport commitment: A model integrating enjoyment, dropout and burnout. *Journal of Sport and Exercise Psychology*, 8, 254-265.
- Scott, J. (2007). The effect of perfectionism and unconditional self-acceptance on depression. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 25, 35-65.

- Seifriz, J., Duda, J. L. & Chi, L. (1992). The relationship of motivational climate to intrinsic motivation and beliefs about success in basketball. *Journal of Sport and Exercise Psychology, 14*, 375-392.
- Sherry, S. B., Hewitt, P. L., Flett, G. L., & Harvey, M. (2003). Perfectionism dimensions, perfectionistic attitudes, dependent attitudes, and depression in psychiatric patients and university students, *Journal of Counseling Psychology, 50*, 373–386.
- Shafran, R., Cooper, Z., & Fairburn, C. G. (2002). Clinical perfectionism: a cognitive-behavioral analysis. *Behaviour Research and Therapy, 40*, 773-791.
- Shafran, R., & Mansell W. (2001). Perfectionism and psychopathology: A review of research and treatment. *Clinical Psychology Review, 21*, 879-906.
- Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and non-experimental studies: New procedures and recommendations. *Psychological Methods, 7*, 422-445.
- Silverman, L. K. (1998). Through the lens of giftedness. *Roeper Review, 20*, 204-210.
- Skinner, E. A., Edge, K., Altman, J. and Sherwood, H. (2003). Searching for the structure of coping: A review and critique of category systems of classifying ways of coping. *Psychological Bulletin, 129*, 216-269.
- Slaney, R. B., Chadha, N., Mobley, M. & Kennedy, S. (2000). Perfectionism in Asian Indians: Exploring the meaning of the construct in India. *The Counseling Psychologist, 28*, 10-31.

- Slaney, R. B., & Ashby, J. S. (1996). Perfectionists: Study of a criterion group. *Journal of Counseling and Development, 74*, 393-398.
- Slaney, R. B., Ashby, J. S. & Trippi, J. (1995). Perfectionism: Its Measurement and career relevance. *Journal of Career Assessment, 3*, 279-297.
- Slade, P.D. and Owens, R.G., 1998. A dual process model of perfectionism based on reinforcement theory. *Behavior Modification, 22*, 372–390.
- Slaney, R. B., Rice, K. G., Mobley, M., Trippi J., & Ashby, J. S. (1998). The revised almost perfect scale. *Measurement and Evaluation in Counseling and Development, 34*, 130-145.
- Slaney, R. B., Rice, K. G., Mobley, M., Trippi, J., & Ashby, J. (2001). The revised almost perfect scale, *Measurement and Evaluation in Counseling and Development, 34*, 130–145.
- Smith, R. E. (1986). Toward a cognitive-affective model of athletic burnout. *Journal of Sport Psychology, 8*, 36-50.
- Smith, R. E., Leffingwell, T. R., & Ptacek, J. T. (1999). Can people remember how they coped? Factors associated with discordance in same-day and retrospective reports. *Journal of Personality and Social Psychology, 76*, 1050-1061.
- Smith, R.E., Schultz, R.W., Smoll, F.L., & Ptacek, J.T. (1995). Development and validation of a multidimensional measure of sport-specific psychological skills: The Athletic Coping Skills Inventory-28. *Journal of Sport & Exercise Psychology, 17*, 379-398.

- Spiers Neumeister, K. L. (2004). Interpreting successes and failures: The influence of perfectionism on perspective. *Journal for the Education of the Gifted*, 27, 311-335.
- Spiers Neumeister, K. & Finch, H. (2006). Perfectionism in high-ability students: Relational precursors and influences on achievement motivation. *Gifted Child Quarterly*, 50, 238-251.
- Stöber, J. (1998). The Frost Multidimensional Perfectionism Scale revisited: More perfect with four (instead of six) dimensions. *Personality and Individual Differences*, 24, 481-491.
- Stöber, J., Otto, K., & Stoll, O. (2004). Mehrdimensionales Inventar zu Perfektionismus im Sport (MIPS) [Multidimensional Inventory of Perfectionism in Sport (MIPS)]. In J. Stöber, K. Otto, E. Pescheck, & O. Stoll (Eds.), *Skalendokumentation "Perfektionismus im Sport"*. *Hallesche Berichte zur Pädagogischen Psychologie* (Vol. 7, pp. 4–13). Halle, Saale, Germany: University of Halle-Wittenberg.
- Stoeber, J. & Becker, C. (2008). Perfectionism, achievement motives, and attribution of success and failure in female soccer players. *International Journal of Psychology*, 43, 980-987.
- Stoeber, J. and Kersting, M. (2007). Perfectionism and aptitude test performance: Testees who strive for perfection achieve better test results. *Personality and Individual Differences*, 42, 1093-1103.
- Stoeber, J., Harris, R. A., & Moon, P. S. (2007). Perfectionism and the experience of pride, shame, and guilt: Comparing healthy perfectionists, unhealthy

- perfectionists, and nonperfectionists. *Personality and Individual Differences*, *43*, 131-141.
- Stoeber, J., Kempe, T., & Keogh, E. J. (2008). Facets of self-oriented and socially prescribed perfectionism Does striving for perfectionism enhance or undermine performance. *Personality and Individual Differences*, *44*, 1506-1516.
- Stoeber, J., & Kersting, M. (2007). Perfectionism and aptitude test performance: Testees who strive for perfection achieve better test results. *Personality and Individual Differences*, *42*, 1093-1103.
- Stoeber, J., & Otto, K. (2006). Positive conceptions of perfectionism: Approaches, evidence and challenges. *Personality and Social Psychology Review*, *10*, 295-319.
- Stoeber, J., Otto, K., & Dalbert, C. (2009). Perfectionism and the Big Five: Conscientiousness predicts longitudinal increases in self-oriented perfectionism. *Personality and Individual Differences*, *47*, 363-368.
- Stoeber, J., Otto, K., Pescheck, E., Becker, C., & Stoll, O. (2007). Perfectionism and competitive anxiety in athletes: Differentiating striving for perfection and negative reactions to imperfection. *Personality and Individual Differences*, *42*, 959-969.
- Stoeber, J., Stoll, O., Pescheck, E., & Otto, K. (2008). Perfectionism and achievement goals in athletes: Relations with approach and avoidance orientations in mastery and performance goals. *Psychology of Sport and Exercise*, *9*, 102-121.

