Perfectionism as a Predictor of Eating Disorder Symptoms: A Comparative Study of Female College Athletes and Non-athletes

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PERFECTIONISM AS A PREDICTOR OF EATING DISORDER SYMPTOMS: A COMPARATIVE STUDY OF FEMALE COLLEGE ATHLETES AND NON-ATHLETES

By

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A DISSERTATION

Submitted to the Faculty of the University of Miami in partial fulfillment of the requirements for the degree of Doctor of Philosophy

Coral Gables, Florida

May 2014
PERFECTIONISM AS A PREDICTOR OF EATING DISORDER SYMPTOMS: A COMPARATIVE STUDY OF FEMALE COLLEGE ATHLETES AND NON-ATHLETES

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The prevalence of eating disorders has been on the rise since the 1970s and 1980s, a time that coincided with the dieting boom. Over thirty years later, eating disorders, such as anorexia and bulimia, have grown to become an epidemic with nearly 20 million women affected (Wade, 2011). Although differing prevalence rates exist, it is reported that approximately one in 200 American women will suffer from anorexia and one to three in 100 will suffer from bulimia (DSM IV-TR, 2000). Many of these women are on college campuses and find themselves dieting as a weight control method, a precursor to developing an eating disorder. Those who are athletes may be at even higher risk for developing an eating disorder. High levels of personal perfectionism and high levels of parental perfectionism (i.e., high parental performance expectations for their children) are among the factors that may increase eating disorder risk.

The objective of the current research was to examine personal and parental perfectionism in relation to eating disorder risk in female collegiate athletes and non-athletes. One hundred and four athletes, representing four sports, and 112 non-athletes completed the Eating Attitudes Test-26 (Garner et al., 1982), the Multidimensional Perfectionism Questionnaire (Frost, 1996) and a short demographic survey. Results of the current research indicated that athletes did not have significantly higher scores either on eating disorder risk, personal perfectionism, or parental perfectionism. However, the
data showed that both athletes' and non-athletes' personal perfectionism scores were significantly correlated with their eating disorder risk ($r = .33$ and $r = .49$, respectively). Parental perfectionism, however, was not significantly related to eating disorder risk for either group. The present findings are consistent with the idea that a high level of personal perfectionism may increase eating disorder risk for both female collegiate athletes and non-athletes. Recommendations for researchers, coaches and other collegiate staff, and campus administrators are included.
Acknowledgments

It is without a doubt that my doctoral degree and this project would not have been possible if it were not for some very important people in my life. First, and foremost, I thank the members of my committee. From my interview day, to classes, to our research team, Dr. Burnett, you have been a guiding light throughout my doctoral studies. I will be forever grateful to you for your immense patience, encouragement, availability, and chats about swimming. I cannot begin to fully express my gratitude for your persistent support during this dissertation process, from subtle suggestions and edits to thought-provoking questions about this topic. Dr. Crosbie-Burnett, I have always, and will continue, to value your perspective on women’s issues and was beyond pleased when you agreed to join my committee thereby representing the female voice which is often encouraged to be quiet. Dr. Whisenant, I am grateful for you bringing your impressive knowledge in the area of female athletes and eating disorders to this committee, and for the increased awareness of gender issues in athletics that has resulted from your research. Dr. Lewis, I am grateful you offered to continue to remain on my committee despite pursuing other professional and personal ventures. You also have seen me through the past seven years and your quiet yet evident support never went unnoticed. Lastly, to Dr. Aldarondo, I appreciate you joining this team at the last minute and for continuing to encourage me through, not only this project but my degree as well. I am deeply grateful to you all.

I would also like to thank those athletes and non-athlete students who participated in this research. I am aware of the time, dedication, and commitment required to be an athlete and student, and I thank you for your time and participation in this work. I believe the current research has the potential to impact how we talk to, work with, and support
college athletes and students. It is my hope that this research will inspire future studies
and contribute to a movement to end body objectification, sexism, and gender oppression.

To my family and friends, I would be lost without your love, kindness, and never-ending support. To Daniel Villiers, Ph.D., as I have told you many times, I would not have been able to be where I am personally or professionally if it were not for you. Completing doctorates simultaneously is not an easy feat and despite the cost I can finally say we did it. I will never forget your willingness to move (several times), talk (when we could during our busy days), and most of all, laugh through it all. To my parents, thank you for being there for me every step of the way. Thank you for celebrating my successes and supporting me through some difficult days. You saw me through it all and I feel you have earned this degree as much as I have. I love you more than words can say. To my sister, Elizabeth, thank you for being my best friend and sounding board. I would be lost without your love, humor, guidance, and encouragement. To my brother Joe, thank you for lending an ear and always being there for a good laugh. I love you both. Fran, Drew, and Griff, I love you too.

I would like to thank some very special friends who were always there to provide words of encouragement. Thank you, Stephanie Diamond, Ph.D., Erin Cornelius, Ph.D., Linda Raposo, Ph.D., Rebecca Chapman, Psy.D., Kim Andrews, Ph.D., Marissa Gingeleskie, Tori Kramer, Nicki Mullin, Jenn and Cy Hess, Leslie Edwards, LPC, Kate Rosenblatt, LPC, Amy Zima, M.Ed., Marlena Frank, M.S., Candice Arrow, M.S., Joe Podolski, D.O., Lee Peters, Ph.D., Liz Inkel, Kate Garner, LCSW, Stephanie Field, Psy.D., and Nick Pinkerton, Psy.D. Also, I would like to thank several supervisors from whom I have learned so much. Thank you Lew Breitner, Ph.D., David Arbeitman, Ph.D.,
Sue Quigley, Psy.D., Hossiella Longoria, Psy.D., Jess Klau, LICSW, Melissa Lahan, LICSW, and Chris Cutter, Ph.D. Finally, I would like to thank those who have dedicated their time, energy, commitment, and professional efforts to working with those who have eating disorders and with whom I have had the privilege to work alongside: Margo Maine, Ph.D., Tom Weigel, M.D., Mariela Podolski, M.D., and Rebekah Doweyko, LPC. Your work inspires me every day.
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CHAPTER ONE

Introduction

Since the 1980s, there has been an increase in research examining the relationship between perfectionism and various forms of psychopathology such as depression (e.g., Ashby, Rice, & Martin, 2006), anxiety (e.g., Purdon, Antony, & Swinson, 1999), and social phobia (e.g., Juster, Heimberg, Frost, Holt, Mattia, & Faccenda, 1995). One of the most significant and widely studied associations has been research linking perfectionism to eating disorders. However, virtually no research has explored perfectionism and eating disorder risk within the population of college female athletes—a population that may be at heightened risk due to the extreme performance demands of collegiate competition.

Although some researchers (e.g., Schwarz, Aruguete, & Gold, 2005) have looked at the relationship between eating disorders and perfectionism among female college athletes and non-athletes, this study will be the first that assesses the influences of parental perfectionism with female college athletes and non-athletes. There is research to suggest that this latter issue should be given equal attention as studies have shown that child perfectionism is in good part socially learned and fostered from one’s parent(s). In this study, perfectionism as a construct is defined multi-dimensionally, as put forth by Frost, Marten, Lahart, & Rosenblate (1994), who view perfectionism across the following six domains: concern over mistakes, doubts about actions, personal standards, parental expectation, parental criticism, and organization.

Clinicians in the field seeking improved forms of intervention have looked for ways to address the influence of self-evaluative cognitions in the development of eating
pathology. This study examined the relationship between perfectionism and disordered eating and aimed to provide evidence that will guide clinicians in providing interventions.

Background of the Problem

It has been found that in the United States and most Westernized cultures, eating disorders are a serious health concern that affects nearly 20 million women (Wade, 2011). In the United States, approximately one in 200 American women suffer from anorexia, and one to three in 100 American women suffer from bulimia (DSM IV-TR, 2000). It is also important to note that eating disorders have the highest mortality rate of any mental illness with its death toll rate 12 times greater than the general death rate for women aged 15-24 (NEDA, 2004). The suicide rate is 75% greater compared to the general suicide rate of women in this age group (NEDA, 2004). A recent longitudinal study, for example, reported that from a cohort of 246 women, seven deaths have occurred with a “crude mortality rate [of] 5.1%... the standardized mortality ratios for death (9.6) and suicide (58.1) were significantly elevated (p<.001)” (Herzog et al., 2000, p. 24).

A recent study by the National Association of Anorexia Nervosa and Associated Disorders reported that 5-10% of anorexics will die within 10 years after developing the disease; 18-20% of anorexics will be dead after 20 years and only 30-40% will ever fully recover (ANAD, 2007). Those suffering from eating disorders who die do so from health complications related to the disease, mostly heart failure/cardiac arrest or complete organ failure. Among the host of other medical issues that develop as an outcome of eating disorders are serious heart, liver, and kidney damage, amenorrhea, and osteoporosis (Mitchell, Pomeroy, & Adson, 1997). Those who seek out treatment can spend between
$50-$2,000 per day. It has been estimated that the average cost for inpatient care is $30,000 per month with the typical length of residential stay ranging from one to three months (www.state.sc.us/dmh/anorexia/statistics.htm).

Due to the serious outcomes associated with this disorder, it is prudent that new research efforts be initiated to learn more about its causes. In the most severe cases, an eating disorder can take over all aspects of daily living. Because food is necessary for survival, one who battles this disease, battles it daily, oftentimes thinking about it constantly. Not only is the sufferer continuously plagued by self-deprecating and fearful thoughts, but usually the eating disorder is accompanied by one if not several other comorbid disorders including substance abuse, mood disorders (primarily unipolar depression), anxiety and obsessive-compulsive disorder with prevalence rates of 16%-22%, 93-95%, 55%-59%, and 3-60% respectively (Blinder, Cumella, & Sanathara, 2006).

Not only is it difficult to treat the comorbid conditions of an eating disorder, it is difficult to diagnose an eating disorder based upon the DSM IV-TR classification system that is now employed. Currently, an eating disorder may be classified as one of the three following categories: anorexia nervosa (AN), bulimia nervosa (BN), and eating disorder not otherwise specified (ED NOS). Wonderlich and his team of researchers recently discussed their concerns with the limitations of the DSM system. These concerns included: “(a) individual diagnostic criteria for the eating disorders; (b) the validity of the anorexia nervosa and bulimia nervosa subtype distinctions; and (c) questions about the validity of the anorexia nervosa, bulimia nervosa, and eating disorder not otherwise specified diagnoses themselves” (Wonderlich, Joiner, Keel, Williamson, & Crosby, 2007, p. 168). For instance, regarding the individual criteria for anorexia nervosa, Wonderlich
and his colleagues question the criterion of the presence of amenorrhea as “it is an unreliable indicator of weight status and does not provide information in terms of other important clinical features, comorbidity, or outcome” (Wonderlich et al., 2007, p. 168). Unfortunately, the proposed study concluded prior to the next published edition of the DSM and therefore the DSM IV-TR’s categorical approach to diagnose eating disorders was used.

Another area of interest in regards to diagnosing is the struggle to provide justification of one eating disorder diagnosis over another. In other words, what makes one have anorexia over bulimia? The diagnostic categories are not clear as they often overlap. In addition, from an extensive literature review, it seems past research was dominated by the study of anorexia nervosa and currently there has been a shift to learn more about bulimia nervosa and binge-purge subtypes. In fact, Streigel-Moore and Bulik (2007) remind us that anorexia was first introduced in the 19th century by William Gull who believed it to be a result of a “perversion of will” while bulimia was classified as “an ominous variant of anorexia nervosa” (Russell, 1979 as cited in Streigel- Moore & Bulik, 2007, p. 182). Another observation is that the fascination with anorexia over bulimia could be due to the glaring evidence of restriction, that is actually witnessing someone starve, as opposed to the often hidden maladaptive habits of binging and purging that is associated with bulimia and subtypal eating disorders. This study aimed to examine both categories of eating disorders as well as binging and purging patterns.

Despite the failure to list it as a DSM criterion for an eating disorder, particular attention will be paid to those athletes who devote most of their lifetime to dieting. Today there is a flooding of exposure to dieting through media, advertising, culture, and parental
messages. It is impossible to go through a day without exposure and encouragement to
diet, lose weight, or eat healthier. With a diet-focused society and many women
predisposed to developing an eating disorder, the result is a deadly combination. Previous
research has looked at the implications of parental messages about dieting. Caroline
Knapp (2003), a well-respected author in the eating disorder community, who lost her
twenty-year battle with anorexia wrote:

A mother who is tormented by diet and weight, who appears preoccupied with her
appearance and disgusted by her own body, cannot easily teach her daughter to
take delight in food, to feel carefree about weight or joyful about the female
form…A mother whose experience of desire is based on taboo and self-denial, on
feeding others and concealing her own pangs of unsatisfied hunger, can’t easily
steer her daughter towards a wider landscape. (p. 64)

Although extensive research has found a link between parental messages about dieting
and the development of an eating disorder in their children, this study focused on parental
perfectionistic messages conveyed to their athletic daughters and its relationship to eating
pathology.

Because the highest prevalence rate of eating disorder development tends to exist
in 15-24 year-old females, this study focused on college-aged women. Studies regarding
eating disorder development in particular among female college athletes have also been
well documented (e.g., Biesecker & Martz, 1999; Brunet, 2005; Selby, Weinstein, &
Bird, 1990). A host of risk factors contribute to the development of eating disorders
among athletic and nonathletic women. Some include social pressures to be thin, poor
self-esteem, family dysfunction, sexual abuse, and dieting (Reinking & Alexander, 2005).
“In athletes, additional [italics added] factors may encourage disordered eating including self-imposed expectations of athletic perfectionism and a belief in the inverse relationship between body size and performance” (Reinking & Alexander, 2005, p.48).

As previously stated, several studies (e.g., Bastiani, Rao, Weltzin, & Kaye, 1995; Forbush, Heatherton, & Keel, 2007; Sherry, Hewitt, Besser, McGee, & Flett, 2004) note the link between perfectionism and eating disorders, therefore this study focused on perfectionism as an additional factor contributing to the development of disordered eating. As stated in a study by McLaren, Gauvin, &White (2001), “Both clinical reports (Bruch, 1972, 1978) and empirical research (Davis, 1997) have supported the contention that anorexic and possibly bulimic individuals display higher levels of perfectionism than non-disordered control individuals ” (p.308). The results of their study supported this belief, in that three dimensions of perfectionism (self-oriented, socially prescribed, and self-presentational) contributed significantly to predicting dietary restraint.

Current research continues to explore the benefits and disadvantages of perfectionism. In a recent paper by Flett and Hewitt (2006), “the dual process model of perfectionism” (p. 472) which was originally developed by Slade and Owens (1998) was reviewed. Slade and Owens propose that there is a healthy and normal form of perfectionism, or as they call it, “positive perfectionism” along with a maladaptive and pathological form of perfectionism that they have termed “negative perfectionism.” The authors described positive perfectionism as the “predominantly normal or healthy form that carries positive benefits for the individual. As such, it is to be encouraged and fostered” (Slade & Owens, 1998, p.377 as cited in Flett & Hewitt, 2006, p. 473). The authors continue to suggest that this type of perfectionism drives an individual towards
reaching success; thereby insinuating that without this personality trait, perhaps one
would be left unmotivated. Conversely, the authors describe negative perfectionism as “a
pathological or unhealthy form that has inherent disadvantages for the individual and is to
be avoided or corrected” (Slade & Owens, 1998, p.377 as cited in Flett & Hewitt, 2006,
p.473).

Another author (Roedell, 1984) continues the debate about the positive and
negative sides of perfectionism:

…in a positive form, perfectionism can provide the driving energy which leads to
great achievement. The meticulous attention to detail necessary for scientific
investigation, the commitment which pushes composers to keep working until the
music realizes the glorious sounds playing in the imagination and the persistence
which keeps great artists at their easels until their creation matches their
conception all result from perfectionism.

