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# Perfectionism and Attitudinal Body Image in Developmental, High Performance, and Elite Figure Skaters

by

Janelle Margaret Dunham 

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Master of Arts

Department of Physical Education and Recreation

Edmonton, Alberta

Spring 2002

**University of Alberta**

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| **Year this Degree Granted:** | 2002 |



9322 98 Street
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T6E 3M7

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled **Perfectionism and Attitudinal Body Image in Developmental, High Performance, and Elite Figure Skaters** submitted by **Janelle Margaret Dunham** in partial fulfillment of the requirements for the degree of **Masters of Arts**.

Dr. John M. Hogg
(Supervisor)

Dr. Henry Janzen
(Committee Member)

Dr. John G. H. Dunn
(Committee Member)

Date: April 2, 2002

## DEDICATION

My thesis is dedicated to my uncle, the late Ted Wilkinson. Uncle Ted taught me two very important lessons. The first lesson was to enjoy learning. The second lesson, and perhaps the most valuable to me in the last few years, is to never give up. Mental, emotional and spiritual strength will allow you to overcome anything. Thanks, Ted, for being a great teacher in every sense of the word and for being an amazing example to live by. You live forever in my heart.

## ABSTRACT

The purpose of this study was to examine the relationship between multidimensional perfectionism and body image in developmental, high performance, and elite figure skaters. A second purpose of this study was to continue the construct validation process of a new sport-specific measure of perfectionism. Participants (N = 150, M age = 15.16, 86% females) completed two measures of multidimensional perfectionism including the sport-specific MPS-Sport, and two measures of body image. Only females were included in body image analyses due to the small male sample size.

Correlation analysis revealed significant correlations between dimensions of perfectionism and body image. The concern over mistakes (COM) and personal standards (PS) perfectionism subscales of the MPS-Sport were best able to predict body image in female skaters. Significant groups differences were found for the three competitive levels on dimensions of perfectionism and body image. Construct validity evidence was provided for the utility of using a sport-specific instrument to measure perfectionism in competitive figure skaters.

## ACKNOWLEDGEMENTS

I would like to begin by extending a well-deserved thank you to my supervisory committee. First, I would like to give my thanks to my supervisor, Dr. John Hogg, who has provided me with direction, motivation, and patience. I have learned so much about the field of sport psychology from you. Your knowledge of applied sport psychology and your commitment to helping athletes enhance their performance has helped me understand what it takes to be a mental skills practitioner.

I would like to give special thanks to Dr. John Dunn, my internal supervisor. I greatly respect your statistical intellect, integrity, character, and commitment to sport psychology, especially to the study of perfectionism. You always made time to help me and your role far exceeded your internal supervisory requirements. I look forward to combining our research efforts and working together in the future!

Thank you to Dr. Henry Janzen, my external committee member. I appreciate your insight into perfectionism from the clinical and counseling perspectives.

A huge thank you goes out to my family. Mom and Dad, you provided me with the support and confidence I needed to be successful in sport, school, and life. You taught me the morals and values that you both displayed so gracefully. Mom, thank you for your everlasting love, thoughts, and prayers. Dad, thank you for teaching me what it means to be an athlete, coach, and role model for other kids. This is for you, Dad, the best sport psychologist I've ever known.

Thank you to my Aunt Reta, for your interest in my work and your caring support. By example, you taught me how important and precious life is. You are a survivor.

Thank you to my brother, Lee. I have always looked up to you for your intelligence and excellence in academics. Now I also look up to you for your thoughtful and deep perspectives on love, life, and family. I am so fortunate to have you and Karen in my life.

Finally, thank you to my fiancé, David Craft. Your academic insight, patience, and consideration for my career are qualities that are unparalleled. I am so lucky to have you in my life. I can't wait to begin our lives together "in the garden".

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# CHAPTER 1

## INTRODUCTION

The essence of being an elite athlete is striving for and achieving the "perfect" performance. Indeed, competitive sport and perfectionism are two terms that tend to be inseparable from one another. However, what researchers currently know about perfectionism may dislodge commonly held beliefs about striving for perfection. That is, recent research suggests that there are two very different perfectionistic orientations – namely, adaptive and maladaptive perfectionism (Dunn, Causgrove-Dunn, & Syrotuik, in press; Frost, Heimberg, Holt, Mattia, Neubauer, 1993). These findings have notable practical implications for the sport environment. For example, while it would be imperative to minimize the maladaptive dimensions of perfectionism, it would also be important to foster the adaptive dimensions of perfectionism in the competitive sport context. Further, practitioners would need to rethink motivational expressions such as "practice makes perfect", "no pain no gain", "a perfect 10", and "picture perfect". For athletes competing in aesthetic, subjectively scored sports where emphasis is placed not only on flawless technique but also on perfect body appearance (e.g., figure skating, gymnastics, rhythmic gymnastics, artistic gymnastics, and synchronized swimming) the former expressions would appear to have the greatest implications. However, few published research studies in sport have looked solely into athletes' attitudes and concerns over body image (i.e., outside the context of disordered eating).

Among the recent advances in the study of perfectionism are the development of multidimensional measurement inventories to assess the degree of perfectionistic tendencies along various dimensions of the construct, a more in-depth conceptual

understanding of the occurrence of perfectionism in numerous psychopathological and maladjustment problems, and an introduction of the study of perfectionism into various sub-psychologies, including the psychology of sport and exercise. However, while studies exploring the incidence and experience of perfectionism continue to proliferate in the major areas of research in the parent discipline of psychology, perfectionism remains an indigent area of research in the sport sciences. As a result, there remains a paucity of research examining the occurrence and experience of perfectionistic proclivity in competitive sport athletes.

Measurement remains a prominent and recurring issue in the study of perfectionism in sport. While there are two major multidimensional inventories that can be used to gather information on the perfectionistic tendencies in normal and clinical populations, to date, few published research studies in sport have addressed the need for a sport-specific measure to evaluate perfectionism as it is experienced by athletes.

Purpose

The purposes of this study were three-fold. The primary purpose of this study was to examine the relationship between multidimensional perfectionism and body image concern in developmental, high performance, and elite-level figure skaters.

The second purpose of this study was to determine whether perfectionism and body image varied as a function of competitive level. In this study, perfectionism and body image was examined across three competitive skating levels – namely, developmental, high performance, and elite. In particular, this study adopted a developmental, or learning, orientation of perfectionism and body image in order to

identify possible differences in levels of perfectionism and body image in the three subgroups of figure skaters.

The third purpose of this investigation was to continue the construct validation process of a newly devised, sport-specific measure of perfectionism. As perfectionism is a relatively novel area of research in sport, one of the most widely used instruments in the assessment of perfectionism (MPS; Hewitt & Flett, 1991) was compared to a new, sport-specific perfectionism instrument (MPS-Sport; Dunn et al., in press). Thus, the need for a measurement tool to assess explicit perfectionistic tendencies among athletes in particular was addressed.

Definitions

Researchers have identified the lack of consensus surrounding a definition to be a weakness in the conceptualization of the perfectionism construct (Frost, Marten, Lahart, & Rosenblate, 1990; Parker & Adkins, 1995). A prominent definition of perfectionism was developed by Frost et al., (1990) who defined perfectionism as the "setting of excessively high personal standards with the tendency for overly-critical evaluations of one's own behavior" (p. 450). Hewitt and Flett (1991) add that interpersonal orientations of perfectionism must also be used to define the construct. For the purpose of the present study, the definition of perfectionism will combine aspects of both definitions provided by Frost et al. (1990) and Hewitt and Flett (1991). In this study, the term perfectionism is used to refer to the tendency of an individual to set excessively high personal standards (based on both self- and other-imposed expectations) accompanied by overly critical self-evaluation of achieving the standards. The precise distinction between maladaptive and adaptive perfectionism is made in the review of literature (Chapter 2).

The concept of body image has been defined by a number of different researchers. Davis (1997b) describes body image as "the manner in which we view our body and the mental representation we have of it" (p. 145). Cash and Pruzinsky (1990) conceptualize body image as a multidimensional construct that includes an individuals' perceptions, thoughts, feelings, and actions regarding his or her body, particularly in terms of its' appearance.

While there is a slight degree of variance among the terminology used to describe the dimensions of body image, most researchers agree that there are two very distinct facets to body image. The perceptual facet of body image is primarily concerned with body size estimation and body distortion. The attitudinal component of body image encompasses both cognitive and affective (emotional) aspects of body image. Issues of body satisfaction or dissatisfaction are of key interest where the attitudinal component of body image is discussed. This study investigated only the attitudinal component of body image among figure skaters. For the purpose of this study, the definition of body image will follow Cash and Pruzinsky's (1990) definition. However, this study will only be evaluating attitudinal body image which, for this investigation, will be referred to as the manner in which an individual views his or her body and the thoughts and feelings the individual experiences in relation to his or her body.

Finally, many aesthetic sports are often referred to as "lean sports" which Stoujesdyk and Jevne (1993) refer to as "(sports) whose activities emphasize leanness". Petrie (1996) suggests that lean sports are those that demand it's competitors to have a low or specific weight or sports in which physical appearance or body build is potentially related to success. Franken, Hill, and Kierstead (1994) describe figure skating as "an

individual sport characterized not only by interpersonal rivalry but the need to impress judges with artistic or expressive qualities" (p. 468). For the purpose of the present investigation, aesthetic sport is the term used to refer to a sport in which a slender body and desirable physical appearance are personal attributes (in addition to technical skill) that are considered to be important to defining success in that sport.

Rationale for the Study

Perfectionism is a psychological phenomenon with its roots in many forms of psychological maladjustment (e.g., depression, obsessive-compulsive disorder, social anxiety, eating disorders, emotional instability, interpersonal relationship difficulties). However, researchers have also studied and reported the adaptive nature of perfectionism (e.g., positive achievement striving, motivation, organizational skills, resource management abilities). At the present time, however, what remains unknown is the role that multidimensional perfectionism plays in particular forms of sport involvement (i.e., recreational vs. competitive), the degree of sport involvement (i.e., developmental vs. high performance/elite athletes), and the type of sport (i.e., individual vs. team sport; subjectively vs. objectively scored sport). Although researchers in the area have initiated basic investigations into it's occurrence, many important questions remained unanswered in the study of perfectionism in sport.

Both the perfectionism and body image constructs are considered essential to facilitating an understanding and diagnosis of eating disorders (i.e., anorexia and bulimia nervosa) (American Psychological Association, 1994; Cash & Brown, 1987; Thompson, 1995). However, as researchers have recently acknowledged the prevalence of disordered eating among athletes (Fulkerson et al., 1999; Hausenblas & Carron, 1999;

Stoutjesdyk & Jevne, 1993; Sungot-Borgen, 1994), current research efforts would benefit from a deeper understanding of how the perfectionism and body image constructs operate in the context of sport, particularly in an aesthetic sport context.

The majority of research studies investigating the link between perfectionism and body image or body dissatisfaction have done so almost exclusively in reference to disordered eating behaviors and attitudes. For example, Hewitt, Flett, & Ediger (1995) examined the association between dimensions of perfectionism and self-presentational concern in relation to eating disorders. The findings of the Hewitt et al. (1995) study demonstrated that socially-prescribed perfectionism and perfectionistic self-presentational concern were related to symptoms of eating disorders, body image avoidance, and low self-esteem. In other words, subjects who felt that others expected perfection from them and were more concerned about how they were viewed by others, also demonstrated a greater awareness and concern about their body than subjects who scored lower on socially-prescribed perfectionism and perfectionistic self-presentation. However, there is a lack of research investigating the precise relationship between dimensions of perfectionism and body image in athletic populations, specifically for athletes participating in competitive aesthetic sports where body image issues may be prominent, as evident in the sport of figure skating.

In sport, recent research has begun to confirm what anecdotal evidence has long suggested. That is, athletes competing in subjectively scored sports (henceforth termed aesthetic sport) where physical appearance and body image are emphasized, such as figure skating and gymnastics, may have a greater risk for developing disturbed eating behaviors than athletes who do not participate in aesthetic sports (Sundgot-Borgen,

1994). Further, it has been proposed that personality features such as perfectionism may contribute significantly to the desire expressed by certain types of athletes to be thin (Davis, 1997a; Fulkerson, Keel, & Dorr, 1999). Indeed, researchers have cited sport (and notably aesthetic sport) to be an important context in which to study both perfectionism and body image concerns (Davis, 1997b; Sundgot-Borgen, 1994; Sundgot-Borgen & Corbin, 1987). Davis (1997b) has also suggested a fundamental need to investigate body image in sports where thinness and physical appearance are greatly valued.

Delimitations

This study aimed to ameliorate certain methodological limitations of previous perfectionism research. The first delimitation of this study was the intention to provide further construct validity evidence that the Multidimensional Perfectionism Scale-Sport (henceforth termed the MPS-Sport) is a psychometrically-reliable and useful self-report inventory to assess the experience of perfectionism in competitive sport athletes. Given that it was an objective of this study to confirm the factor structure of the MPS-Sport in an alternative sport population, and given that the MPS-Sport has previously undergone exploratory factor analysis, this study allowed for a theory-driven factor analytic solution (i.e., confirmatory factor analysis) rather than a data-driven factor solution (i.e., exploratory factor analysis).

A second delimitation of this study involves the use of the study's sample. As there were an insufficient number of male participants ($n = 29$), only females ($n = 121$) were used in the data analyses with the exception of the factor analysis of the MPS-Sport, in which case both males and females were used. Therefore, the results of this study are, for the most part, generalizable only to female developmental, high performance, and

elite figure skaters across the provinces of Alberta and New Brunswick whose ages range between 8 and 32. However, because the criteria used to assign skaters to the developmental, high performance, and elite subgroups is specified according to Skate Canada/Skate Canada-AB/NWT/Nunavut Section guidelines (which is uniform across all provincial figure skating governing bodies), generalizations to figure skaters in other Canadian provinces and territories may be warranted.

Although body image is a psychological construct that may be affected by sociological variables such as the media, popular culture, and the social construction of masculinity and femininity, a third delimitation of this research study is that it did not examine the influence of such variables on body image. However, sociological issues inherent to aesthetic sport, and more specifically to the sport of figure skating, were addressed as they were presented.

A fourth delimitation of this study was that only one of the two major dimensions of body image was examined. As verified in the review of the body image literature, there are two aspects to body image: perceptual and attitudinal (Cash & Brown, 1987; Cash & Pruzinsky, 1990; Davis, 1997b; Thompson, 1995). However, the present study only examined figure skaters' attitudes towards their body image.

Limitations

The first limitation of this investigation was that it included only those athletes competing in the aesthetic sport of figure skating. However, while this does limit the generalizability of the results only to figure skaters (and thus results cannot be generalized to athletes competing in other subjectively-scored aesthetic sports, such as

gymnastics, artistic and rhythmic gymnastics, and synchronized swimming) it does allow for a more homogeneous sample.

A second limitation of this study was the small sample size ($N$ = 150). Specifically, the male sample ($n$ = 29) was too small to include in most of the statistical analyses. However, both male and female research participants ($N$ = 150) were used in confirmatory factor analysis of the MPS-Sport. Thus, due to the significant differences found between male and female figure skaters on measures of body image in this study, and the small number of participating males, only females ($n$ = 121) were used in subsequent data analyses.

A third limitation of this study is that the criteria that was used to classify skaters into the three competitive skating levels (i.e., developmental, high performance, and elite) was modified slightly from Skate Canada and Alberta/Northwest Territories/Nunavut recommendations. Although the modifications were based on the competitive figure skating experience of the researcher, the recommended classification criteria was adjusted slightly to allow for acceptable sample sizes to be obtained in each of the competitive subgroups.

# CHAPTER 2

# REVIEW OF LITERATURE

## The Perfectionism Construct

Perfectionism has been a variable of interest to researchers in psychology for the last three decades. Studies in psychology have linked some dimensions of perfectionism to debilitative cognitions such as negative anxiety states (Flett, Hewitt, & Dyck, 1989; Frost & Henderson, 1991) and state and trait anxiety (Hewitt, Flett, Endler & Tassone, 1995), depressive affect (Blatt, 1995; Hewitt & Dyck, 1986; Hewitt & Flett, 1991; Hewitt, Flett, & Ediger, 1996) and suicide (Adkins & Parker, 1996; Hewitt, Flett, & Turnbull-Donovan, 1992), and maladaptive behaviors including procrastination (Ferrari, 1992; Flett, Blankstein, Hewitt, & Koledin, 1992) and eating disorders (Fulkerson, Keel, & Dorr, 1999; Garner, Olmstead, & Polivy, 1983; Hausenblas & Carron, 1999; Slade, 1982). However, research has also associated certain dimensions of perfectionism with adaptive cognitions such as motivation and learning strategies (Mills & Blankstein, 2000), success orientation (Frost & Henderson, 1991), and positive affect (Frost et al., 1993).

Although perfectionism was once conceptualized as a unidimensional construct (Burns, 1980), the consensus of today's researchers is that perfectionism is a multidimensional construct (Dunn et al., in press; Frost et al., 1990; Hewitt & Flett, 1991). Recall that perfectionism is defined as an individual's tendency to set excessively high personal standards (based on both self- and other-imposed expectation) accompanied by an overly critical evaluation of achievement of the standards. Although there exists various conceptualizations of the dimensions of perfectionism, Frost et al.

(1990) note that it is most likely the process of evaluating one's achievements stringently, rather than the setting of high personal standards, that defines a perfectionist.

Positive and Negative Perfectionism

Hamachek (1978) was the first to differentiate between normal and neurotic perfectionism. According to Hamacheck (1978), perfectionism can be characterized by the way in which individuals perceive a task presented to them *and* by the degree of efficacy that they possess of successfully performing the task. In other words, neurotic (henceforth referred to as maladaptive) perfectionists would perceive a task as being overly taxing on the resources they possess to complete it. On the other hand, normal (henceforth referred to as adaptive) perfectionists would perceive the task as challenging but also as being within their ability to execute successfully. Although Hamachek (1978) suggested that perfectionism may be considered adaptive or maladaptive, only recently have research studies made this distinction. For the most part, however, the perfectionism construct has been conceptualized as a maladaptive psychological characteristic.

A possible explanation as to why perfectionism has been conceptualized primarily as a maladaptive construct may be due to the fact that many studies have investigated the consequential outcome of perfectionism for several clinical populations (e.g., clinically depressed patients). Further, many research studies have attempted to link various dimensions of perfectionism with negative psychological outcomes. Similarly, the multidimensional instruments that are currently used to measure perfectionism have generally adopted a negative perspective of the construct, as reflected by the presence of more maladaptive than adaptive dimensions (and therefore more items are assessing the negative aspects of the construct).

Higgins' (1987) self-discrepancy theory runs parallel with what Hamachek (1978) first proposed. When applied to the construct of perfectionism, Higgins' (1987) theory postulates that when there is a discrepancy between what individuals perceive their actual and ideal self and/or abilities to be, psychological tension will result in the form of self-defeating thoughts and feelings. However, if individuals perceive there to be little difference between their actual and ideal self and/or abilities, perfectionism may serve as a motivational tool. Perhaps in the former condition (i.e., a large perceived discrepancy between the actual and ideal self) individuals would be overwhelmed by the magnitude of the difference between their ideal and actual self, whereas in the latter condition (i.e., a small or negligible discrepancy between the actual and ideal self) the difference is small and thus the ideal self may be perceived as more reasonable to attain.

Indeed, the difference between adaptive and maladaptive perfectionism can be seen in the degree of flexibility individual allow in the achievement of their personal standards. Adaptive perfectionists characteristically allow room for variance and flexibility in achieving their high personal standards whereas maladaptive perfectionists characteristically allow no exceptions or flexibility in achieving their high personal standards. The latter perfectionistic tendency is evident in the irrational, over-generalizing, and dichotomous thinking style of maladaptive perfectionists (Burns, 1980; Hamacheck, 1978; Pacht, 1984). That is, maladaptive perfectionists tends to see things in black and white and all or nothing terms.