- Stoeber, J., Stoll, O., Salmi, O., & Tiikkaja, J. (2009). Perfectionism and achievement goals in young Finnish ice-hockey players aspiring to make the Under-16 national team. *Journal of Sports Sciences, 27*, 85-94.
- Stoeber, J. and Rennert, D. (2008). Perfectionism in school teachers: Relations with stress appraisal, coping styles, and burnout. *Anxiety, Stress, & Coping, 21*, 37-53.
- Stoeber, J., Uphill, M. A., & Hotham, S. (2009). Predicting race performance in triathlon: The role of perfectionism, achievement goals, and personal goal setting. *Journal of Sport & Exercise Psychology, 31*, 211-245.
- Stoll, O., Lau, A., & Stoeber, J. (2008). Perfectionism and performance in a new basketball training task: Does striving for perfection enhance or undermine performance? *Psychology of Sport and Exercise, 9*, 620-629.
- Stoltz, K., & Ashby, J. S. (2007). Perfectionism and lifestyle: Personality differences among adaptive perfectionists, maladaptive perfectionists, and non-perfectionists. *The Journal of Individual Psychology, 63*, 414-423.
- Stumpf, H., & Parker, W. D. (2000). A hierarchical structural analysis of perfectionism and its relation to other personality characteristics. *Personality and Individual Differences, 28*, 837-852.
- Suddarth, B. H., & R.B. Slaney, R. B. (2001). An investigation of the dimensions of perfectionism in college students, *Measurement and Evaluation in Counseling and Development, 34*, 157-165.
- Swain, A. B. K., & Harwood, C. G. (1996). Antecedents of state goals in age group swimmers: An interactionist perspective. *Journal of Sport Sciences, 14*, 111-124.

- Tabachnick, B. G., & Fidell, L. S. (2007). *Using Multivariate Statistics* (5th ed.). Boston: Allyn and Bacon.
- Taylor, A. H., Daniel, J. V., Leith, L. & Burke, R. J. (1990). Perceived stress, psychological burnout and paths to turnover intentions among sport officials. *Applied Sport Psychology*, 2, 84-97.
- Terry-Short, L. A., Owens, R. G., Slade, P. D., & Dewey, M. E. (1995). Positive and negative perfectionism. *Personality and Individual Differences*, 18, 663–668.
- Thompson, T. (1993). Characteristics of self-worth protection in achievement behaviour, *British Journal of Educational Psychology*, 63, 469-488.
- Thompson, R. & Zuroff, D. C. (2004). The level of self-criticism scale: comparative self-criticism and internalised self-criticism. *Personality and Individual Differences*, 36, 419-430.
- Treasure, D. C.. (1997). Perceptions of the motivational climate and elementary school children's cognitive and affective response *Journal of Sport & Exercise Psychology*, 19, 278 - 290.
- Treasure, D. C.. (2001). Enhancing young people's motivation in youth sport: An achievement goal approach. In G. C. Roberts (Ed.), *Advances in Motivation in Sport and Exercise* (pp. 79-100). Champaign, IL: Human Kinetics.
- Treasure, D. C.. & Roberts, G. C. (1998). Relationship between female adolescents' achievement goal orientations, perceptions of the motivational climate, belief about success and sources of satisfaction in basketball. *International Journal of Sport Psychology*, 29, 211-230.

- Treasure, D. C., & Roberts, G. C. (2001). Students' perceptions of the motivational climate, achievement beliefs and satisfaction in physical education. *Research Quarterly for Exercise and Sport*, 72, 165–175.
- Trumpeter, N., Watson, P. J., & O' Leary. B. J. (2006). Factors within multidimensional perfectionism scales: Complexity of relationship with self-esteem, narcissism, self-control and self-criticism. *Personality and Individuals Differences*, 41, 849-860.
- Vallance, J. K. H., Dunn, J, G, H. and Causgrove Dunn, J. L. (2006). Perfectionism, Anger, and situation criticality in competitive youth ice hockey. *Journal of Sport & Exercise Psychology*, 28, 383-406.
- Van Yperen, N., W. (2006). A novel approach to assessing achievement goals in the context of the 2 x2 framework: Identifying distinct profiles of individuals with different dominant achievement goals. *Personality and Social Psychology Bulletin*, 32, 1432-1445.
- Vealey, R. S., Armstrong, L., Comar, W. & Greenleaf, C. A. (1998). Influence of perceived coaching behaviours on burnout and competitive anxiety in female college athletes. *Journal of Applied Sport Psychology*, 10, 297-318.
- Vealey, R. S., Udry, E. M, Zimmerman, V., & Soliday, J. (1992). Intrapersonal and situational predictors of coaching burnout. *Journal of Sport and Exercise Psychology*, 14, 40-58.
- Walling, M. D., Duda, J. L. & Chi, L. (1993). The perceived motivational climate in sport questionnaire. *Journal of Sport and Exercise Psychology*, 15, 172-183.

- Ward, A. M. & Ashby, J. S. (2008). Multidimensional perfectionism and the self. *Journal of College Student Psychotherapy, 15*, 172-183.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and Validation of Brief Measures of Positive and Negative Affect: The PANAS Scales. *Journal of Personality and Social Psychology, 54*, 1063-1070.
- Weinberg, R., Burton, D., Yukelson, D. & Weigand, D. (2000). Perceived goal setting practices of Olympic athletes: An exploratory investigation. *The Sport Psychologist, 14*, 279-295.
- White, S. A., & Zellner, S. R. (1996). The relationship between goal orientation, beliefs about the causes of sport success, and trait anxiety among high school, intercollegiate, and recreational sport participants. *The Sport Psychologist, 10*, 58-72.
- Wilkinson, J. (2008). *Tackling Life*. London: Headline Publishing.
- Williams, J.M., & Krane, V. (2001). Psychological characteristics of peak performance. In J.M. Williams (Ed.), *Applied sport psychology: Personal growth to peak performance*. Mountain View, CA, USA: Mayfield.
- Wright, S. P. (1992) Adjusted p-values for simultaneous inference. *Biometrics, 48*, 1005-1013.
- Wu, T-F., & Wei, M. (2008). Perfectionism and negative mood: The mediating roles of validation from others versus self. *Journal of Counseling, 2*, 102-121.

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Study one: Participant informed consent form



Dear Participant,

We would like to request your participation in a research project which is being conducted by myself and the Sport and Exercise Psychology Research Group at the University of Bedfordshire. The research is investigating the relationship between specific personality characteristics and different patterns of feelings and thoughts about participating in sport.

The information gained from this research will help better understand athlete motivation. To help us complete this research we would like to request your assistance. We would like you to complete the attached questionnaire. The questionnaire will take approximately 15-20 minutes to complete. Your participation in this research project is completely voluntary and you are free to withdraw consent at any time. However, we hope you can find the time to help us. Your responses to the questionnaire will be completely confidential, and only group data will be reported following data analysis (i.e., it will not be possible to identify the responses of any individual). If you would be willing to take part in this research project please sign the bottom of this consent form before completing the questionnaire.

This project has received the full support of the Ethics Committee of the Faculty of Education and Contemporary Studies at the University of Bedfordshire. Upon request, once the investigation has been completed we will be happy to supply a written report on the research findings.

For further information about the research or information about your rights as a participant, you may contact me by telephone (01234 793309) or via email (andy.hill@beds.ac.uk).

We greatly appreciate your assistance with this project, and we wish to thank you at this point for taking the time to help.

Best regards,

Mr. Andrew P. Hill

I understand the above information and give voluntary consent to participate in this investigation

Signature: .....

Date:.....

I would like to be informed of the findings of this study: Yes / No

Contact details (address/email)

.....  
.....  
.....

Study one: Parent and guardian informed consent form



Dear Parent or Guardian,

We would like to request the participation of your child in a research project examining the relationship between specific personality characteristics and different patterns of feelings and thoughts about participating in sport.