Setting high standards is not in itself a bad thing. However, perfectionism coupled
with a punishing attitude towards one’s own efforts can cripple the imagination,
kill the spirit, and so handicap performance that an individual may never fulfill
the promise of early talent. (p. 128)

It is in these words, we find and understand what the poet R. Browning once said: “What
comes to perfection, perishes” (R. Browning: Old Pictures in Florence, stanza 17).

Despite popular belief, to reach perfection is unobtainable. The risk of perfectionism as
cited by Flett and Hewitt (2006) was also vividly highlighted by the former President of
the American Psychological Association Asher Pacht: “My bias is that perfection is not
only an undesirable goal but a debilitating one as well. In my judgment, perfection per se
does not exist in reality, but it is the striving for that nonexistent perfection that keeps people in turmoil and is associated with a significant number of psychological problems” (p. 472).

Despite this knowledge gleaned from past research, questions remain about how perfectionism is related to athletic performance. Several studies have looked at coaching messages and other coach-athlete interaction (e.g., Biesecker & Martz, 1999; Jones, Glintmeyer & McKenzie, 2005). But because perfectionism is often seen as a construct related to personality, one would believe that perfectionistic traits develop prior to the engagement in athletics. That is, perfectionism develops during the earliest social interactions, namely with one’s caregiver. Therefore speculation about parental perfectionism and how and if it is communicated to their children is of particular interest in this study. In a recent study examining familial patterns of perfectionism among college students and their parents, Vieth and Troll (2000) state:

Given the significance of perfectionism, several writers have theorized about the origins of the construct. In each case, perfectionism is viewed as an interpersonal style adopted primarily in response to interactions with one’s caregivers. Missildine (1963), for instance, believed that perfectionism is rooted in “persistent parental demand” (p. 94) and the withholding of parental acceptance. Hollender (1965) presented a very similar formulation in which parents promote perfectionism in their children by being exacting and by responding to their children in a consistently conditional and dichotomous manner. In both formulations, “budding” perfectionists come to believe that if they work hard enough, their parents will eventually grant them full acceptance. (p. 50)
In this study, the impact of parental pressures imposed on their daughters to achieve “perfect” athletic performance is of main interest. This study examined the female athlete’s perceptions of parental perfectionism and its potential link to pathological eating behaviors.

Rationale and Significance

Rice, Ashby & Preusser (1996) highlight a lack of research on the parent-child relationship. They suggest there has been little emphasis on familial links to perfectionism. Since that time, several studies have taken a closer look at familial patterns of perfectionism (Vieth & Trull, 2000), parents’ imposition of academic goals on their children (Ablard & Parker, 1997), and parental boundary issues with their children (Rowa, Kerig, & Geller, 2001). Other literature that focuses on the impact of parental perfectionism on children tends to focus on parent-child communication, the parent-child relationship, parental personality influences on the child, and parent-child attachment. While these modes of transferring perfectionism onto their children are apparent, there is no mention of pressure placed on their children to achieve athletic success. In fact, most literature tends to focus on academic achievement (e.g., Ablard & Parker, 1997) or perfectionism in general but fails to discuss perfectionism in terms of athletic performance.

While paying close attention to the responses from Frost’s subscales (parental expectation and parental criticism) and the eating disorder measure, my interest was in the relationship between parental perfectionism, athletic performance and the emergence of eating disordered symptoms in their daughters. In other words, do parent’s perfectionistic behaviors have an impact on their daughter’s level of perfectionism,
specifically as it relates to their athletic performance? And if so, does this perfectionistic athletic performance lead to higher incidence of eating disorder behavior? Simply stated, the primary purpose of this present study was to assess the role parental perfectionism plays in the development of eating disordered behaviors in their athletic daughters.

Further justification for this research exists due to the need to find more effective interventions in treating female athletes with eating disorders. Despite strong efforts to use cognitive behavioral and systems-based approaches, the need to achieve more enduring treatment effects (i.e., prevent relapse) is essential. For example, following residential treatment, patients, once back in the original environment in which the disorder developed, may be triggered by various stimuli. More specifically, the patient may recall where they hid in their home to binge, over exercise, or purge. Familial involvement is crucial in supporting the patient’s return to a former triggering environment. Most importantly, those parents whose perfectionistic tendencies are not addressed may serve as additional triggers to their daughters. This study is designed to contribute to the understanding of factors that lead to the development of an eating disorder; a disorder that is ranked among the 10 leading causes of disability among young women (Striegel-Moore & Bulik, 2007)- a disorder that takes the lives of thousands of women every year.

Definition of Terms

Eating Disorders

The prevalence of eating disorders has been a significant topic of interest for over thirty years. A plethora of new research on eating disorders is published yearly with significant emphasis on risk factors. Specifically, anorexia nervosa and bulimia nervosa
are often highlighted as the major eating disorder types. In the DSM-IV, the APA has clearly outlined the symptoms that are required to diagnose one with anorexia or bulimia. The diagnostic criteria for anorexia nervosa includes: (a) refusal to maintain body weight at or above a minimally normal weight for age and height (e.g., weight loss leading to maintenance of body weight less than 85% of that expected; or failure to make expected weight gain during period of growth, leading to body weight less than 85% of that expected, (b) intense fear of gaining weight of becoming fat, even though underweight, (c) disturbance in the way in which one’s body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or denial of the seriousness of the current low body weight, and (d) amenorrhea (e.g., the absence of at least three menstrual cycles) (APA, DSM IV-TR, 2000, p. 539). The subcategories include two types. That is, restricting type or binge-eating/purging type. What distinguishes these subtypes is the presence or absence of self-induced vomiting, the misuse of laxatives, diuretics, or enemas that follows a bingeing episode. Many individuals exhibiting anorexic behaviors do not fit into this category. Their behaviors may appear to be related to anorexic symptoms but they do not follow the strict diagnostic criteria.

The same case is true for those who exhibit bulimic symptoms, as many individuals do not fit the strict diagnostic criteria for bulimia nervosa as outlined in the DSM IV-TR. That is, the individual may not have (a) recurrent episodes of binge eating as characterized by eating an amount of food that is definitely larger than most people would eat during a similar amount of time and a sense of lack of control during this eating episode, (b) recurrent inappropriate compensatory behavior in order to prevent
weight gain, and (c) negative self-evaluation regarding their body shape and weight (APA, DSM IV-TR, 2000, p. 545).

Individuals with disorders of eating may not meet criteria for a specific eating disorder as defined by the DSM IV-TR. Individuals who exhibit some eating disorder behaviors but fail to meet all of the necessary criteria in order to warrant a diagnosis of anorexia or bulimia may fall into another category known as Eating Disorder Not Otherwise Specified (ED NOS). The DSM IV-TR (2000) lists several examples that may warrant an ED NOS diagnosis:

1. For females, all of the criteria for Anorexia Nervosa are met except that the individual has regular menses.
2. All of the criteria for Anorexia Nervosa are met except that, despite significant weight loss, the individual’s current weight is in the normal range.
3. All of the criteria for Bulimia Nervosa are met except that the binge eating and inappropriate compensatory mechanisms occur at a frequency of less than twice a week or for a duration of less than three months.
4. The regular use of inappropriate compensatory behavior by an individual of normal body weight after eating small amounts of food (e.g., self-induced vomiting after the consumption of two cookies).
5. Repeatedly chewing and spitting out, but not swallowing, large amounts of food.
Although the DSM IV-TR clearly outlines the criteria for anorexia, bulimia, and ED NOS, maladaptive eating behaviors occur along a continuum (Petrie, 1996). Problems associated with eating can be severe, mild or somewhere in between. Those individuals who do not have clinically diagnosable eating disorders may have, what Shaw and Garfinkel refer to as “subclinical syndromes” (1990). Shaw and Garfinkel (1990) hypothesize that “subclinical syndromes may be more common than the full clinical syndromes themselves” (p. 546). Other complications in diagnosing eating disorders exist as well. For instance, Tozzi, Thornton, Klump, Fichter, & Halmi, (2005) point out anorexia nervosa and bulimia nervosa often have “overlapping clinical features” and that “anorexia nervosa is often marked by periods of relapse, remission, and crossover to bulimia nervosa” (p. 732) thereby making it more difficult to distinguish a clear diagnosis. The purpose of this study was to focus mainly on those athletes who may not be diagnosed with an eating disorder as defined strictly by the DSM IV-TR, but who show symptoms of these “subclinical syndromes.”

Perfectionism

One hallmark characteristic of eating disorder behaviors in athletes appears to be perfectionistic traits. Perfectionism is no longer seen as a unidimensional construct. Perfectionism is not simply, “a propensity for being displeased with anything that is not perfect or does not meet extremely high standards,” as it is simply defined in the American Heritage Dictionary of the English Language. Rather, based on current research, perfectionism is now viewed as a multidimensional construct (e.g., Frost, Marten, Lahart, & Rosenblate, 1990). As proposed in his widely used scale (the Multidimensional Perfectionism Scale), Frost et al. (1990) breaks down perfectionism
into six defining domains: concern over making mistakes (CM), doubts about actions (DA), personal standards (PS), parental expectations (PE), parental criticism (PC) and organization (OR). These six dimensions are believed to be strongly related to total perfectionism (or one’s total MPS perfectionism score.)

The most distinguishing factor in the MPS seems to be the concern over making mistakes (CM). “This has been the feature distinguishing perfectionists from those who set high standards for themselves because they are highly competent and successful” (Frost et al., 1990 as cited in Frost, Heimberg, Holt, & Mattia, 1992, p. 119). The second dimension is doubt regarding one’s performance or actions (DA) and the third dimension includes setting personal standards in terms of performance (PS). Frost notes that many theorize this dimension to be a “central feature of perfectionism” (Frost et al., 1992, p. 119), as when one sets standards exceedingly high, the person with perfectionistic tendencies tends to have strong negative reactions to their unsatisfactory performance. The fourth and fifth dimensions involve perceptions of one’s parents. That is, parental expectations (PE) and parental criticism (PC). The current study places a strong emphasis on these two dimensions, as it is hypothesized that both PE and PC play a significant role in the development of perfectionistic traits in their children. The sixth and last dimension refers to an emphasis on order and organization (O). It is included in this study, as high levels of organization are often associated with perfectionism (i.e., Parker, 1997).

Hewitt and Flett (1995) also used a multidimensional approach by identifying three defining components of perfectionism: (1) self-oriented perfectionism, which includes “behaviors such as setting exacting high standards for oneself and stringently evaluating and censuring one’s own behavior” (Franco-Paredes, Mancilla-Díaz, Vázquez-
Arévalo, López-Aguilar, & Álvarez-Rayón, 2005, p. 62), (2) other-oriented perfectionism, which refers to having unrealistic expectations towards others, and (3) socially prescribed perfectionism, or “perceiving that others are demanding perfection of oneself” (Sherry, Hewitt, Besser, McGee, Flett, 2004, p. 70).

Research Objectives

Previous studies have documented relationships between maladaptive eating and each of the following: parental communication (i.e., Miller-Day, 2006), parental dieting habits (i.e., Woodside et al., 2002), and parent-child boundary problems (i.e., Rowa, Kerig, & Geller, 2001). It has been further demonstrated in the general population that a positive relationship exists between perfectionism and eating disorder risk (i.e., Bastiani, Rao, Weltzin, & Kaye, 1995; Forbush, Heatherton, & Keel, 2007; Hewitt & Flett, 1995). Despite the extensive research on parental influences on eating disorder behavior in general, the research linking perfectionism, parental perfectionism and eating disorder risk is limited. The primary aim of this current research was to gain a greater understanding of perfectionism and parental perfectionism as risk factors in disordered eating behavior in female college athletes and non-athletes. In doing so, it is hoped that this study will provide practitioners, coaches, and parents with more effective ways to identify and address eating disorders.

Thus, the primary objective of the study was to explore the prevalence of perfectionistic attitudes in Division I female athletes by comparing the prevalence of perfectionistic attitudes in female college athletes to female college non-athletes. A secondary objective of this study was to examine parental perfectionism as a contributing variable to the development of eating disorder behavior in their athletic daughters.
Particular attention was given to scores on the parental expectations and parental criticism subscales.

*Research Questions and Related Hypotheses:*

1A: Do female college athletes have significantly higher scores on the eating disorder scale than female college non-athletes?

1B: Do female college athletes have significantly higher scores on the measure of personal perfectionism than female college non-athletes?

1C: Do female college athletes have significantly higher scores on the measure of parental perfectionism than female college non-athletes?

*Hypotheses:*

1A: Female college athletes will have significantly higher scores on the eating disorder scale when compared to the non-athlete group.

1B: Female college athletes will have significantly higher scores on the measure of personal perfectionism when compared to the non-athlete group.

1C: Female college athletes will have significantly higher scores on the measure of parental perfectionism when compared to the non-athlete group.

2: Are female college athletes’ personal perfectionism scores systematically related to eating disorder risk?

*Hypothesis:*

2: Female college athletes’ personal perfectionism scores will be significantly positively related to eating disorder risk scores.
3: Are female college athletes’ parental perfectionism scores systematically related to eating disorder risk?

*Hypotheses:*

3A: Female college athletes’ parental perfectionism scores will be significantly positively related to eating disorder risk scores.

3B: Female college athletes’ parental perfectionism scores will add significant unique variance in predicting eating disorder risk scores over and above that accounted for by the athlete’s own perfectionism scores.

4: Do parental perfectionism scores mediate the relationship between female college athlete’s personal perfectionism scores and eating disorder risk scores?

*Hypothesis:*

4: Parental perfectionism scores will mediate the relationship between female college athlete’s personal perfectionism scores and eating disorder risk scores.
CHAPTER TWO

Review of the Literature

This chapter will examine the research literature over the past thirty years on eating disorders and perfectionism. Studies addressing prevalence rates and demographic features of eating disorders will be highlighted, followed by a review of predictors of eating disorder risk, including genetic and familial factors, age of onset, and socio-cultural influences. In addition, new research linking eating disorders to athletic performance (sometimes referred to as anorexia athletica) will be discussed. The perfectionism literature will also be examined as it relates to psychopathology; more specifically perfectionism and its association with depression, anxiety, and performance. Of particular interest to the current study is the relationship between perfectionism, athletic performance, and eating disorders. The lack of research in this area will be highlighted.

Epidemiology of Eating Disorders

Nearly 20 million women in the United States are diagnosed with an eating disorder (Wade, 2011), with approximately one in 200 American women suffering from anorexia nervosa and one to three in 100 suffering from bulimia nervosa (DSM IV-TR, 2000). Studies are fairly consistent with their report of current prevalence rates regarding eating disorders, though many researchers have found, “the validity of many epidemiologic studies of eating disorders is questionable because there are numerous methodological problems concerning the selection of population and the identification of cases. Specific problems are the low prevalence of eating disorders in the general
population and the tendency of participants in eating disorder studies to conceal their illness and avoid professional help” (Hock & van Hoeken, 2003, p. 384).

Hoek and van Hoeken (2003) found that the average prevalence rates for anorexia and bulimia were 0.3% and 1%, respectively. Despite the consistency of their findings with other epidemiological studies Hoek and van Hoeken report that they believe their findings are an underestimate of the true prevalence. They estimate that the overall incidence of anorexia is at least 8 per 100,000 population per year and the incidence of bulimia is at least 12 per 100,000 per year. They also note that the prevalence rate of anorexia has greatly increased over the past century in the 15-24 year-old age group. Moreover, several studies suggest that college students in general are especially vulnerable for developing eating disordered behaviors, as their parents no longer have influence and control over their eating habits (e.g., Shifflett, Timm, & Kahanov, 2002).