Maladaptive perfectionism is also characterized by viewing outcomes in extremes; that is, outcomes are overgeneralized or catastrophized. For example, maladaptive perfectionists would take a small mistake on a skill or ability and view that

as a flaw in their personal character (e.g., *"Now, I am worthless as a person"*). Similarly, maladaptive perfectionists would believe that a personally-relevant goal must be achieved fully and completely, without exception. If any mistake is made in the achievement of the goal, they would conclude that the goal was not achieved. That is, even their best is not considered to be good enough. Further, Hamacheck (1978) notes that maladaptive perfectionists tend to set goals for performance that are nearly impossible to attain. Setting-goals so unrealistic that they are near impossible to achieve is an attribute of maladaptive perfectionism that has its roots in the motivation to avoid failure.

Adaptive perfectionists, on the other hand, are more accurate at setting their sights on reasonable and realistic achievements that take their strengths and weaknesses into consideration. This attribute of adaptive perfectionists represents a motivation to succeed and an ability to enjoy achievement. While the latter situation (i.e., with adaptive perfectionism) will lead to increased feelings of self-confidence and personal efficacy for the individual, the former (i.e., maladaptive perfectionism) will virtually always result in feelings of dissatisfaction, disappointment, and hopelessness (Burns, 1980).

The ABC's of Perfectionism

Table 1 demonstrates the ABC's (antecedents, behaviors, and consequences) of adaptive and maladaptive perfectionism.

**Table 1**

**The ABC's of Adaptive and Maladaptive Perfectionism**

| | **Adaptive Perfectionism** | **Maladaptive Perfectionism** |
|---|---|---|
| **Antecedents** | *Positive Modeling of Others<br>*Negative Modeling/Reinforcement | Environments of:<br>*Inconsistent Approval<br>*Non-Approval<br>*Conditional Positive Approval |
| **Behaviors** | *Behavioral symptoms can be same as neurotic perfectionism but are transcient and not experienced at the same level of intensity | *Depression, "Should" statements, face-saving techniques, shyness, procrastination, self-depreciation, self-condemnation |
| **Consequences** | *Motivation to Succeed<br>*Sense of accomplishment, achievement | *Motivation to Avoid Failure<br>*Feelings of disappointment, dissatisfaction, hopelessness |

Adapted from Burns (1980) & Hamachek (1978)

Contextual antecedents of adaptive perfectionism appear to be positive and negative modeling, or reinforcement, from significant others (Hamachek, 1978), whereas antecedents of maladaptive perfectionism are considered to be environments of inconsistent approval (i.e., approval only some of the time), non-existent approval (i.e., no approval, no disapproval), or conditional approval from parental figures (i.e., promising positive affect only upon meeting certain conditions) (Hamachek, 1978). While consequences of adaptive perfectionism have been shown to be positive achievement striving, good work habits, and resourceful management and organization skills (Frost et al., 1990, Mills & Blankstein, 2000), consequences of maladaptive perfectionism have been found to be feelings of guilt, shame and depression, procrastination, shyness, "I should" feelings, self-depreciation, and the use of face-saving techniques (Burns, 1980).

Dimensions of Perfectionism

While there has been a distinction made in the early literature between adaptive and maladaptive forms of perfectionism (Burns, 1980; Hamacheck, 1978) until recently there has been little attention paid to the conceptualization of the dimensions that constitute adaptive and maladaptive perfectionism. The landmark of the last decade was the development of two multidimensional, self-report measures of perfectionism. Frost et al. (1990) developed a 35-item Multidimensional Perfectionism Scale (MPS) using a sample of 232 female undergraduates. The Frost-MPS (1990) was the first instrument designed to measure the multidimensionality of the perfectionism construct. Factor analysis (principal axes, orthogonal, varimax rotation) revealed 6 latent dimensions of perfectionism: high personal standards, concern over mistakes, parental expectations, parental criticism, doubts about action, and organization. These dimensions, their items, and their initial internal consistency values are reported below.

The first dimension of perfectionism obtained by Frost et al. (1990) was labeled personal standards (PS; 7 items; $\alpha$=.83) and can be described as the setting of extremely high personal performance standards (sample item: "I set higher goals than most people"). The degree of achievement of these standards forms the basis on which individuals evaluate their performance. However, personal standards perfectionism has been shown to have adaptive consequences for the individual such as positive achievement striving (Flett et al., 1995; Frost et al., 1990; Frost & Henderson, 1991), which suggests that not all aspects of perfectionism have deleterious effects.

The second dimension obtained by Frost et al. (1990) was labeled concern over mistakes (CM; 9 items; $\alpha$ = .88). Specifically, concern over mistakes (CM) perfectionism

reflects the degree to which individuals are concerned about making an error during the performance of a specific task (sample item: "If I fail at school or work I am a failure as a person"). On the other hand, the third dimension of perfectionism, labeled doubts about action perfectionism (DA; 4 items; $\alpha = .77$) involves an over-concern that the performance in general was not satisfactory (sample item: "I usually have doubts about the simple, everyday things I do").

The fourth dimension of perfectionism obtained by Frost et al. (1990) was labeled parental expectations perfectionism (PE; 5 items; $\alpha = .84$) and refers to individuals' perceptions that their parents have set unreasonably high standards for them to achieve (sample item: "My parents set very high standards for me"). Along the same lines, the fifth dimension labeled parental criticism perfectionism (PC; 4 items; $\alpha = .84$) refers to individuals' perceptions that their parents were overly critical in the evaluation of their performance (sample item: "I never felt like I could meet my parents' expectations").

Finally, the sixth dimension of perfectionism labeled organization perfectionism (O; 6 items; $\alpha = .93$) describes the ways in which individuals goes about their daily activities and the degree to which order and organization is salient for them in daily living (sample items: "I try to be an organized person" and "Organization is very important to me").

Hewitt and Flett (1991) subsequently developed a 45-item inventory in a series of four studies using both male and female university students as well as psychiatric patients. Also termed the Multidimensional Perfectionism Scale (MPS; Hewitt & Flett, 1991), this measure is henceforth referred to as the Hewitt-MPS. These researchers

proposed three dimensions of perfectionism that accounted for the interpersonal aspects of the construct and as such, emphasized both personal and social components of perfectionism: self-oriented, socially-prescribed, and other-oriented perfectionism (Hewitt & Flett, 1991).

The first dimension of perfectionism conceptualized by Hewitt and Flett (1991) was labeled self-oriented perfectionism (SOP). Self-oriented perfectionism refers to the tendency of individuals to hold high standards of achievement for themselves along with the inclination to harshly evaluate their attempts to achieve these standards (sample item: "One of my goals is to be perfect in everything I do"). The self-oriented perfectionism subscale is likened to the Frost-MPS's personal standards perfectionism subscale and thus has similar positive consequences such as motivational behavior and positive achievement striving but also negative consequences such as self-criticism and self-punishment (Hewitt & Flett, 1991).

The second dimension of perfectionism, labeled socially-prescribed perfectionism (SPP), refers to an individuals' perception that significant others hold extremely high expectations for them to achieve and that significant others will critically evaluate their performance (sample item: "The people around me expect me to succeed at everything I do). Hewitt and Flett (1991) add that because the control appears to lay external to the individual of whom perfection is expected, the consequence of socially-prescribed perfectionism could be the frequent experience of anxiety that is associated with the experience of failure. Further, individuals scoring high on socially-prescribed perfectionism are more likely to have an intense fear of negative social evaluation in social contexts (Hewitt & Flett, 1991).

Finally, the third dimension of perfectionism, labeled other-oriented perfectionism (OOP), refers to the perfectionistic standards and expectations individuals hold for other people. Here, the pressure to be perfect is directed outwardly to significant others (sample item: "If I ask someone to do something, I expect it to be done flawlessly). In this type of interpersonal perfectionistic behavior, individuals hold unrealistic standards of achievement for significant others and regards the achievement of the high standards for others as being very important. Negative consequences of other-oriented perfectionism are outwardly-directed blame and hostility and lack of trust (Hewitt & Flett, 1991).

Studies comparing the two most widely used perfectionism measures (i.e., the Frost-MPS and the Hewitt-MPS) have found that many of the dimensions of the two instruments are highly correlated in both non-clinical (Frost et al., 1993) and clinical samples (Purdon et al., 1998). In a study of 553 female and male university undergraduates, Frost et al. (1993) found that personal standards was most strongly correlated with the self-oriented perfectionism subscale, and that concern over mistakes, parental expectations, and parental criticism were most strongly correlated with socially-prescribed perfectionism.

Based on the findings that there was clear conceptual overlap between the two instruments, Frost et al. (1993) conducted an exploratory factor analysis (principle axis) on all nine perfectionism subscales which suggested the retention of two factors. The first factor was labeled "maladaptive evaluation concerns" and generated high factor loadings from the concern over mistakes, parental criticism, parental expectations, doubts about action, and socially-prescribed perfectionism subscales. The second factor was

labeled "positive striving" and generated high factor loadings from the personal standards, organization, self-oriented perfectionism, and other-oriented perfectionism subscales.

Although there is considerable conceptual overlap between the two scales, it has been suggested that the Frost et al. (1990) Multidimensional Perfectionism Scale tends to focus more on the intra-personal aspects of the perfectionism construct whereas the Hewitt and Flett (1991) scale accounts for the interpersonal dynamics of perfectionism (Parker & Adkins, 1995).

Perfectionism and Sport

Research investigations in psychology stimulated questions about the role of perfectionism in social contexts where optimal performance is emphasized. Justification for the study of perfectionism in sport is derived from the findings of studies investigating evaluative threat, which suggested that the context of sport could provide valuable insights in the study of perfectionism (Frost & Marten, 1990). Indeed, by its very nature, competitive sport demands optimal performance on a consistent basis from athletes. However, it was only quite recently that researchers have examined the existence of perfectionism in the sport and physical activity contexts. Of the studies that have been conducted in sport, perfectionism has been found to play a role in the onset of anxiety (Frost & Henderson, 1991; Hall, Kerr, & Matthews, 1998), athletic burnout (Gould, Udry, Tuffey, & Loehr, 1996a; Gould, Tuffey, Udry, & Loehr, 1996b; 1997), negative reactions to mistakes (Frost & Henderson, 1991), goal-orientation and goal-commitment (Dunn et al., 2001; Frost & Henderson, 1991; 1995), sources of enjoyment

(Scanlan, Ravizza, & Stein, 1989) and disordered eating (Coen & Ogles, 1993; Fulkerson, Keel, & Dorr, 1999).

Although some research has found dimensions of perfectionism to be associated with positive achievement striving (Frost & Henderson, 1991), the majority of studies have found perfectionism to play a more salient role in negative outcomes. The research of Scanlan, Stein, and Ravizza (1989; 1991) and Gould, Jackson, and Finch (1993) demonstrate how perfectionism can have both adaptive and maladaptive consequences for athletes.

In a their study of 26 elite figure skaters, Scanlan et al. (1989) found that perfectionism could work in an adaptive manner as a source of enjoyment for elite figure skaters. Skaters who aimed for perfection and who felt they had made their families and coaches happy or proud, were found to consider perfectionism as a source of enjoyment. On the other hand, perfectionism was also found to underlie some of the themes identified by the elite figure skaters as being sources of stress (Scanlan et al., 1991). The higher order themes of Negative Aspects of Competition, Negative Significant Other Relationships, and Personal Struggles all had lower order themes that suggested either direct or indirect relationships to various dimensions of perfectionism. For example, the ideas that skaters who felt that they did not do as well as they should have, who were displeased with their skating, and who tried to live up to their own high personal standards of perfection have conceptual similarities to the self-oriented and personal standards dimensions of perfectionism. Further, skaters who reported striving and failing to meet their parents', coaches', or unspecified others' expectations, who worried what other people would think and say, and who felt they received criticism from parents and

coaches are statements that appear to have striking conceptual similarities with the parental expectation, parental criticism, and socially-prescribed dimensions of perfectionism. Finally, other self-reported sources of stress for the skaters were considering themselves to be overweight and perceiving that other people were "nagging" them about their weight. These themes suggest important implications for a skaters' perception of body image.

Gould et al.'s (1993) study of 17 national champion figure skaters also demonstrates the conceptual similarity of skater's perceived sources of stress to some of the dimensions of perfectionism. In particular, holding perfectionistic attitudes, having unrealistic expectations, and self-imposed perfectionistic standards for themselves were themes given by the skaters that bear close resemblance to the personal standards and self-oriented perfectionism subscales. Skaters who felt they received constant criticism from judges and officials, and who perceived perfectionistic expectations from others were all themes reported by the figure skaters to represent their sources of stress in skating and are conceptually similar to the socially-prescribed dimension of perfectionism. Other-imposed expectations and pressures to perform were also reported by the skaters as being sources of stress and are conceptually similar to the socially-prescribed perfectionism and parental expectations perfectionism dimensions. Further, the pressure to maintain a low body weight (which can have implications for skaters' perceptions of their body image) was also a self-reported source of stress for the elite skaters.

Another landmark study of perfectionism in sport was Frost and Henderson's (1991) study on perfectionism and reactions to athletic competition. This study examined

40 female athletes competing in five different sports (track and field, softball, tennis, lacrosse, crew) and measured athletes thoughts before competition as well as the athletes' and coaches' reactions to mistakes made during competition. Results indicated that high personal standards perfectionism was significantly correlated with both positive and negative aspects of athletic competition. Doubts about performance and concern over mistakes perfectionism were both associated with debilitating psychological components of performance such as increased competitive anxiety, low self-confidence, pre-competitive negative self-talk, and negative reactions to mistakes during competition. While the Frost & Henderson (1991) study did provide insight into the occurrence of perfectionism in a sport context, there was psychometrical weakness in their use of measures with single-item indicators.

Coen and Ogles (1993) examined perfectionistic tendencies in a sample of 119 competitive male obligatory runners (i.e., persons experiencing a compulsion to exercise) using Yates, Leehey, & Shisslak's (1993) anorexia analogue hypothesis (AAH). The AAH is based on the premise that male obligatory runners share similar personality characteristics with adolescent females who suffer from anorexia nervosa. For instance, both of these subgroups have exceptionally high self-expectations and use excessive exercise and dieting to resolve personal identity issues. Results of this study provided partial support for the anorexia analogue hypothesis. Specifically, obligatory runners in comparison to their non-obligatory counterparts had higher scores on the MPS (Frost et al., 1990), especially on the concern over mistakes, personal standards and doubts about action perfectionism dimensions. However, parental expectations and parental criticism perfectionism did not seem to play a significant role in differentiating between obligatory

and non-obligatory runners. It is possible that the characteristics of the sample (i.e., middle aged males) may be responsible for these findings because parents are not as likely to play an integral role in the daily lives of this age group when compared with adolescent anorexic females. Thus, findings of the Coen & Ogles (1993) study are particularly relevant to the present investigation because of the postulated link between perfectionism and concern over body image.

Given that concern over body image and body dissatisfaction are hallmark symptoms of anorexia and bulimia nervosa, it is reasonable to propose that the combination of a negative body image and perfectionistic tendencies could result in particularly destructive outcomes for athletes competing in sports where thinness and physical appearance are of the utmost importance. Indeed, the idea that the innate characteristics of aesthetic sports could possibly render an athlete to be at an increased risk for the development of a poor body image and perhaps ultimately disordered eating behaviors is not unimaginable.

In a series of quantitative and qualitative research studies, Gould and his colleagues (Gould et al., 1996a; 1996b; 1997) examined the relationship between perfectionism and athletic burnout in junior level tennis players. It was found that burned out players had higher scores on parental expectations, parental criticism, organization, and concern over mistakes perfectionism and lower scores on personal standards perfectionism than did non-burned out players (Gould et al., 1996a). In more in-depth qualitative analyses, perfectionism, in addition to physical over-training, was found to play a key role in the motive to withdraw from competitive tennis. It was also evident that expectations and pressure from significant others, particularly parents, constituted

sufficient reasons for withdrawal or drop-out from competitive sport (Gould et al., 1997). These authors concluded that perfectionism played an important role in burnout and subsequent withdrawal from sport for their sample of junior tennis players.

Only two studies have examined the role perfectionism plays in goal-orientations and goal-achievement. Recently, Hall, Kerr, and Matthews (1998) examined the role of achievement goals and perfectionism in the onset of pre-competitive state anxiety in 119 high school cross-country runners. Perfectionism was found to be significantly correlated with cognitive anxiety. Specifically, concern over mistakes, doubts about action, and high personal standards were found to be significant predictors of cognitive anxiety, somatic anxiety and self-confidence, respectively.

Dunn, Causgrove-Dunn, and Syrotuik (in press) also examined the relationship of goal orientation and perfectionism in 174 high-school aged male Canadian football players. Exploratory factor analysis (principle axis, direct oblimin, varimax rotation) of a modified, sport specific version of the Frost-MPS (1990) yielded a four-factor solution. The MPS-Sport (Dunn et al., in press) suggests that perfectionism in the athletic population may involve additional issues that perhaps are not relevant to other populations. Specifically, the MPS-Sport revealed four latent factors, or dimensions, of perfectionism in athletes: perceived parental pressure, personal standards, concern over mistakes, and perceived coach pressure. While the first three dimensions of perfectionism are conceptualized by the original Frost-MPS, the MPS-Sport suggests that the coach plays a very important role in influencing perfectionistic tendencies of their athletes.

In terms of goal orientation, Dunn et al. (in press) found that ego orientation (i.e., a focus on the importance of outcome) displayed significantly positive correlations with all four of the perfectionism dimensions whereas task orientation (i.e., a focus on the performance itself) was found to be significantly related only with personal standards and not the other three dimensions of perfectionism. As such, athletes with a high ego/low task goal orientation were found to score higher on the dimensions of perfectionism considered to be maladaptive.

Body Image

Body image, in its maladaptive form (i.e., body image concern), is a multidimensional psychological construct that has been cited as one of the defining features of anorexia and bulimia nervosa (American Psychological Association, 1994; Cash & Brown, 1987; Thompson, 1995). Body image is a subjective phenomenon that is dynamic and open to change through interpersonal relations (Schilder, 1950; Thompson, 1995).

Schilder (1950) was the first to study body image and body experience within both the psychological and sociological contexts. Prior to Schilder's work, body image was primarily associated with distorted body perceptions as a result of brain damage (Grogan, 1999). Schilder (1950) was the first to differentiate between the perceptual and attitudinal dimensions of body image. Currently, there is a consensus among researchers studying body image to differentiate between various dimensions of the construct (Cash & Brown, 1987; Cash & Pruzinsky, 1990; Davis, 1997b; Thompson, 1995). As mentioned previously, there are two major facets to the body image construct. Whereas the perceptual facet of body image involves the study of an individual's body size

estimation and ideas of body distortion, the attitudinal component of body image encompasses both the cognitive and affective (emotional) aspects of body image and the study of an individual's satisfaction or dissatisfaction with their body.

Until recently, researchers primarily focused on the role body image played in the onset of eating disorders (Cash & Brown, 1987; Huon & Brown, 1986; Striegel-Moore, Silberstein & Rodin, 1986). Current research, however, has been directed at understanding attitudes towards body image in various non-clinical populations (Keeton, Cash, & Brown, 1990; Miller, Gleaves, Hirsch, Green, Snow, & Corbett, 2000; Sands, 2000; Theron, Nel, & Lubbe, 1991). For example, non-clinical investigations looking at body image in young children suggests that it is not uncommon to see body dissatisfaction in boys and girls as young as 8 years of age (Grogan, 1999). Likewise, studies investigating the experience of body image in adolescents have yielded important findings as well. As anecdotal indication suggests, empirical evidence confirms that body image concern is particularly pronounced during adolescence (Fabian & Thompson, 1989; Faust, 1987; Sands, 2000). Explanations of body image concern during adolescence range from biological accounts (e.g., the physical body is going through change at an increasing rate which is distressing to adolescents) to socio-cultural explanations (e.g., increased social pressures to look and be "acceptable" during adolescence). However, findings remain inconclusive as to the exact reasons of why adolescence, in particular, is characterized by an over-concern with body image.