The information gained from this research will help better understand motivation and add to the knowledge base on how motivational processes are determined by the personality of the athlete. In order to participate, your child would be asked to complete a short questionnaire that will take approximately 15-20 minutes.

Their participation in this research project is completely voluntary and they will be free to withdraw from participation at any time. Their responses to the questionnaire will be completely anonymous, and only group data will be analysed and reported (i.e., there will be no focus on the response of any individual). If you would be willing to allow your child to take part in this research project, please sign the bottom of this consent form before completing the questionnaire.

This project has received the full support of the Ethics Committee of the Faculty of Education and Contemporary Studies at the University of Bedfordshire. Upon request, once the investigation has been completed we will be happy to supply a written report on the research findings.

For further information about the research or information about your rights as a participant, you may contact me by telephone (01234 793309) or via email (andy.hill@beds.ac.uk).

We greatly appreciate your assistance with this project, and we wish to thank you at this point for taking the time to help.

Best regards,

Andy Hill

I understand the above information and give consent for my child to participate in this investigation.

Signature: ..... Date: .....

I would like to be informed of the findings of this study: Yes / No

Contact details (address/email)

.....  
.....  
.....

Study two: Participant informed consent form



Dear Participant,

We would like to request your participation in a research project which is being conducted by myself and the Sport and Exercise Psychology Research Group at the University of Bedfordshire. The research is investigating the relationship between specific personality characteristics and how athletes typically cope with achievement difficulties.

The information gained from this research will help better understand athlete motivation. To help us complete this research we would like to request your assistance. We would like you to complete the attached questionnaire. The questionnaire will take approximately 15-20 minutes to complete. Your participation in this research project is completely voluntary and you are free to withdraw consent at any time. However, we hope you can find the time to help us. Your responses to the questionnaire will be completely confidential, and only group data will be reported following data analysis (i.e., it will not be possible to identify the responses of any individual). If you would be willing to take part in this research project please sign the bottom of this consent form before completing the questionnaire.

This project has received the full support of the Ethics Committee of the Faculty of Education and Contemporary Studies at the University of Bedfordshire. Upon request, once the investigation has been completed we will be happy to supply a written report on the research findings.

For further information about the research or information about your rights as a participant, you may contact me by telephone (01234 793309) or via email (andy.hill@beds.ac.uk).

We greatly appreciate your assistance with this project, and we wish to thank you at this point for taking the time to help.

Best regards,

Mr. Andrew P. Hill

I understand the above information and give voluntary consent to participate in this investigation

Signature: .....

Date:.....

I would like to be informed of the findings of this study: Yes / No

Contact details (address/email)

.....  
.....  
.....

Study two: Parent and guardian informed consent form



Dear Parent or Guardian,

We would like to request the participation of your child in a research project examining the relationship between specific personality characteristics and how athletes typically cope with achievement difficulties.

The information gained from this research will help better understand athlete motivation. In order to participate, your child would be asked to complete a short questionnaire that will take approximately 15-20 minutes.

Their participation in this research project is completely voluntary and they will be free to withdraw from participation at any time. Their responses to the questionnaire will be completely anonymous, and only group data will be analysed and reported (i.e., there will be no focus on the response of any individual). If you would be willing to allow your child to take part in this research project, please sign the bottom of this consent form before completing the questionnaire.

This project has received the full support of the Ethics Committee of the Faculty of Education and Contemporary Studies at the University of Bedfordshire. Upon request, once the investigation has been completed we will be happy to supply a written report on the research findings.

For further information about the research or information about your rights as a participant, you may contact me by telephone (01234 793309) or via email ([andy.hill@beds.ac.uk](mailto:andy.hill@beds.ac.uk)).

We greatly appreciate your assistance with this project, and we wish to thank you at this point for taking the time to help.

Best regards,

Andy Hill

I understand the above information and give consent for my child to participate in this investigation.

Signature: ..... Date: .....

I would like to be informed of the findings of this study: Yes / No

Contact details (address/email)

.....  
.....  
.....

### Study three: Participant informed consent form



Dear Participant,

We would like to request your participation in a research project which is being conducted by the School of P.E and Sport Sciences at the University Of Bedfordshire. The research is investigating the influence of personality characteristics on the motivation of junior elite cricket players.

The information gained from this research will help to better understand perfectionism in this setting. To help us complete this research we would like to request your assistance. We would like you to complete the attached questionnaire. The questionnaire will take approximately 10-15 minutes to complete. Your participation in this research project is completely voluntary and you are free to withdraw consent at any time without prejudice. However, we hope you can find the time to help us. Your responses to the questionnaire will be completely anonymous, and only group data will be reported following data analysis (i.e., there will be no focus on the response of any individual). If you would be willing to take part in this research project please sign the bottom of this consent form before completing the questionnaire.

This project has received the full support of the Ethics Committee of the Faculty of Education and Contemporary Studies at the University of Bedfordshire. Upon request, we will be happy to supply a written report on the research findings available, once the investigation has been completed. Furthermore, we would be pleased to present our research findings to members of your team who might be interested.

For further information about the research or information about your rights as a participant, you may contact Mr. Andrew P. Hill who is the principal investigator on this project. His telephone number is (01234) 793309, or you can contact him by email at [andy.hill@beds.ac.uk](mailto:andy.hill@beds.ac.uk).

We greatly appreciate your assistance with this project, and we wish to thank you at this point for taking the time to help.

Andrew Hill (BSc.)

I understand the above information and give voluntary consent to participate in this investigation

Signature: .....

Date:.....

I would like to be informed of the findings of this study: Yes / No

Contact details (address/email)

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.....  
.....

Study three: Parent and guardian informed consent form



Dear Parent or Guardian,

We would like to request the participation of your child in a research project examining the influence of personality characteristics on the motivation of junior elite cricket players.

The information gained from this research will help to better understand perfectionism in this setting. In order to participate, your child would be asked to complete a short questionnaire that will take approximately 10-15 minutes.

Their participation in this research project is completely voluntary and they will be free to withdraw from participation at any time. Their responses to the questionnaire will be completely anonymous, and only group data will be analysed and reported (i.e., there will be no focus on the response of any individual). If you would be willing to allow your child to take part in this research project, please sign the bottom of this consent form before completing the questionnaire.

This project has received the full support of the Ethics Committee of the Faculty of Education and Contemporary Studies at the University of Bedfordshire. Upon request, once the investigation has been completed we will be happy to supply a written report on the research findings.

For further information about the research or information about your rights as a participant, you may contact me by telephone (01234 793309) or via email (andy.hill@beds.ac.uk).

We greatly appreciate your assistance with this project, and we wish to thank you at this point for taking the time to help.

Best regards,

Andy Hill

I understand the above information and give consent for my child to participate in this investigation.

Signature: ..... Date: .....

I would like to be informed of the findings of this study: Yes / No

Contact details (address/email)

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Study four: Participant informed consent form



Dear Participant,

We would like to request your participation in a research project examining the thoughts and emotions that accompany performance on a muscle endurance task.