Even though this study focused on the development of eating disordered behavior in females, several studies have looked at the rise in eating disorders among men. In fact, one study by Woodside et al. (2002) suggests that in terms of symptoms and comorbidity, men and women experience the disease similarly. Woodside goes on to say that more men have eating disorders than was once believed. In fact, he states that one million out of eight million will develop an eating disorder. Other literature suggests a higher incidence of eating disorders occurs among gay men, as well as men competing in sports where their body weight or appearance is highly significant (such as wrestling, gymnastics, or skating). Despite this revealing research on men, the risk of eating disorder has been estimated as being 10 times higher among women (Streigel-Moore, 1997); resulting in the common belief that eating disorders are a “women’s disease.”
research grows in this area, however, this belief is being increasingly challenged. The need remains to further explore the risk factors associated with eating disorder development among men.

In addition to social and media influences, it has become clear that personality factors also play a role in determining who will be more susceptible to the development of unhealthy eating patterns (McLaren, Gauvin, & White, 2000). For example, obsessive compulsive personality disorder (Halmi et al., 2005), neuroticism (Davis, Dionne, & Lazarus, 1996 as cited in McLaren, Gauvin, & White, 2000), and perfectionistic personality traits (Bastiani, Weltzin, & Kaye, 1995) have been linked to pathological eating. Several studies suggest that personality disorders predict the longevity of eating disorder symptoms. In the present study, it was hypothesized that perfectionistic attitudes and beliefs are associated with the prevalence and longevity of eating disordered behavior.

Demographic Characteristics

Most research has been done exploring the prevalence of eating disorders and the associated risk factors in females between the ages of 15-24, as this group has become known as the most vulnerable to developing eating disorder symptomatology. According to South Carolina’s Department of Mental Health, 95% of those who have eating disorders are between the ages of 12 and 25, with as many as 50% of girls between the ages of 11 and 13 seeing themselves as overweight. With anorexia being the third most common chronic illness among adolescents, it is not surprising that at least 80% of 13 year-olds have attempted to lose weight (www.state.sc.us/dmh/anorexia/statistics.htm).
Research also suggests that eating disorders are not limited to the United States and other Westernized cultures, nor are they only a problem of upper-middle class Caucasian adolescents and young women. In fact, several studies point out that eating disorders are prevalent across ethnic groups. For example, Robinson et al. (1996) found that Hispanic women are at greater risk for developing an eating disorder than previously documented. Concurrently, the Center for Disease Control (1990) noted that White and Hispanic women have similar views on eating behaviors and weight. Further, Vander Wal & Thomas (2004) suggest that White and Hispanic women are more dissatisfied overall with their bodies than their Black counterparts.

An emerging area of research is the impact of feminist attitudes and egalitarian viewpoints on eating behaviors. Several researchers assert that women with more traditional views are more invested in their physical appearance, thereby making them more at risk for developing eating disordered pathology than their egalitarian counterparts (e.g., Cash, Ancis, & Strachan, 1997). Further research is needed in this area to explore the hypothesis that feminist attitudes may act as a buffer against the development of an eating disorder.

Comorbidity

Oftentimes eating disorders coexist and can be complicated by other mental health disorders. Comorbid conditions can be hard to treat and have poor recovery outcomes (Blinder, Cumella, & Sanathara, 2006). Substance abuse, depression, anxiety, and other mood and personality disorders are often common diagnoses among those with eating disorders. For example, with a sample of 2,436 female inpatient women, Blinder et
al. (2006) analyzed 27 point-prevalent DSM-IV Axis I comorbidities with an eating
disorder diagnosis. Ninety-seven percent of patients evidenced comorbid diagnoses.

Of Blinder’s sample, an average of 92% of the participants also had a diagnosis of
unipolar depression. There was no difference within the eating disorder groups (anorexia,
bulimia, or EDNOS) in the likelihood of having a diagnosis of depression. Blinder et al.
(2006) speculates, “Perhaps prolonged illness and chronicity in EDs initiate adverse
relational experiences, nutritional casualty, and affective blunting that predispose longer-
term ED patients to depressive symptoms” (p. 458). There is an urgent need for further
research in this area due to the significant relationship between depression and suicide. A
recent study (Wildman, Lilenfeld, & Marcus, 2004) indicates that an eating disorder may
follow mood disturbance in women with parasuicidal histories. In the same study, 67% of
the participants with an eating disorder had a history of suicide attempts and suffered
from depression before the onset of their eating disorder. Only 3% of the patients with an
eating disorder had no history of suicide attempts. Regardless of time of onset of
depression or an eating disorder, this population is at significant suicide risk.

In addition, several recent studies have examined the association between
postpartum depression and eating disorders (e.g., Franko et al., 2001). There are mixed
findings concerning depression onset (i.e., whether depression occurs during pregnancy
or after), but Mazzeo et al. (2006) found that women who engage in eating disordered
behavior during the postpartum period often do so in an effort to lose weight gained
during pregnancy. In addition to their own observations, Mazzeo and colleagues highlight
past epidemiologic research in this area:
• Franko et al. (2001) found 34.7% of participants to have PPD among the 49 women with eating disorders used in their sample.

• Morgan, Lacey, & Sedgwick (1999) found that almost one-third of their ED sample of 94 women developed PPD within four weeks of childbirth and those women with bulimia and anorexia at conception appeared to be at greater risk for PPD.

• Overall, two-thirds of the Morgan et al. (1999) ED sample eventually developed PPD and 94% of the participants with PPD experienced a relapse of bulimia, while only 52% of women without PPD experienced a postpartum relapse of bulimia.

These outcomes suggest that levels of depressive symptoms during pregnancy and postpartum are high among women with histories of eating disorders. “In particular, individuals with a history of bulimia or binge-eating disorder have approximately three times the risk of developing PPD symptomatology than do women without eating disorders” (Mazzeo et al., 2006, p.208). The authors of this study speculate that “high levels of depressive symptoms among women with eating disorders during pregnancy and postpartum could be due to body dissatisfaction associated with pregnancy-related weight and shape changes” (p. 208).

There is also a high rate of comorbidity between anxiety and eating pathology. According to Blinder’s findings (2006), 55-59% of his eating disorder sample met diagnostic criteria for an anxiety disorder. He found statistically significant differences for Obsessive Compulsive Disorder (OCD) and Post traumatic Stress Disorder (PTSD) as anorexic patients (both restrictive and binge-eating/purge type) were twice as likely to
have OCD compared to bulimic and EDNOS patients. Blinder highlights particular OCD symptoms—contamination obsessions and cleaning compulsions—as being related to ED prevalence. In terms of PTSD, anorexic patients (binge-eating/purge type) were twice as likely to be given this diagnosis when compared to those who were anorexic (restrictive type), bulimic, and EDNOS groups.

The connection between personality disorders and eating disorders has received considerable attention in the literature. In particular, obsessive-compulsive personality traits have been considered pre-dispositional factors that increase the risk for developing an eating disorder (Lilenfeld et al., 2006). In Halmi et al.’s review of the literature, they found: “Obsessive-compulsive disorder (OCD) is also frequently comorbid with ED—10%-60% in anorexia nervosa (AN) and 0%-40% in bulimia nervosa (BN)” (Godart, Flament, Perdereau, & Jeammet, 2002, as cited in Halmi et al., 2005, p. 371). “The prevalence of obsessive-compulsive personality disorder (OCDPD) in ED patients is similar to that of OCD—3%-60%, with lower prevalence reported when bulimic symptoms are present” (Herzog et al., 1992, as cited in Halmi et al., 2005, p. 372).

Another area of interest in the current literature is the link between substance abuse and eating disorders. Perhaps because substance abuse and eating disorders are both seen as addictions, they co-exist. Blinder et al. (2006) found that 22% of their sample (2, 436 females) had a substance abuse disorder. More specifically, “bulimic patients were thrice as likely to have polysubstance abuse/dependence and twice as likely to have alcohol/dependence” (p. 459) when compared to those in the anorexic and EDNOS groups. The authors suggest the higher rate of substance use among the bulimic patients to be connected to greater impulsivity, PTSD, and depression. Furthermore, their
findings indicate high comorbidity of substance abuse with anorexia binge-purge type, compared to eating disorder patients who primarily restrict (Blinder et al., 2006). Additional research is needed in terms of substance use and specific eating disorder subtypes. For example, addictions to nicotine and cocaine may have a higher predictive rate of anorexia (restrictive type), as these substances have the ability to suppress appetite.

The complexity of a comorbid diagnosis among those with eating disorders makes it difficult to treat. Combined with a comorbid diagnosis, individuals with eating disorders often find they lack social support, struggle to maintain academic and athletic achievement, and many cannot find work or complete a degree (Engel, Adair, Las Hayas, & Abraham, 2009). It is unknown if these comorbid conditions contribute to the development of the disease, or if the eating disorder itself creates multiple mental health problems in its wake. Regardless, these factors all seem to play a role in the severity and course of an eating disorder and should be considered during intervention and treatment.

Etiology of Eating Disorders

Eating disorders are among the 10 leading causes of disability among young women—with anorexia having the highest mortality rate of all mental disorders (Striegel-Moore & Bulik, 2007). Therefore it is not surprising that eating disorder researchers and specialists are highly motivated to learn more about the causal factors that contribute to an eating disorder diagnosis. Learning more about what places young women at risk for an eating disorder will help to determine “high risk groups for targeted interventions, designing prevention program content, and informing public policy” (Striegel-Moore & Bulik, 2007, p. 181). Although the causes contributing to eating disorders are complex
and poorly understood, genetic predisposition, environmental factors, and socio-cultural contributors have all been implicated.

**Familial and Environmental Influences**

An individual with a mother or sister who has had anorexia nervosa is 12 times more likely to develop it themselves when compared to an individual without a family history of anorexia. These at-risk individuals are four times more likely to develop bulimia (NEDA). Because twin studies have long been the most effective means to understanding the influence of genetic and environmental factors, Striegel-Moore and Bulik (2007) have offered some interesting finds regarding twin studies of anorexia and bulimia. They looked at the heritability estimates from anorexia in three studies. The findings were as follows: 48% (Kortegaard, Hoerder, Joergensen, Gillberg, & Kyvik, 2001), 58% (Wade, Bulik, Neale, & Kendler, 2000), and 76% (Klump, Miller, Keel, McGue, & Iacono, 2001). They found similarly high estimates for bulimia ranging from 50% to 83% (Walters et al., 1992) and 41% for binge-eating disorder (Bulik, Sullivan, & Kendler, 1998).

According to social learning theory, much of what we learn is observed in our social environments. Particular focus is on infancy and early childhood, which suggests early learning to be primarily that which is modeled by parents or caregivers. Albert Bandura (1977) suggests that children learn through modeling parent’s behaviors and that modeled behavior is either rewarded or punished. In working with several young women with eating disorders, it is not uncommon to hear that their parents had responded to them more favorably when they were thin. Food is often associated with rewards and punishments. For instance, a young girl might be punished for not eating her dinner and
for eating in between meals. Perhaps she is rewarded with food after receiving a good grade or doing well in an athletic competition. Perhaps she receives mixed messages about food from her parents. This, paired with positive responses from friends when underweight, can motivate an individual to engage in unhealthy means in an effort to remain thin.

Family dynamic issues have been implicated in the development and perpetuation of eating disorders. Relationships that are enmeshed, intrusive, hostile, and negating of the patient’s emotional needs are often typical in eating disorder families (Minuchin, Rosman, & Baker, 1978 as cited in Polivy & Herman, 2002). Those with eating disorders often feel they were exposed to overly concerned (Shoebridge & Gowers, 2000 as cited in Polivy & Herman, 2002) or controlling parenting styles (Haworth-Hoeppner, 2000, as cited in Polivy & Herman, 2002). The relationship between mothers, daughters, and eating, in particular, has received much attention. As the first female figure one models after, daughters who are exposed to mothers who diet or who are dissatisfied with their bodies are more at risk for eating disorders (e.g., Smolak, Levine, & Schermer, 1999). Some of the very first messages these girls may receive from their mothers about body image and nutrition are that they should be ashamed and insecure of their bodies and that food can be bad.

Smolak, Levine, Striegel-Moore (1996) have incorporated how family interaction can play a role in the life of an eating disordered patient. Such themes as cohesion, support for autonomy, communication and expressiveness, organization, conflict and hostility, and achievement expectations were explored. Of particular significance to this study is the influence of pressure to achieve. Through the exploration of past research,
with one exception, Smolak et al. (1996) found no significant difference between eating disorder families and control groups in terms of pressure to achieve. However they noted that one study (Stern et al., 1989) found that eating disordered groups rated their families as more achievement oriented. This research is somewhat outdated and begs for future exploration regarding the impact of families, specifically parental involvement, on their child’s development of eating disorder pathology.

**Age of Onset**

Most of the literature suggests that adolescence is the age group most at risk for eating disorder development. Studies (e.g., Killen et al., 1992) suggest that puberty and the sometimes unwanted changes in body appearance play a role. Along with getting older comes independence, which is often feared by those who restrict, binge, and purge. Adolescence is a time when one starts developing their identity and the pressure to do so can become overwhelming and is therefore met with opposition. Often these girls want to remain dependent on their families. Caroline Knapp, the author previously mentioned who struggled with anorexia, gives a personal account of craving this love, nurturance, and support from her mother who did not know how to respond to her child’s illness:

I wanted her to see how the bones in my chest and shoulders stuck out, and how skeletal my arms were, and I wanted the sight of this to tell her something I couldn’t have begun to communicate myself: something about pain certainly, but something about less accessible feelings, too, an amalgam of buried wishes and unspoken fears, some exquisitely tangled blend of love and rage. I was vaguely aware of the complexity of this feeling at the time: I remember standing there, bones exposed, hoping in the most inarticulable way that the sight of my body
might wound her and also cry out to her, and plead and sob and cling, that it might deliver both a slap and an apology. (Knapp, 2003, p. 55)

As Knapp points out here, sometimes the words are too difficult or confusing to convey and girls resort to unhealthy eating behaviors as a means to keep these daunting feelings concealed.

Striegel-Moore and Bulik (2007) refer to adolescence as “the period of greatest vulnerability” while Katz (1990) says a “stereotypic case” for anorexia generally emerges at 14 or 18 (around the time of a school transition) while binge-eating disorder develops later into adulthood (Striegel-Moore & Bulik, 2007). Katz (1990) continues to discuss the personality of a girl with anorexia: “Beneath a veneer of high level functioning, conscientiousness, and social conformity, typically lurks a girl with low self-esteem, strong dependency needs, and excessive concerns about achievement” (p. 144).

Polivy and Herman (2002) further point out that similar to the influential power of the media and often “teaching the same lessons” is peer influence. They state: “adolescent girls learn certain attitudes (i.e., the importance of slimness) and behaviors (i.e., dieting, purging) from their peers, both by example and encouragement and by way of teasing for failure to adhere to peer norms” (p. 192). Transitional periods of development (ages 14 or 18, as Katz suggests) are often linked to times when a girl is most at risk for abuse, trauma, and teasing (Polivy & Herman, 2002). The outcome of these events can be life-altering- often leading to low self-esteem, and even suicide. Even mild teasing has been linked to body dissatisfaction and dieting, which are two major predictors of eating disorders. Emotional abuse has been said to predict eating pathology
in adults while childhood abuse has been known to indirectly lead to bulimia (Polivy & Herman, 2002).