Research studies have examined gender differences in the experience of body image. Research in the area suggests that women are constantly experiencing pressure to live up to current standards of physical beauty, especially when in the context of public

scrutiny (Cash, Winstead, & Janda, 1986; Davis, 1997b; Davis, Claridge, & Fox, 2000; Davis & Shuster, 2001; Grogan, 1999). Females, in particular, are constantly striving to attain the "perfect" body that is portrayed in popular fashion magazines and the media and entertainment businesses. Recent research, however, has found that males are increasingly reporting greater dissatisfaction and concerns about body image than ever before. For example, Grogan (1999) suggests that men are experiencing cultural pressures to attain an ideally toned, muscular physique. Although males do not report symptoms of eating pathology at the rate females do, males that do present symptoms of disordered eating were found to be involved in a career or sport where weight control pressures existed (Braun, Sunday, Huang, & Halmi, 1999).

Attitudinal Body Image

It should be recalled that there are two facets to the attitudinal dimension of body image, cognitive and affective, and that the attitudinal dimension is distinct from the perceptual dimension of body image. Although the perceptual aspect has dominated the body image literature in the past, there is a current trend in the literature to examine the attitudinal dimension and its underlying cognitive and affective facets. Given that the present study is primarily concerned with the thoughts and feelings underlying maladaptive perfectionism and its relationship with body image, only the attitudinal component (cognitive and affective) and not the perceptual, was be explored.

Attitudinal body image (i.e., both cognitive and affective) is typically measured using self-report questionnaires. With such a myriad of "pencil and paper" measures available to assess attitudinal body image (e.g., Multidimensional Body Self-Relations Questionnaire (MBSRQ; Cash, 1994), Body Image Ideals Questionnaire (BIQ; Cash &

Szymanski, 1995), Body Shape Questionnaire (BSQ; Cooper, Taylor, Cooper, & Fairburn, 1987), Body Esteem Scale (BES; Franzoi & Shields, 1984), it is apparent that researchers investigating body image have not yet achieved consensus as to which instrument best evaluates the attitudinal dimension of the body image construct. Nonetheless, attitudinal body image assessment measures have proven to be useful in understanding and explaining the relationship between body dissatisfaction and disturbed eating in individuals with eating disorders (Cash & Brown, 1987). This study used a self-report measure of attitudinal body image to assess body image concern in an aesthetic sport context – namely, figure skating.

Body Image and Perfectionism

Body image has been studied in conjunction with other psychological and sociological variables including the drive for thinness (King, Touyz & Charles, 2000; Sands, 2000), interpersonal orientation (Geller, Cockell, Hewitt, Goldner, & Flett, 2000; Hewitt et al., 1995), appearance-orientation (Davis, Dionne, & Shuster, 2001), self-consciousness and social anxiety (Theron, Nel & Lubbe, 1991), physical attractiveness (Davis et al., 2000; Thorton & Maurice, 1997), familial relationships (Byely, Bastiani-Archibald, Graber, & Brooks-Gunn, 2000), and perfectionism (Davis et al., 2000; Hewitt et al, 1995).

It should be recollected that much of the initial research on body image investigated the construct in reference to disordered eating. Research examining the relationship between perfectionism, body image, and eating disorders has provided relatively inconsistent findings. While some research has suggested clear associations between various dimensions of perfectionism and body image concern, other research has

demonstrated ambiguous relationships between perfectionism and body image constructs. For example, Hewitt et al. (1995) found that while self-oriented perfectionism was related only to attitudes (e.g., desire for thinness) and symptoms of anorexia nervosa, socially-prescribed perfectionism was associated with eating disordered behavior, body image avoidance, and low self-esteem. On the other hand, in a study of 123 eating-disordered patients, Davis (1997b) found that adaptive perfectionism was only related to body esteem when levels of maladaptive perfectionism were low. Further, if both adaptive and maladaptive perfectionism were high, subjects were more likely to experience concerns about their bodies.

In one of the few non-clinical studies in the body image literature, Davis et al. (2001), with a sample of 102 women, recently examined whether or not certain personality variables, including perfectionism, can predict the degree to which women are concerned about their appearance. Davis et al. (2001) found that women who were considered to be attractive reported to be more focused on their physical appearance only when levels of adaptive perfectionism (i.e., self-oriented perfectionism) were relatively low. Thus, with the two previously mentioned studies, it appears as though various dimensions of perfectionism "worked together" to produce either adaptive or maladaptive body image attitudes. In other words, perhaps dimensions of body image by themselves are not adaptive or maladaptive, but in combination with each other they may produce adaptive or maladaptive effects.

Thus, the relationship between perfectionism and body image may not be as straightforward as one might presume. However, further research is needed to investigate the relationship between perfectionism and body image in non-clinical populations.

Indeed, research findings have confirmed that individuals suffering from eating disorders tend to have higher levels of perfectionism (Bastiani et al., 1995; Garner, Olmstead & Polivy, 1983). However, it remains unknown as to why perfectionism and body image might put an individual at an increased risk for developing disturbed eating behaviors.

Body Image Concern and Aesthetic Sport

The sport and exercise contexts have been cited by researchers as an ideal backdrop in which to study body image (Davis, 1997b; Sungot-Borgen, 1994). There is evidence to suggest that the tell-tail sign of eating disorder symptoms in athletes is an over-concern with body image. Anecdotal evidence suggests that athletes participating in artistic, or aesthetic sports that emphasize physical appearance and lean body shapes (e.g., figure skating and gymnastics) may be at the greatest risk of all sport participants for the development of poor body image and disordered eating (Ryan, 1995; Thompson & Sherman, 1993).

Findings are rather inconclusive as to whether participation in sport and exercise per se, has facilitative or debilitative effects on the participant's body image. Researchers of one paradigm suggest that participation in exercise and some types of sports may provide athletes with attributes that can actually serve as protective factors against the development of poor body image and/or subsequent development of an eating disorder (Fulkerson, Keel & Dorr, 1999; Smolak, Murnen & Ruble, 2000; Warren, Stanton & Blessing, 1990; Zucker, Womble, Williamson, & Perrin, 1999). It has been demonstrated, for instance, that wellness and fitness classes can improve body image, especially body satisfaction, for those who participate (Koff & Bauman, 1997). However, research evidence also suggests that individuals (both male and female) are

more likely to be motivated to exercise for physical appearance-related reasons than for health and fitness reasons (Silberstein, Striegel-Moore, Timko, & Rodin, 1988).

In the sport context, however, recent research has suggested that non-athletes, in comparison to their athletic counterparts, have greater dissatisfaction with their bodies (Petrie, 1996; Zucker et al., 1999). However, Petrie (1996) also found that the risk of developing an eating disorder was increased if the athlete was a female competitor in an aesthetic sport where emphasis is placed on thinness for optimal performance. Indeed, research has shown that certain sport contexts can serve as perfect environments in which dissatisfaction with one's body and disordered eating behaviors may develop (Davis, 1997a; Hausenblas & Carron, 1999; Petrie, 1993; Sundgot-Borgen, 1994; Sundgot-Borgen & Corbin, 1987; Taub & Blinde, 1992).

However, the debate tends to be slightly more complex than would appear at face value. Research exploring how body image functions in the sport context is divided according to the type of sport and the level of involvement in the sport.

Type of Sport. When considering the type of sport an individual participates in, the discussion involves the categorical divisions of (1) aesthetic vs. non-aesthetic sports as well as (2) subjectively-scored vs. objectively-scored (judged vs. refereed) sports. Results of studies investigating differences in body image in aesthetic vs. non-aesthetic sports are relatively consistent in their findings. Essentially, athletes competing in sports where a thin, slender, body is essential to the performance of that activity have been shown to have a greater degree of body dissatisfaction and therefore are considered to be at a higher risk for developing disordered eating patterns than non-aesthetic sport athletes

(Hausenblas & Carron, 1999; Petrie, 1993; 1996; Smolak, Murnen & Ruble, 2000; Stoutjesdyk & Jevne, 1993; Sundgot-Borgen, 1994; Sundgot-Borgen & Corbin, 1987).

Zucker et al. (1999) examined 62 non-athletic students, 33 student athletes participating in refereed sports, and 37 student athletes participating in judged sports and found that 13.5% of athletes participating in judged (subjective) vs. refereed (objective) sports had more diagnosable eating disorder symptoms than athletes competing in refereed sports (3.0%) and non-athletes (3.2%). Further, on measures of over-concern with body size and shape, refereed sport participants scored lower than both judged sport athletes and non-athletes, suggesting that participation in refereed sports may serve as a protective factor from the development of poor body image. Further, judged (subjectively-scored) sport athletes were found to have greater levels of concern with body size and shape, body dissatisfaction and a stronger drive for thinness compared to athletes participating in refereed sports (Zucker et al., 1999).

Research suggests that female athletes in particular, may be at an increased risk for developing disordered eating compared to their male counterparts (Johnson, Powers & Dick, 1999; Sundgot-Borgen, 1994). This effect was especially pronounced in female athletes competing in traditionally lean, aesthetic sports who have been shown to have a higher prevalence of symptoms of eating disorders (i.e., stronger drive for thinness & anorexic symptoms) than athletes involved in non-aesthetic sports (Hausenblas & Carron, 1999; Sundgot-Borgen & Corbin, 1987). However, recent research has also identified male aesthetic sport athletes as a high-risk group for disordered eating based on their high levels of drive for thinness and bulimia symptoms (Hausenblas & Carron, 1999).

Although Petrie (1996) demonstrated that lean sport athletes had a stronger drive for thinness than did non-lean sport athletes, this was found only for female lean sport athletes who were also more preoccupied with their weight and diet than were male lean sport athletes. However, while such differences were reported for female lean sport athletes, scores on behavioral and psychological indices of eating disorders did not reach the normative values as seen in anorexic females. Indeed, Ziegler, Khoo, Sherr, Nelson, Larson, and Drewnowski (1998) investigated the relationship between body image and dieting behaviors in 40 elite U.S. figure skaters and found that although the skaters did report using dieting as a regular weight control strategy, they also reported being relatively satisfied with their bodies.

Thus, there appears to be inconsistent findings in the research investigating the degree of body image concern in lean sport athletes. Nonetheless, research has suggested that athletes competing in lean, aesthetic sports where emphasis is placed on thinness as a critical part of performance, are at increased risk of being more dissatisfied with their bodies than athletes in non-aesthetic sports.

Level of Involvement in Sport. Investigations of body image concern and level of sport commitment have produced relatively consistent findings. Stoutjesdyk and Jevne (1993), in their study of 191 high performance athletes (104 female; 87 male) competing in gymnastics, diving, lightweight rowing, judo, volleyball, and heavyweight rowing, found that the only athletes in the sample who had high scores on a screening instrument for anorexia nervosa were those competing at the national or international level.

Fulkerson, Keel, Leon, and Dorr (1999) found that high school athletes, compared to their non-athletic counterparts, were not at high risk for developing an eating disorder.

However, athletes were considered as having a higher risk if they displayed perfectionistic tendencies. Further, it was suggested that athletes training for one particular sport where the environment is highly competitive may be at an increased risk. The latter finding coincides with results of previous studies suggesting that it is the combination of a highly competitive environment and the pressure to be thin that increases an athlete's risk for developing disturbed eating behaviors (Stoujesdyk & Jevne, 1993).

In a meta-analysis of 34 studies investigating the relationship between sports participation and disordered eating, Smolak, Murnen, and Ruble (2000) found that athletes in general represent a group at higher risk for the development of disturbed eating in comparison to non-athletes. Further, elite athletes participating in aesthetic sport were more at risk for developing disordered eating than non-athletic controls. However, sport was considered to be a protective factor for athletes participating in non-elite and non-aesthetic sports. It was found that these athletes (non-elite, non-aesthetic), especially at the high school level, scored lower on indices of disordered eating than did non-athletes. Another interesting finding was that athletes as a group seemed to be more satisfied with their bodies than were non-athlete controls (Smolak et al., 2000).

Thus, while preceding research has provided valuable insights into the relationships between body dissatisfaction, disordered eating, and sport participation, many questions remain unanswered. One of the questions this research study examined is what, precisely, is the nature of the relationship between multidimensional perfectionism and attitudes towards body image for athletes' competing in aesthetic sport – in this case, figure skating. Specifically, are certain dimensions of perfectionism

correlated with certain dimensions of body image? If so, what is the nature and direction of these relationships?

# CHAPTER 3

# METHODOLOGY

## Participants

A total of 150 competitive figure skaters (29 male, 121 female, M age = 15.16 years, SD = 3.9 years) from Alberta and New Brunswick participated in the study. All athletes voluntarily participated in the study. Written informed consent was provided by all skaters prior to the study, and written parental consent was obtained for all skaters under the age of 18 years.

Skating level categories. This study used a combination of current definitions provided by Skate Canada (the governing body of Canadian figure skating) and the defined criteria of the Alberta/Northwest Territories/Nunavut Skating Section's junior development team, to refer to developmental figure skaters. However, because the term "developmental" is generally used to refer to a stage in the process of human development, clarification is necessary. The term developmental, in this study, refers to a specific competitive sub-group (i.e., a primary or basic level of competitive figure skating) and not to the process of human development. A developmental figure skater in this study is one who competes in the Pre-Juvenile, Juvenile, or Pre-Novice divisions as specified by Skate Canada. These divisions comprise the newly developed Junior National Championships. Skaters are selected from these events to compete at the North American Challenge Skate and/or junior international events. Thus, from the definition provided above, developmental athletes may be eligible to compete regionally, provincially, nationally or internationally in the designated categories (i.e., Pre-Juvenile, Juvenile, or Pre-Novice). The present study included any figure skaters who qualified to

be nominated to the Alberta Junior Development Team or to compete at any of the above designated events.

Stoujesdyk and Jevne (1993) define high performance athletes as those who "train a minimum of 11 hours/week and have competed at the provincial, national and/or international level." However, in figure skating, this definition would produce a great deal of overlap with developmental athletes. That is, many developmental figure skaters also train more than 11 hours per week and may also compete provincially and even nationally or internationally. Thus, the definition of high performance used in this study refers to those skaters who are eligible for selection to the Provincial Team and thus, may compete at the Alberta Sectionals, Western Challenge, Canadian Junior Nationals, Canadian Nationals, or various invitational international competitions. Skaters were included in the high performance group if they competed at the Novice level of skating.

Following a meta-analysis of sport participation and disordered eating in athletes, Smolak et al. (2000) defined elite competitors as those individuals who compete "successfully at a national or international level, or (are) professional competitors." Again, this definition is not suitable for defining elite level figure skaters because both developmental and high performance figure skaters may also compete nationally or internationally. Further, the term "successful" in this definition is rather subjective (i.e., what constitutes success?) and as such clouds one's understanding of what constitutes an elite athlete. For the purpose of the present study, the term elite was constructed from the current Skate Canada and Alberta Skating section definitions and was used to refer to figure skaters who are members of the Junior National or National teams, International Skating Union's Four Continents team, or World and Olympic teams. Researchers in

figure skating have used definitions of elite that are similar to the present study's definition (e.g., Gould, Jackson, & Finch, 1993). For this study, an elite athlete had to be competing at the Junior or Senior level of skating.

Relatively few age restrictions are placed on the Skate Canada (2000) designated competitive levels (i.e., competitive levels are not delineated according to age) and this study differentiated subgroups according to competitive level rather than age. Although Skate Canada has developed a rough set of criteria for assigning skaters to these various subgroups (i.e., developmental, high performance, and elite), present guidelines do not account for overlap of age in the groups. For example, in the elite category, one could have a novice, junior, or senior competitive skater. Consequently, the ages of these elite athletes could range from 13 years to 30 years of age or more. This potential age overlap among competitive levels would not allow the present study to examine the learning or developmental orientation of perfectionism as the literature proposes (Burns, 1980; Hamachek, 1978). Further, if strict Skate Canada criteria were applied to this study, it would be extremely difficult to obtain a sufficient number of elite skaters with which to study the psychological constructs proposed. As a result, this study has used a combination of Skate Canada (2000) recommendations and the figure skating experience of the researcher to delineate the three skating subgroups.

Demographic characteristics. The demographic characteristics of the participants are contained in Tables 2 and 3. Skaters ranged in age from 8 to 32 years. Of the entire sample ($N$ = 150), 42 skaters (28%) competed at the Juvenile level, 32 (21.3%) at the Pre-Novice level, 35 (23.3%) at the Novice level, 17 (11.3%) at the Junior level, and 24 (16%) at the Senior level. In terms of the number and percentage of skaters falling into

each of the three competitive sub-groupings (i.e., competitive levels) 74 skaters (49.3%) were classified as developmental level skaters, 35 (23.3%) were classified as high performance skaters, and 41 (27.3%) were classified as elite level skaters.

Given the small number of male skaters who participated in this study, their data were utilized only for confirmatory factor analysis of the MPS-Sport and not for any further data analyses. All other analyses reported in this thesis were conducted upon data provided by female skaters. The competitive sub-groups for data analysis included 62 (51.0%) female skaters at the developmental level, 32 (26.5%) at the high performance level, and 27 (22.3%) at the elite level.

**Table 2**

**Demographic Profile of Figure Skaters**

| | | Gender | | | | | |
|---|---|---|---|---|---|---|---|
| | | Male[a] | | | Female[b] | | |
| | | n | M | SD | n | M | SD |
| Age | | | 18.1 | 4.65 | | 14.46 | 3.5 |
| Event | Singles | 19 | | | 111 | | |
| | Pairs | 2 | | | 1 | | |
| | Ice Dance | 3 | | | 4 | | |
| | Singles & Pairs | 2 | | | 5 | | |
| | Singles & Dance | 2 | | | - | | |
| | Singles, Pairs, Dance | 1 | | | - | | |
| Age Started Skating | | | 8.1 | 2.4 | | 5.4 | 2.1 |
| Years Competing | | | 8.0 | 4.3 | | 6.2 | 3.3 |
| Years With Coach | | | 4.0 | 2.9 | | 4.4 | 2.9 |
| Number of Diff. Coaches | | | 3.6 | 2.2 | | 3.2 | 2.1 |
| On-Ice -Hours Per Day | | | .8 | .95 | | 2.7 | 1.0 |
| | -Days Per Week | | 5.4 | .67 | | 5.4 | .9 |
| Off-Ice-Hours Per Day | | | .3 | 1.9 | | 1.6 | 1.1 |
| | -Days Per Week | | .2 | 1.6 | | 4.3 | 1.5 |

Note. Age, Age Started Skating, Years Competing, and Years With Coach are given in years. Number of Different Coaches given in actual numeric units. On- and off-ice training—hours per day and days per week (as displayed). [a] n = 29; [b] n = 121

**Table 3**

**Demographic Profile of Female Figure Skaters According to Competitive Subgroup**

| | Competitive Subgroups | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Development[a] | | | High Performance[b] | | | Elite[c] | | |
| | n | M | SD | n | M | SD | n | M | SD |
| Age | | 12.1 | 1.6 | | 15.1 | 1.2 | | 19.0 | 3.6 |
| Event Singles | 57 | | | 32 | | | 22 | | |
| Pairs | - | | | - | | | 1 | | |
| Ice Dance | 2 | | | - | | | 2 | | |
| Singles & Pairs | 3 | | | - | | | 2 | | |
| Age Started (Years) | | 5.1 | 2.0 | | 5.7 | 1.9 | | 5.6 | 2.4 |
| Years Competing | | 4.2 | 1.8 | | 6.3 | 1.8 | | 10.2 | 3.5 |
| Years With Coach | | 3.9 | 2.3 | | 4.7 | 3.0 | | 5.2 | 3.6 |
| Number of Diff. Coaches | | 2.8 | 1.7 | | 3.3 | 2.4 | | 4.1 | 2.2 |
| On-Ice -Hours Per Day | | 2.8 | 1.1 | | 2.4 | .6 | | 2.7 | .9 |
| -Days Per Week | | 5.3 | 1.1 | | 5.6 | .6 | | 5.5 | .7 |
| Off-Ice-Hours Per Day | | 1.5 | 1.2 | | 1.3 | .9 | | 1.9 | 1.2 |
| -Days Per Week | | 4.0 | 1.6 | | 4.3 | 1.3 | | 4.9 | 1.1 |

[a] n = 62; [b] n = 32; [c] n = 27

Instruments

Participants were asked to complete a total of five inventories. The first inventory was a demographic questionnaire that was comprised of general questions relating to the participant's age, gender, and figure skating experiences. The demographic questionnaire is contained in Appendix A. The four remaining inventories consisted of two perfectionism measures and two body image measures.