The information gained from this research will help better understand motivation and add to the knowledge base on how this is determined by the personality of the athlete. To help us complete this research we would like to request your assistance. We would like you to take part in three short bouts of physical activity on a cycle ergometer (6 minutes) and complete a series of short questionnaires. The experiment will take approximately 60 minutes to complete. Your participation in this research project is completely voluntary and you are free to withdraw consent at any time. However, we hope you can find the time to help us. Your performance and responses to the questionnaire will be completely anonymous, and only group data will be reported following data analysis (i.e., there will be no focus on the response of any individual). If you would be willing to take part in this research project please sign the bottom of this consent form before completing the questionnaire.

This project has received the full support of the Ethics Committee of the School of sport and exercise sciences at Birmingham University. Upon request, once the investigation has been completed we will be happy to supply a written report on the research findings available.

If you have any questions regarding participation please contact Andy Hill on 01234 793309 or 07790667239. We greatly appreciate your assistance with this project, and we wish to thank you at this point for taking the time to help.

Best regards,

Andy Hill

I understand the above information and give voluntary consent to participate in this investigation.

Signature: ..... Date: .....

I would like to be informed of the findings of this study: Yes / No

Contact details (address/email)

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.....

Study five: Participant informed consent form



Dear Participant,

We would like to request your participation in a research project which is being conducted by the Sport and Exercise Psychology Research Group at the University of Bedfordshire. The research is investigating the relationship between specific personality characteristics and different patterns of feelings and thoughts.

The information gained from this research will help better understand athlete motivation. To help us complete this research we would like to request your assistance. We would like you to complete the attached questionnaire. The questionnaire will take approximately 10-15 minutes to complete. Your participation in this research project is completely voluntary and you are free to withdraw consent at any time. However, we hope you can find the time to help us. Your responses to the questionnaire will be completely confidential, and only group data will be reported following data analysis (i.e., it will not be possible to identify the responses of any individual). If you would be willing to take part in this research project please sign the bottom of this consent form before completing the questionnaire.

This project has received the full support of the Ethics Committee of the Faculty of Education and Sport at the University of Bedfordshire. Upon request, once the investigation has been completed we will be happy to supply a written report on the research findings.

For further information about the research or information about your rights as a participant, you may contact me by telephone (01234 793309) or via email (andy.hill@beds.ac.uk).

We greatly appreciate your assistance with this project, and we wish to thank you at this point for taking the time to help.

Best regards,

Mr. Andrew P. Hill

I understand the above information and give voluntary consent to participate in this investigation

Signature: .....

Date:.....

I would like to be informed of the findings of this study: Yes / No

Contact details (address/email)

.....  
.....  
.....

## Study six: Participant informed consent form



Dear Participant,

I would like to request your participation in a research project which is being conducted by the University Of Bedfordshire. The research is investigating the relationship between athletes' personality traits and the thoughts and feeling they experience. It is hoped that the information gained from this research will help to better understand why for some athletes participation can become a negative experience.

To help me complete this research I would like to request your assistance in the form of completing the attached questionnaire. The questionnaire will take approximately 15-20 minutes to complete. Your participation in this research project is completely voluntary and you are free to withdraw consent at any time. However, I hope you can find the time to help. Your responses to the questionnaire will be completely anonymous, and only group data will be reported following data analysis (i.e., there will be no focus on the response of any individual). If you would be willing to take part in this research project please sign the bottom of this consent form before completing the questionnaire.

This project has received the full support of the Ethics Committee of the School of Physical Education and Sport Sciences at the University of Bedfordshire. Upon request, I will be happy to supply a written report on the research findings available, once the investigation has been completed. If you would like to be informed of the findings of the study please also leave your contact details. Furthermore, I would be pleased to present my research findings to members of your sport club who might be interested.

For further information about the research or information about your rights as a participant, you may contact Mr. Andrew Hill on (01234 793309) or [andy.hill@beds.ac.uk](mailto:andy.hill@beds.ac.uk)

I greatly appreciate your assistance with this project, and I wish to thank you at this point for taking the time to help.

I understand the above information and give voluntary consent to participate in this investigation.

Signature: ..... Date: .....

I wish to be informed of the findings of this study                      Yes            /            No

Contact details(address/email):

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Study six: Parent and guardian informed consent form



Dear Parent or Guardian,

We would like to request the participation of your child in a research project examining the relationship between athletes' personality traits and the thoughts and feeling they experience.

It is hoped that the information gained from this research will help to better understand why for some athletes participation can become a negative experience. In order to participate, your child would be asked to complete a short questionnaire that will take approximately 15-20 minutes.

Their participation in this research project is completely voluntary and they will be free to withdraw from participation at any time. Their responses to the questionnaire will be completely anonymous, and only group data will be analysed and reported (i.e., there will be no focus on the response of any individual). If you would be willing to allow your child to take part in this research project, please sign the bottom of this consent form before completing the questionnaire.

This project has received the full support of the Ethics Committee of the Faculty of Education and Contemporary Studies at the University of Bedfordshire. Upon request, once the investigation has been completed we will be happy to supply a written report on the research findings.

For further information about the research or information about your rights as a participant, you may contact me by telephone (01234 793309) or via email (andy.hill@beds.ac.uk).

We greatly appreciate your assistance with this project, and we wish to thank you at this point for taking the time to help.

Best regards,

Andy Hill

I understand the above information and give consent for my child to participate in this investigation.

Signature: ..... Date: .....

I would like to be informed of the findings of this study: Yes / No

Contact details (address/email)

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### Multidimensional Perfectionism Scale (HMPS; Hewitt and Flett, 1991)

Please read each of the statements carefully, and indicate the extent to which you personally agree or disagree with each statement *in relation to when you practice or perform your sport*. Remember there are no right or wrong answers.

	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
	①	②	③	④	⑤	⑥	⑦
<b><i>When practising or performing my sport...</i></b>							
1. When I am working on something, I cannot relax until it is perfect.	①	②	③	④	⑤	⑥	⑦
2. I find it difficult to meet others' expectations of me.	①	②	③	④	⑤	⑥	⑦
3. One of my goals is to be perfect in everything I do.	①	②	③	④	⑤	⑥	⑦
4. I never aim for perfection in my work.	①	②	③	④	⑤	⑥	⑦
5. Those around me readily accept that I can make mistakes too.	①	②	③	④	⑤	⑥	⑦
6. The better I do, the better I am expected to do.	①	②	③	④	⑤	⑥	⑦
7. I rarely feel the need to be perfect.	①	②	③	④	⑤	⑥	⑦
8. Anything that I do that is less than excellent will be seen as poor performance by those around me.	①	②	③	④	⑤	⑥	⑦
9. I strive to be as perfect as I can be.	①	②	③	④	⑤	⑥	⑦
10. It is very important that I am perfect in everything I attempt.	①	②	③	④	⑤	⑥	⑦
11. I strive to be the best at everything I do	①	②	③	④	⑤	⑥	⑦
12. The people around me expect me to succeed at everything I do.	①	②	③	④	⑤	⑥	⑦
13. I demand nothing less than perfection of myself.	①	②	③	④	⑤	⑥	⑦
14. Others will like me even if I don't excel at everything.	①	②	③	④	⑤	⑥	⑦
15. It makes me uneasy to see errors in my performance.	①	②	③	④	⑤	⑥	⑦
16. Success means that I must work even harder to please others.	①	②	③	④	⑤	⑥	⑦
17. I am perfectionistic in setting goals.	①	②	③	④	⑤	⑥	⑦
18. Others think I'm OK even when I do not succeed.	①	②	③	④	⑤	⑥	⑦
19. I feel that people are too demanding of me.	①	②	③	④	⑤	⑥	⑦
20. I must work to my full potential at all times.	①	②	③	④	⑤	⑥	⑦