**Socio-cultural Contributors**

Despite much research suggesting that eating disorders are most often found in cultures where food is abundant, or what Polivy and Herman call “a culture of abundance,” it can only be seen as a “background cause” for a correlation and cannot determine causality (Polivy & Herman, 2002). Oftentimes the study by Becker, Burnwell, Gilman, Herzog, & Hamburg (2002) is commonly referenced in relationship to eating disorder and socio-cultural considerations. Becker and her colleagues completed a three-year long study of Figian girls after they had been exposed to Western media imagery. They found that in 1995, only 3% of the girls they interviewed (N= 65) participated in vomiting to control their weight. After the media exposure, in 1998, three years from the beginning of the study, 15% of the girls admitted to engaging in vomiting to lose weight. One participant from the study said,

…the actresses and all those girls, especially those European girls, I just like, I just admire them and I want to be like them. I want their body. I want their size. I want myself to be [in] the same position as they are…Because Figians are, most of us Fijians are, many of us, most, I can say most, we were brought up with those heavy foods, and our bodies are, we are getting fat. And now, we are feeling, we feel that it is bad to have this huge body. We have to have those thin, slim bodies [on TV]. (Becker et al., 2002, p. 513)

In these words from a young Figian girl, we discover the glaring misconception that with slimness brings power and beauty. This idea is all too common among women
in general, reflecting the “Thin Beauty Ideal” that places emphasis on having a thin figure. Once exposed to the Thin Beauty Ideal, one may internalize this “ideal” and discover a discrepancy between self and the ideal thereby leading to body dissatisfaction, dietary restraint, and restriction. For some individuals, restraint or restriction leads to overeating in turn amplifying body image concerns and thus precipitating further restraint or purging (Streigel & Bulik, 2007). In essence, being thin is equated to being attractive. Being attractive is often associated with getting more attention and being more successful. It is a vicious cycle that continues to spin in the minds of many women who believe in the Thin Beauty Ideal. The nearly constant and growing media exposure glorifying the thin body shape and the objectification of women seems to add to this way of thinking. The study by Becker and her colleagues also demonstrates the power that media has to influence cultural beliefs. Since this study, more and more attention has been given to how marketing and media influence how we view ourselves and what we aspire to be.

In her book, “A Hunger So Wide and So Deep,” Becky Thompson (1996) argues against the Western perspective of the Thin Beauty Ideal: Talking with Latina, African American, and White women—including both heterosexual and lesbian women—reveals that the origins of eating problems have little or nothing to do with vanity or obsession with appearance. In fact, eating problems begin as survival strategies—as sensible acts of self-preservation—in response to myriad injustices including racism, sexism, homophobia, classism, the stress of acculturation, and emotional, physical, and sexual abuse. (Thompson, 1996, p. 1) Thompson opens the door to looking at other socio-cultural factors that contribute to eating problems among women. She
stresses that it is not possible to ignore the bigger picture of the repression of women through “injustices” such as sexism and racism. Thompson (1996) writes, “Rethinking biased assumptions in the literature on eating problems begins with scrutinizing ideas about femininity and gender socialization” (p. 7). Then Thompson goes on to say that in the “form of [a] patriarchal backlash” female beauty is defined as childlike and thin. She quotes Kim Chernin, the author of “The Obsession: Reflections on the Tyranny of Slenderness” (1994): “In this age of feminist assertion men are drawn to women of childlike body and mind because there is something less disturbing about the vulnerability and helplessness of a small child and something truly disturbing about the body and mind of a mature woman” (p. 5).

**Athletic Performance**

In modern athletic culture, there is tremendous pressure for athletes to perform well. Demands from coaches, peers, teammates, parents, and the athletes themselves are as high as ever. Often athletes associate their worth, and therefore self-esteem, with how they perform. Athletes who excel are often favored by coaches and parents. Amount of play time, attention, affection, and support may be contingent upon stellar performance, which therefore has the potential to lead to unhealthy means to enhance athletic performance. Thompson and Sherman (1999) comment on the misconception of athletic practices:

We tend to think of athletes, especially those at collegiate or elite levels of competition, as being ‘healthy.’ This assumption of health may in part be engendered by their athletic performance or by what they are able and willing to endure through training and conditioning. This level of physical rigor gets
interpreted as healthy. Yet in the name of commitment and competition, athletes engage in behaviors that are far from healthy. (p. 317)

Many times these unhealthy behaviors are not specifically required from the athlete but are assumed and expected if the athlete is to be taken seriously. It is not uncommon to hear that a wrestler ran in 80 degree weather in a rubber suit to “cut his weight” or that a skater or gymnast fasted for days often resisting ingesting carbohydrates altogether.

Sports that place heavy emphasis on thinness and perfect body structure (i.e. ballet, gymnastics, skating, wrestling, diving) are often known for their burdensome diets, practices, and coaching styles. Athletes who participate in these sports become members of athletic cultures where extreme diet practices are widely accepted and often even encouraged thus deviating from such practices may seem unorthodox, as well as incongruent with persistent messages from coaches and others that the athlete must do what it takes to be their very best…

Furthermore, membership on teams sometimes may even require a commitment to these harsh practices. Not following implicit norms for extreme practices puts the athlete at risk for being seen as not dedicated or serious about their athletic membership. (Schweers, Villiers, Burnett, Doninger, & Burns, 2009)

Most athletes are willing to subscribe to participating in unhealthy means to sustain their athletic membership to their teams. This seems to be especially the case for those athletes who associate their self-worth with their athletic ability. Their success as an athlete has defined who they are and their commitment and dedication to maintaining this identity becomes paramount.
Athletes and Eating Disorders

The literature inconsistently reports upon the prevalence rates of eating disorders among athletes and non-athletes. One study looked at the prevalence rates of anorexia, bulimia, anorexia athletica, and EDNOS using the entire population of Norwegian male and female elite athletes (n= 1620) and compared them to a control group (n= 1696) (Sundgot-Borgen, 2004). The results indicated a higher prevalence rate of subclinical and clinical eating disorders in athletes (13.5%) compared to the control group (4.6%). More specifically, eating disorders among female athletes competing in aesthetic sports (42%) was higher than that observed in endurance (24%), technical (17%), and ball game sports (16%). Another Norwegian study of 522 female athletes found that 1.3% of the athletes met diagnostic criteria for anorexia while 8% met criteria for bulimia (Sundgot-Borgen, 1994). In a National Collegiate Athletic Association (NCAA) study (1999) (N= 1445), Johnson, Powers, and Dick found prevalence rates of 1.1%, 2.85%, 10.85%, and 5.52% for anorexia, bulimia, binge eating, and purging behaviors respectively. The authors suggest these rates are conservative compared to other studies and state “the most parsimonious explanation would be that the more rigorous sampling procedure, larger sample size, and stringent criteria have resulted in a more accurate estimate” (p. 186). Interestingly, they give another possible explanation to the conservative outcome stating that due to the significant influence the NCAA has on athletic departments and consequently its athletes, perhaps the “athletes may have had a tendency to minimize some of their difficulties in an effort to protect their athletic departments (Johnson, et al., 1999, p. 186). Despite the possible underreporting of disturbed eating behaviors, a
particularly striking finding among the female athletes was that “their goal was to achieve a body fat content that would result in amenorrhea” (Johnson, et al., 1999, p. 186).

Contrary to these findings, Reinking and Alexander (2005) found no difference between disordered eating symptoms when comparing athletes and those who do not participate in collegiate sports. They found a total of 7.1% of athletes and 12.9% of non-athletes as being high risk for disordered eating. Yet despite the contradictory prevalence rates, the fact that eating disorders are found among female college athletes leaves little room to debate that this population is at risk. Many studies have particularly warned that those athletes who participate in, what has been commonly referred to as, “lean sports” are at greater risk for disordered eating (e.g., Berry & Howe, 2003). Lean sports is a category that has been comprised of those sports that pay significant attention to the aesthetic value of a lean body and include such sports as gymnastics, figure skating, dance, diving, and distance running (Reinking & Alexander, 2005). Other variables such as self-esteem, body image, and social pressure have been specifically identified as possibly contributing to patterns of disordered eating in athletes (Berry & Howe, 2003).

Social pressures from peers, teammates, and coaches seem to directly impact an athlete’s behavior. The importance of the athlete-coach relationship (e.g., Jones, Glintmeyer, & McKenzie, 2005) has been well documented in the literature and may play a significant role in the development of eating disorders among athletes. Coaching practices such as publishing weights, discussing weight loss/management techniques, and dispersing nutritional information exist in the athletic subculture. Such practices, paired with a “wanting to please” attitude on the part of the athlete, can lead to eating disturbance.
It may come as no surprise that there have been several terms associated with those athletes who engage in unhealthy eating behaviors in hopes of maintaining a perfect athletic form. Some of these terms are: the Female Athlete Triad, Anorexia athletica, exercise bulmia, and exercise dependence. These terms grew out of the athletic subculture that supports competitiveness, dedication, and perfect athletic performance. They are the direct result of the unhealthy and often encouraged behaviors of elite athletes.

The Female Athlete Triad

Comprised of three pathologies (amenorrhea, osteoporosis, and eating disorders), the American College of Sports Medicine and the Task Force on Women’s Issues coined the term the *female athlete triad* in hopes of bringing attention and research efforts to women’s athletics. These efforts followed the groundbreaking work completed by those involved in Title IX who supported equality among school athletics. Title IX, officially put into practice in 1972, was revised by the Commission on Opportunity in Athletics (COA) in 2002 with more aggressive means of enforcing the rules of Title IX. The work of these organizations has been profound and has led to taking a closer look at women’s participation in sports.

As one of the hallmark components of the female athlete triad, amenorrhea is the absence or irregularity of menstrual cycles. Excessive exercise has been connected to the disruption in menses and “[a]lthough the exact etiology of menstrual dysfunction has not been elucidated, excessive body weight loss, low body fat, stress, and amount of training were all originally suggested as the cause” (Brunet, 2005, p. 624). Women who have low dietary intake often have low levels of luteinizing hormone (LH) and follicle-stimulating
hormone (FSH) thereby contributing to menstrual problems. For sure not one factor can be attributed to athletic amenorrhea but nutritional deprivation, physical illness, stress, and excessive exercise have all been implicated (Brunet, 2005).

Osteoporosis, a second constituent of the triad is characterized by low bone mass and the deterioration of bone tissue. This condition can lead to skeletal fragility and increased risk for fracture (Brunet, 2005). Athletes are at greater risk for bone fracture as they rely heavily on their bodies for athletic performance. “The menstrual irregularity has been linked to lower bone density and a higher incidence of stress fractures when compared with regular controls” and “disordered eating was strongly related to menstrual irregularity, menstrual irregularity was associated with low bone mineral density (BMD), and disordered eating was associated with low BMD in the absence of menstrual irregularity” (Brunet, 2005, p. 627) thereby constituting a vicious cycle.

Anorexia Athletica

Anorexia athletica is a subclinical syndrome found among athletes who do not meet the strict diagnostic criteria for anorexia or bulimia as defined by the DSM-IV (Doninger, Enders, Burnett, 2005). Sundgot-Borgen (1993) identifies a key component of anorexia athletica as being “an intense fear of gaining weight or becoming fat even though one is underweight (at least 5% less than expected normal weight for age and height for the general female population), usually accomplished by a reduction in total energy intake, often with extensive or compulsive exercising” (p. 32).

Perfectionism and Psychopathology

Perfectionism has been defined both as a positive and a negative attribute (e.g., Kobori & Tanno, 2005). The term may be viewed as positive, as striving for perfection
can motivate an individual to achieve great success, yet it is also associated with a negative connotation as perfection is unrealistic—never to be reached at the human-level. Rather, perfect has been reserved for those who are associated with deity-like status; those who resemble perfect form such as the sculpture of David. For human beings, perfection is never to be achieved. Yet despite this, there is widespread belief that one can be perfect—can perform, act, and speak perfectly; achieve perfect academic and athletic status.

Flett and Hewitt (2006) define a perfectionist (or one who strives for perfection), as “those individuals who hold rigidly to their standards, even in situations that do not call for perfection, and who continue to place an irrational importance on the attainment of impossibly high standards in not just one but in several life domains” (p. 476). This perfectionistic individual is constantly putting an undue pressure on themselves to perform at the highest standard. The authors also stress the perfectionist’s fear of failure. With fear of failure comes accepting success as the only means to thrive and be happy. Yet, “people who pursue perfectionistic self-standards tend to be low in self-acceptance and have a conditional view of the self that is contingent on meeting exceedingly high standards” (Flett & Hewitt, 2006, p. 478). Should they experience failures in achievement, the perfectionist runs great risk for depression and dysphoria (Ashby, Rice, & Martin, 2006).

Perfectionism and Depression

Perfectionism and depression have often been associated in the psychological and psychiatric literature. Those who strive for perfection yet do not obtain it are met with feelings of dissatisfaction and failure. Blatt, Quinlan, Pilkonis, & Shea (1995) write
“perfectionistic individuals experience depression that is focused primarily on self-worth and self-criticism; they berate, criticize, and attack themselves, and experience intense feelings of guilt, shame, failure, and worthlessness” (p. 1012 as cited in Ashby et al., 2006, p. 149). Having unhealthy perfectionistic standards then can ultimately lead to “self-critical thoughts, feelings of shame, and impaired self-esteem” which “ultimately predispose[s] the maladaptively perfectionistic individual to dysphoric affect and depressed mood” (Ashby, et al., 2006, p. 149).

Flett and Hewitt (2006) also struggle to find evidence of euphoria experienced by perfectionists. They found that those individuals who are motivated and strive for extremely high, perfectionistic goals tend to score low on self-satisfaction because of the difficulty associated with attaining these extreme goals. They commented on their findings:

Indeed, our study of accomplished performers with high levels of self-oriented perfectionism found that they reported relatively low levels of goal-related satisfaction even though many of these performers are highly accomplished individuals with international reputations (Mor, Day, Flett & Hewitt, 1995). The negative association between self-oriented perfectionism and performance satisfaction was detected even though self-oriented perfectionism has been identified as an element of what has been described as positive perfectionism. To our knowledge, empirical research has yet to establish the presence of a consistent positive association between positive perfectionism and satisfaction. (Flett & Hewitt, 2006, p. 477)
Individuals who are depressed often struggle to accept themselves as they are, including their human flaws. Their conditional self-perception is contingent upon being successful, however they may define this. Interestingly, Frost’s multidimensional definition of perfection seems to match the perfectionist’s critical way of thinking as this individual has a tendency to set high expectations, often has concerns over past and/or future mistakes, and is plagued by doubts and uncertainties regarding one’s actions. Enns and Cox (1999) agree as they found strong correlations between two of Frost’s subscales (concern over mistakes and doubts about actions) and depression.

Perfectionism and Social Anxiety

Someone who has a persistent fear of social or performance situations in which they are exposed to unfamiliar people and scrutiny by others may suffer from social anxiety. The socially anxious individual believes they will act in a way that will be humiliating or embarrassing; thus, they are chronically anxious in social situations because they anticipate failure to perform adequately (DSM-IV TR; American Psychiatric Association, 1994). Few studies have focused on the connection between social phobia and perfectionism. The studies that have been done in this area, however, suggest that individuals with social phobia set unattainable goals for themselves and have excessive standards for performance (Juster et al., 1996). They may appear unreasonable when judging their own performance and continually “set themselves up for failure” with their extreme goals. Not reaching these goals fuels their feelings of inadequacy and contributes to their level of social phobia. Juster et al. succinctly writes about the relationship between perfect performance and social anxiety:
Achieving a certain standard may be hampered by over attention to mistakes in social situations. A vicious cycle may exist in which the expectation of mistakes produces excessive focus on evaluation of one’s performance which, in turn, causes a reduction in attention to the actual task, making mistakes more likely. Any mistake reduces the likelihood of attaining the desired standard, and therefore becomes an indicator of failure. Even when mistakes are within normal limits of magnitude or frequency for a particular situation, over attention to them may result in a biased view of the situation as a failure. Thus, excessive standards and concern over mistakes appear to be closely linked characteristics of individuals with social phobia. (Juster et al., 1996, p. 404)

Juster and his colleagues (1996) believed certain components of perfectionism to be related to social phobia. They examined this relationship by comparing 61 patients with social phobia and 39 volunteers from the community with no history of an anxiety disorder. They used Frost et al.’s (1990) Multidimensional Perfectionism Scale (MPS) to measure levels of perfectionism and found that the patients with social anxiety scored higher on subscales assessing concern over mistakes (CM), doubts about actions (DA), and perceived parental criticism (PC), while the volunteers scored high on organization (O). Using correlational analysis, higher scores on the concern over mistakes (CM) and doubts about actions (DA) subscales were associated with greater social anxiety, trait anxiety, and general psychopathology. Other studies have replicated and extended this research to other populations (Rosser, Issakidis, & Peters, 2003) and have come up with similar findings. That is that CM and DA are both consistently associated with social
anxiety and that greater perfectionism is associated with an increase in severity of social phobia symptoms (Saboonchi, Lundh, & Ost, 1999).