Hewitt-Multidimensional Perfectionism Scale (Hewitt-MPS). The Hewitt-MPS (Hewitt & Flett, 1991) was used to assess perfectionistic tendencies among the figure skaters. The Hewitt-MPS is a 45-item self-report instrument that measures three dimensions of perfectionism: self-oriented perfectionism (SOP), socially-prescribed perfectionism (SPP), and other-oriented perfectionism (OOP). Self-oriented perfectionism refers to the high standards of achievement individuals' hold for themselves and the degree to which they are overly critical in assessing the success or failure of achieving those high standards. Socially-prescribed perfectionism reflects individuals' perceptions that significant others hold high standards of achievement for them and that significant others evaluate their achievement harshly. Finally, other-oriented perfectionism reflects the high standards individuals hold for others and their belief that others must be perfect. Each dimension of perfectionism is measured by a corresponding subscale that contains 15 items. Respondents rate their degree of agreement (1 = strongly agree, 7 = strongly disagree) on a 7-point Likert scale with statements describing the tendency for perfectionism in various situations or activities in general (e.g., I am perfectionistic in setting my goals). A low score on any of the subscales represents a high level of perfectionistic orientation.

Reliability and validity data were provided in the initial validation study of the Hewitt-MPS (Hewitt & Flett, 1991) using responses from 1,106 undergraduate psychology students (399 males and 707 females) and 263 psychiatric patients (121 males and 142 females). Results from the student sample demonstrated that the Hewitt-MPS subscales had adequate internal consistency as computed by coefficient alpha: SOP = .89, OOP = .79, SPP = .86.

Adequate convergent and discriminant validity were also established for the Hewitt-MPS. That is, for the most part, Hewitt-MPS subscales were significantly related to measures that were conceptually similar and were not significantly related to measures that were conceptually dissimilar (Hewitt & Flett, 1991). Despite the fact that the SPP subscale was significantly related to some self-related measures (e.g., self-criticism, self-blame, overgeneralization of failure, and other-blame), SPP was not significantly related to high personal standards, authoritarianism or dominance (Hewitt & Flett, 1991). Finally, adequate levels of test-retest reliability (r) were also established: .88 for SOP, .85 for OOP, and .75 for SPP.

Multidimensional Perfectionism Scale-Sport (MPS-Sport). Dunn et al. (in press) developed a multidimensional sport-specific measure of perfectionism – the 34-item Multidimensional Perfectionism Scale-Sport (MPS-Sport) – which was conceptually based on the MPS developed by Frost et al. (1990). In the initial validation of this sport-specific instrument (done with 174 male Canadian Football players; M age = 18.24), exploratory factor analysis revealed four latent factors that were labeled perceived parental pressure (PPP), personal standards (PS), concern over mistakes (COM), and perceived coach pressure (PCP). Following the deletion of four items on the basis of poor

simple structure, Dunn et al. (in press) suggested that the MPS-Sport should be administered as a 30-item instrument with nine items measuring PPP, seven items measuring PS, eight items measuring COM, and six items measuring PCP. The MPS-Sport utilizes a 5-point Likert-type response scale (1 = strongly agree, 5 = strongly disagree) to assess perfectionistic tendencies. A high score on any given subscale represents a high degree of perfectionistic orientation.

Although the MPS-Sport is based on the six original Frost-MPS dimensions (Frost et al., 1990), the four dimensions obtained by Dunn et al. (in press) suggest that the MPS-Sport provides different insights into the measurement of perfectionistic tendencies in sport. The MPS-Sport does not include items from Frost et al.'s (1990) doubts about actions and organization subscales. Moreover, the Frost-MPS subscales designed to measure parental criticism and parental expectations collapsed into a single factor in Dunn et al.'s research. The PCP subscale is a sport-specific subscale that does not exist in the Frost-MPS. Items on the MPS-Sport were reworded to suit the context of the present study to make specific reference to the sport of figure skating in many of the items with the intention of improving the face validity of the instrument in the eyes of the respondents. For example, item 1, originally worded "If I do not set the highest standards for myself in my sport, I am likely to end-up a second-rate player" was reworded to "If I do not set the highest standards for myself in figure skating, I am likely to end-up a second-rate skater".

In the initial validation study of the MPS-Sport, Dunn et al. (in press) found that all four subscales had adequate internal reliability (i.e., $\alpha > .70$). Cronbach's alpha ($\alpha$) for each of the four subscales reported by Dunn et al. were: .89 for PPP, .79 for PS, .79 for

COM, and .76 for PCP. The MPS-Sport used in the present investigation is contained in Appendix B.

Body Image Ideals Questionnaire (BIQ). The Body Image Ideals Questionnaire (BIQ; Cash & Szymanski, 1995) was used to assess attitudinal body image. The BIQ is an 11-item self-report instrument that assesses body image concern regarding a specific physical characteristic. The physical characteristics examined include height, skin complexion, hair texture and thickness, facial features, muscle tone and definition, body proportions, weight, chest size, physical strength, physical coordination, and overall physical appearance. The BIQ is used to measure the discrepancy between ideal and actual body image. Each of the 11 items is divided into two components: Part A and Part B. Part A of each item requires that respondents indicate on a scale of 0 (exactly as I am) to 3 (very unlike me) their perception of their current/actual body characteristic compared to their perceived ideal body characteristic on the relevant body area. Part B of each question requires that respondents rate the degree to which the relevant physical characteristic is important to them. Part B of each item requires that respondents indicate on a scale of 0 (not important) to 3 (very important) their perception of the importance of that physical characteristic. Thus, in line with self-discrepancy theory (Higgins, 1987), the degree to which an individual is satisfied with his or her body will depend upon both the degree to which an individual (a) feels his or her actual physical self corresponds to his or her perceived ideal self (Part A) and (b) the importance of the physical characteristic to the individual (Part B). A composite Weighted Discrepancy score is obtained by finding the mean of the 11 Discrepancy x Importance cross-products (Cash & Szymanski, 1995). This procedure allows for an accurate detection of body image

concern because each part of an item depends on the presence or absence of the other. For example, if an individual places little or no importance on a certain characteristic, the score on Part B would be 0. Therefore, when the Weighted Discrepancy score is calculated, the cross-product will be 0, thus cancelling out the degree of discrepancy between actual and ideal body perception. Weighted Discrepancy scores range from –3 to 9 with a high score reflecting the greatest degree of body image discrepancy x importance rating.

The reliability and validity of the BIQ has been established. Cash and Szymanski (1995) found that the BIQ had good internal consistency for both males ($\alpha$=.81) and females ($\alpha$=.76). The Weighted Discrepancy index of the BIQ was found to have strong convergent validity with other measures of attitudinal body image (e.g., MBSRQ – Appearance Evaluation subscale; $r$ = -.61). The BIQ was also found to have discriminant validity with social desirability responding (i.e., there was a negligible relationship between body image and social desirability responding). Finally, Cash and Szymanski (1995) reported further construct validity evidence of the BIQ by demonstrating significant relationships with measures of personality including perfectionism ($r$ = .28).

For the purpose of the present study, the content of the BIQ was revised to make it more relevant to the population being studied. That is, each item was reworded to create a sport-specific measure of an individual's perceived ideal-actual body image and the importance of certain physical characteristics in the context of figure skating. The revised sport-specific instrument was referred to as the Body-Image Ideals Questionnaire–Sport (BIQ-S). Further, the BIQ-S used in this study contained only 10 items. The item measuring an individual's ideal-actual self-discrepancy and importance

of chest size was dropped from the present study owing to the premise of its inappropriateness to the population being studied (i.e., adolescent female figure skaters). Further, based on the experience of the investigator, chest size does not appear to be an important physical characteristic in assessing body image concern of figure skaters.

The Multidimensional Body-Self Relations Questionnaire-Appearance Scale (MBSRQ-AS). The shortened version of the Multidimensional Body Self Relations Questionnaire, the MBSRQ-Appearance Scale (MBSRQ-AS; Cash, 2000), was used in conjunction with the BIQ-S to assess the attitudinal component of body image. The MBSRQ-AS is a 34-item measure of the cognitive and affective aspects of body image. The MBSRQ-AS is composed of five subscales: Appearance Evaluation (AE), Appearance Orientation (AO), Overweight Preoccupation (OWP), Self-Classified Weight (SCW), and the Body Areas Satisfaction subscale (BASS). The 34-item MBSRQ-AS has been recommended for use by researchers wishing to use a shortened version of the original 69-item MBSRQ (Cash, 2000). The MBSRQ-AS was reworded for the figure skating context in order to improve the face validity of the questionnaire for figure skaters and to accommodate the reading level of the participants. The total number of items used in the revised, sport-specific MBSRQ-AS was 36.

The AE subscale is comprised of five items and assesses "feelings of physical attractiveness or unattractiveness...(and) satisfaction or dissatisfaction with one's looks" (Cash, 2000, p. 3). Appearance evaluation is measured on a scale of 1 (strongly disagree) to 5 (strongly agree). A high score on the AE subscale identifies individuals who feel positive and satisfied with their physical appearance, whereas a low score identifies individuals who feel dissatisfied or unhappy with their appearance.

The AO subscale is comprised of twelve items. The AO construct reflects the "extent of investment in one's appearance" (Cash, 2000, p. 3). Appearance orientation is measures on a scale of 1 (strongly disagree) to 5 (strongly agree). While a high score on this subscale identifies individuals who place a great deal of importance on their physical appearance (as displayed through their cautious attention to personal grooming) a low score on the AO subscale indicates that individuals are rather indifferent about their physical appearance.

The BASS is comprised of nine items. The BASS addresses a person's satisfaction with specific parts of the body (i.e., face, hair, lower torso, mid torso, upper torso, muscle tone, weight, height, and overall appearance). The BASS is measured on a scale of 1 (very dissatisfied) to 5 (very satisfied). High scores on this subscale reveal individuals' relative satisfaction with most areas of their body, whereas low scores reveal that individuals are not content with the appearance of various aspects of their body.

The OWP subscale contains four items, and measures the degree of concern an individual has towards feelings of fatness, overweight, dieting, and eating restraint (Cash, 2000). Overweight preoccupation is measured by two different response scales. Two items in the OWP subscale are measured on a scale of 1 (strongly disagree) to 5 (strongly agree) and two items are measured on a scale of 1 (never) to 5 (very often). High scores on both scales of OWP reflect a greater concern over becoming overweight.

Finally, the fifth subscale (SCW) contains two items that measure an individual's perception of his or her weight on a 5-point response scale from 1 (very underweight) to 5 (very overweight). In this study, four items were added to the self-classified weight subscale for reliability purposes. These items include questions vis-a-vis how skaters

perceive that significant others (parents, coaches, judges, and other skaters) judge their weight (very underweight, somewhat underweight, normal weight, somewhat overweight, or very overweight). The addition of these items allows the researcher to more fully examine the interpersonal aspects of perfectionism (i.e., socially prescribed perfectionism) in relation to interpersonal aspects of body image. Thus, the total number of items in the SCW subscale was 6. The total number of items in the revised MBSRQ-AS used in this study was 36.

The psychometric properties of the five subscales of the MBSRQ-AS have been shown to have more than adequate reliability and validity. Data based on normative samples (N = 996 males; N = 1070 females) demonstrate that the internal consistency (Cronbach's alpha) for the MBSRQ subscales, for males and females respectively, are .88 and .88 for Appearance Evaluation, .88 and .85 for Appearance Orientation, and .73 and .76 for Overweight Preoccupation. Data based on other combined normative samples (N = 335 males; N = 804 women) indicate acceptable internal consistency levels for the remaining two subscales. Specifically, for males and females respectively, Cronbach's alpha is .77 and .73 for the Body Areas Satisfaction subscale and .70 and .89 for the Self-Classified Weight subscale.

As with other inventories used in this study, MBSRQ-AS items were reworded (8 in total) to reflect body image in relation to figure skating performance. For example, an item on the original AO subscale was reworded from "Before going out in public, I always notice how I look" to "Before going to the arena, I always notice how I look." This revision is a crucial step in maintaining the face validity of the MBSRQ-AS for the current sample of figure skaters.

Procedures

Ethical approval for this research study was granted from the Faculty of Physical Education & Recreation Ethics Committee. The Board of Directors of figure skating clubs within Alberta and New Brunswick were contacted and the clubs' skaters were invited to participate in the research study. Letters describing the purpose of the study were sent out to clubs interested in participating. If a particular club felt that there was sufficient interest from its skaters. data collection dates were set up for the researcher to explain the purpose of the study and invite skaters to complete the questionnaires. Participants were given an information letter describing the study (Appendix C) and consent forms in accordance with ethical procedure (Appendix D).

Participants were solicited from the Northern Alberta (Edmonton) and Central Alberta (Calgary) skating regions as (designated by the Alberta Figure Skating Association) and from two clubs in the central New Brunswick section. The investigator traveled to participating figure skating clubs and administered all inventories to respondents.

To prevent possible presentation order response bias, a total of eight operational orders were used to deliver the four measures of perfectionism and body image. Figure 1 below contains the list of the presentation orders used in this study.

**Figure 1 – Presentation Order for Questionnaires**

1, 3, 2, 4

2, 3, 1, 4

1, 4, 2, 3

2, 4, 1, 3

3, 1, 4, 2

4, 1, 3, 2

3, 2, 4, 1

4, 2, 3,1

Where 1=MPS (Hewitt & Flett, 1991)
2=MPS-S (Dunn et al., 2000)
3=BIQ-S (Cash & Szymanski, 1995)
4=MBSRQ-AS (Brown et al., 1990)

# CHAPTER 4

# RESULTS

## Psychometric Analysis of the MPS-Sport

Maximum likelihood confirmatory factor analysis (CFA) was conducted to assess the underlying factorial composition and factor structure of the MPS-Sport. The model tested was the four-factor solution reported by Dunn et al. (in press). Results of the confirmatory factor analysis are displayed in Table 4.

The CFA of the MPS-Sport was conducted using data provided by both male and female figure skaters ($N$ = 150). The unstandardized parameter loadings (i.e., factor loadings) for the four-factor solution are presented in Table 5. The nine items intended to measure the perfectionism dimension of perceived parental pressure (Factor 1) had factor loadings greater than .74. The seven items originally intended to measure personal standards perfectionism (Factor 2) had factor loadings greater than .61. The eight items intended to measure concern over mistakes perfectionism (Factor 3) had factor loadings greater than .64. Finally, the six items intended to measure perceived coach pressure perfectionism (Factor 4) had factor loadings greater than .64. All factor loadings were statistically significant at $p < .001$.

The inter-factor correlation matrix for the MPS-Sport revealed significant correlations between the four factors. Specifically, perceived parental pressure had a low correlation with personal standards ($r_{1.2} = .16$, $p > .05$) and strong correlations with both concern over mistakes ($r_{1.3} = .54$, $p < .01$) and perceived coach pressure ($r_{1.4} = .57$, $p < .01$). Personal standards was moderately correlated with perceived coach pressure ($r_{2.4} = .31$, $p < .01$) and strongly correlated with concern over mistakes ($r_{2.3} = .68$, $p < .01$).

Finally, concern over mistakes was strongly correlated with perceived coach pressure ($r_{3,4}$ = .65, $p < .01$).

Model goodness of fit was determined by a number of absolute and comparative fit indices. The goodness of fit indices obtained from the analysis suggested an adequate fitting model. Absolute fit indices computed in this study were normal theory weighted least squares chi-square to degrees of freedom ratio ($\chi^2$/df; Tabachnich & Fidell, 1996), root mean square error of approximation (RMSEA; Steiger, 1990), and the goodness-of-fit index (GFI; Jöreskog & Sörbom, 1980). For interpretation purposes using these indices, a good fitting model is represented by a $\chi^2$/df ratio < 2, a RMSEA value < .08, and a GFI > .90 (Jöreskog & Sörbom, 1980). Comparative/incremental fit indices using the comparative fit index (CFI; Bentler, 1990) and non-normed fit index (NNFI; Bentler & Bonett, 1980) were also computed. Good fitting models are represented by CFI and NNFI values > .90.

Absolute goodness of fit indices suggested an adequate fitting model: $\chi^2$/df = 1.97, GFI =.74, and RMSEA = .081. Comparative and incremental fit indices also approached desirable standards: CFI = .82, NNFI = .80.

In order to contend that a composite scale, or subscale, demonstrates sufficient reliability, Nunnally and Bernstein (1994) recommend internal consistency values higher than .70. Internal consistency (coefficient alpha) values were more than adequate for each MPS-Sport subscale: perceived parental pressure ($\alpha$ = .88); personal standards ($\alpha$ = .84); concern over mistakes ($\alpha$ = .86); perceived coach pressure ($\alpha$ = .83).

**Table 4**

**Confirmatory Factor Analysis of the MPS-Sport in Male and Female Figure Skaters**

| Item# | Abbreviated Item Descriptions | F1 | F2 | F3 | F4 | t | $R^2$ |
|---|---|---|---|---|---|---|---|
| 15 | I feel I am criticized by my parents for doing things less than perfectly in competition | .92 | | | | 10.91 | .61 |
| 3 | My parents set very high standards for me in FS | .74 | | | | 7.75 | .36 |
| 25 | My parents expect excellence from me in FS | .89 | | | | 8.47 | .42 |
| 8 | Only outstanding performance is good enough in my family | .96 | | | | 9.87 | .53 |
| 11 | My parents have always had higher expectations for my future in FS than I have | .66 | | | | 6.86 | .30 |
| 5 | In competition, I never feel like I can quite meet my parents' expectations | .86 | | | | 9.23 | .48 |
| 22 | In competition, I never feel like I can quite live up to my parents' standards | .79 | | | | 9.79 | .52 |
| 33 | My parents want me to do better than all other figure skaters at my level | .76 | | | | 7.00 | .31 |
| 31 | I feel like my parents never try to really understand the mistakes I make in competition | .94 | | | | 9.58 | .50 |
| 28 | I have extremely high goals for myself in FS | | .66 | | | 7.16 | .33 |
| 30 | I set higher goals than most figure skaters | | .81 | | | 9.78 | .53 |
| 6 | I hate being less than the best at things in my FS | | .96 | | | 9.63 | .52 |
| 16 | I think I expect high performance and greater results in my daily training than most figure skaters | | .83 | | | 10.07 | .56 |
| 14 | It is imp't to me that I be thoroughly competent in everything I do in figure skating | | .61 | | | 7.53 | .36 |
| 19 | I feel that other skaters accept lower standards for themselves in skating than I do | | .68 | | | 7.66 | .37 |
| 1 | If I do not set the highest standards for myself in FS I am likely to end-up a second-rate skater | | .68 | | | 7.39 | .35 |

Note. Sample includes male and female figure skaters (N = 150). F1 = Perceived Parental Pressure, F2 = Personal Standards, F3 = Perceived Coach Pressure, F4 = Concern Over Mistakes

**Table 4 (continued)**

| Item# | Abbreviated Item Descriptions | F1 | F2 | F3 | F4 | t | $R^2$ |
|---|---|---|---|---|---|---|---|
| 7 | If I fail in competition, I feel like a failure as a person | | | 1.07 | | 10.18 | .55 |
| 32 | People will probably think less of me if I make a mistake in competition | | | .72 | | 8.17 | .39 |
| 2 | Even if I fail slightly in competition, for me, it is as bad as being a complete failure | | | 1.05 | | 9.93 | .53 |
| 12 | The fewer mistakes I make in competition, the more people will like me | | | .64 | | 6.48 | .27 |
| 34 | If I skate well but only make one mistake in the entire competition, I feel disappointed with my performance | | | .68 | | 7.24 | .32 |
| 27 | If I do not do well all the time in competition, I feel people will not respect me as a skater | | | .99 | | 9.95 | .53 |
| 24 | If a fellow skater (same level) skates better than me in competition, I feel like I failed to some degree | | | 1.04 | | 10.27 | .56 |
| 21 | I should be upset if I make a mistake in competition | | | .87 | | 8.26 | .40 |
| 10 | Only outstanding performance in competition is good enough for my coach | | | | .92 | 9.31 | .50 |
| 23 | My coach sets very high standards for me in competition | | | | .82 | 8.44 | .43 |
| 26 | My coach expects excellence from me at all times, in both practice and competition | | | | .82 | 7.85 | .38 |
| 29 | I feel like my coach never tries to really understand the mistakes I make in competition | | | | .64 | 6.66 | .29 |
| 17 | I feel like I can never quite live up to my coach's standards | | | | .87 | 10.37 | .58 |
| 4 | I feel like my coach criticizes me for doing things less than perfectly in competition | | | | .94 | 9.87 | .54 |

Notes. Sample includes male and female figure skaters (N = 150). F1 = Perceived Parental Pressure, F2 = Personal Standards, F3 = Perceived Coach Pressure, F4 = Concern Over Mistakes

Descriptive Analyses of the Hewitt-MPS, MPS-Sport, MBSRQ-AS, and BIQ-S

The mean item subscale scores, standard deviations and internal consistency values for the subscales of the Hewitt-MPS, MPS-Sport, and the MBSRQ-AS are shown in Table 5. Means and standards deviations for the BIQ cross product are also shown in Table 5. All subscales demonstrated adequate internal consistency (i.e., $\alpha \geq .70$) with the exception of the Hewitt-MPS other-oriented perfectionism subscale ($\alpha = .68$). Consequently, results pertaining to the other-oriented perfectionism subscale should be interpreted with some degree of caution.