- |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| 21. Although they may not show it, other people get very upset with me when I slip up | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| 22. I do not have to be the best at whatever I do.                                    | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| 23. My family expects me to be perfect.   | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| 24. I do not have very high goals for myself.   | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| 25. My parents rarely expect me to excel in all aspects of my life.                   | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| 26. People expect nothing less than perfection from me                                | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| 27. I set very high standards for myself.   | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| 28. People expect more from me than I am capable of giving.                           | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| 29. I must always be successful in activities that are important to me.               | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| 30. People around me think that I am still competent even if I make a mistake.        | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |

## Goal Orientation Inventory (GOI; Dykman, 1998)

Please indicate the extent to which you personally agree or disagree with each statement *in relation to when you practice or perform your sport*. Remember there are no right or wrong answers.

Strongly disagree	Moderately disagree	Slightly disagree	Equally agree and disagree	Slightly agree	Moderately agree	Strongly agree	
①	②	③	④	⑤	⑥	⑦	
<b><i>In relation to my sport participation...</i></b>							
1. Instead of just enjoying activities and social interactions, most situations to me feel like a major test of my basic worth, competence, or likeability	①	②	③	④	⑤	⑥	⑦
2. I look upon potential problems as opportunities for growth rather than as threats to my self-esteem	①	②	③	④	⑤	⑥	⑦
3. I have a knack for viewing difficult or stressful situations as opportunities to learn and grow	①	②	③	④	⑤	⑥	⑦
4. Relative to other people, I tend to approach stressful situations as if my basic self-worth, competence or likeability was "at stake"	①	②	③	④	⑤	⑥	⑦
5. Personal growth is more important to me than protecting myself from my fears	①	②	③	④	⑤	⑥	⑦
6. Whether it be in sports, social interactions or job/school activities, I feel like I'm still trying to prove that I'm a worthwhile, competent likable person	①	②	③	④	⑤	⑥	⑦
7. My interactions with people often feel like a test of whether or not I'm a likable person	①	②	③	④	⑤	⑥	⑦
8. When I'm faced with a difficult or stressful situations, I'm likely to view it as an opportunity to learn and grow	①	②	③	④	⑤	⑥	⑦
9. I feel like I'm constantly trying to prove that I'm as competent as the people around me	①	②	③	④	⑤	⑥	⑦
10. When I approach new or difficult situations, I'm less concerned with the possibility of failure than how I can grow from the experience	①	②	③	④	⑤	⑥	⑦
11. I look upon possible setbacks and rejection as part of life since I know that such experiences will help me grow as a person in the long run	①	②	③	④	⑤	⑥	⑦
12. My approach to situations is one of always needing to prove my basic worth, competence or likeability	①	②	③	④	⑤	⑥	⑦
13. I'm the type who is willing to risk the possibility of failure or rejection in order to reach my fullest potential as a person	①	②	③	④	⑤	⑥	⑦
14. My attitude toward possible failure or rejection is that such experiences will turn out to be opportunities for growth and self-improvements	①	②	③	④	⑤	⑥	⑦

15. One of the main things I know I'm striving for is to prove that I'm really "good enough"	①	②	③	④	⑤	⑥	⑦
16. How well I perform in social and achievement situations is a direct measure of my basic self-worth, competence, or likeability as a person	①	②	③	④	⑤	⑥	⑦
17. In situations that could end in failure or rejection, it's natural for me to focus on how I can grow or what I can learn from the experience	①	②	③	④	⑤	⑥	⑦
18. I feel as though my basic worth, competence, and likeability are "on the line" in many situations I find myself in.	①	②	③	④	⑤	⑥	⑦
19. The attitude I take toward possible setbacks and disappointments is that they'll end up being good learning experiences	①	②	③	④	⑤	⑥	⑦
20. As I see it, the rewards of personal growth and learning something new outweigh the disappointment of failure or rejection	①	②	③	④	⑤	⑥	⑦
21. It seems like I'm constantly trying to prove that I'm "okay" as a person	①	②	③	④	⑤	⑥	⑦
22. So much of what I do feels to me like a major test of my basic worth, competence, and likeability as a person	①	②	③	④	⑤	⑥	⑦
23. My natural tendency is to view problem situations as providing opportunities for growth and self-improvement	①	②	③	④	⑤	⑥	⑦
24. I feel like my worth, competence, and likeability are things I'm constantly struggling to prove to myself and others	①	②	③	④	⑤	⑥	⑦
25. I approach difficult situations welcoming the opportunity to learn from my mistakes	①	②	③	④	⑤	⑥	⑦
26. Relative to other people, there are a lot of things I do just to prove my basic adequacy as a person	①	②	③	④	⑤	⑥	⑦
27. My approach to challenging situations is that I'd rather make a mistake and learn from the experience than sit back and never try	①	②	③	④	⑤	⑥	⑦
28. I approach stressful situations knowing that the important thing is for me to learn and grow from these experiences	①	②	③	④	⑤	⑥	⑦
29. Whereas other people see themselves as competent in the things they do, that's something I'm still trying to prove to myself	①	②	③	④	⑤	⑥	⑦
30. I feel like I'm always testing out whether or not I really "measure up"	①	②	③	④	⑤	⑥	⑦
31. I look upon potential disappointments as opportunities to improve and grow as a person	①	②	③	④	⑤	⑥	⑦
32. In many things I do, I'm trying to find out whether or not I'm a competent, worthy, or likable person	①	②	③	④	⑤	⑥	⑦
33. I approach difficult situations knowing that I can	①	②	③	④	⑤	⑥	⑦

accept failure or rejection as long as I learn and grow from the experience

34. I tend to view difficult or stressful situations as all-or-none tests of my basic worth as a person

① ② ③ ④ ⑤ ⑥ ⑦

35. Realising my fullest potential is more important to me than protecting myself from the possibility of failure

① ② ③ ④ ⑤ ⑥ ⑦

36. My main motive for doing many of the things I do is to prove my basic self-worth, competence or likeability

① ② ③ ④ ⑤ ⑥ ⑦

### Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001)

The following items ask you to consider how often you experience the following thoughts concerned with involvement in your sport.