Perfectionism and Parents

There is little existing literature that focuses on the impact of parental perfectionism and their child’s athletic performance. It is concerning that there is little produced on this topic. The pressure to perform athletically, and perform at an exceedingly unrealistic level (that is, to be perfect) is troublesome, as the outcome of this pressure could lead to several forms of psychopathology. Much of the literature to date has focused on parental perfectionism and its influence on their child’s academic success (e.g., Ablard & Parker, 1997). For example, Hills (1987) looked at parents’ concerns about their children’s education and their future success, and highlighted that many parents are highly focused on performance outcomes and achievement in their children.

Dweck and Leggett (1988) defined two terms concerning parental orientation towards achievement for their children: the learning goal orientation and the performance orientation. The former suggests parents are genuinely concerned that their children understand material and improve upon already acquired skills. Ablard and Parker (1997) described learning-oriented parents as follows:

These parents focus on continual interest and intellectual development, wanting their children to improve by increasing their understanding of material, enjoying learning, and seeking challenge. Although these parents may also emphasize the importance of achievement, they are less likely to demand high performance for the sake of appearing competent to others especially if it involves the risk of misunderstanding material or performance anxiety. (p. 652)
Parents who are concerned with validation and competence by way of external indicators of good performance use the *performance* orientation. Alblard and Parker describe these parents in the following way:

These parents focus on high performance because it signifies competence and high intelligence. Some of these parents may wish for their children to demonstrate exceptional levels of performance because of their own desire for personal recognition or high social status resulting from having an intelligent child (Hills, 1987 as cited in Ablard & Parker, 1997, p. 653). Parents who have performance goals for their children are likely to be critical of mistakes and have high standards not only for their children, but also of themselves. Therefore, performance goals may be associated with perfectionism. (Ablard & Parker, 1997, p. 653)

Also, as Hewitt and Flett (1991) suggest, children may believe that because their parents have high expectations for them to do well, they may hold the belief that their parents love and affection are contingent upon perfect performance. As Parker (1997) suggests, “high parental expectations and criticism may indicate that these students tend to have parents with unrealistic expectations and performance goals for them. These students may also feel pressured to achieve, given that they described themselves as defensive, anxious, and moody” (p. 654).

More research in this area is needed, with a focus on how pressure from parents to succeed impacts functioning, not only in the classroom but on the playing field, on the court, and on the balance beam. Little research has been done on parent’s perfectionism and implications for their athletic children to strive to be the best. This study aims to
fulfill this need with a particular emphasis on the development of eating disorder pathology as a means to achieve body perfection and performance.

**Perfectionism and Athletes**

There has been a greater focus on athletes and perfectionism in recent literature. The intrigue and fascination with impressive athletic performance, and the desire to live vicariously through talented individuals who sometimes appear to have superhuman strength, poise, and precision, may be one reason for the increase in research on this topic. From Olympic to intramural levels, athletes seem to have the power to inspire, motivate, and entertain. Whether an athlete participates in a sport to make it their career or simply uses sports to unwind and be with friends, sports have impacted the lives of many. Usually participation in a sport requires some commitment and dedication. It is this commitment that can often lead to an association with perfectionism. One who begins to associate their identity and self-worth with their athletic participation runs the risk of striving for the unobtainable.

In this rigorous process of becoming the perfect athlete, oftentimes the individual forms their “athletic identity” (Johns & Johns, 2000). Therefore rather than a human being, a student, a daughter, or a sister, the individual becomes a power athlete and their sport defines who they are. They become consumed with performing without errors and meeting the implicit expectations of the team, coaches, and parents (i.e., “cutting weight,” public weigh-ins, restricted dieting practices) (e.g., Smith, 1980 & Sudi et al., 2004). Rigid exercise routines and eating habits endorse the struggle for perfection and conversely, the avoidance of failure. As previously indicated, perfectionism can provide motivation and the drive to achieve; however as Hamilton (2003) points out
perfectionism can be destructive. She writes “giftedness and perfectionism go hand in hand” and that the “emphasis on an ideal body and technique may push certain vulnerable dancers over the edge, especially if teachers refuse to make allowances for fatigue, injuries, mistakes, and anatomical flaws” (Hamilton, 2000, p. 108).

As Hamilton hints, inflexible coaches/instructors/teachers have been implicated in the ever-increasing unhealthy habits of their athletes (e.g., Heffner, Ogles, Gold, Marsden, & Johnson, 2003; Sherman & Thompson, 2005; Shifflett, Timm, & Kahanov, 2002.) Because coaches are often “viewed as a knowledge giver and athletes as receivers who need that knowledge to better their performance,” (Jones, Glintmeyer, & McKenzie, 2005, p. 378) it is significant to look at the coach-athlete relationship. Recent research indicates a lack of nutritional knowledge among coaches, trainers, and strength and conditioning coaches. For example, a study of 236 college athletes found that their coaches had limited information regarding fluid intake, supplement use, and weight management (Burns, Schiller, Merrick, & Wolf, 2004). Athletes who expect perfection from themselves and coaches who demand perfect performances from their athletes makes for a potentially deadly combination.

Thompson and Sherman (1999) discuss the struggle to distinguish the “good athlete” from the athlete with an eating disorder: “…an athlete who is willing to train and exercise excessively, deny pain and injury, be selflessly committed to the team, comply completely with coaching instructions in order to please the coach, accept nothing less than perfection, and be willing to lose weight in order to perform better is a coach’s dream. Is this a “good” athlete or an athlete with anorexia nervosa?” (p. 324).
Reliant on the approval of others, athletes give into their athletic identity. The athlete may lose sight of their original reason for participation in sports (e.g., passion, enjoyment) and begin to participate to obtain approval or other rewards. Perhaps the athlete is trying to sustain scholarship status, remain the token athlete of the family, or strive to be captain for the third consecutive season. These goals per say may not be considered negative; it is the means to achieving these goals that may lead to the destruction and breakdown of the high-achieving athlete.

Perfectionism and Eating Disorders

Current literature suggests that the perfectionistic athlete may be at risk for developing an eating disorder (e.g., Schwarz, Gairrett, Aruguet, & Gold, 2005). Several studies highlight the association between perfectionism and eating disorders (Lilenfeld et al., 2000). In 2007, Bardone-Cone et al. found 55 published papers linking perfectionism to eating disorders. Franco-Paredes et al. (2005) remark on those who exhibit perfectionistic tendencies and have eating disturbance: “People with these [eating] disorders do not tolerate their plans not being fulfilled because they feel they must do everything to perfection, and experience dissatisfaction and inferiority feelings despite their achievements” (p. 61). In addition to what Levenkron (1982) says is the “pathological exaggeration of society’s message to women” is the pressure for women to achieve and compete athletically, which may further contribute to the development of eating disorders and perfectionistic traits.

Using the Frost Multidimensional Perfectionism Scale (MPS) and Hewitt and Flett’s MPS, several studies report a positive correlation between anorexia and perfectionism. Halmi et al. (2000) found higher scores among anorexic patients on the
maladaptive (CM, DA, PE, and PC) and achievement striving (PS) scales. They conclude that “these data show that perfectionism is a robust, discriminating characteristic of anorexia nervosa [and that] perfectionism is likely to be one of a cluster of phenotypic trait variables associated with a genetic diathesis for anorexia nervosa” (p. 1799). Similar findings were reported by Bastiani and colleagues (1995) with anorexic participants scoring high on maladaptive perfectionism (CM, DA, PC subscales). Lastly, using Hewitt and Flett’s MPS, Cockell et al. (2002) found higher scores on Self-Oriented Perfectionism (SOP) (e.g., striving to meet one’s own perfectionistic expectations) and Socially Prescribed Perfectionism (SPP) (e.g., striving to meet others’ perceived perfectionististic expectations) among anorexic individuals when compared to controls.

Less consistent findings relating eating disorders to perfectionism have been found among bulimia nervosa and binge eating disorder patients. For instance, Lilenfeld et al. (2000) and Bulik et al. (2003) found higher levels of perfectionism in bulimic patients compared to healthy controls, whereas binge eating disorder patients did not differ significantly from overweight controls (Kuehnel & Wadden, 1994). Bardone-Cone (2005) specifically identified perfectionism, weight perception, and self-efficacy as predictors of binge eating. In fact, they found that “women high in perfectionism who felt they were overweight and who had low self-efficacy reported the most number of weeks of binge eating” (p. 27). In general, a consistent pattern of elevated perfectionism and eating disorder scores have been found, with anorexic patients showing the most consistent and clear relationship.
Summary

This chapter reviewed much of the eating disorder and perfectionism literature composed over the past three decades. The purpose of this chapter was to examine the epidemiological and etiological theories of eating disorders and to describe how eating disorders and other forms of psychopathology relate to the multifaceted components of perfectionism. The inconsistencies in the eating disorder and perfectionism literature prompted this study to expand on the methodology by examining the relationship between eating disorder risk, perfectionistic attitudes, and perceptions of parental expectations in a sample of female college athletes as well as a comparison sample of female college non-athletes.
CHAPTER THREE

Method

Design

This research was designed to explore female athlete’s perfectionism and parental perfectionism in relationship to eating disorder risk in female college athletes. A female college non-athlete comparison group was employed for the purpose of comparing athletes and non-athletes on relevant measures of perfectionism and eating disorder risk. The independent variables that were studied were perfectionism and parental perfectionism (Parental Criticism- PC, Parental Expectations- PE). The dependent variable that was measured was eating disorder risk.

Participants

Participants for this study were 104 female college athletes and 112 female college non-athletes. Participating athletes for this study were recruited through the athletic departments of two universities and the non-athletes were recruited through the psychology department of one of the two participating universities. The athletic directors of two universities were contacted via email and informed of the purpose of this research, the time it would take the athletes to complete the required scales, compensation for participation, and the potential impact of the findings. The athletic directors were given the option of informing coaches of the author’s request to meet with their athletes in order to distribute surveys to those who choose to participate. The following teams were asked to participate: basketball, crew, cross country, golf, lacrosse, soccer, swimming and diving, tennis, track and field, and volleyball. Two teams from Loyola University were invited to participate in the current research and data was collected during their pre-
season. Eight coaches from the University of Miami were asked to participate in the study and only two coaches responded to the request for their athletes to participate. With the permission of the head coaches, the author arranged a time to meet with interested athletes. Prior to participation, the author reviewed the contents of the informed consent and strongly encouraged participants to read it as well. The author remained present during data collection in order to respond to any questions participants may have.

Procedure

Those who were identified as non-athlete participants were contacted directly by professors employed at the same two universities previously mentioned. The author contacted several faculty members via email asking for their assistance with data collection. Professors who volunteered to ask their students to participate received instructions and surveys in the mail. Professors were asked to encourage participants to thoroughly read the informed consent letter to ensure eligibility to participate and understanding of the procedures. Professors were strongly advised to contact the author via email or phone at any point during data collection should questions arise. Lastly, professors were asked to collect and mail back completed surveys to the author in a self-addressed and pre-paid envelope.

All participants were eligible to enter a raffle to win a $100 gift card to Dick’s Sporting Goods. Participants were asked to write their name and address on a raffle ticket that was adhered to the survey they received. Four tickets were drawn after data collection was completed: one athlete and one non-athlete from each university. All tickets were destroyed once winners are determined. Identifying information was not present on any collected forms to ensure confidentiality. Participants were informed that
no one would be able to view their responses or connect their responses to them. Participants were informed that they may withdraw from the study at any time without incurring any penalty and that their participation was completely voluntary.

**Inclusion/Exclusion Criteria**

To participate in this study, the athlete participants must have met the following criteria: (1) 18 years of age or older, (2) English speaking, (3) female, and (4) a current member of a collegiate Division I athletic team. Participants not meeting the aforementioned criteria were unable to participate in this study.

The participants in the non-athlete group must have met the following eligibility criteria: (1) 18 years of age or older and (2) English speaking, (3) female, (4) not a current or past member of a collegiate Division I athletic team, (5) not a previous high school varsity athlete who competed for two or more consecutive years, and (6) not an All-American athlete. To ensure participants met the aforementioned requirements, participants were informed of the inclusion/exclusion criteria and asked only to participate if they met the outlined criteria.

**Characteristics of Participants**

The following demographic information was collected: age, ethnicity, race, sport, current year in school, height, current weight, highest adult weight, lowest adult weight, ideal adult weight (according to the participant), most weight lost at one time, current body fat percentage, and ideal body fat percentage. All measured variables were self-reported.
Assessments

*Eating Disorder Instrument*

*Eating Attitudes Test (EAT-26).* The EAT-26 (Garner & Garfinkel, 1979; Garner, Olmstead, Bohr, & Garfinkel, 1982) is a 26-item self-report screening tool used to assess overall eating disorder risk (i.e., symptoms). The EAT-26 is an abbreviated version of a 40-item scale that is used to measure eating behaviors (e.g., “I avoid eating when I am hungry”), preoccupation with food (e.g., “Aware of the calorie content of foods I eat”), exercise use (“Think about burning up calories when I exercise”), vomiting and laxative use (“Have the impulse to vomit after meals”), and pressure from others to gain weight (“Feel that others would prefer if I ate more”) (Garner & Garfinkel, 1979). Garner et al. (1982) used factor analysis to derive the EAT-26 in a clinical sample of 160 patients and reported three distinct clusters of items: Dieting, Bulimia and Food Preoccupation, and Oral Control (Doninger, Enders, & Burnett, 2005). The EAT-26 instrument is answered on a six-point Likert scale ranging from never (1) to always (6). A total score of 20 or above may indicate higher risk for an eating disorder. The EAT-26 has demonstrated good internal consistency (α =.90) (Schweers et al., 2009) and strong construct validity with non-clinical samples.

*Personal Perfectionism and Parental Perfectionism*

Personal perfectionism of athletes and non-athletes was measured using the total score on the CM, DA, PS, and OR scales of the Multidimensional Perfectionism Scale (MPS) (Frost et al., 1990). Parental perfectionism was measured using the total score on the PE and PC scales of the MPS. These scales are described below.
Multidimensional Perfectionism Scale (MPS: Frost et al., 1990). The MPS is a 35-item self-report measure designed to measure six dimensions of perfectionism. This widely used scale generates an overall perfectionism score as well as scores for six dimensions based upon responses to a Likert scale (1= strongly agree, 5= strong disagree). The six subscales include (1) concern over mistakes (CM); (2) doubts about actions (DA); (3) personal standards (PS); (4) parental expectations (PE); (5) parental criticism (PC); and (6) organization (OR).