**Table 5**

**Mean Item Subscale Scores, Standard Deviations, and Internal Consistency of the Hewitt-MPS, MPS-Sport, and MBSRQ-AS for Combined Males and Females, and for Female Participants Only**

| | | Sample | | | | | |
|---|---|---|---|---|---|---|---|
| | | Males and Females | | | Females | | |
| Measure | Subscale | M | SD | α | M | SD | α |
| Hewitt-MPS[a] | | | | | | | |
| | SOP | 5.10 | .941 | .85 | 5.04 | .992 | .86 |
| | SPP | 3.34 | .941 | .84 | 3.30 | .991 | .85 |
| | OOP | 3.57 | .735 | .68 | 3.58 | .731 | .67 |
| MPS-Sport[b] | | | | | | | |
| | PP | 2.22 | .896 | .88 | 2.15 | .864 | .87 |
| | PS | 3.38 | .815 | .84 | 3.33 | .855 | .85 |
| | COM | 2.41 | .948 | .86 | 2.37 | .967 | .87 |
| | CP | 2.40 | .916 | .83 | 2.40 | .943 | .84 |
| MBSRQ-AS | | | | | | | |
| | AO[c] | 3.42 | .756 | .86 | 3.49 | .725 | .84 |
| | AE[d] | 3.51 | .807 | .74 | 3.47 | .830 | .75 |
| | OWP[e] | 2.32 | .988 | .78 | 2.50 | .985 | .77 |
| | SCW[f] | 2.97 | .614 | .93 | 3.04 | .605 | .92 |
| | BASS[g] | 3.66 | .710 | .84 | 3.66 | .727 | .85 |
| BIQ-Cross Product Weighted Discrepancy[h] | | 1.14 | 1.53 | - | 1.03 | 1.51 | - |

Note. Subscale Abbreviations: SOP = Self-Oriented Perfectionism, SPP = Socially-Prescribed Perfectionism, OOP = Other Oriented Perfectionism; PP = Parental Pressure Perfectionism, PS = Personal Standards Perfectionism, COM = Concern Over Mistakes Perfectionism, CP = Coach Pressure; AO = Appearance Orientation, AE = Appearance Evaluation, OWP = Overweight Preoccupation, SCW = Self-Classified Weight, BASS = Body Areas Satisfaction.

[a] Items scored on a 7-point scale (1 = Strongly Agree, 7 = Strongly Disagree )
[b] Items scored on a 5-point scale (1 = Strongly Disagree, 5 = Strongly Agree)
[c] Items scored on a 5-point scale (1 = Strongly Disagree, 5 = Strongly Agree)
[d] Items scored on a 5-point scale (1 = Strongly Disagree, 5 = Strongly Agree)
[e] Items scored on a 5-point scale (1 = Never, 5 = Very Often)
[f] Items scored on a 5-point scale (1 = Very Underweight, 5 = Very Overweight)
[g] Items scored on a 5-point scale (1 = Very Dissatisfied, 5 = Very Satisfied)
[h] Weighted Discrepancy Score (Mean of the 10 Discrepancy x Importance Cross-Products)

Correlation Analyses

Pearson product moment correlations (r) were computed to examine relationships between various dimensions of perfectionism (Hewitt-MPS and MPS-Sport subscales) and body image (MBSRQ-AS subscales and the BIQ cross-product) for female skaters. The correlations are contained in Table 6.

Relationships among dimensions of perfectionism. As expected, dimensions of the Hewitt-MPS were positively correlated with each other. Self-oriented perfectionism was positively correlated with socially-prescribed perfectionism ($r = .44$; $p < .01$) and other oriented perfectionism ($r = .22$; $p < .05$). There were also significant positive correlations among the four subscales of the MPS-Sport. Specifically, perceived coach pressure was positively correlated with perceived parental pressure ($r = .47$; $p < .01$), concern over mistakes perfectionism ($r = .55$; $p < .01$), and personal standards perfectionism ($r = .27$; $p < .01$). Perceived parental pressure was also positively correlated with concern over mistakes perfectionism ($r = .45$; $p < .01$). Finally, concern

over mistakes perfectionism was positively correlated with personal standards perfectionism ($r = .57$; $p < .01$).

Correlations revealed strong relationships between dimensions of perfectionism on the Hewitt-MPS and the dimensions of perfectionism of the MPS-Sport. The socially-prescribed perfectionism subscale of the Hewitt-MPS was positively correlated with all four subscales of the MPS-Sport (see Table 7). Similarly, the self-oriented perfectionism subscale of the Hewitt-MPS was also positively correlated with all four subscales of the MPS-Sport. The other-oriented subscale of the Hewitt-MPS was only correlated with the personal standards subscale of the MPS-Sport ($r = .22$, $p < .05$), suggesting that OOP is an aspect of perfectionism that is not measured by the MPS-Sport.

Relationships among dimensions of body image. There were significant correlations among the MBSRQ-AS subscales. In particular, appearance orientation was positively correlated with the overweight preoccupation subscale ($r = .54$, $p < .01$) and negatively correlated with the body areas satisfaction subscale ($r = -.24$, $p < .01$). Appearance evaluation was negatively correlated with the overweight preoccupation subscale ($r = -.46$, $p < .01$) and the self-classified weight subscale ($r = -.52$, $p < .01$), and positively correlated with the body areas satisfaction subscale ($r = .66$, $p < .01$). The overweight preoccupation subscale was positively correlated with the self-classified weight subscale ($r = .58$, $p < .01$) and negatively correlated with the body areas satisfaction subscale ($r = -.49$, $p < .01$). Finally, the body areas satisfaction subscale was negatively correlated with the self-classified weight subscale ($r = -.44$, $p < .01$).

To the extent that the body image subscales of the MBSRQ-AS were associated with the BIQ, it was found that the cross product of the BIQ was strongly related to

appearance orientation ($r$ = .44, $p$ < .01), overweight preoccupation ($r$ = .59, $p$ < .01), and self-classified weight ($r$ = .46, $p$ < .01) and negatively correlated with appearance orientation ($r$ = -.60, $p$ < .01) and body areas satisfaction ($r$ = -.59, $p$ < .01).

Relationships between perfectionism and body image. Socially-prescribed perfectionism of the Hewitt-MPS was positively correlated with the appearance orientation ($r$ = .33, $p$ < .01), overweight preoccupation ($r$ = .41, $p$ < .01), and self-classified weight ($r$ = .26, $p$ < .01) subscales of the MBSRQ-AS and negatively correlated with the appearance evaluation ($r$ = -.30, $p$ < .01) and body areas satisfaction subscales of the MBSRQ-AS ($r$ = -.35, $p$ < .01). Self-oriented perfectionism of the Hewitt-MPS was also positively correlated with the appearance orientation ($r$ = .42, $p$ < .01), overweight preoccupation ($r$ = .39, $p$ < .01), and self-classified weight ($r$ = .31, $p$ < .01) subscales of the MBSRQ-AS, and negatively correlated with the body areas satisfaction subscale ($r$ = -.21, $p$ < .05). The only significant correlation between other-oriented perfectionism and MBSRQ-AS subscales was with overweight preoccupation ($r$ = .22, $p$ < .05).

There were a large number of significant correlations between dimensions of perfectionism of the MPS-Sport and the body image subscales of the MBSRQ-AS. In particular, three dimensions of perfectionism (i.e., perceived coach pressure, perceived parental pressure, and concern over mistakes) demonstrated very similar patterns of positive correlations with appearance orientation, overweight preoccupation, and self-classified weight, and very similar patterns of negative correlations with appearance evaluation and body areas satisfaction of the MBSRQ-AS (see Table 7). In contrast, personal standards perfectionism showed only two significant correlations with the MBSRQ-AS – namely, appearance orientation ($r$ = .50, $p$ < .01) and overweight

preoccupation ($r = .42$, $p < .01$). All Hewitt-MPS and MPS-Sport subscales had significant positive correlations with the BIQ (with the exception of the PS and OOP subscales) suggesting that many perfectionistic tendencies (i.e., all subscales) were related to body image discrepancy for the female skaters.

**Table 6**

**Correlations Between Measures of Perfectionism (Hewitt-MPS & MPS-Sport) and Body Image (MBSRQ-AS & BIQ-S) For Females**

| Subscale | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) Socially-Prescribed | | | | | | | | | | | | |
| (2) Self-Oriented | .44** | | | | | | | | | | | |
| (3) Other-Oriented | .14 | .22* | | | | | | | | | | |
| (4) Coach Pressure | .60** | .36** | .14 | | | | | | | | | |
| (5) Parental Pressure | .62** | .18* | .03 | .47** | | | | | | | | |
| (6) Concern Over Mistakes | .70** | .64** | .17 | .55** | .45** | | | | | | | |
| (7) Personal Standards | .39** | .66** | .22* | .27** | .13 | .57** | | | | | | |
| (8) Appearance Orientation | .33** | .42** | .17 | .27** | .20* | .49** | .50** | | | | | |
| (9) Appearance Evaluation | -.30** | -.12 | .02 | -.33** | -.22* | -.34** | -.02 | -.11 | | | | |
| (10) Overweight Preoccupation | .41** | .39** | .22* | .29** | .25** | .49** | .42** | .54** | -.46** | | | |
| (11) Self-Classified Weight | .26** | .31** | .03 | .22* | .26** | .33** | .13 | .13 | -.52** | .58** | | |
| (12) Body Areas Satisfaction | -.35** | -.21* | -.04 | -.28** | -.21* | -.36** | -.04 | -.24** | .66** | -.49** | -.44** | |
| (13) BIQ-Cross Product | .36** | .32** | .14 | .31** | .29** | .43** | .17 | .34** | -.61** | .58** | .50** | -.63** |

Note. * $p < .05$. ** $p < .01$

Predicting Body Image from Perfectionism

Multiple regression analyses were performed with the intention of determining how scores on various dimensions of perfectionism can be used to understand, and thus predict, the extent to which female figure skaters experience concerns about body image. A total of six separate multiple regression analyses were conducted. For each analysis, one dimension of body image was entered as the dependent variable. The seven perfectionism subscales (i.e., three from the Hewitt-MPS and four from the MPS-Sport) were entered as independent or predictor variables. Tables 8 through 13 contain the results of the six analyses.

The overall test of significance for each analysis was significant: Appearance Orientation (Table 7), $F$ (7, 113) = 7.605, $p < .001$, $R^2 = .32$; Appearance Evaluation (Table 8), $F$ (7, 113) = 3.758, $p < .001$, $R^2 = .18$; Overweight Preoccupation (Table 9), $F$ (7, 113) = 6.765, $p < .001$, $R^2 = .29$; Self-Classified Weight (Table 10), $F$ (7, 113) = 3.121, $p < .005$, $R^2 = .16$; Body Areas Satisfaction (Table 11), $F$ (7, 113) = 3.969, $p < .001$, $R^2 = .19$; BIQ Cross Product (Table 12), $F$ (7, 113) = 4.790, $p < .001$, $R^2 = .23$.

Results contained in Table 7 show that concern over mistakes perfectionism ($p < .027$) and personal standards perfectionism ($p < .005$) both contributed to the overall prediction of appearance orientation. Skaters with high levels of concern over mistakes and personal standards perfectionism were more likely to pay more attention to and place more importance on their appearance than skaters with lower levels of concern over mistakes and personal standards perfectionism.

**Table 7**

**Multiple Regression Analysis For Perfectionism Subscales and Appearance Orientation**

| Independent Variables (Perfectionism) | Beta | t | p |
|---|---|---|---|
| Socially-Prescribed | -.050 | -.433 | .659 |
| Self-Oriented | .017 | .147 | .884 |
| Other-Oriented | .054 | .676 | .500 |
| Coach Pressure | .003 | .030 | .976 |
| Parental Pressure | .051 | .496 | .621 |
| Concern Over Mistakes | .305 | 2.234 | .027 |
| Personal Standards | .322 | 2.971 | .004 |

Results contained in Table 8 reveal that concern over mistakes perfectionism was the only perfectionism dimension that significantly predicted appearance evaluation ($p < .05$). That is, female skaters who were not overly-concerned with making mistakes were more inclined to be satisfied or have a sense of attractiveness regarding their appearance than skaters who were greatly concerned with making mistakes. In other words, skaters with high concern over mistakes tended to be less satisfied with their appearance. Although it cannot be referred to as a statistically significant predictor of appearance evaluation, personal standards perfectionism did approach significance ($p < .065$). That is, it seems reasonable to speculate that female skaters who held high personal standards of performance were also more likely to feel satisfied with their appearance, in comparison to athletes with lower personal standards perfectionism.

**Table 8**

**Multiple Regression Analysis For Perfectionism Subscales and Appearance Evaluation**

| Independent Variables (Perfectionism) | Beta | t | p |
|---|---|---|---|
| Socially-Prescribed | -.074 | -.531 | .596 |
| Self-Oriented | .050 | .396 | .693 |
| Other-Oriented | .055 | .624 | .534 |
| Coach Pressure | -.164 | -1.448 | .150 |
| Parental Pressure | .037 | .334 | .739 |
| Concern Over Mistakes | -.375 | -2.519 | .013 |
| Personal Standards | .220 | 1.861 | .065 |

There were no statistically significant predictors of overweight preoccupation in the third regression analysis (Table 9), although results indicated that concern over mistakes perfectionism approached significance ($p < .058$). That is, it seems reasonable to suggest that figure skaters who scored high on concern over mistakes perfectionism were also more likely to be preoccupied with concern about their weight than figure skaters with lower concern over mistakes perfectionism.

**Table 9**

**Multiple Regression Analysis For Perfectionism Subscales and Overweight Preoccupation**

| Independent Variables (Perfectionism) | Beta | t | p |
|---|---|---|---|
| Socially-Prescribed | .127 | .977 | .331 |
| Self-Oriented | .017 | .143 | .886 |
| Other-Oriented | .117 | 1.435 | .154 |
| Coach Pressure | -.036 | -.339 | .735 |
| Parental Pressure | .038 | .368 | .713 |
| Concern Over Mistakes | .266 | 1.915 | .058 |
| Personal Standards | .191 | 1.735 | .086 |

Results of the fourth regression analysis to predict self-classified weight (Table 11) revealed that only self-oriented perfectionism from the Hewitt-MPS was a significant predictor of self-classified weight ($p < .05$). In other words, skaters who held high standards of achievement and were strict in evaluating the achievement of their high standards were also more inclined to feel that they were overweight and to feel that significant others also considered them to be overweight.

**Table 10**

**Multiple Regression Analysis For Perfectionism Subscales and Self-Classified Weight**

| Independent Variables (Perfectionism) | Beta | t | p |
|---|---|---|---|
| Socially-Prescribed | -.038 | -.270 | .787 |
| Self-Oriented | .280 | 2.192 | .030 |
| Other-Oriented | -.028 | -.315 | .753 |
| Coach Pressure | -.007 | -.063 | .950 |
| Parental Pressure | .165 | 1.453 | .149 |
| Concern Over Mistakes | .205 | 1.352 | .179 |
| Personal Standards | -.164 | -1.366 | .175 |

Results of the fifth regression analysis to predict body areas satisfaction (Table 12) revealed that both concern over mistakes perfectionism ($p < .05$) and personal standards perfectionism ($p < .05$) were significant predictors of body areas satisfaction. In other words, skaters who held high personal standards of achievement or who were not overly-concerned with making mistakes were more likely to be satisfied with certain physical characteristics than were skaters who held lower personal standards or who were concerned over making mistakes.

**Table 11**

**Multiple Regression Analysis For Perfectionism Subscales and Body Areas Satisfaction**

| Independent Variables (Perfectionism) | Beta | t | p |
|---|---|---|---|
| Socially-Prescribed | -.226 | -1.627 | -.107 |
| Self-Oriented | -.104 | -.830 | .408 |
| Other-Oriented | -.002 | -.027 | .978 |
| Coach Pressure | -.044 | -.392 | .696 |
| Parental Pressure | .076 | .688 | .493 |
| Concern Over Mistakes | -.308 | -2.080 | .040 |
| Personal Standards | .298 | 2.536 | .013 |

Results of the sixth and final regression analysis (Table 13) in which perfectionism subscales were used to predict BIQ cross product scores revealed that only concern over mistakes perfectionism ($p < .005$) was a significant predictor of body image discrepancy. That is, female skaters who had high concern over making mistakes were more likely than skaters who had low concern over making mistakes to feel that there was a large difference between their actual and ideal body image and that their appearance was important to them. Thus, whereas a high discrepancy score is undesirable, a low discrepancy score is more desirable as it reflects individuals' perceptions that attaining their ideal body image is important and a feeling that there is little or no difference between their actual and ideal body image.

**Table 12**

**Multiple Regression Analysis For Perfectionism Subscales and the BIQ Cross Product**

| Independent Variables (Perfectionism) | Beta | t | p |
|---|---|---|---|
| Socially-Prescribed | .040 | .292 | .771 |
| Self-Oriented | .175 | 1.429 | .156 |
| Other-Oriented | .073 | .851 | .396 |
| Coach Pressure | .016 | .148 | .883 |
| Parental Pressure | .100 | .918 | .360 |
| Concern Over Mistakes | .334 | 2.296 | .025 |
| Personal Standards | -1.87 | -1.625 | .107 |

Analysis of Between Group Differences

Three one-way multivariate analyses of variance (MANOVA) were performed in order to (a) determine if differences in perfectionism levels existed across different levels of skating ability, (b) to determine if differences in body image existed across different levels of skating ability, and (c) if differences in demographic variables existed across the three competitive levels. In each analysis, competitive level served as the independent variable. The three levels of competition, as described previously, were developmental ($n$ = 62), high performance ($n$ = 32), and elite ($n$ = 27).

The first MANOVA examined group differences on the seven perfectionism subscales contained collectively in the Hewitt-MPS and the MPS-Sport. A significant multivariate test statistic was obtained, Wilk's $\Lambda$ = .731, $F$ (14, 224) = 2.709, $p$ < .001, suggesting that between group differences existed somewhere among the dependent variables (i.e., perfectionism subscales). Follow-up univariate $F$-tests revealed that between group differences existed for socially-prescribed perfectionism [$F$ (2, 118) = 5.393, $p$ < .01], self-oriented perfectionism [$F$ (2, 118) = 7.057, $p$ < .001], perceived coach pressure [$F$ (2, 118) = 3.734, $p$ < .05], concern over mistakes [$F$ (2, 118) = 3.899, $p$ < .05], and personal standards [$F$ (2, 118) = 3.636, $p$ < .05]. Post-hoc independent $t$-tests with a Bonferroni correction were used to assess where the between group differences existed on the significant perfectionism subscales. Effect sizes using Cohen's (1988) effect size index for independent samples were also computed to examine the "meaningfulness" of these differences. Using Cohen's (1988) criteria, an ES ranging from .40 to .79 is considered moderate, and an ES $\geq$ .80 is considered large. Results of

the significant post-hoc comparisons are contained in Table 13. For all significant findings, perfectionism levels were lowest among the developmental group of athletes.