	<b>Almost never</b> ①	<b>Rarely</b> ②	<b>Sometimes</b> ③	<b>Frequently</b> ④	<b>Almost always</b> ⑤
1. I'm accomplishing many worthwhile things in my sport	①	②	③	④	⑤
2. I feel so tired from my training that I have trouble finding energy to do other things	①	②	③	④	⑤
3. The effort I spend participating in my sport would be better spent doing other things	①	②	③	④	⑤
4. I feel overly tired from my sport participation	①	②	③	④	⑤
5. I am not achieving much in my sport	①	②	③	④	⑤
6. I don't care as much about my sport performance as I used to	①	②	③	④	⑤
7. I am not performing up to my ability in my sport	①	②	③	④	⑤
8. I feel "wiped out" from my sport	①	②	③	④	⑤
9. I'm not into my sport like I used to be	①	②	③	④	⑤
10. I feel physically worn out from my sport	①	②	③	④	⑤
11. I feel less concerned about being successful in my sport than I used to	①	②	③	④	⑤
12. I am exhausted by the mental and physical demands of my sport	①	②	③	④	⑤
13. It seems that no matter what I do, I don't perform as well as I should	①	②	③	④	⑤
14. I feel successful in my sport	①	②	③	④	⑤
15. I have negative feelings toward my sport	①	②	③	④	⑤

### MCOPE (Crocker & Graham, 1995)

We are interested in how you respond when confronted with difficult or stressful events when competing and practising your sport. There are lots of ways to try to deal with stress. Indicate what you generally do and feel, when you experience stressful events. Think about what you **usually** do when you are under a lot of stress.

Used not at all				Used very much	
①	②	③	④	⑤	
1. I ask team-mates what they did or would do	①	②	③	④	⑤
2. I talk to someone about how I felt	①	②	③	④	⑤
3. I can't deal with my performance and stop trying	①	②	③	④	⑤
4. I blame myself for the situation	①	②	③	④	⑤
5. I make a plan of action	①	②	③	④	⑤
6. I deal only with my performance difficulties, even if I have forgotten other things a little	①	②	③	④	⑤
7. I feel a lot of upset feelings, and I show those feelings a lot.	①	②	③	④	⑤
8. I kid around about my performance	①	②	③	④	⑤
9. I try to increase the quality of my performance	①	②	③	④	⑤
10. I daydream about a better performance	①	②	③	④	⑤
11. I try real hard to do something about my performance	①	②	③	④	⑤
12. I act as though I am not having performance difficulties	①	②	③	④	⑤
13. I talk to my coaches or team-mates to find out more about my performance	①	②	③	④	⑤
14. I get support and understanding from someone	①	②	③	④	⑤
15. I decrease the amount of time and effort I put into my performance	①	②	③	④	⑤
16. I criticise or lecture myself	①	②	③	④	⑤
17. I think hard about what steps to take to manage the situation	①	②	③	④	⑤
18. I don't let myself think about anything other than my performance	①	②	③	④	⑤
19. I get upset and let my feelings out	①	②	③	④	⑤
20. I make fun of my performance	①	②	③	④	⑤
21. I put more effort into my performance	①	②	③	④	⑤
22. I have fantasies or wishes about how things might turn out	①	②	③	④	⑤
23. I do what has to be done, one step at a time	①	②	③	④	⑤

24. I try not to believe I am performing like I am	①	②	③	④	⑤
25. I try to get help from someone about what to do.	①	②	③	④	⑤
26. I talk about my feelings with someone	①	②	③	④	⑤
27. I give up trying to get what I want out of my performance	①	②	③	④	⑤
28. I decide I am at fault for my performance	①	②	③	④	⑤
29. I think about how I can best handle my performance	①	②	③	④	⑤
30. I stop doing other things in order to concentrate on my performance	①	②	③	④	⑤
31. I lose my cool and get upset	①	②	③	④	⑤
32. I make jokes about my performance	①	②	③	④	⑤
33. I try to improve my effort	①	②	③	④	⑤
34. I wish the situation would go away or somehow be over	①	②	③	④	⑤
35. I take direct action to overcome the performance challenge	①	②	③	④	⑤
36. I pretend it isn't happening or hasn't really happened	①	②	③	④	⑤
37. I talk to someone who could do something about my performance	①	②	③	④	⑤
38. I try to get help from my coach or team-mates to deal with my feelings	①	②	③	④	⑤
39. I stop trying to perform my best	①	②	③	④	⑤
40. I take responsibility for what happens	①	②	③	④	⑤
41. I try to think about a plan about what to do	①	②	③	④	⑤
42. I try hard to not let other things get in my way of dealing with my performance	①	②	③	④	⑤
43. I let my negative feelings out.	①	②	③	④	⑤
44. I laugh about my performance	①	②	③	④	⑤
45. I work harder	①	②	③	④	⑤
46. I wish I could change what was happening or had happened	①	②	③	④	⑤
47. I try different things to improve	①	②	③	④	⑤
48. I tell myself, "this performance isn't real"	①	②	③	④	⑤

**Conscientious Achievement Striving (CAS-S; Costa and McCrae, 1992)**

Please read each item carefully and mark the answer that best corresponds to your agreement or disagreement. There are no right or wrong answers. Describe yourself honestly and stat your opinions as accurately as possible.

	<b>Strong disagreement</b>									<b>Strong agreement</b>					
	①	②	③	④											
1. I am easy-going						①	②	③	④	⑤					
2. I have a clear set of goals and work toward them in an orderly fashion						①	②	③	④	⑤					
3. When I start a self-improvement program, I usually let it slide after a few days						①	②	③	④	⑤					
4. I work hard to accomplish my goals						①	②	③	④	⑤					
5. I don't feel like I'm driven to get ahead						①	②	③	④	⑤					
6. I strive to achieve all I can						①	②	③	④	⑤					
7. I strive for excellence in everything I do						①	②	③	④	⑤					
8. I'm something of a "workaholic"						①	②	③	④	⑤					

### Multidimensional Perfectionism Scale (FMPS: Frost et al., 1990)

Please read each of the statements carefully, and indicate the extent to which you personally agree or disagree with each statement by marking the appropriate response. Remember there are no right or wrong answers.

<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>	
①	②	③	④	⑤	
<b><i>With regards to your sport participation...</i></b>					
1. If I do not set the highest standards for myself, I am likely to end up a second rate person.	①	②	③	④	⑤
2. It is important to me that I be thoroughly competent in everything I do.	①	②	③	④	⑤
3. If I fail at sport, I am a failure as a person.	①	②	③	④	⑤
4. I should be upset if I make a mistake.	①	②	③	④	⑤
5. I set higher goals than most people.	①	②	③	④	⑤
6. If someone does a task better than I, then I feel like I failed the whole task.	①	②	③	④	⑤
7. If I fail partly, it is as bad as being a complete failure.	①	②	③	④	⑤
8. I am very good at focusing my efforts on attaining a goal.	①	②	③	④	⑤
9. Even when I do something very carefully, I often feel that it is not quite right.	①	②	③	④	⑤
10. I hate being less than the best at things.	①	②	③	④	⑤
11. I have extremely high goals.	①	②	③	④	⑤
12. People will probably think less of me if I make a mistake.	①	②	③	④	⑤
13. If I do not do as well as other people, it means I am an inferior human being.	①	②	③	④	⑤
14. Other people seem to accept lower standards from themselves than I do.	①	②	③	④	⑤
15. If I do not do well all the time, people will not respect me.	①	②	③	④	⑤
16. I usually have doubts about the everyday things I do.	①	②	③	④	⑤
17. I expect higher performance than most people.	①	②	③	④	⑤
18. I tend to get behind in my work because I repeat things over and over.	①	②	③	④	⑤
19. It takes me a long time to do something "right".	①	②	③	④	⑤
20. The fewer mistakes I make, the more people will like me.	①	②	③	④	⑤

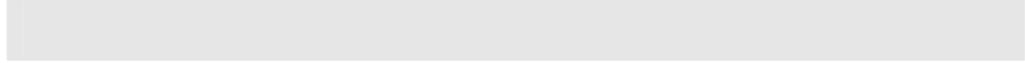
**Multidimensional Inventory of Perfectionism in Sport (MIPS; Stöber et al., 2004)**

Please indicate how you generally feel during competitions/games.