According to Frost et al. (1990) the CM subscale is a measure of overly critical self-evaluation, a key concept in pathological perfectionism. The CM subscale includes items such as “I should be upset if I make a mistake”, “If I fail at work/school, I am a failure as a person”, and “The fewer mistakes I make, the more people will like me.” The DA subscale is another measure of critical self-evaluation and generally reflects dissatisfaction with or uncertainty about the quality of one’s efforts or whether one has chosen the right course of action (Juster et al., 1996). This subscale includes the following items: “Even when I do something very carefully, I often feel that it is not quite done right” and “It takes me a long time to do something ‘right’.” Frost (1990) found these self-critical subscales to be the key components of pathological perfectionism.

The PS subscale is often associated with a more traditional view of perfectionism as this scale addresses an individual’s setting of excessively high standards (Frost et al., 1990). This is reflected in the following items from this scale: “I expect higher performance in my daily tasks than most people” and “It is important to me that I be thoroughly competent in everything I do.”
The OR subscale reflects an individual’s tendency to prefer orderliness and organization. This is reflected in the following items: “I try to be an organized person”, “Organization is very important to me”, and “Neatness is very important to me.”

As Frost, Lahart, and Rosenblate (1991) suggest, expectations and critical evaluations of parents towards their children may play a role in perfectionism and may be associated with personal expectations and self-evaluations (Juster et al., 1996) hence the inclusion of the two parental subscales PE and PC. The PE subscale includes items such as, “My parents wanted me to be the best at everything” and “My parents set very high standards for me” while the PC subscale includes items such as, “My parents never tried to understand my mistakes” and “As a child, I was punished for doing things less than perfectly.”

Internal consistency has ranged from good to excellent for each of the subscales (Cronbach ranging from .77 to .93) and for the total perfectionism score (Cronbach =.90; Frost et al., 1990; as cited by Juster et al., 1996). The total perfectionism score, equal to the sum of all the subscales except OR, was significantly correlated with other measures of perfectionism (Frost et al., 1990; as cited by Juster et al., 1996).
CHAPTER FOUR

Results

Overview

The purpose of this study was to assess eating disorder risk in a sample of collegiate athletes and non-athletes in relation to perceptions of their own and their parents’ perfectionistic attitudes. More specifically, the study aimed to (a) determine whether athletes were at elevated risk of developing an eating disorder compared to a non-athlete group, (b) determine whether athletes’ levels of perfectionism correlate positively with their eating disorder risk, and (c) determine whether athletes’ levels of parental perfectionism correlate positively with their eating disorder risk. A total of 216 female college students participated in this study.

Table 1 displays the frequency counts for selected variables. There were 104 athletes (48.1%) and 112 non-athletes (51.9%) that participated in the study. Athletes were from four sports including volleyball (19.2%), crew (23.1%), soccer (26.0%), and track and field (31.7%). More than half of the total sample competed in high school athletics (63.0%) with 95.2% of athletes and 33% of non-athletes reporting participation in high school athletics. Year in college was almost evenly represented with freshman making up 32.4% of total the sample, while sophomores, juniors and seniors or higher made up 22.2%, 21.8% and 23.6% of the total sample respectively. Ages ranged from 17 to 23 years old ($M = 19.50$, $SD = 1.29$). Eighty-six percent were non-Hispanic and the most common racial group was Caucasian (65.3%) with 10.6% of athletes and 17.9% of non-athletes identifying as Hispanic and 62.5% of athletes and 67.9% of non-athletes identifying as Caucasian. Most were US citizens (93.1%) with 90.4% of athletes and
95.5% of non-athletes identifying as US citizens. Family income ranged from “Less than $25K (8.3%)” to “More than $100K (35.2%)” with a median family income of $87,500. Specifically 40.4% of athletes and 30.4% of non-athletes identified having family incomes greater than $100K. Most of the total sample (75.0%) had 10-12 menstrual cycles a year with 74.0% of athletes and 75.9% of non-athletes reported having 10-12 menstrual cycles a year. Lastly, 62.5% of the total sample reported maintaining their weight and denying dieting, a precursor to disordered eating and 59.3% reported ever intentionally losing weight (Table 1, 1A, and 1B). Specifically, 35.6% of athletes and 39.3% of non-athletes reported they maintained their weight without dieting while 30.8% of athletes and 50.0% of non-athletes reported intentional weight loss.

Table 1A displays the chi-square comparisons between eight demographic variables and group (athlete versus non-athlete). Two of the eight comparisons were significant at the \( p < .05 \) level. Specifically, athletes were significantly more likely to have played one or more varsity sports in high school \( (p = .001) \) but were significantly less likely to have intentionally lost weight \( (p = .004) \) (Table 1A).

Table 1B displays the one-way ANOVA tests comparing year in school and age with group (athlete versus non-athlete). Inspection of the table found no significant differences between the groups for year in school \( (p = .16) \) or for age \( (p = .49) \) (Table 1B).

Table 2 displays the psychometric characteristics for the three summated scale scores. The Cronbach alpha reliability coefficients ranged from \( r = .89 \) to \( r = .91 \) with a median alpha of \( r = .90 \) suggesting all scales had adequate levels of internal reliability (Gall, Gall, & Borg, 2007) (Table 2).
Research Hypotheses 1A-1C

Research Hypothesis 1A predicted that, “Female college athletes will have significantly higher scores on the eating disorder scale when compared to their non-athlete group.” To test this, a one-way ANOVA test was performed (Table 3). Significant differences were found between the groups ($p = .03, \eta = .14$). However, inspection of the means found non-athletes ($M = 10.63$) to have higher scores than the athletes ($M = 7.74$). This pattern was not in the predicted direction and thus provided no support for Hypothesis 1A.

Research Hypothesis 1B predicted that, “Female college athletes will have significantly higher scores on the measure of personal perfectionism when compared to the non-athlete group.” A one-way ANOVA test was performed (Table 3). No differences were found between the groups ($p = .77$). This test provided no support for Hypothesis 1B.

Research Hypothesis 1C predicted that, “Female college athletes will have significantly higher scores on the measure of parental perfectionism when compared to the non-athlete group.” A one-way ANOVA test was performed (Table 3). No differences were found between the groups ($p = .33$). This test provided no support for Hypothesis 1C.

Research Hypotheses 2 and 3A

Research Hypothesis 2 predicted that, “Female college athletes’ personal perfectionism scores will be significantly positively related to eating disorder risk scores.” A Pearson Product-Moment test was performed (Table 4). The correlation was positive and significant ($r = .33, p = .001$) which provided support for Hypothesis 2.
Research Hypothesis 3A predicted that, “Female college athletes’ parental perfectionism scores will be significantly positively related to eating disorder risk scores.” A Pearson Product-Moment test was performed (Table 4). The positive correlation approached significance ($r = .19, p = .06$) which provided limited though non-statistically significant support for Hypothesis 3A.

Research Hypothesis 3B

Research Hypothesis 3B predicted that, “Female college athletes’ parental perfectionism scores will add significant unique variance in predicting eating disorder risk over and above that accounted for by the athlete’s personal perfectionism scores.” To test this hypothesis, a hierarchical linear multiple regression model was created and explored. In Step 1 of the model, athletes’ perfectionism scores were entered as the independent variable. Athletes’ perfectionism scores were a significant predictor ($p = .001$) and accounted for 11.0% of the variance in the dependent variable. In Step 2, athletes’ parental perfectionism scores were added to the model in order to determine the percentage of change in variance accounted for between Step 1 and Step 2. The inclusion of parental perfectionism in the second step was not significant ($p = .76$) and only added 0.1% explained variance. Therefore the regression model provided no support for Hypothesis 3B.

Research Hypothesis 4

Hypothesis 4 predicted that parental perfectionism will mediate the relationship between personal perfectionism and eating disorder risk. In the present research, parental perfectionism (the mediator) was not significantly related to eating disorder risk (the outcome variable) (see Table 4); thus, we can conclude that parental perfectionism did
not mediate the significant relationship between personal perfectionism and eating disorder risk. Specifically, to test for mediation in this current research, the three regression equations necessary to establish mediation (as described by Baron and Kenny, 1986 and Frazier, Tix, and Barron, 2004) were conducted: first, regressing the mediator (parental perfectionism) on the independent variable (personal perfectionism); second, regressing the dependent variable (eating disorder risk) on the independent variable (personal perfectionism); and third, regressing the dependent variable (eating disorder risk) on both the independent variable (personal perfectionism) and on the mediator (parental perfectionism). Because, in the third equation, the mediator (parental perfectionism) did not affect the dependent variable (eating disorder risk), mediation cannot be established. Results of these equations are shown in Tables 5-7.

Table 5 displays the multiple regression model for eating disorder risk regressed on personal perfectionism. The overall model was significant \( (p = .001) \) and accounted for 11.0% of the variance in the dependent variable. Inspection of the table found a significant positive relationship between personal perfectionism and eating disorder risk \( (\beta = .33, p = .001) \) (Table 5).

Table 6 displays the multiple regression model for parental perfectionism regressed on personal perfectionism. The overall model was significant \( (p = .001) \) and accounted for 39.0% of the variance of the dependent variable. Inspection of the table found a significant positive correlation between personal perfectionism and parental perfectionism \( (\beta = .62, p = .001) \) (Table 6).

Table 7 displays the multiple regression model for eating disorder risk regressed on both personal perfectionism and parental perfectionism. The overall model was
significant \((p = .003)\) and accounted for 11.1\% of the variance of the dependent variable. Inspection of the table found a significant positive relationship between personal perfectionism and eating disorder risk \((\beta = .36, p = .004)\) but not between eating disorder risk and parental perfectionism \((\beta = -.04, p = .76)\) (Table 7). When controlling for personal perfectionism, the path between eating disorder risk and parental perfectionism was not significant therefore we can conclude that parental perfectionism does not mediate the relationship between eating disorder risk and personal perfectionism.

**Summary**

In conclusion, this study assessed eating disorder risk in a sample of collegiate athletes and non-athletes in relation to perceptions of their own and their parents’ perfectionistic attitudes. Hypothesis 1A (athletes will have higher EAT-26 scores) was not supported (Table 3). Hypothesis 1B (athletes will have higher personal perfectionism scores) was not supported (Table 3). Hypothesis 1C (athletes will have higher parental perfectionism scores) was not supported (Table 3). Hypothesis 2 (athlete’s personal perfectionism scores will be related to eating disorder risk scores) was supported (Table 4). Hypothesis 3A (athlete’s parental perfectionism scores will be related to eating disorder risk scores) was partially supported (Table 4). Hypothesis 3B (athlete’s parental perfectionism scores will add significant unique variance in predicting eating disorder risk over and above that accounted for by personal perfectionism scores) was not supported (Table 5). Hypothesis 4 (parental perfectionism will mediate the relationship between personal perfectionism and eating disorder risk) was not supported (Tables 5-7).
In the final chapter, these findings will be compared to the literature, strengths and limitations will be explored, implications and conclusions will be drawn, and a series of recommendations for future research will be suggested.
CHAPTER FIVE
Discussion

Overview

The intention of this chapter is to review the purpose and procedure of the study and provide a brief summary of key findings addressing five research questions related to perfectionism, eating disorder risk, and female athletes. This will be followed by consideration of the results of the current study in the context of past findings. Next, limitations and challenges of the study will be presented, followed by recommendations for future research, policy enhancement, and practitioners.

Summary of Key Findings

The major goal of the current research was to explore the relationship between perfectionism and eating disorder risk in female collegiate athletes. The following specific research questions were proposed: 1A) Do female college athletes have significantly higher scores on the eating disorder scale than female college non-athletes? 1B) Do female college athletes have significantly higher scores on a measure of personal perfectionism than female college non-athletes? 1C) Do female college athletes have significantly higher scores on a measure of parental perfectionism than female college non-athletes? 2) Are female college athletes’ personal perfectionism scores systematically related to eating disorder risk? 3) Are female college athletes’ parental perfectionism scores systematically related to eating disorder risk? And 4) Do parental perfectionism scores mediate the relationship between female college athlete’s personal perfectionism scores and eating disorder risk scores?
In the current research, female collegiate athletes did not have significantly higher scores than female collegiate non-athletes, either on eating disorder risk, personal perfectionism or parental perfectionism. Contrary to prediction, eating disorder risk for collegiate female athletes was significantly lower than for the non-athletes. As expected, collegiate female athletes’ personal perfectionism showed a significant positive correlation with their eating disorder risk ($r = .33$); contrary to prediction, female college non-athletes’ personal perfectionism also showed a significant positive correlation with their eating disorder risk ($r = .49$). For both collegiate female athletes’ and non-athletes, parental perfectionism was not significantly related to eating disorder risk. Similarly, parental perfectionism did not add significant unique variance in predicting eating disorder risk nor did it mediate the relationship between personal perfectionism and eating disorder risk.

**Previous Research and Current Findings**

**Athletes and Eating Disorder Risk (Research Question 1A):** Contrary to prediction, in the current research, female collegiate athletes had lower eating disorder risk than non-athletes. While these findings may reflect reality, it is conceivable that these findings are an artifact of methodological limitations such as failure to categorize athletes according to type of sport, and the possibility of underreporting of risk, especially among the athletes.

An often-cited study carried out in Norway (Sundgot-Borgen, 2004) found a higher prevalence of subclinical and diagnosable eating disorders among athletes when compared to a control group of non-athletes (13.5% vs. 4.6%). They also found that those athletes who competed in aesthetic sports (where leanness is highly valued) were more
than twice as likely to develop an eating disorder when compared to those athletes who competed in endurance, technical, or ball sports. One limitation of the current study is that it did not distinguish between type of sport (e.g., lean vs. non-lean, aesthetic vs. non-aesthetic) and post-hoc categorization would not be practical given the limited sample size and range of sports surveyed.

Previous research has demonstrated that eating disorder risk varies across samples. One relevant study conducted with collegiate athletes was carried out by the NCAA (Johnson, Powers, Dick, 1999). This study found relatively low prevalence rates for eating disorders in their sample of collegiate athletes (compared to prior research on athletes). The authors suggested that methodological differences such as having a larger sample size and a more rigorous sampling procedure could have accounted for lower prevalence rates compared to prior studies; however, the authors also pointed out that the athletes may have minimized any pathology so as to protect their teams, coaches, or the athletic departments from potential scrutiny. Consistent with this observation, while carrying out the current research, this researcher observed that several of the coaches seemed apprehensive about giving access to their athletes, and thus, risking public exposure of their nutritional health and workout practices.

The coach-athlete relationship also has been explored by Jones, Glintmeyer, and McKenzie (2005) who identified several controversial, though not atypical, coaching practices that coaches and athletic departments may prefer not to be made public, including the practice of publishing weights of individual athletes, discussions regarding specific weight loss techniques, and distribution of specific nutritional information that some might consider controversial. Revealing such practices conceivably could place the
coach, athlete, and their departments at risk of public criticism. Therefore, in an effort to protect their relationships with their coaches and athletic departments, some of the athletes included in this study may have under-reported unhealthy practices and weight management techniques.

The present findings are most consistent with the findings of Reinking and Alexander (2005), who found 12.9% of female college non-athletes to have been at risk for eating disorders compared to the 7.1% of female college athletes. One of the research limitations that these authors cite is that they provided an information session prior to students enrolling in the study, the result of which was that “some students with eating issues may have chosen not to participate” (Reinking & Alexander, 2005, p. 50), thereby creating a sampling bias. In the current study, it is possible that the athletes who were approached may have speculated they would be asked about potentially secretive eating practices and chose to under-report rather than decline to participate. Finally, it is possible that many of the athletes in the current research strive for and achieve better eating practices than the average non-athlete. This, of course, is contrary to what was suggested in Hypothesis 1A.

Athletes and Perfectionism (Research Question 1B): Contrary to prediction, female collegiate athletes did not score higher on perfectionism than female collegiate non-athletes. The means and standard deviations for perfectionistic attitudes were remarkably similar in both groups (Athletes M = 3.05, SD = .62; Non-athletes M = 3.08, SD = .64), with the average score in the mid-range of perfectionism.