**Table 13**

**Significant Independent post hoc Analyses Comparing Mean Subscale Scores on Perfectionism Dimensions Across Skating Level Groups**

| Skating Level Group Comparisons | Mean difference | t | (df) | p | ES |
|---|---|---|---|---|---|
| Socially Prescribed Perfectionism | | | | | |
| HP – Dev | 8.42 | 2.81 | (92) | < .05 | .61 |
| Elite – Dev | 8.74 | 2.43 | (87) | < .05 | .56 |
| Self-Oriented Perfectionism | | | | | |
| HP – Dev | 9.45 | 2.98 | (92) | < .05 | .62 |
| Elite – Dev | 9.96 | 2.95 | (87) | < .05 | .50 |
| Perceived Coach Pressure Perfectionism | | | | | |
| HP – Dev | 3.07 | 2.54 | (92) | < .05 | .55 |
| Concern Over Mistakes Perfectionism | | | | | |
| HP – Dev | 4.59 | 2.80 | (92) | < .05 | .61 |
| Personal Standards Perfectionism | | | | | |
| Elite – Dev | 3.54 | 2.45 | (87) | < .05 | .56 |

Note. HP = High Performance; Dev = Developmental.

The second MANOVA examined group differences on all body image subscales (from the MBSRQ-AS and BIQ). A significant multivariate test statistic was obtained. Wilk's $\Lambda = .818$, $F$ (12, 226) = 1.987, $p < .05$, suggesting that between group differences existed somewhere among the dependent variables. Follow-up univariate $F$-tests for each of the body image subscales revealed only one statistically significant finding for the overweight preoccupation subscale of the MBSRQ-AS, $F$ (2, 118) = 3.46, $p < .001$. The follow-up post-hoc $t$-test revealed that the elite group was more pre-occupied about being overweight ($M$ = 12.22, $SD$ = 4.38) than the developmental group ($M$ = 8.76, $SD$ = 3.53). $t$ (87) = 3.95, $p < .001$, ES = .91.

Finally, a one-way MANOVA was performed in order to determine if significant differences existed between the competitive skating levels for females on the following variables measured by the demographic questionnaire: age, training hours per day on-ice, training days per week on-ice, training hours per day off-ice, and training days per week off-ice. A significant multivariate test statistic was obtained, Wilk's $\Lambda = .325$, $F$ (10, 220) = 16.590, $p < .001$, suggesting that between group differences existed among the demographic variables. Follow-up univariate $F$-tests for each of the demographic variables revealed statistically significant group differences on two variables: age [$F$ (2, 114) = 97.73, $p < .01$], and the number of off-ice training days per week [$F$ (2, 114) = 3.97, $p < .05$]. Results of the significant post-hoc comparisons for the demographic variables are contained in Table 14. Post-hoc independent $t$-tests for age revealed that developmental skaters ($M$ = 12.19, $SD$ = 1.57) were younger than high performance ($M$ = 15.13, $SD$ = 1.21) elite skaters ($M$ = 19.15, $SD$ = 3.64). Further, high performance skaters ($M$ = 15.13, $SD$ = 1.21) were younger than elite skaters ($M$ = 19.15, $SD$ = 3.64).

Post hoc t-tests also revealed that elite skaters spent more days training off the ice (M = 4.88, SD = 1.09) than did developmental skaters (M = 3.94, SD = 1.59).

**Table 14**

**Significant Independent post hoc Analyses Comparing Mean Subscale Scores on Demographic Variables Across Skating Level Groups**

| Skating Level Group Comparisons | Mean difference | t | (df) | p | ES |
|---|---|---|---|---|---|
| Age | | | | | |
| HP – Dev | 2.94 | 9.19 | (89) | < .001 | 1.39 |
| Elite – Dev | 6.97 | 12.38 | (83) | < .001 | 2.91 |
| Elite – HP | 4.03 | 5.88 | (56) | < .001 | 1.55 |
| Training Days Per Week Off-Ice | | | | | |
| Elite – Dev | .9355 | 2.72 | (83) | < .05 | .64 |

Note. HP = High Performance; Dev = Developmental.

# CHAPTER 5

# DISCUSSION

The primary objective of this study was to examine the relationship between multidimensional perfectionism and body image in figure skating. In conjunction with this objective, this study also aimed to determine whether perfectionism and body image varied as a function of competitive level. A second purpose of this study was to continue the construct validation process of the MPS-Sport by examining its validity and reliability in the context of figure skating.

## Construct Validity of the MPS-Sport

In order to assess the factorial validity of the figure skating version of the MPS-Sport, maximum likelihood confirmatory factor analysis (CFA) was used to examine the underlying factor structure and factorial composition of the instrument. The CFA was conducted to determine the adequacy of the original factor structure [proposed by Dunn et al. (in press)] following their construction of the MPS-Sport with male Canadian football players given that the instrument in this study had been modified slightly and tailored to the context of competitive figure skating.

The CFA results of this study (see Table 5) support Dunn et al.'s (in press) contention that the MPS-Sport is a multidimensional instrument consisting of four factors (subscales) measuring perfectionistic orientations in sport; these factors are labeled perceived coach pressure, perceived parental pressure, concern over mistakes, and personal standards perfectionism. The present results support the cross-validation of the MPS-Sport given that the instruments' factor structure was replicated across two very different samples – namely, football and figure skating. Thus, there would appear to be

support for the generalizability of the latent structure of the MPS-Sport across sport contexts. Given the high internal consistency values obtained for all four subscales (i.e., all $\alpha$'s > .83), it appears that the figure skating version of the MPS-Sport is a factorially valid and internally reliable measure of perfectionism in figure skating.

Other evidence pointing to the construct validity of the MPS-Sport as a measure of perfectionism can be found through an examination of the correlations between the MPS-Sport subscales and the subscales of the Hewitt-MPS. Comparing the MPS-Sport to another measure of perfectionism (in this case the Hewitt-MPS) allows the researcher to establish support for the criterion-related (convergent) validity of the MPS-Sport.

In this study, there were significant positive correlations (see Table 7) between the socially-prescribed perfectionism subscale (SPP) of the Hewitt-MPS and all four dimensions of the MPS-Sport (perceived coach pressure, perceived parental pressure, concern over mistakes, and personal standards). However, SPP was most strongly correlated with perceived coach pressure ($r$ = .60, $p$ < .01), perceived parental pressure ($r$ = .62, $p$ < .01), and concern over mistakes ($r$ = .70, $p$ < .01) perfectionism. In other words, skaters who felt that significant others expected them to achieve high standards of performance (SPP), were also more likely to believe that their parents (PPP) and coaches (PCP) expected them to be successful in reaching high standards of performance and were concerned over making mistakes (COM).

These findings compliment those of Frost et al. (1993) who found a similar pattern of correlations among the dimensions of perfectionism that have strong interpersonal components. Specifically, Frost et al. (1993) found that the socially-prescribed perfectionism subscale of the Hewitt-MPS was most strongly correlated with

concern over mistakes ($r = .49$, $p < .01$), parental expectations ($r = .49$, $p < .01$), and parental criticism ($r = .49$, $p < .01$) all of the Frost-MPS (the instrument upon which the MPS-Sport was based). Therefore, it appears as though dimensions of perfectionism that have strong interpersonal components (socially-prescribed perfectionism, perceived parental pressure, and perceived coach pressure) tend to be most strongly correlated with one another.

Although the self-oriented perfectionism subscale (SOP) of the Hewitt-MPS was positively correlated with all four dimensions of the MPS-Sport, it was most strongly correlated with the personal standards subscale (PS). In other words, skaters who expected perfection of themselves and were stern in their evaluation of achieving those standards (SOP) also held very high personal standards of performance. Self-oriented perfectionism was also strongly correlated with the concern over mistakes subscale of the MPS-Sport. These findings are similar to those of Frost et al. (1993) who also found that self-oriented perfectionism was most strongly correlated with personal standards perfectionism ($r = .62$; $p < .01$) and concern over mistakes perfectionism ($r = .38$, $p < .01$).

Although SOP is considered to be an adaptive dimension of perfectionism, its correlation with concern over mistakes perfectionism warrants clarification. One possible explanation lies in the conceptualization of self-oriented perfectionism. Self-oriented perfectionism refers to the tendency of an individual to hold high personal standards accompanied by the inclination to harshly evaluate the achievement of those high standards. Thus, the strong correlation found between SOP and concern over mistakes found in both this study and previous research (Frost et al., 1993) can be

explained according to the conceptualization of SOP which suggests that individuals scoring high on SOP would also be less accepting of mistakes.

Only one significant positive correlation was found between the other-oriented perfectionism subscale (OOP) of the Hewitt-MPS and the dimensions of the MPS-Sport (personal standards: $r = .22$, $p < .05$). This result suggests that other-oriented perfectionism is not tapped by the MPS-Sport. Frost et al. (1993) point out that the other-oriented perfectionism subscale is not evaluated by any of the original Frost-MPS dimensions nor is this subscale accounted for in Frost et al.'s (1990) conceptualization of the perfectionism construct. Further, previous studies have demonstrated that other-oriented perfectionism is not a significant predictor of various psychological variables that may be relevant to this study, such as appearance orientation (Davis et al., 2001), dietary restraint (McLaren, Gauvin, & White, 2001), and anorexia nervosa (Bastiani et al., 1995). However, while Hewitt et al. (1995) found that other-oriented perfectionism was not correlated with symptoms of disordered eating, OOP was correlated with body image avoidance and self-esteem. Thus, future research is required in order to determine if OOP is an important dimension of perfectionism that should be considered in future competitive sport research. In summary, the significant positive associations found between the Hewitt-MPS and MPS-Sport dimensions provides convergent validity evidence that the MPS-Sport and Hewitt-MPS are measuring aspects of the same general construct –namely, perfectionism.

Adaptive and Maladaptive Perfectionism

It has long been proposed that the perfectionism construct has both adaptive (i.e., facilitative) and maladaptive (i.e., debilitative) components (Burns, 1980; Hamachek,

1978). The idea of adaptive and maladaptive perfectionism has been touched upon in previous research that has examined perfectionistic tendencies in sport (Coen & Ogles, 1993; Dunn et al., in press; Frost & Henderson, 1991; Gould et al., 1996a, 1996b, 1997; Hall et al., 1998). Based on the idea that there was considerable conceptual overlap among some of the Frost-MPS and Hewitt-MPS dimensions of perfectionism, Frost et al. (1993) conducted a factor analysis on the nine subscales contained within the Frost-MPS (six subscales) and the Hewitt-MPS (three subscales). Results of the factor analysis revealed two dimensions reflecting the adaptive and maladaptive aspects of the perfectionism construct. One factor was labeled "maladaptive evaluation concerns" and contained the socially prescribed perfectionism subscale of the Hewitt-MPS, and the concern over mistakes, parental expectations, and parental criticism subscales of the Frost-MPS. All of these subscales have been associated with negative or maladaptive affect, cognitions, or behaviors in previous research (Flett et al., 1995; Flett, Blankstein, Hewitt, & Koledin, 1992; Flett, Hewitt, Blankstein, & Mosher, 1991; Flett, Hewitt, Blansktein, Pickering, 1998; Frost et al., 1990; Frost et al., 1995; Frost & Henderson, 1991; Mills & Blankstein, 2000).

The second factor obtained by Frost et al. (1993) was labeled "positive striving" and consisted of the personal standards and organization subscales of the Frost-MPS, and the self-oriented perfectionism and other-oriented perfectionism subscales of the Hewitt-MPS. This factor was labeled "positive striving" on the basis that these Frost-MPS and Hewitt-MPS subscales were associated with positive or adaptive cognitions, affect, and behaviors in previous research (Frost et al., 1990; Frost et al., 1993, Mills & Blankstein, 2000).

In the present study, socially-prescribed perfectionism of the Hewitt-MPS was most strongly associated with concern over mistakes, perceived parental pressure, and perceived coach pressure. This pattern is reflective of the maladaptive evaluation concerns factor described by Frost et al. (1993). The strongest association for self-oriented perfectionism was with personal standards, which is reflective of the composition of the positive striving factor. Although, self-oriented perfectionism was also strongly related with concern over mistakes, the patterns of correlations found in this study closely resemble what researchers have referred to as maladaptive and adaptive aspects of perfectionism.

Based on the results of this study and previous research (e.g., Frost et al., 1993), the predominant theme of maladaptive evaluation concerns, or maladaptive perfectionism for that matter, appears to be an intense concern with making mistakes and of having the perception that one's performance is judged or evaluated negatively by significant others. In this study, skaters who scored high on socially-prescribed perfectionism were also concerned over making mistakes and sensed pressure from their parents and coaches to be successful. Likewise, the finding that self-oriented perfectionism was most strongly correlated with personal standards perfectionism is reflective of the positive striving factor proposed by Frost et al. (1993). Thus, it appears that the MPS-Sport is working in accordance with theoretical expectations and is providing a valid measure of multidimensional perfectionistic orientations in sport.

Relationships Between Perfectionism and Attitudinal Body Image

Although researchers investigating body image satisfaction have suggested that a perfectionistic disposition may lead to concerns over body image or greater body

dissatisfaction for athletes competing in aesthetic sport (Davis, 1997; Fulkerson et al., 2000; Sungot-Borgen, 1994), it is unknown as to which particular dimensions of perfectionism may contribute to this process. Based on the previously described results, it could be proposed that the dimensions of perfectionism considered to be maladaptive (i.e., socially-prescribed perfectionism, concern over mistakes, perceived parental pressure, perceived coach pressure) would be most closely related to concern over appearance and negative body image in this sample of female figure skaters. Likewise, it would seem plausible that the dimensions of perfectionism considered to be adaptive in nature (i.e., self-oriented perfectionism, personal standards) would be closely related to positive aspects of body appearance or body image satisfaction.

Although researchers have suggested that perfectionism may be an important contributor to an athletes desire to be thin (Coen & Ogles, 1991; Davis, 1997; Fulkerson et al., 1999), especially in the case of lean or subjectively-scored sport (Sungot-Borgen, 1994), there has been little research that has examined this contention. Further, few studies have investigated the potential relationship between perfectionism (when conceptualized as a multidimensional construct) and body image. Finally, there have been no studies that have examined these possible relationships in terms of adaptive and maladaptive functions in an aesthetic sport context.

It has been well documented that individuals suffering from eating disorders display more perfectionistic tendencies than individuals without eating disorders (Bastiani, Rau, Weltzin & Raye, 1995; Garner & Olmstead, 1984; Hewitt, Flett, & Ediger, 1995). Sungot-Borgen (1994) noted the similarities that athletes may have with patients suffering from disordered eating – namely, high self-standards, perfectionistic

tendencies, and perseverance toward their goals. Researchers have also targeted aesthetic subjectively-scored sport as a fertile environment for the development of disordered eating behaviors among athletes competing in those sports (Davis, 1997; Hausenblas & Carron, 1999; Petrie, 1993; Sundgot-Borgen, 1994; Warren, Stanton, & Blessing, 1990). Further, it is reasonable to propose that concerns about body image and physical appearance would play an important role in the development of disordered eating behaviors in aesthetic sport athletes. To this end, Taylor and Ste. Marie (2001) sampled Canadian female pairs and ice dance skaters (N = 41) and found that 92.7% of the skaters believed that there were pressures inherent in the sport of figure skating to lose weight and maintain weight at a low level.

The premise of this study was that body image would be an important concern for athletes who participate in aesthetic sport (in this case, figure skating) where a slim, toned, physically attractive body type is highly desirable and could potentially influence the outcome of competition (i.e., in the presentation or artistic marks). In order to address the fundamental purpose of this research investigation (i.e., if there is a relationship between multidimensional perfectionism and body image), correlation and regression analyses were conducted.

Statistically significant relationships were found between various dimensions of perfectionism and numerous dimensions of body image. The dimensions of perfectionism considered to be maladaptive (i.e., socially-prescribed perfectionism, concern over mistakes, perceived coach pressure, and perceived parental pressure) were all positively correlated with the appearance orientation, overweight preoccupation, and self-classified weight subscales of the MBSRQ-AS, and negatively correlated with

appearance evaluation and body areas satisfaction subscales (see Table 7). That is, individuals who scored high on the proposed maladaptive perfectionism subscales of the Hewitt-MPS and MPS-Sport (i.e., as indicated by their scores on socially-prescribed perfectionism, concern over mistakes, perceived coach pressure, and perceived parent pressure) were also most likely to (a) invest in and place great importance on how they looked (appearance orientation), (b) be anxious or concerned about their weight (overweight preoccupation), and (c) believe that they were overweight and that others judged them to be overweight (self-classified weight).

The significant negative correlations between the various "maladaptive" dimensions of perfectionism (i.e., socially-prescribed perfectionism, concern over mistakes perfectionism, perceived parental pressure, and perceived coach pressure) and appearance evaluation and body areas satisfaction (see Table 7) suggests that skaters with higher scores on the maladaptive perfectionism dimensions also tended to be (a) more dissatisfied with their physical appearance (appearance evaluation), and (b) more discontent about the appearance of some or all of their physical features (body areas satisfaction), in comparison to skaters with lower scores on these maladaptive perfectionism dimensions. These results suggest that there is a clear link between maladaptive components of perfectionism and greater concerns about body image among female figure skaters.

The dimensions of perfectionism considered adaptive – namely, self-oriented perfectionism and personal standards perfectionism - were most strongly correlated with appearance orientation and overweight preoccupation. Specifically, both self-oriented perfectionism (of the Hewitt-MPS) and the personal standards subscale (of the MPS-

Sport) were positively correlated with appearance orientation and overweight preoccupation. That is, female figure skaters who established high standards of achievement for themselves were also more likely to pay a great deal of attention to, and to place importance on, how they look (appearance orientation) and to be more vigilant about their body weight, dietary intake, or fat content (overweight preoccupation) than skaters who had lower personal standards of performance.

The fact that the SOP and PS subscales were correlated does not necessarily mean that skaters who held high personal standards evaluated their bodies negatively. Although this may be the case, it is equally plausible (given the normally adaptive nature of these perfectionism dimensions) that these athletes were simply attentive to how they looked physically because they believed that this was important for improved performance. Having said this, the finding that self-oriented perfectionism was also negatively correlated with body areas satisfaction suggests that the skaters were dissatisfied with their bodies. That is, skaters who scored high on self-oriented perfectionism also scored low on contentment with various physical characteristics (e.g., face, hair, lower torso, mid torso, upper torso, muscle tone, weight, height, and overall appearance) and were not as satisfied with their bodies as skaters who scored lower on self-oriented perfectionism.

Dunn et al. (in press) discussed the possibility that high self-oriented perfectionism or high personal standards can have negative outcomes if they are accompanied by high scores on the perfectionism dimensions considered to be maladaptive (i.e., socially-prescribed perfectionism, concern over mistakes, perceived coach pressure, perceived parental pressure). Future research is needed to address the

proposal that adaptive and maladaptive perfectionism are multidimensional in nature. That is, perhaps it is not high scores alone on one dimension of perfectionism that dictates whether that dimension is adaptive or maladaptive in nature, but rather the combination of various dimensions of perfectionism that can have positive or negative effects.

The potentially adaptive function of athletes holding high personal standards is demonstrated by the strong correlation between personal standards perfectionism and appearance orientation. Indeed, in the competitive sport context, being attentive to one's appearance and being vigilant about staying in shape (e.g., watching one's weight) is generally considered to be facilitative towards performance in figure skating. Skaters who are lighter in weight will be able to attain more height and produce a faster speed of rotation than skaters who are heavier. One would also assume that lighter skaters (all things being equal) would be in better cardiovascular condition (e.g., higher VO2max) than heavier skaters. These are indeed important physical requirements in the sport of figure skating. However, what is not known from these correlations is the rationale underlying the skaters' intentions. That is, are skaters attentive to their bodies for physical performance reasons (e.g., fitness or muscular strength) or for physical appearance reasons that can also influence performance (i.e., physical appearance may play a role in the artistic impression or presentation mark in figure skating)?