	Never					Always
	①	②	③	④	⑤	⑥
<b><i>During competitions/games,</i></b>						
1. I strive to be as perfect as possible.	①	②	③	④	⑤	⑥
2. It is important to be to be perfect in everything I attempt.	①	②	③	④	⑤	⑥
3. I feel the need to be perfect	①	②	③	④	⑤	⑥
4. I am a perfectionist as far as my targets are concerned.	①	②	③	④	⑤	⑥
5. I have the wish to do everything perfectly.	①	②	③	④	⑤	⑥
6. I feel extremely stressed if everything does not go perfectly	①	②	③	④	⑤	⑥
7. After competitions/games, I feel depressed if I have not been perfect	①	②	③	④	⑤	⑥
8. I get completely furious if I make mistakes	①	②	③	④	⑤	⑥
9. I get frustrated if I do not fulfil my high expectations	①	②	③	④	⑤	⑥
10. If something does not go perfectly, I am dissatisfied with the whole competition/game	①	②	③	④	⑤	⑥

### Performance Failure Appraisal Inventory (Conroy, Willow, & Metzler, 2002)

Listed below are a number of response that people have when they experience failure in sport. Please read each of the statements carefully, and indicate the extent to which each statement is reflective of what you believe by marking the appropriate response. Remember there are no right or wrong answers.



***With regards to my sport participation...***

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 1. When I am failing I am afraid that I might not have enough talent. | ① | ② | ③ | ④ | ⑤ |
| 2. When I am failing it upsets my "plan" for the future.              | ① | ② | ③ | ④ | ⑤ |
| 3. When I am not succeeding, people are less interested in me         | ① | ② | ③ | ④ | ⑤ |
| 4. When I am failing, important others are disappointed.              | ① | ② | ③ | ④ | ⑤ |
| 5. When I am failing, I worry what others think about me.             | ① | ② | ③ | ④ | ⑤ |

### Attitudes Toward Self Scale (ATS; Carver & Ganellen, 1983)

The following items focus on your thoughts concerning your performance in activities that are important to you. You should indicate how much you personally agree or disagree with each statement by marking the appropriate response. Remember, there are no right or wrong answers.

	<b>Strongly Disagree</b> ①	<b>Disagree</b> ②	<b>Neutral</b> ③	<b>Agree</b> ④	<b>Strongly Agree</b> ⑤
1. I get angry with myself if my efforts don't lead to the results I wanted.				①	② ③ ④ ⑤
2. When I don't do as well as I hoped to, I often get upset with myself.	①	②	③	④	⑤
3. I get unhappy with anything less than what I expected of myself.	①	②	③	④	⑤
4. When my behaviour doesn't live up to my standards, I feel like I have let myself or someone else down.	①	②	③	④	⑤

**Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988)**

The following scale consists of a number of words that describe different feelings and emotions. Read each item and indicate to what extent you feel this way **right now** by circling the appropriate response.

	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
	(1)	(2)	(3)	(4)	(5)
1. Interested.	(1)	(2)	(3)	(4)	(5)
2. Distressed.	(1)	(2)	(3)	(4)	(5)
3. Excited.	(1)	(2)	(3)	(4)	(5)
4. Upset.	(1)	(2)	(3)	(4)	(5)
5. Strong.	(1)	(2)	(3)	(4)	(5)
6. Guilty.	(1)	(2)	(3)	(4)	(5)
7. Scared.	(1)	(2)	(3)	(4)	(5)
8. Hostile.	(1)	(2)	(3)	(4)	(5)
9. Enthusiastic.	(1)	(2)	(3)	(4)	(5)
10. Proud.	(1)	(2)	(3)	(4)	(5)
11. Irritable.	(1)	(2)	(3)	(4)	(5)
12. Alert.	(1)	(2)	(3)	(4)	(5)
13. Ashamed.	(1)	(2)	(3)	(4)	(5)
14. Inspired.	(1)	(2)	(3)	(4)	(5)
15. Nervous.	(1)	(2)	(3)	(4)	(5)
16. Determined.	(1)	(2)	(3)	(4)	(5)
17. Attentive.	(1)	(2)	(3)	(4)	(5)
18. Jittery.	(1)	(2)	(3)	(4)	(5)
19. Active.	(1)	(2)	(3)	(4)	(5)
20. Afraid.	(1)	(2)	(3)	(4)	(5)

**Desire for Escape subscale from the Thought Occurrence Questionnaire for Sport Scale (Hatzigeorgiadis & Biddle, 2000)**

During the previous trial, how often did you experience the following thoughts?

	Never							Very often
	①	②	③	④	⑤	⑥	⑦	
1. That I want to quit	①	②	③	④	⑤	⑥	⑦	
2. That I do not want to take part in this competition any more	①	②	③	④	⑤	⑥	⑦	
3. That I want to get out of here	①	②	③	④	⑤	⑥	⑦	
4. That I wanted to stop	①	②	③	④	⑤	⑥	⑦	
5. That I am fed up with it	①	②	③	④	⑤	⑥	⑦	
6. That I cannot stand it any more	①	②	③	④	⑤	⑥	⑦	

**Effort-Importance subscale of the Intrinsic Motivation Inventory (Effort-Importance subscale of the Intrinsic Motivation Inventory (McAuley, Duncan, & Tammen, 1989))**

For each of the following statements, please indicate the degree you agree with the below statements:

	<b>Strongly Disagree</b> ①	<b>Disagree</b> ②	<b>Slightly Disagree</b> ③	<b>Neutral</b> ④	<b>Slightly Agree</b> ⑤	<b>Agree</b> ⑥	<b>Strongly Agree</b> ⑦
1. I put a lot of effort into this.	①	②	③	④	⑤	⑥	⑦
2. I didn't try very hard to do well at this activity.	①	②	③	④	⑤	⑥	⑦
3. I tried very hard on this activity.	①	②	③	④	⑤	⑥	⑦
4. It was important to me to do well at this task.	①	②	③	④	⑤	⑥	⑦
5. I didn't put much energy into this.	①	②	③	④	⑤	⑥	⑦

**Perceived Threat and Satisfaction (Besser, Flett & Hewitt, 2004)**

<b>Not at all</b>							<b>Very much</b>		
	②	③	④	⑤	⑥	⑦			
<b>Threat Appraisal</b> To what extent do you regard performing this task as threatening?			①	②	③	④	⑤	⑥	⑦
<b>Satisfaction with performance</b> How satisfied are you with your performance			①	②	③	④	⑤	⑥	⑦

**Self-worth Contingent on the Approval of Others and Competitive Superiority;  
Subscales from Contingencies of Self-Worth Scale (Crocker et al., 2003)**

Please respond to each of the following statements by shading your answer using the scale below.