One limitation of the current research is that the athletes and non-athletes were classified into groups, as opposed to being stratified along dimensions, such as degree of
athleticism or athletic identity. Collegiate athletes vary considerably in terms of their level of elitism within their sport (or sports), and some of the non-collegiate athletes may have been high school athletes of considerable talent, who simply chose not to pursue college athletics.

It is widely believed that elite athletes are at the highest risk of falling prey to practices that they think will lead to perfection. Johns and Johns (2000) coined the term athletic identity to mean a way of thinking about oneself as it relates to one’s athletic ability and performance. Often an elite athlete will make extreme sacrifices to maintain the integrity of this part of their identity.

Some athletes may restrict their diet and go to the extreme to do so (e.g., wearing a rubber suit in high heat). They may practice through injury or pain, train excessively and compulsively, and do whatever it takes to please their parents, coach, teammates, or themselves. In this study, elite athletes were not distinguished from those who were less elite, and in addition, athletes were not specifically asked about extreme practices (which they may have been reluctant to reveal, even if asked). The current findings are somewhat consistent with the findings of Sterling and Kerr (2006), who found no statistically significant differences between elite and recreational athletes’ scores on total perfectionism or on any of the subscales related to perfectionism. They suggested, however, that future research compare athletes to “sedentary populations,” as they hypothesized that “one’s athletic identity, or the extent to which one’s identity is defined by athletic involvements and accomplishments, may be a critical determinant of perfectionism” (p. 20).
Although the current study made a distinction between athletes and non-athletes, as previously noted, many of those who identified as non-athletes may have been athletically involved in high school or at the non-varsity collegiate level, and therefore a clear distinction between athletes and those who lead a more “sedentary” lifestyle (i.e., non-athlete) was difficult to make.

*Athletes and Parental Perfectionism (Research Question 1C):* Contrary to prediction, parental perfectionism was not significantly higher in athletes than non-athletes. Also, contrary to prediction, it did not add significant unique variance beyond athletes' own perfectionism in the prediction of eating disorder risk.

Although empirical research exploring the influence of parental perfectionism on female athletes is lacking, some have theorized about the role of perfectionism in the parent-child relationship. For example, Rice, Ashby, & Preusser (1996) suggest that perfectionistic parents are likely to raise perfectionistic children, especially when the child feels receiving their parent’s approval is contingent upon meeting their parent’s high expectations. Generalizing from this study, conditional love may occur between the elite athlete and their parent as indicated by attention, praise, and affection given after performing well. Smith (1980) adds that parents may assume the role of “self-appointed monitors of training routines, dietary practices, and weight control” (p. 139) and that self-disciplined and perfectionistic behaviors related to athletic participation can be admired and reinforced by parents and coaches.

The present findings demonstrated that parental perfectionism is similar in both magnitude and variability in both athletes and non-athletes. Plausibly, parental perfectionism operates in non-athletes through similar mechanisms to those found in
athletes, although the object of the parental perfectionism in non-athletes may be directed at different outcomes such as academics, music and the arts, financial success, and other presumed indicators of competence. As previously suggested, one alternative explanation for these results is that the athletes may have been more guarded than the non-athletes about revealing information about their parent's perfectionistic attitudes, as well as any other information, that might be viewed as an indicator of imperfection.

Perfectionism and Eating Disorder Risk (Research Question 2): The findings from the current research are consistent with other research that has demonstrated a relationship between perfectionism and eating disorder risk, primarily anorexia. For example, Halmi et al. (2000) found higher scores on the Concern over Mistakes (CM), Doubts about Actions (DA), Parental Expectations (PE), Parental Criticism (PC), and Personal Standards (PS) scales in their anorexic patient sample. Similarly, Bastiani et al. (1995) found their anorexic participants to be high on the CM, DA, and PC subscales, and Cockell and colleagues (citation) found high scores on Self-Oriented Perfectionism (SOP) and Socially Prescribed Perfectionism (SPP) among anorexic individuals when compared to a control sample.

Parental Perfectionism and Eating Disorder Risk (Research Questions 3A, 3B & 4): In the current study, parental perfectionism was statistically unrelated to eating disorder risk. It did not add significant unique variance, beyond that explained by personal perfectionism, in predicting eating disorder risk, nor did it mediate in the relationship between personal perfectionism and eating disorder risk.

Virtually no empirical research exists on the relationship of parental perfection to personal perfectionism and eating disorder risk. Thus, it is difficult to discuss these
findings in the context of prior empirical research. However, one study by Miller-Day (2006) investigated the influence of parental communication and perfectionism on their college-aged child’s maladaptive eating behaviors and found 23% of their sample to have eating disturbance. Their findings were consistent with the idea that a parent-child conformity communication pattern and parental perfectionism may lead to maladaptive eating. Finally, with respect to the current research, it is conceivable that, just as athletes might be guarded about revealing potentially negative information about their coaches, they also might not want to disclose potentially negative information about their parents.

Methodological Limitations and Suggested Improvements

There are several limitations to the current study. First, the researcher was not present during the administration of the measures to the non-athlete sample. Instead, professors were asked to read instructions and advise students to carefully read the informed consent prior to participating. Therefore, students may have avoided asking questions about specific items, or questions may not have been adequately addressed due to the researcher not being present. For example, questions related to binging, body fat percentage, menstrual cycles, and participation in sports may have been incorrectly answered due to not understanding the question. By the researcher being present, any misunderstandings, questions, or concerns about the research could have been avoided or clarified.

Some of the terms used in this research are highly subjective and in need of refinement. For example, "binge eating" is a relatively subjective term, which is defined in the DSM-IV TR as eating, “in a discrete period of time, an amount of food that is definitely larger than what most people would eat in a similar period of time under
similar circumstances” (DSM-IV TR; American Psychiatric Association, 1994). This can be problematic from a measurement perspective, since eating a sandwich may be considered a binge to someone who carries a diagnosis of anorexia, as this amount of food may be considered more than they are used to eating. Endorsing binging on the EAT-26 should therefore be interpreted with caution due to the subjective interpretation of the term.

In addition, ideal body fat may not be known or well understood by the participants of this study. This seems to have been demonstrated by the range of responses, and perhaps inaccurate responses, when students were asked to indicate their current body fat and ideal body fat percentages. Also, it has been well documented in the literature that amenorrhea is not a clear indicator of an eating disorder and therefore those reporting irregular or missed periods in this current research should not be assumed to have an eating disorder. Naturally occurring irregular menses or the influence of oral contraceptives can explain inconsistent menstrual cycles. Of course, the requirement of amenorrhea does not apply to men, which ultimately led to the removal of amenorrhea from the criterion for anorexia. From what is now known about the risk of misunderstanding the meaning of binging, body fat, and amenorrhea, it would have been beneficial to specifically define these terms in the questionnaire used in the current research.

Questions related to varsity-level sport participation in high school also may have been misunderstood by respondents, thereby making it difficult to distinguish between athlete and non-athlete status. Specifically, the question on the demographic portion of the questionnaire asks, “What sport did you play in high school?” This was followed by a
prompt to “indicate number of years” played next to the sport. Although the previous question specifically asked, “Did you play varsity athletics in high school?”, participating at the varsity level cannot be inferred for the next question regarding years played and should have been more clearly stated.

Another complication related to sport participation was that a few of those identifying as non-athletes indicated playing a sport for more than two years, which would exclude them from the non-athlete sample, if the sport was played at the varsity level. It seems most likely that the “non-athlete” was indicating years played at the non-varsity level, but this cannot be inferred with complete confidence. In the current research, non-athlete respondents were assumed to have read the instructions prior to completing the survey, and therefore if they reported playing a sport for several years, it was assumed to be at the non-varsity level.

There are several ways in which the current research could be improved or extended, aside from addressing the limitations previously mentioned. It may prove interesting to apply this research to a sample of non-student adults who participate in sports compared to a sample of non-student adults that do not. Also, it may be interesting to look at students' perception of perfectionism several times throughout the year, paying particular attention to more stressful times during the course of the academic year (i.e., finals, playoffs), as stress may induce more perfectionistic tendencies. A longitudinal study collecting data at various time points over the course of several years may prove interesting to see if perfectionism and eating disorder symptoms change over time.

Many studies address the impact of lean versus non-lean sports. By including lean and non-lean sports in this study, further comparisons could have been made. In this
study only four sports were represented (crew, soccer, track and field, and volleyball) with distance running as the only lean sport included in the sample. Due to the disproportionate number of lean and non-lean sport athletes represented in this sample, the lean vs. non-lean sport comparison cannot be made. In addition, with the incidence of eating disorders among male athletes on the rise, including them in the study would add to the richness of the study outcomes. Further, using the MPS scale adapted specifically for use with athletes, the Multidimensional Perfectionist Scale for Athletes (MPS-A) (Vitullo, 2003), may have been useful, as some of the questions are better tailored to perfectionism among athletes. The scale is composed of fifty-six questions on which participants are asked to respond using a Likert scale ranging from one (strongly disagree) to five (strongly agree). For example, one statement on the MPS-A, “I hate being less than the best in my sport” assesses self-expectations. Other statements assess perfectionism dimensions related to expectations of parents, coaching staff, and other athletes.

Access to and interviews with parents, coaches, and athletes may have added useful and interesting information to the current research. Using a qualitative approach would be likely to result in richer information about the complexities of this social construct.

Recommendations for Future Research

Past research illustrates an association between perfectionism and a host of poor mental health outcomes. For example, perfectionism has been associated with depression, anxiety, substance use disorders, and eating disorders. Despite these negative
associations, it is important to note that perfectionism can be a positive force in people's lives, leading to enhance motivation, success, and performance.

The current research did not distinguish between, what has been referred to as “positive” and “negative” perfectionism. An extension of this research could examine the perceived positive effects of one’s perfectionism. For instance, future research could examine the possible mechanisms through which perfectionism leads to achievement. The result of such research could change how we define perfectionism and distinguish between “healthy” and “non healthy” forms and levels of perfectionism. As perfectionism is socially constructed, its meaning has the potential to change. How to channel and use perfectionism in healthy ways may lead to a reduction in mental illness associated with it.

Previous research has examined the impact of parental pressure/expectations and modeling on children's academic success; however, there has been a lack of similar focus on how parental expectations and modeling affect athletic performance. It may prove interesting to explore how the degree of parental pressure to succeed, and the developmental timing of such pressure affect children's athletic success and psychological adjustment. It may be interesting to examine a parent’s participation in sports and how it may translate into wanting their children to become successful athletes. Perhaps recruiting and screening pro-athlete parents and inquiring about their perfectionism, and its potential influence on their children, may be another area worth exploring.

As influences from caregivers begin at birth, it may prove useful to study children’s perception of perfectionism at a young age. Messages about success and achievement are not limited to a single source such as parents; therefore asking children
how they receive these messages may be of interest. Media often has been a culprit in communicating maladaptive messages about gender, sex, relationships, entertainment, and what it means to be successful. Studying commercials, television shows, movies, and print media may give us a better understanding of how those referred to as Generation X receive cultural messages.

Another consideration for future research may be examining the influence of who pays (payor source) for the student's educational expenses. For instance, if parents of the student-athlete are paying tuition, does this contribute to the pressure to succeed athletically? What if the student is funded through a scholarship? Do the requirements laid forth by the scholarship (i.e., maintenance of 3.0 GPA, consistent athletic participation, etc.) fuel a level of maladaptive perfectionism? Although the current research did not explore how who pays for tuition, including scholarship maintenance rules, impacts the student-athlete, such considerations may add to the demands placed on the student-athlete, as there is much to lose if one does not perform at the level expected by others.

Similarly, another potential limitation is that some of the athletes may have agreed to participate in the study only because they believed it was socially desirable. In this context, behaving in a socially desirable manner might be viewed as an indirect expression of trying to be perfect; thereby, creating a sample bias. That is how one’s perfectionism influences one’s willingness to voluntarily participate in this research. It may not be feasible to screen participants for this, but is important to keep in mind.
Policy Recommendations

We have come a long way since Title IX. The NCAA recognizes the need to ensure the safety and protection of athletes and has done so through acknowledging the risks associated with being among the elite (i.e., female athlete triad). More needs to be done, however, as creative, new athletic practices are being developed and encouraged, some of which may threaten the safety and health of athletes. Policy needs to continue to respond to the demands put on athletes by themselves, their coaches, their teammates, and their parents to ensure athletes are supported in their athletic pursuits. Serving and protecting athletes is an obligatory role of athletic organizations like the COA and NCAA and in light of the current research, several suggestions are reviewed below.

Mandatory Coach Training: Coaches often have to attend trainings. Many of these trainings are related to the safety and welfare of their athletes. For instance, as the number of head injuries and concussions has been on the rise in contact sports, coaches must know about signs and symptoms to look for when responding to a hard hit. It is imperative that coaches know the consequences of such an injury and when it is safe for a player to return to the game. Head injury prevention efforts have also been a focus of attention. This same level of attention and concern is necessary when responding to an athlete that shows signs of disordered eating and unhealthy training practices. It is important to communicate a coach’s expectations, but to recognize that striving to be the best has a price. Coaches need to keep their expectations, demands, and how they communicate in check, as some athletes may suffer just to please others. Coaches are on the front lines and have heavy influence on their athletes; thus, it is important that they have the knowledge needed to guide athletes toward healthy participation in sports.
Coaches should be made aware of athletes who have a history of an eating disorder so that they know when and how to respond to a player who drops or gains significant weight, seems lethargic or is suffering from any other medical consequences, namely issues related to the heart (i.e., heart palpitations, low/high blood pressure, dizziness, etc.). Coaches may want to work with the athlete’s parents and providers (doctor, therapist, registered dietician) so as to collaborate in caring for an athlete at risk.

**Access to Nutritional Support:** It is rare to find a coach who is also a registered dietician. Coaches do not have the training to provide information about nutrition and weight management techniques to their athletes, yet many coaches do. Coaches are a primary trusted resource for athletes but they should not be the only source of knowledge and information. As athletes have access to athletic trainers, athletes should have the same level of accessibility to a registered dietician. Questions about food intake and energy expenditure should be reviewed with teams and individually with athletes upon request from coaches and the athletes themselves. It is hoped that the more eyes on the athlete, the more likely unhealthy practices can be avoided and prevented.

**Regular NCAA Visits:** Most of the time, we hear about NCAA involvement when things go awry in college sports (i.e., illegal recruiting techniques, coaches abusing athletes, athletes abusing drugs or performance-enhancing drugs, etc.). As a leader and protector of athletes, the NCAA has a responsibility to mandate schools abide by NCAA regulations aimed to protect its athletes, but how often does the NCAA check that schools are doing what they say they are? The NCAA should have routine and regular (every one, three, five years) site visits to schools. NCAA visiting representatives should examine recruiting, coaching, and training practices. They should review the athlete handbook,
talk to athletes and provide opportunities for athletes to talk about their concerns in open forums. Most importantly, they should be made aware of athletes at risk and enforce ways in which coaches and athletic departments can take care of them. Penalties and consequences (i.e., losing funding or Division I ranking) for not following NCAA rules should be strictly enforced.

Practitioner Recommendations

The following recommendations are primarily for practitioners, however, recommendations for coaches and parents also have been included. The goal for practitioners, coaches, and parents is the same, which is to maximize the safety and health of the athlete.

Practitioners: First and foremost practitioners should be aware of the devastating effects of eating disorders. Ultimately the longer one lives with an eating disorder, the less likely one is to recover. Practitioners also should know the diagnostic criteria for each eating disorder and estimated prevalence rates associated with the illness, including knowledge of the rising rates among men. Careful assessment of one’s eating habits/rituals, weight and weight fluctuations, exercise, and family history should be completed upon intake. Also, due to the often secretive nature of maintaining eating disorder behavior as a maladaptive way to cope, it may be beneficial to connect with other providers and those close with a client (provided the client signs releases of information).