Hausenblas and Carron (1999) note that inherent to subjectively scored sport is the idea that body appearance is explicitly or implicitly evaluated. In other words, while it is unknown exactly how appearance and body image affect the artistic or presentation mark (explicitly), it is clear that appearance in the aesthetic sport of figure skating is

valued (implicitly). Nonetheless, without the critical evaluation of achieving one's standards, holding high personal standards (as indicated by a high score on the personal standards subscale of the MPS-Sport) can be an excellent motivational orientation to adopt for performance in competitive figure skating. However, scoring high on self-oriented perfectionism, on the other hand, may also contribute to some concern over body image for skaters (as evidenced by the SOP subscales' correlations with certain negative dimensions of body image). Further, it is reasonable to suggest that the combination of being dissatisfied with one's body and having maladaptive perfectionistic orientations may put the competitive female figure skater especially at an increased risk for developing disordered eating behaviors.

The key difference between SOP and PS perfectionism may lie in the distinct definitions of these two dimensions of perfectionism. That is, while personal standards perfectionism refers to the setting of extremely high standards of performance (Frost et al., 1990), self-oriented perfectionism refers to holding high standards along with the tendency to sternly evaluate the achievement those high standards. The differences in the conceptualization of SOP and PS could explain why self-oriented perfectionism, in this study, was found to be correlated with dimensions of body image that are negative (e.g., dissatisfaction with certain physical characteristics) and why personal standards perfectionism (as measured by the MPS-Sport) was not. Therefore, the results of this study are in line with previous research that has contended that it is not the setting of high personal standards of performance per se that is maladaptive, but rather that high standards accompanied by an intense and rigid evaluation of meeting the high standards may result in maladaptive perfectionistic tendencies (Burns, 1980; Hamacheck, 1978).

To the extent that dimensions of perfectionism were related to body image discrepancy, as indicated by the weighted discrepancy score of the ten BIQ-S items, all perfectionism subscales (whether measured by the MPS-Sport or Hewitt-MPS) except for the OOP and PS subscales had significant positive correlations with body image discrepancy (Table 7). That is, higher scores on the SPP, SOP, COM, PCP, and PPP subscales were associated with greater discrepancies between perceptions of actual and ideal body image. In other words, skaters who scored high on these dimensions of perfectionism also felt that there was a gap between their current body image and what they would ideally like their body to be like. For the most part, the strongest correlations with overall body-image discrepancy were found with those dimensions of perfectionism considered to be maladaptive in nature: concern over mistakes ($r = .43$; $p < .01$), socially-prescribed perfectionism ($r = .36$; $p < .01$), perceived coach pressure ($r = .31$; $p < .01$), and parental pressure ($r = .29$ $p < .01$). Although SOP was correlated with body image discrepancy ($r = .32$; $p < .01$), personal standards (PS) perfectionism was not, again perhaps emphasizing key differences in the conceptualization of self-oriented perfectionism and personal standards perfectionism.

Recall that in the case of the BIQ overall score (i.e., weighted discrepancy cross-product), a high score reflects a negative, or maladaptive dimension of body image (and as such refers to a greater discrepancy between the skaters' perceived actual and ideal body image). Therefore, skaters who generally scored high on the maladaptive dimensions of perfectionism also had a larger discrepancy between their ideal and actual body image than skaters who scored lower on the maladaptive perfectionism dimensions. Having a greater discrepancy between ideal and actual body image reflects a certain

degree of dissatisfaction with body appearance that may in turn lead to negative psychological states (Cash & Szymanski, 1995). A more desirable characteristic would be for skaters to be content with their current body image and to feel that they are relatively close to having their ideal body. However, it is interesting to note that the maladaptive dimensions of perfectionism (i.e., socially-prescribed perfectionism, concern over mistakes, perceived coach pressure, and perceived coach pressure) were more strongly correlated with body image discrepancy and that the more adaptive dimension of personal standards was not correlated with overall body image discrepancy. It is also interesting to note that self-oriented perfectionism was just as strongly related to body image discrepancy as socially-prescribed perfectionism. As previously mentioned, the items comprising the self-oriented perfectionism subscale appear to be assessing the high standards that individuals' have as well as their stern evaluation of achieving the high standards, which is in line with the conceptualization of the SOP dimension.

Sungot-Borgen (1994) discussed the pressure that some coaches put on athletes to lose weight or to maintain weight at a lower than "normal" level as part of the explanation for the occurrence of disordered eating among athletes. Sungot-Borgen (1994) proposed that athletes can be very vulnerable to coaches' suggestions, especially when it comes to their training. In the present investigation, it was found that skaters who scored high on the maladaptive dimensions of perfectionism were also more likely to be attentive to how they looked, were preoccupied with their weight, and believed that significant others felt that they were overweight (as indicated by scores on the overweight preoccupation subscale). Therefore, it appears that there are important body image

considerations for skaters who score high on the maladaptive dimensions of perfectionism.

It should be noted, however, that there is an important difference between watching one's weight strictly for physical or biomechanical performance reasons (e.g., to jump higher or spin faster) and watching one's weight for physical appearance reasons (e.g., to appear more physically appealing to the judges). These differences could be the underlying basis for distinguishing between maladaptive and adaptive dimensions of body image concern. That is, an athlete's reasonable concern about his or her weight or body appearance for performance-based reasons would be a desired characteristic for an athlete striving to achieve greater sport performance. However, the question remains, is it maladaptive for athletes to be concerned about their body for appearance reasons even if a more appealing body image could potentially translate into marks for their performance, as in the case of aesthetic subjectively scored sport?

In terms of predicting body image from perfectionism, the question of which dimensions of perfectionism (i.e., those of the Hewitt-MPS or MPS-Sport) best predict body image in this sample of female figure skaters can be answered by an examination of the results of the multiple regression analyses. Results of the seven regression analyses revealed that concern over mistakes perfectionism (of the MPS-Sport) was a significant predictor of body image for four of the six dimensions of body image and also approached significance for a fifth dimension (overweight preoccupation). Specifically, concern over mistakes perfectionism was found to be a significant predictor of appearance orientation (Table 8), appearance evaluation (Table 9), body areas satisfaction

(Table 12), body image discrepancy (Table 13), and approached significance for overweight preoccupation (Table 10).

For concern over mistakes as a predictor of body image, the standardized regression coefficients (betas) for appearance orientation, body image discrepancy, and overweight preoccupation were all positive, indicating that skaters who scored high on concern over mistakes perfectionism also (1) invested a great deal of attention to their body appearance (appearance orientation), (2) had a larger discrepancy between what they perceived to be their ideal and actual body images on various physical characteristics (weighted discrepancy cross product), and (3) were more engrossed by concerns about being overweight (overweight preoccupation). On the other hand, the standardized regression coefficients (betas) for appearance evaluation and body areas satisfaction were both negative, indicating that skaters who scored high on concern over mistakes perfectionism were less satisfied with their appearance (appearance evaluation) especially in terms of specific physical characteristics (body areas satisfaction).

These findings speak to the dangers of being overly concerned about making mistakes in figure skating. The finding that concern over mistakes perfectionism was a significant predictor of four of the six dimensions of body image, and that it approached significance on a fifth dimension, provides further evidence that concern over mistakes is a maladaptive dimension of perfectionism that has particularly important implications for concern over body image in figure skating.

Another significant predictor of body image in this study was personal standards perfectionism of the MPS-Sport. Scores on personal standards perfectionism in this study could be used to significantly predict the degree of skaters' investment in physical

appearance (appearance orientation) as well as the degree to which they were satisfied with various physical characteristics (body areas satisfaction). According to the positive direction of the standardized regression coefficients (betas), skaters who scored high on personal standards perfectionism also placed more importance on appearing physically attractive and were more satisfied with the appearance of their body along certain physical characteristics (e.g., muscular tone). Further, personal standards perfectionism also approached significance as a predictor of the degree to which skaters felt physically attractive or unattractive (appearance evaluation). That is, although it only approached significance (Beta = .220, $p = .065$), a high score on personal standards perfectionism reflected a greater tendency for skaters to be happy or satisfied with their appearance. These findings appear to endorse the notion that personal standards perfectionism is an adaptive dimension of perfectionism that has particularly important implications for facilitating positive body images for female figure skaters.

Finally, self-oriented perfectionism was found to be a significant predictor of a skater's perception of body weight and also of significant others perceptions of his or her body weight (self-classified weight). According to the positive direction of the standardized regression coefficient, high scores on self-oriented perfectionism indicated that skaters felt they were, to some degree, overweight and that significant others (i.e., other people, coaches, parents, judges, other skaters) considered them to be overweight to some degree. Again, it is evident in this sample, that while striving to achieve high standards can be an adaptive characteristic of perfectionism, being overly critical of oneself in achieving those standards is associated with some concerns over body image.

While no previous research has examined the relationship between multidimensional perfectionism and body image, these findings confirm what many researchers have recently found with other psychological variables in the area. That is, concern over mistakes and personal standards perfectionism were found to be the most significant predictors of negative outcomes for various psychological variables in sport including cognitive anxiety (Hall et al., 1998) and obligatory running (Coen & Ogles, 1993). Further, in correlational studies, Frost and Henderson (1991) found concern over mistakes to be most strongly correlated with low self-confidence, anxiety, and failure orientations toward sport, and Gould et al. (1996a) found that concern over mistakes was strongly correlated with burnout in junior tennis players.

In summary, it appears that concern over mistakes perfectionism (of the MPS-Sport) was the most important predictor of maladaptive concerns over body image. Further, personal standards perfectionism (of the MPS-sport) was the most useful predictor of adaptive or positive body image in this sample of female figure skaters. Again, further support is provided for the MPS-Sports ability to distinguish between maladaptive and adaptive components of perfectionism and body image. In this investigation, the MPS-Sport appeared be more useful than the Hewitt-MPS in predicting scores on body image dimensions for this sample of figure skaters. Thus, as the findings of this study demonstrate, there appears to be advantages of using a situationally-specific measure of perfectionism to measure perfectionistic tendencies in the sport context.

Perfectionism and Body Image Across Competitive Levels

Two multivariate analyses of variance (MANOVA) were used to determine whether there were significant differences on levels of perfectionism and body image

across competitive levels of figure skaters. Results revealed that there were significant differences among the three subgroups of figure skaters for perfectionism dimensions. Recall that this study grouped skaters into three major competitive skating levels: developmental, high performance and elite. Post hoc analyses identified significant group differences on five of the seven dimensions measured; no between group differences were observed for the other-oriented perfectionism subscale of the Hewitt-MPS and the perceived parental pressure subscale of the MPS-Sport.

High performance and elite female skaters had higher levels of socially prescribed perfectionism (Hewitt-MPS) than figure skaters competing at the developmental level. The same group differences were found for self-oriented perfectionism of the Hewitt-MPS. That is, both high performance and elite skaters had significantly higher levels of self-oriented perfectionism than developmental skaters.

One possible explanation for the finding that high performance and elite skaters had higher scores on self-oriented perfectionism could be related to the degree of goal complexity. That is, one would assume that at the high performance and elite levels, skaters would be more efficient at setting specific and complex goals than developmental level skaters. For example, elite skaters may have detailed goals that are focused on very specific technical elements and on raising the performance level in very specific ways (e.g., connect with the audience, express the theme of the music, etc.). Therefore, an assessment of whether the specific goals were achieved would involve a more intense and precise evaluation of each intricate goal. Ultimately, this process leaves more room for the critical assessment of achievement of the goals and, therefore, less room to commit errors (which is the key point in the conceptualization of self-oriented perfectionism).

The result would then be performance expectations of perfection (e.g., the skater would allow no flexibility in achieving the goals). On the other hand, developmental skaters may set goals to simply land their jumps in the performance or to have fun. With such general goals, there is more room for flexibility in skaters' evaluations of their achievement of the goals.

Perhaps a more compelling argument for the findings that elite and high performance skaters had significantly higher levels of self-oriented perfectionism than developmental skaters lies in the value of outcome to the skaters, which can be viewed here as a function of differences in competitive experience between the competitive levels. That is, at such advanced levels of competition (i.e., high performance and elite) one would expect the performers' goals to include achieving the ensuing rewards that accompany winning at that level. Here, the underlying premise is that at the highest levels of competition (i.e., high performance and elite), skaters have more competitive experience and therefore, have greater expectations not only to perform well but also to win or to at least place well. That is, high performance and elite skaters expect superb performance of themselves because of their competitive history (i.e., they have experienced a certain level of accomplishment in the past that has given them the distinction of being "high performance" or "elite"). On the other hand, developmental skaters might not expect to win and reap rewards as they have not had the amount of competitive experience as high performance or elite skaters and therefore do not necessarily expect to win but rather expect to skate to the best of their ability. In other words, developmental skaters have little competitive experience and therefore have

nothing to base their expectations on other than what they would like to do. Developmental skaters are, as the term implies, still "developing" as skaters.

In both of the above conditions (i.e., goal complexity and outcome/rewards), it would appear to follow that the greater amount of competitive experience (e.g., as seen in the high performance and elite levels), the more expectation there is to skate well. It would also follow that high performance and elite skaters would equate skating well with winning or with placing well whereas developmental skaters would equate skating well with doing the best they could do. If the above rationalizations were true, it would appear that there is a developmental explanation for differences in self-oriented perfectionism between high performance/elite and developmental skaters in this study.

Regarding the high levels of socially-prescribed perfectionism found among the high performance and elite skaters in this study, it is reasonable to assume that more advanced skaters place more importance on how significant others perceive their skating ability. In this sense, high performance and elite skaters may feel that there are greater expectations from others for them to perform well, especially given the fact that they are at an advanced ability level. Thus, perfection is expected from those who are more likely to deliver it – that is, from high performance and elite skaters. Furthermore, a skater at this level may "buy into" this notion. In the case of developmental skaters, they are still developing their skating ability. Thus, perhaps neither the developmental athlete, nor the people in the performance environment expect or demand perfection from them.

As for the MPS-Sport perfectionism dimensions, elite skaters were found to hold higher personal standards of performance than developmental skaters. There was no significant difference found on the personal standards dimension between high

performance and developmental skaters. Again, it would appear that elite skaters set more challenging and demanding goals than less skilled skaters because without such goals, success at the elite level is unlikely to be experienced. Indeed, the essence of elite athletic performance is striving for that perfect performance.

High performance skaters were found to have significantly higher levels of perceived coach pressure perfectionism in comparison to developmental skaters. In other words, more advanced skaters were more likely to feel as though their coach held high expectations and standards of performance for them to achieve than were lower level competitive skaters. In the case of developmental skaters, it is likely that coaches do not put as much pressure on them to skate well as they are not as experienced competitors as high performance skaters.

However, why is it that elite skaters in this study did not feel as great a pressure to succeed from their coach as did high performance skaters? A possible explanation is that once skaters have reached the highest level of competition in skating (i.e., senior competitive), perhaps they have finally "proven" their worth as serious competitors and have garnered respect from their coach. Perhaps the relationship between the elite athlete and coach is one of a "team" versus one of "teacher and student" which might still be the case for the high performance skater. Perhaps the high performance skater has not quite achieved that final, ultimate level of competitive ability and thus still has "something to prove" and senses this through perceived pressure from the coach. Another possible explanation is that at the most elite levels (i.e., World and Olympic level), skaters are "in charge" of the relationship and perhaps no longer attach as much importance to what the coach thinks. Here, the assumption is that at the elite level, the skaters are the driving

force behind all aspects of their skating, and the coach does not have as much to say about their skating as they might at the younger, developmental levels where skaters look up to their coach.

High performance, but not elite skaters, were also more likely to be concerned over mistakes in competition than were younger, developmental skaters. One possible explanation based on these results is that the higher the level one competes at in skating, the greater pressures there are to perform well in competition. However, why was there no significant differences found between the elite skaters and the high performance or developmental groups? One possible explanation is that elite skaters may feel as though they have established themselves as top performers. For elite skaters, this may directly translate into more confidence and less doubt in their skating abilities. As a result, elite skaters would not be as concerned about making mistakes in competition as would less skilled performers (high performance or developmental).

Results of the second MANOVA with body image dimensions revealed that elite skaters were significantly more concerned about their body weight than were younger, developmental level skaters. Specifically, elite skaters in this study were more worried about being or becoming fat, were aware of even small changes in their weight, were more likely to be on a weight-loss diet, and were more likely to have tried to lose weight in the past through means of dieting than were younger, developmental level figure skaters.

It would appear that the results of the present study are in line with previous research findings suggesting that participation in aesthetic sport especially at the elite level, may put athletes at risk for fostering negative attitudes towards body image and

preoccupation with body weight and appearance (Davis, 1997b), which can potentially lead to disordered eating (Smolak et al., 2000; Stoutjesdyk & Jevne, 1993). That no other significant differences were found between the three levels of skaters for the other dimensions of body image (i.e., appearance orientation, appearance evaluation, self-classified weight, body areas satisfaction, and body image discrepancy) emphasizes the fact that there are important issues at work at the elite level for preoccupation with weight that are not as salient at the high performance or developmental levels.

One possible explanation is that at the elite level it is even more important to attain one's ideal body weight for physical performance reasons and/or physical appearance reasons as both are assumed to affect one's marks, either implicitly or explicitly. A second possible explanation is the intense public and media scrutiny that can occur at the elite level in figure skating. Of course, this type of pressure would appear to be intensified for athletes competing at the elite level in aesthetic sports such as figure skating, where commercial endorsement is anticipated to be in the millions for Olympic medallists.

Social expectations and pressures could play a prominent role in athletes' preoccupation with their appearance. Further, this type of open social inspection could be another reason why elite figure skaters in this study felt the need to watch their weight and in fact worried about becoming overweight. The assumption here is that in the public eye, elite skaters feel the need to look slender and in good physical shape. In other words, they feel the need not only to perform perfectly but also to look perfect.

Finally, recent research has suggested that physical self-presentation concerns may contribute to athletes' body dissatisfaction, concerns over dieting, and preoccupation

with thinness (Hausenblas & Mack, 1999). Indeed, research in the area has suggested that Hart, Leary, and Rejeski's (1989) concept of social physique anxiety (i.e., the tendency to be uneasy about the social evaluation of one's body) is an important consideration for researchers in sport and exercise psychology (Leary, 1992). However, research is required that examines the effects of physical self-presentational concern and social physique anxiety among athletes competing in aesthetic sport where body image is inherent to the nature of the sport. Further, it is unknown as to how social physique anxiety operates at the various competitive levels (i.e., developmental, high performance, and elite).

Finally, given the design of the present investigation, it cannot be determined whether group differences are a function of age or competitive level, or of the two in combination. Nonetheless, the MANOVA for demographic variables in this study revealed that significant differences occurred across the three competitive levels on the variables of age and the number of off-ice training days per week. That is, developmental, high performance, and elite athletes significantly differed in age. Specifically, elite skaters were significantly older than high performance skaters, who in turn were significantly older than developmental skaters. Further, elite skaters spent significantly more days per week training off-ice than did developmental skaters.

Future research must address whether age or competitive level (i.e., competitive experience) is responsible for differences in perfectionism and body image dimensions among developmental, high performance, and elite level skaters.

# CHAPTER 6

## SUMMARY & CONCLUSIONS

There were three purposes of this study. The primary purpose of this investigation was to examine the multidimensional relationship between perfectionism and attitudinal body image in figure skaters. In conjunction with this, a secondary purpose of this investigation was to determine whether perfectionism and body image varied across competitive subgroups (i.e., developmental, high performance, and elite). The final purpose of this investigation was to examine the psychometric properties and underlying factor structure of the MPS-Sport in the figure skating context.

Relative to the latter purpose, the results of this study support the use of a sport-specific measure of perfectionism, namely, the Multidimensional Perfectionism Scale-Sport (MPS-Sport) to measure perfectionistic dispositions in the context of figure skating. The results of the confirmatory factor analysis and internal consistency analysis provide support for this newly-devised sport-specific measure of perfectionism. The findings of this study complement the original validation work of Dunn et al. (in press) who examined the psychometric properties of the MPS-Sport in an all-male football sample. However, the results of this study substantiate the value of using the MPS-Sport in the aesthetic sport of figure skating. The fact that the MPS-Sport has been shown to effectively measure perfectionism in two very different sports provides further support for the utility of using this instrument across different sport contexts.

Nontheless, further research is required to further establish the psychometric properties of the MPS-Sport in other competitive sport populations. More specific to this study, the MPS-Sport should be used to examine the presence of perfectionism in other

aesthetic sport populations or activities (e.g., gymnastics, artistic gymnastics, synchronized swimming, ballet, dancing) where a slender body type is considered desirable and even potentially critical to successful performance. Further, because the sample size of figure skaters in this study was relatively small (N = 150), future research investigations should examine the psychometric properties of the MPS-Sport using larger sample sizes of athletes.