	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Slightly disagree</b>	<b>Neither disagree / agree</b>	<b>Slightly agree</b>	<b>Agree</b>	<b>Strongly Agree</b>
	①	②	③	④	⑤	⑥	⑦
1. I feel worthwhile when I perform better than others on a task or skill.	①	②	③	④	⑤	⑥	⑦
2. I don't care if other people have a negative opinion about me.	①	②	③	④	⑤	⑥	⑦
3. Knowing that I am better than others on a task raises my self-esteem.	①	②	③	④	⑤	⑥	⑦
4. I can't respect myself if others don't respect me.	①	②	③	④	⑤	⑥	⑦
5. Doing better than others gives me a sense of self-respect.	①	②	③	④	⑤	⑥	⑦
6. I don't care what other people think of me.	①	②	③	④	⑤	⑥	⑦
7. My self-worth is affected by how well I do when I am competing with others.	①	②	③	④	⑤	⑥	⑦
8. What others think of me has no effect on what I think about myself.	①	②	③	④	⑤	⑥	⑦
9. My self-worth is influenced by how well I do on competitive tasks.	①	②	③	④	⑤	⑥	⑦
10. My self-esteem depends on the opinions others hold of me.	①	②	③	④	⑤	⑥	⑦

**Self-worth Contingent on Competence: Items from Contingent Self-esteem Scale (Kernis, 2003)**

Listed below are a number of statements concerning personal characteristics and traits. Please indicate the extent to which you personally agree or disagree with each statement.

<b>Not at all like me</b>	<b>Neutral</b>			<b>Very much like me</b>	
①	②	③	④	⑤	⑤
1. An important measure of my worth is how competently I perform.	①	②	③	④	⑤
2. Even in the face of failure, my feelings of self-worth remain unaffected.	①	②	③	④	⑤
3. A big determinant of how much I like myself is how well I perform up to the standards that I have set for myself.	①	②	③	④	⑤
4. An important measure of my worth is how well I perform up to the standards that other people have set for me.	①	②	③	④	⑤
5. When my actions do not live up to my expectations, it makes me feel dissatisfied with myself.	①	②	③	④	⑤

## Levels of Self- Criticism Scale (LOSC; Thompson & Zuroff, 2004)

Read the following statements and indicate how well each item describes you.

<b>Not at all</b>							<b>Very well</b>
	①	②	③	④	⑤	⑥	⑦
1. I am very irritable when I have failed.	①	②	③	④	⑤	⑥	⑦
2. I have a nagging sense of inferiority.	①	②	③	④	⑤	⑥	⑦
3. I am very frustrated with myself when I don't meet the standards I have for myself.	①	②	③	④	⑤	⑥	⑦
4. I am usually uncomfortable in social situations where I don't know what to expect.	①	②	③	④	⑤	⑥	⑦
5. I often get very angry with myself when I fail.	①	②	③	④	⑤	⑥	⑦
6. I don't spend much time worrying about what other people will think of me.	①	②	③	④	⑤	⑥	⑦
7. I get very upset when I fail.	①	②	③	④	⑤	⑥	⑦
8. If you are open with other people about your weaknesses, they are likely to still respect you.	①	②	③	④	⑤	⑥	⑦
9. Failure is a very painful experience for me.	①	②	③	④	⑤	⑥	⑦
10. I often worry that other people will find out what I', really like and be upset with me.	①	②	③	④	⑤	⑥	⑦
11. I don't often worry about the possibility of failure.	①	②	③	④	⑤	⑥	⑦
12. I am confident that most of the people I care about will accept me for who I am.	①	②	③	④	⑤	⑥	⑦
13. When I don't succeed, I find myself wondering how worthwhile I am.	①	②	③	④	⑤	⑥	⑦
14. If you give people the benefit of the doubt, they are likely to take advantage of you.	①	②	③	④	⑤	⑥	⑦
15. I feel like a failure when I don't do as well as I would like.	①	②	③	④	⑤	⑥	⑦
16. I am usually comfortable with people asking me about myself.	①	②	③	④	⑤	⑥	⑦
17. If I fail in one area, it reflects poorly on me as a person.	①	②	③	④	⑤	⑥	⑦
18. I fear that if people get to know me too well, they will not respect me.	①	②	③	④	⑤	⑥	⑦
19. I frequently compare myself with my goals and ideals.	①	②	③	④	⑤	⑥	⑦
20. I seldom feel ashamed of myself. .	①	②	③	④	⑤	⑥	⑦
21. Being open and honest is usually the best way to keep others' respect.	①	②	③	④	⑤	⑥	⑦
22. There are times that it is necessary to be somewhat dishonest in order to get what you want.	①	②	③	④	⑤	⑥	⑦

### Perceived Motivational Climate in Sport Questionnaire (Newton, Duda, & Yin, 2000)

The following items focus on what it is like to play on your team. You should indicate how much you personally agree or disagree with each statement by circling the appropriate response. Remember, all answers are treated confidentially.

	Strongly Disagree ①	Disagree ②	Neutral ③	Agree ④	Strongly Agree ⑤
1. The coach gets mad when a player makes a mistake.	①	②	③	④	⑤
2. The coach gives most attention to the best athletes.	①	②	③	④	⑤
3. Each player contributes in some important way.	①	②	③	④	⑤
4. The coach believes that all of us are crucial to the success of the team.	①	②	③	④	⑤
5. The coach praises players only when they have done better than their teammates.	①	②	③	④	⑤
6. Players feel good when they have tried their best.	①	②	③	④	⑤
7. Players are substituted or dropped from the team for making mistakes.	①	②	③	④	⑤
8. Players of all skill levels have an important role on the team	①	②	③	④	⑤
9. Players help each other to learn.	①	②	③	④	⑤
10. Players are encouraged to outperform their team mates.	①	②	③	④	⑤
11. The coach has his favourites.	①	②	③	④	⑤
12. The coach makes sure that players improve on skills they are not good at.	①	②	③	④	⑤
13. The coach yells at players for messing up.	①	②	③	④	⑤
14. Players feel successful when they improve.	①	②	③	④	⑤
15. Only the best players receive praise.	①	②	③	④	⑤
16. Players are punished when they make a mistake.	①	②	③	④	⑤
17. Each player has an important role.	①	②	③	④	⑤
18. Trying hard is rewarded.	①	②	③	④	⑤
19. The coach encourages players to help each other to learn.	①	②	③	④	⑤
20. The coach makes it clear who he thinks are the best players.	①	②	③	④	⑤
21. Players really enjoy it when they outperform their teammates	①	②	③	④	⑤
22. The coach always emphasises trying your best.	①	②	③	④	⑤

23. Only the top players get noticed by the coach. (1) (2) (3) (4) (5)
24. Players are afraid to make mistakes. (1) (2) (3) (4) (5)
25. Players are encouraged to work on their weaknesses. (1) (2) (3) (4) (5)
26. The coach favours some players more than others. (1) (2) (3) (4) (5)
27. The focus is to improve with each game/practice. (1) (2) (3) (4) (5)
28. The players really work together as a team. (1) (2) (3) (4) (5)
29. The players help each other to improve (1) (2) (3) (4) (5)