In examining the primary purpose of this study, theoretically interpretable relationships were found between dimensions of perfectionism and body image for female figure skaters. Specifically, skaters who scored high on the dimensions of perfectionism that are generally considered to be maladaptive in nature also demonstrated significant concern over body image as represented by their scores on all the dimensions of body image. On the other hand, skaters who held high personal standards, a dimension of perfectionism that is usually considered to be adaptive in nature (Frost et al., 1990; Frost et al., 1993), were found to be satisfied with their bodies. Further, two MPS-Sport dimensions, concern over mistakes perfectionism and personal standards perfectionism, were significant predictors of concern over body image (concern over mistakes perfectionism) and body satisfaction (personal standards). One dimension of the Hewitt-MPS (Hewitt & Flett, 1991), self-oriented perfectionism, was found to be a significant predictor of one dimension of body image concern.

These results provide evidence that there is indeed a relationship between aspects of perfectionism and body image among female figure skaters. Further, the findings of this study provide initial support for relationships between dimensions of perfectionism and body image. Indeed, there appears to be a pattern of relationships between the

dimensions of perfectionism that are considered to be maladaptive in nature and body image concern. Likewise, there appears to be a trend that adaptive dimensions of perfectionism are associated with more positive body image attitudes. However, future research studies should examine the nature of these correlations between perfectionism and body image with athletes competing in other aesthetic sports. This is the first study to examine the relationship between perfectionism and body image concern in aesthetic sport athletes excluding disordered eating. Thus, more research is needed to compliment the findings of this study and to thoroughly investigate the multidimensional nature of the relationship between perfectionism and body image in other aesthetic sport athletes.

As for the secondary purpose of this study (i.e., whether perfectionism and body image vary as a function of competitive level) significant group differences were observed. Specifically, high performance and elite skaters (and therefore older skaters) scored higher on socially-prescribed perfectionism and self-oriented perfectionism than developmental (younger) skaters. In other words, older, more advanced skaters held higher self-expectations and were more critical of their achievement of those standards (SOP) and perceived higher performance expectations from significant others (SPP) than were younger, less skilled skaters. Further, elite (older) skaters held higher personal standards of performance than developmental (younger) skaters. High performance skaters were also found to score significantly higher on coach pressure and concern over mistakes than were developmental or elite skaters. There were no significant differences found on the dimensions of parental pressure or other-oriented perfectionism. Finally, elite skaters (and therefore older) skater's in this study were found to be significantly more preoccupied with their weight than were younger, developmental skaters.

More advanced (older) competitive female figure skaters scored significantly higher than less advanced skaters (younger) on numerous dimensions of perfectionism and body image. Therefore, it appears as though there are important differences between lower level competitive figure skating and higher level competitive skating. However, the question remains, are these results a function of competitive level or of age? That is, elite athletes are more advanced in skill (as reflected by their competitive level) than high performance skaters, who in turn are more advanced than developmental athletes. Elite skaters are also older than high performance skaters who, in turn, are older than developmental skaters. Therefore, it remains unknown as to whether differences in perfectionism and body image are due to skaters' competitive level or to age. In other words, do more advanced skaters demonstrate greater levels of perfectionism and preoccupation with weight because of their skill level or because they are older? Further, what specific factors contribute to older, elite and high performance skaters being more perfectionistic and more concerned about their body appearance than younger, developmental level skaters?

Directions for Future Research

Previous research investigating athletes' perceptions of body image and eating behaviors has suggested that aesthetic sport provides an ideal context in which abnormal or maladaptive concerns over body image and eating disorders can develop (Davis, 1997; Sungot-Borgen, 1994). The results of this study suggest that competitive figure skaters who score high on maladaptive perfectionistic dimensions also tend to have greater concerns over body image than skaters who do not score high on dimensions of

perfectionism considered to be maladaptive. More research into the specific relationship between perfectionism and body image is required.

First, future research should look into the multidimensional, as well as the maladaptive and adaptive relationships between perfectionism and body image in other aesthetic sport contexts. Research should also compare the experience of perfectionism and body image among various aesthetic sport athletes (e.g., figure skating, gymnastics, synchronized swimming, diving, etc.) where performance is subjectively scored.

Second, while this study examined perfectionistic tendencies in relation to concerns over body image for amateur competitive figure skaters, future research should also investigate this relationship in professional skaters. Thompson and Sherman (1992) suggested that the pressure on professional skaters (i.e., who earn a living by skating in professional ice shows) to maintain a low body weight, might be greater than the pressure on amateur athletes. Along these lines, a sample of pairs skaters and ice dancers should be examined because of the nature of these disciplines' technical demands (e.g., that the male partner must be able to lift and throw the female partner), which suggests that there may also be greater attention directed at the female to achieve and maintain a relatively low body weight.

Third, future investigations should examine the underlying reasons for body image concern in figure skaters. That is, of the concerns skaters have about body image, how much can be contributed to physical performance reasons (e.g., skate faster, jump higher, better conditioning, increased flexibility, etc.) and how much can be attributed to physical appearance reasons (e.g., to look more physically appealing) among all disciplines of figure skaters (i.e., singles, pairs, ice dance). As discussed in Chapter 5,

both have the potential to influence the marks either explicitly or implicitly; being physically fit allows a skater to excel at the technical elements while having a physically appealing body may benefit a skater along the artistic impression or presentation marks. Further, adaptive and maladaptive body image concern could potentially be distinguished based on social concerns. In other words, a skater's wish to achieve a better body because of their own performance-related goals would be considered adaptive. However, a skater's wish to achieve a better body because he or she feels pressure to do so from significant others (i.e., parents, coaches, judges), and not for performance reasons, would be considered maladaptive. Therefore, future research should also address the degree to which social evaluation plays a role in the development of adaptive and maladaptive concerns over body image.

Fourth, future research should investigate the differences of body image concern among female and male figure skaters. While male skaters' attitudes towards body image were not investigated in the present study, future research endeavors may benefit from a greater understanding of males' perceptions of body image.

Finally, possible sociological and psychosocial explanations as to how and why both maladaptive perfectionism and concern over body image develops in aesthetic sport athletes may provide a supplemental understanding of other variables important to the understanding of these constructs. In summary, future research should examine perfectionism and its' relationship (maladaptive and adaptive) to body image concerns in various aesthetic, subjectively scored sports (e.g., gymnastics, synchronized swimming, and diving) where emphasis is placed on athletes to achieve and maintain a thin, slender body shape. Further, aesthetic sports should be compared to other lean sports that are not

subjectively scored (e.g., track & field, distance running) as well as to other sports that do not necessarily emphasize thinness but for which other factors may contribute to the development of maladaptive perfectionism or negative attitudes towards body image (e.g., length restrictions of female volleyball players' shorts). To this end, differences may be detected among sports that will help researchers in the area of sport psychology better understand the risk factors inherent in the sport that could potentially contribute to the development of maladaptive perfectionism and concern over body image among athletes competing in those sports.

Practical Implications

As Burns (1980) first suggested, there really is no such thing as perfection. One would think this is especially true in the case of subjectively scored sport where the locus of control for determining outcome success, and therefore outcome failure, is placed external to the competitor. In this case, "perfection" is in the subjective opinion of the judges. This is the case for the sport of figure skating where, more often than not, skaters perceive success and failure based on the results of the judges' marks. Even with the judges' marks aside, figure skaters' performances are subjected to evaluation by significant others: namely coaches, parents, skating peers, sport administrators and officials. Herein may lie the effects of such statements as "practice makes perfect", "picture perfect", and "perfect 6.0".

When taken together, the results of previous research in the area and the findings of this study seem to suggest that the combination of competitive aesthetic sport, maladaptive perfectionistic tendencies, and concerns about one's body image are a dangerous trio that could potentially facilitate disordered eating in the athlete. Thus,

there are important practical implications that must be addressed for figure skaters with maladaptive perfectionistic tendencies and concerns over body image.

First, it is crucial for all sport practitioners (e.g., coaches, sport psychologists, and mental skills trainers) who work with athletes to have a conceptual understanding of the perfectionism construct. McLaren, Gauvin, and White (2001) emphasize the use of interventions that target the specific type of perfectionism. Specifically, McLaren et al. (2001) emphasize the need to use different types of interventions with self-oriented perfectionism (i.e., adjusting the individual's own excessively high standards) versus socially-prescribed perfectionism (i.e., adjusting the individual's perception of significant others' expectations). It is also important for the practitioners to inform and educate athletes as to the effects that maladaptive and adaptive perfectionism can have on sport performance. Indeed, while it is important to provide strategies and techniques for dealing with maladaptive or neurotic perfectionism, it is equally important to foster adaptive perfectionism in athletes.

Second, practitioners must understand and educate athletes of the dangers of holding negative attitudes towards their bodies. Indeed, Sungot-Borgen (1994) emphasized the need for more coach education on the topic of disordered eating among athletes. In aesthetic sports such as figure skating, practitioners should also educate athletes about the maladaptive effects of holding unrealistic standards of body appearance and about the adaptive effects of accepting one's body image and of being satisfied with one's body.

Third, because of the emphasis an athlete may place on achieving exceptionally high personal standards of performance in sport, it is crucial that sport practitioners assist

athletes in setting challenging but attainable goals. An extensive, detailed goal-setting program should be implemented that teaches athletes how to set realistic, measurable, attainable personal goals. Emphasis here should be placed on setting goals that are within the athletes' control (e.g., focus on performance or process-oriented goals rather than outcome goals).

Fourth, practitioners should assist athletes in taking back the control that is lost when standards for success and failure lay outside their control. This can be accomplished by challenging the athletes' perceptions of success and failure. Here, practitioners should emphasize to athletes the importance of directing their focus on the performance rather than the outcome in order to establish an internal locus of control. Further, other mental skills such as self-awareness and positive self-talk should be used in order to facilitate a sense of self-control.

Finally, Burns (1980) discussed the idea of the point of diminishing returns. Some skaters are taught to keep trying a jump in practice until it is done perfectly. What skaters are learning here is that unless a skill is done perfectly, it is not good enough. This kind of training is physically and emotionally draining, and can become debilitating to athletes' self-esteem. Practitioners must help athletes find a balance between striving for perfection and a dysfunctional obsession with perfection. They must underscore to their athletes the importance of self-acceptance. Indeed, coaches should incorporate the skill of accepting oneself in the face of success and failure. Self-acceptance is a crucial skill that should be addressed in an individualized mental skills training program under the skill of athlete self-awareness. It is crucial that athletes integrate these new perceptions and behaviors (mental skills) into their daily training.

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# APPENDIX A

## Demographic Information Sheet

**Demographic Information Sheet**

Age: _____

Gender: (please circle) Male Female

School Grade: _____

**Figure Skating Information:**

Skating level for the 2001 competitive season (e.g., Novice): _____

Age when first started figure skating:_____

How many years have you been a competitive figure skater?_____

How many years have you been with your present coach?_____

How many different coaches have you had during your skating career?_____

How many hours per day do you train? _____

How many days per week do you train? _____

How many hours per day do you train off-ice?_____

How many days per week do you train off-ice?_____

The investigators would like to thank-you for your participation in the present study. You time and effort is very much appreciated. If you would like receive information about the findings of the present investigation please provide your name and mailing address in the space provided:

_____
_____
_____
_____
_____
_____
_____
_____

# APPENDIX B

## Multidimensional Perfectionism Scale-Sport (MPS-Sport)

## Multidimensional Perfectionism Scale-Sport
## (MPS-Sport; Dunn, Causgrove-Dunn, & Syrotuik, in press)

**INSTRUCTIONS**: The purpose of this questionnaire is to identify how figure skaters view certain aspects of their competitive experiences in sport. Please help us to more fully understand how skaters view a variety of their competitive experiences by indicating how much you **agree or disagree** with the following statements. Circle one of the response options to the right of each statement. There are no right or wrong answers so please don't spend too much time on any one item; simply choose the answer that best describes how you view each statement.

| To what extent do you agree or disagree with the following statements? | Strongly Disagree | Disagree | Neither Agree Nor Disagree | Agree | Strongly Agree |
|---|---|---|---|---|---|
| 1. If I do not set the highest standards for myself in figure skating, I am likely to end up a second-rate skater. | 1 | 2 | 3 | 4 | 5 |
| 2. Even if I fail slightly in competition, for me, it is as bad as being a complete failure. | 1 | 2 | 3 | 4 | 5 |
| 3. My parents set very high standards for me in figure skating | 1 | 2 | 3 | 4 | 5 |
| 4. I feel like my coach criticizes me for doing things less than perfectly in competition. | 1 | 2 | 3 | 4 | 5 |
| 5. In competition, I never feel like I can quite meet my parents' expectations. | 1 | 2 | 3 | 4 | 5 |
| 6. I hate being less than the best at things in my figure skating | 1 | 2 | 3 | 4 | 5 |
| 7. If I fail in competition, I feel like a failure as a person. | 1 | 2 | 3 | 4 | 5 |
| 8. Only outstanding performance in competition is good enough in my family. | 1 | 2 | 3 | 4 | 5 |
| 9. I am very good at focusing my efforts on attaining a goal. | 1 | 2 | 3 | 4 | 5 |
| 10. Only outstanding performance in competition is good enough for my coach. | 1 | 2 | 3 | 4 | 5 |
| 11. My parents have always had higher expectations for my future in figure skating than I have. | 1 | 2 | 3 | 4 | 5 |
| 12. The fewer mistakes I make in competition, the more people will like me. | 1 | 2 | 3 | 4 | 5 |

| To what extent do you agree or disagree with the following statements? | Strongly Disagree | Disagree | Neither Agree Nor Disagree | Agree | Strongly Agree |
|---|---|---|---|---|---|
| 13. I feel like I can never quite meet my coach's expectations. | 1 | 2 | 3 | 4 | 5 |
| 14. It is important to me that I be thoroughly competent in everything I do in figure skating. | 1 | 2 | 3 | 4 | 5 |
| 15. I feel like I am criticized by my parents for doing things less than perfectly in competition. | 1 | 2 | 3 | 4 | 5 |
| 16. I think I expect higher performance and greater results in my daily training than most figure skaters. | 1 | 2 | 3 | 4 | 5 |
| 17. I feel like I can never quite live up to my coach's standards. | 1 | 2 | 3 | 4 | 5 |
| 18. If I do not do as well as other skaters in competition, I feel like an inferior figure skater. | 1 | 2 | 3 | 4 | 5 |
| 19. I feel that other skaters generally accept lower standards for themselves in skating than I do. | 1 | 2 | 3 | 4 | 5 |
| 20. I feel my coach has extremely high expectations for me when I skate. | 1 | 2 | 3 | 4 | 5 |
| 21. I should be upset if I make a mistake in competition. | 1 | 2 | 3 | 4 | 5 |
| 22. In competition, I never feel like I can quite live up to my parents' standards. | 1 | 2 | 3 | 4 | 5 |
| 23. My coach sets very high standards for me in competition. | 1 | 2 | 3 | 4 | 5 |
| 24. If a fellow skater or competitor (who is at the same level as me) skates better than me in competition, then I feel like I failed to some degree. | 1 | 2 | 3 | 4 | 5 |
| 25. My parents expect excellence from me in figure skating. | 1 | 2 | 3 | 4 | 5 |
| 26. My coach expects excellence from me at all times, in both practice and competition. | 1 | 2 | 3 | 4 | 5 |
| 27. If I do not do well all the time in competition, I feel that people will not respect me as a skater. | 1 | 2 | 3 | 4 | 5 |
| 28. I have extremely high goals for myself in figure skating. | 1 | 2 | 3 | 4 | 5 |

| To what extent do you agree or disagree with the following statements? | Strongly Disagree | Disagree | Neither Agree Nor Disagree | Agree | Strongly Agree |
|---|---|---|---|---|---|
| 29. I feel like my coach never tries to really understand the mistakes I sometimes make. | 1 | 2 | 3 | 4 | 5 |
| 30. I set higher skating goals than most figure skaters. | 1 | 2 | 3 | 4 | 5 |
| 31. I feel like my parents never try to really understand the mistakes I make in competition. | 1 | 2 | 3 | 4 | 5 |
| 32. People will probably think less of me if I make a mistake in competition. | 1 | 2 | 3 | 4 | 5 |
| 33. My parents want me to do better than all other figure skaters at my level. | 1 | 2 | 3 | 4 | 5 |
| 34. If I skate well but only make one mistake in the entire competition, I still feel disappointed with my performance. | 1 | 2 | 3 | 4 | 5 |

# APPENDIX C

## Participant Information Letter

## Participant Information Letter

**Title of Project:** Perfectionism and Attitudinal Body Image in Developmental, High Performance and Elite Figure Skaters

**Principal Investigator:** Ms. Janelle Dunham
Faculty of Physical Education and Recreation
University of Alberta, Edmonton, AB

**Supervisor:**
Dr. John M. Hogg
Faculty of Physical Education
and Recreation
University of Alberta
(780) 492-2830

Dear Skater,

I am studying the influence of perfectionism and attitudes about body image on figure skating performance under the direction of my supervisor Dr. John Hogg.

This study will allow us to gain a better understanding of factors that can influence your performance as a competitive figure skater. While this study may not be of immediate benefit to you directly, sport psychologists may be able to use the findings of this study in order to provide other figure skaters with skills to enhance their performance.

Your participation in this study will require you to complete a personal information sheet and three questionnaires; 2 on perfectionism, and 1 on body image. The total number of questions you will be asked to complete on the questionnaires is 102. The whole process will take approximately 45 minutes. You will complete the questionnaires in a classroom setting with other skaters. Your coach(es) will not be present during this time. You may ask the investigator any questions while you are completing the questionnaires.

Your participation and personal results in this study will be kept in complete confidence by the researchers involved. At no time will your coaches have access or knowledge of your individual responses. To ensure the confidentiality of your participation and results in this study, the results will be coded into a designated computer file and stored in a locked cabinet to which only the principal investigator will have access. The information you provide us with will be retained for a period of 5 years post-publication after which time is will be destroyed.

The risk associated with the present study concern the disclosure of personal information, although only to the researchers. If you so wish, the researchers can mail the results of this study to you.

At any point in this study you can withdraw your participation without consequence. In order to withdraw your involvement in this study, simply inform the investigators. Your information will be destroyed immediately at your request.

If you have any questions or concerns, please contact any of the investigators listed above. If you would like to speak with someone who is not involved with this study, please call Dr. Debra Shogan, Associate Dean (Research and Graduate Studies), Faculty of Physical Education and Recreation, University of Alberta, at (780) 492-5910.

Please indicate your involvement in this study on the consent forms provided. Thank you for your time and attention.

# APPENDIX D

## Consent Form

# Consent Form

**Title of Project:** Perfectionism and Attitudinal Body Image in Developmental, High Performance and Elite Figure Skaters

**Principal Investigator:** Ms. Janelle Dunham
Faculty of Physical Education and Recreation
University of Alberta, Edmonton, AB

**Supervisor:**
Dr. John M. Hogg
Faculty of Physical Education
and recreation
University of Alberta
(780) 492-2830

Please complete the following questions:

| | | |
|---|---|---|
| Do you understand that you have been asked to be in a research study? | Yes | No |
| Have you received and read a copy of the attached information sheet? | Yes | No |
| Do you understand the benefits and risks involved in taking part in this research study? | Yes | No |
| Have you had an opportunity to ask questions and discuss this study? | Yes | No |
| Do you understand that you are free to refuse to participate, or withdraw from the study at any time, without consequence, and that your information will be withdrawn at your request? | Yes | No |
| Has the issue of confidentiality been explained to you? | Yes | No |
| Do you understand who will have access to your information? | Yes | No |
| Do you give permission for the investigator(s) to contact you for the purpose of follow-up clarification of your written responses if the investigator(s) so desires? | Yes | No |

This study was explained to me by:_____

I agree to take part in this study.

_____ _____ _____
Signature of Research Participant Date Witness

_____ _____
Printed Name Printed Name

I believe that the person signing this form understands what is involved in the study and Voluntarily agrees to participate.

_____ _____
Signature of Investigator or Designee Date