College campuses are beginning to recognize the need to “speak out” against eating disorders and often do so during Eating Disorder Awareness week which occurs every February. Many colleges encourage students to partake in activities that educate
others about the need to address eating disorders and treat it as the epidemic it is becoming. Events such as “Inside Out Day”, encourages students to wear their clothes inside-out as a way to symbolize the importance of who one is on the inside, rather than judging personal appearance. Efforts to have a day refraining from negative body talk is also catching on and students are asked to redirect those who fall prey to doing so. Lastly, college counseling centers often provide free screenings for eating disorders and may want to consider using the MPS-A with athletes.

*Coaches and Parents:* Again, knowledge about eating disorders and their harmful consequences is the place to start. Trainings and educational sessions for coaches, parents, students, and residential life and counseling staff should be offered on college campuses. Knowing the signs and symptoms may help prevent disordered eating from becoming an eating disorder. Coaches should require yearly physicals of their athletes and physicians should know what to look for. Physicians and coaches should never practice outside of their areas of expertise and should therefore refer to specialists and involve others (e.g., parents, on campus nutritionist, health and counseling centers) to provide support to the student.

*Conclusion*

The current research examined personal and parental perfectionism in relation to eating disorder risk in 104 female collegiate athletes and 112 female collegiate non-athletes. A significant but modest relationship was found ($r = .33$) between female collegiate athletes’ personal perfectionism and eating disorder risk. Contrary to prediction, female collegiate athletes did not have higher scores on eating disorder risk,
personal perfectionism, or parental perfectionism compared to a control sample of female collegiate non-athletes.

The findings also demonstrated that both athletes and non-athletes vary considerably within group in terms of level of personal perfectionism; that is, high levels of perfectionism exist in individuals within both groups. Given other evidence linking perfectionistic attitudes to the development of eating disordered behavior, it makes sense for teachers, coaches, and counselors to be alert to signs of maladaptive forms of perfectionism in athletes and non-athletes.

The current findings did not support a direct or indirect link between parental perfectionism and eating disorder risk. This does not mean that such a relationship does not exist for individual students. Rather, the findings suggest that parental perfectionism may be only one of many potential paths that lead to personal perfectionism and/or eating disordered behavior in individual students. Based upon the current findings, generalizations about the role of parental perfectionism in eating disordered behavior cannot be made at the group level.

Consistent with these findings is the idea that educational and counseling initiatives should be made to prevent eating disorders in both athletes and non-athletes. Effective prevention is likely to involve educational programs about potential paths leading to eating disordered behavior. With respect specifically to athletes, competition and expectations of athletes are not likely to lessen. The impact of perfectionism and eating disordered behavior on athletic performance can be a life or death issue. Efforts to prevent eating disorders must be systemic, involving education of not only of athletes, but also coaching staff, teachers, counselors, residential life advisors, and university
policy makers. Through comprehensive preventive efforts, it is hoped that the love of the
game, rather than perfectionism, will be the primary driving force for athletes.


Table 1

*Frequency Counts for Selected Variables for Athletes and Non-athletes (N = 216)*

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<tr>
<td></td>
<td>18 years old</td>
<td>62</td>
<td>28.7</td>
</tr>
<tr>
<td></td>
<td>19 years old</td>
<td>43</td>
<td>19.9</td>
</tr>
<tr>
<td></td>
<td>20 years old</td>
<td>54</td>
<td>25.0</td>
</tr>
<tr>
<td></td>
<td>21 years old</td>
<td>43</td>
<td>19.9</td>
</tr>
<tr>
<td></td>
<td>22 years old</td>
<td>9</td>
<td>4.2</td>
</tr>
<tr>
<td></td>
<td>23 years old</td>
<td>2</td>
<td>0.9</td>
</tr>
<tr>
<td>Hispanic</td>
<td>Yes</td>
<td>31</td>
<td>14.4</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>185</td>
<td>85.6</td>
</tr>
<tr>
<td>Race</td>
<td>White</td>
<td>141</td>
<td>65.3</td>
</tr>
<tr>
<td></td>
<td>Hispanic</td>
<td>31</td>
<td>14.4</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td>Mean</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>-------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>Black, African American</td>
<td>28</td>
<td>13.0</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>16</td>
<td>7.4</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Age: \(M = 19.50, SD = 1.29\).

Table 1 *Continued*
Table 1 Continued

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Citizen Status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US citizen</td>
<td></td>
<td>201</td>
<td>93.1</td>
</tr>
<tr>
<td>International Student</td>
<td></td>
<td>15</td>
<td>6.9</td>
</tr>
<tr>
<td><strong>Family Income</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $25k</td>
<td></td>
<td>18</td>
<td>8.3</td>
</tr>
<tr>
<td>$25k-50k</td>
<td></td>
<td>24</td>
<td>11.1</td>
</tr>
<tr>
<td>$50k-75k</td>
<td></td>
<td>39</td>
<td>18.1</td>
</tr>
<tr>
<td>$75k-100k</td>
<td></td>
<td>59</td>
<td>27.3</td>
</tr>
<tr>
<td>More than $100k</td>
<td></td>
<td>76</td>
<td>35.2</td>
</tr>
<tr>
<td><strong>Menstrual Cycles</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-3</td>
<td></td>
<td>11</td>
<td>5.1</td>
</tr>
<tr>
<td>4-9</td>
<td></td>
<td>43</td>
<td>19.9</td>
</tr>
<tr>
<td>10-12</td>
<td></td>
<td>162</td>
<td>75.0</td>
</tr>
</tbody>
</table>

b Income: Mdn = $87,500.
Table 1 *Continued*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintained Weight No Diet</td>
<td>Yes</td>
<td>81</td>
<td>37.5</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>135</td>
<td>62.5</td>
</tr>
<tr>
<td>Intentionally Lost Weight</td>
<td>Yes</td>
<td>88</td>
<td>40.7</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>128</td>
<td>59.3</td>
</tr>
</tbody>
</table>
Table 1A

*Chi-Square Comparisons of Selected Demographic Variables Based on Group (N = 216)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Athlete</th>
<th></th>
<th>Non-Athlete</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>High School Athlete&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td>99</td>
<td>95.2</td>
<td>37</td>
<td>33.0</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>5</td>
<td>4.8</td>
<td>75</td>
<td>67.0</td>
</tr>
<tr>
<td>Hispanic&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td>11</td>
<td>10.6</td>
<td>20</td>
<td>17.9</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>93</td>
<td>89.4</td>
<td>92</td>
<td>82.1</td>
</tr>
<tr>
<td>Caucasian&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>39</td>
<td>37.5</td>
<td>36</td>
<td>32.1</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td>65</td>
<td>62.5</td>
<td>76</td>
<td>67.9</td>
</tr>
<tr>
<td>Citizen Status&lt;sup&gt;d&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US Citizen</td>
<td></td>
<td>94</td>
<td>90.4</td>
<td>107</td>
<td>95.5</td>
</tr>
<tr>
<td>International Student</td>
<td></td>
<td>10</td>
<td>9.6</td>
<td>5</td>
<td>4.5</td>
</tr>
</tbody>
</table>

<sup>a</sup>χ² (1, N = 216) = 89.34, p = .001. Cramer’s V = .64.
<sup>b</sup>χ² (1, N = 216) = 2.32, p = .13. Cramer’s V = .10.
<sup>c</sup>χ² (1, N = 216) = 0.68, p = .41. Cramer’s V = .06.
<sup>d</sup>χ² (1, N = 216) = 2.21, p = .14. Cramer’s V = .10.
**Table 1A Continued**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Athlete</th>
<th>Non-Athlete</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$n$</td>
<td>$%$</td>
</tr>
<tr>
<td>Family Income $^e$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $25K$</td>
<td>8</td>
<td>7.7</td>
<td>10</td>
</tr>
<tr>
<td>$25K-50K$</td>
<td>6</td>
<td>5.8</td>
<td>18</td>
</tr>
<tr>
<td>$50K-75K$</td>
<td>17</td>
<td>16.3</td>
<td>22</td>
</tr>
<tr>
<td>$75K-100K$</td>
<td>31</td>
<td>29.8</td>
<td>28</td>
</tr>
<tr>
<td>More than $100k$</td>
<td>42</td>
<td>40.4</td>
<td>34</td>
</tr>
<tr>
<td>Menstrual Cycles $^f$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-3</td>
<td>6</td>
<td>5.8</td>
<td>5</td>
</tr>
<tr>
<td>4-9</td>
<td>21</td>
<td>20.2</td>
<td>22</td>
</tr>
<tr>
<td>10-12</td>
<td>77</td>
<td>74.0</td>
<td>85</td>
</tr>
<tr>
<td>Maintained Weight No Diet $^g$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>37</td>
<td>35.6</td>
<td>44</td>
</tr>
<tr>
<td>No</td>
<td>67</td>
<td>64.4</td>
<td>68</td>
</tr>
</tbody>
</table>

$^f \chi^2 (2, N = 216) = 0.21, p = .90$. Cramer’s $V = .03$.  
$^g \chi^2 (1, N = 216) = 0.32, p = .57$. Cramer’s $V = .04$.
Table 1A  *Continued*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Athlete</th>
<th>Non-Athlete</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Intentionally Lost Weight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>32</td>
<td>30.8</td>
<td>56</td>
</tr>
<tr>
<td>No</td>
<td>72</td>
<td>69.2</td>
<td>56</td>
</tr>
</tbody>
</table>

\[ \chi^2 (1, N = 216) = 8.26, p = .004. \) Cramer’s \( V = .20. \)
Table 1B

One-Way ANOVA Comparing Year in School and Age with Group (N = 216)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>η</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year in School a</td>
<td>Athlete</td>
<td>104</td>
<td>14.25</td>
<td>1.08</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-Athlete</td>
<td>112</td>
<td>14.47</td>
<td>1.24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>Athlete</td>
<td>104</td>
<td>19.43</td>
<td>1.22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-Athlete</td>
<td>112</td>
<td>19.55</td>
<td>1.36</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a School Year: 13 = Freshman, 14 = Sophomore, 15 = Junior, and 16 = Senior.
Table 2  
_Psychometric Characteristics for Summated Scale Scores for Athletes and Non-athletes (N = 216)_

<table>
<thead>
<tr>
<th>Score</th>
<th>Number of Items</th>
<th>M</th>
<th>SD</th>
<th>Low</th>
<th>High</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Perfectionism</td>
<td>26</td>
<td>3.07</td>
<td>0.63</td>
<td>1.50</td>
<td>5.00</td>
<td>.92</td>
</tr>
<tr>
<td>Parental Perfectionism</td>
<td>9</td>
<td>2.63</td>
<td>0.86</td>
<td>1.00</td>
<td>5.00</td>
<td>.90</td>
</tr>
<tr>
<td>EAT-26</td>
<td>26</td>
<td>9.24</td>
<td>10.03</td>
<td>0.00</td>
<td>54.00</td>
<td>.89</td>
</tr>
</tbody>
</table>

_Note._ Higher scores indicate higher levels of perfectionism and eating disorder risk. A total score of 20 or above on the EAT-26 may indicate higher risk for an eating disorder.
Table 3

*Comparison of Eating Disorder Risk and Perfectionism Based on Athlete Status (N = 216)*

<table>
<thead>
<tr>
<th>Rating</th>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>η</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. EAT-26</td>
<td>Athletes</td>
<td>104</td>
<td>7.74</td>
<td>9.41</td>
<td>.14</td>
<td>4.56</td>
<td>.03</td>
</tr>
<tr>
<td></td>
<td>Non-athletes</td>
<td>112</td>
<td>10.63</td>
<td>10.43</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Personal Perfectionism</td>
<td>Athletes</td>
<td>104</td>
<td>3.05</td>
<td>0.62</td>
<td>.02</td>
<td>0.08</td>
<td>.77</td>
</tr>
<tr>
<td></td>
<td>Non-athletes</td>
<td>112</td>
<td>3.08</td>
<td>0.64</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Parental Perfectionism</td>
<td>Athletes</td>
<td>104</td>
<td>2.68</td>
<td>0.94</td>
<td>.07</td>
<td>0.96</td>
<td>.33</td>
</tr>
<tr>
<td></td>
<td>Non-athletes</td>
<td>112</td>
<td>2.57</td>
<td>0.77</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Higher scores indicate higher levels of perfectionism and eating disorder risk. A total score of 20 or above on the EAT-26 may indicate higher risk for an eating disorder.
Table 4

*Intercorrelations among the Summated Scale Scores for the Athlete and Non-athlete Subsamples*

<table>
<thead>
<tr>
<th>Score</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Athletes (n = 104)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. EAT-26</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Personal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perfectionism</td>
<td>.33****</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>3. Parental</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perfectionism</td>
<td>.19</td>
<td>.63****</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Non-athletes (n = 112)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. EAT-26</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Personal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perfectionism</td>
<td>.49****</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>3. Parental</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perfectionism</td>
<td>.16</td>
<td>.54****</td>
<td>1.00</td>
</tr>
</tbody>
</table>

* p < .05. ** p < .01. *** p < .005. **** p < .001.
Table 5

Model 1: Eating Disorder Risk Regressed on Personal Perfectionism for the Athlete Sample (n = 104)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-7.71</td>
<td>4.43</td>
<td>.08</td>
<td></td>
</tr>
<tr>
<td>Personal Perfectionism</td>
<td>5.06</td>
<td>1.42</td>
<td>.33</td>
<td>.001</td>
</tr>
</tbody>
</table>

Full Model: $F (1, 102) = 12.67, p = .001$. $R^2 = .110$. 
Table 6

*Model 2: Parental Perfectionism Regressed on Personal Perfectionism for the Athlete Sample (n = 104)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.21</td>
<td>0.36</td>
<td>.57</td>
<td></td>
</tr>
<tr>
<td>Personal Perfectionism</td>
<td>0.95</td>
<td>0.12</td>
<td>.62</td>
<td>.001</td>
</tr>
</tbody>
</table>

Full Model: $F (1, 102) = 65.34, p = .001$. $R^2 = .390$. 
Table 7

Model 3: Eating Disorder Risk Regressed on Both Personal Perfectionism and Parental Perfectionism for the Athlete Sample (n = 104)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-7.78</td>
<td>4.45</td>
<td>.08</td>
<td></td>
</tr>
<tr>
<td>Personal Perfectionism</td>
<td>5.41</td>
<td>1.83</td>
<td>.36</td>
<td>.004</td>
</tr>
<tr>
<td>Parental Perfectionism</td>
<td>-0.38</td>
<td>1.21</td>
<td>-.04</td>
<td>.76</td>
</tr>
</tbody>
</table>

Full Model: $F(2, 101) = 6.33, p = .003. \ R^2 = .111.
Appendix A

Demographic Survey

**Instructions:** You will be asked many questions from several individual questionnaires. Each questionnaire may have its own set of instructions so be sure to read them. Please answer every question to the best of your ability. **Please be honest in your responses.** Your responses will not be shared with anyone and serve the sole purpose of contributing to important research concerning the health and attitudes of female college athletes. Thank you for participating in this study. Your participation is much appreciated.

**Instructions:** Please answer each question by placing an “x” in the appropriate box.

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What sport do you currently play?</td>
<td>Basketball</td>
</tr>
<tr>
<td></td>
<td>Swimming &amp; diving</td>
</tr>
<tr>
<td></td>
<td>Print sport:</td>
</tr>
<tr>
<td>2. Did you play varsity athletics in high school?</td>
<td>Yes</td>
</tr>
<tr>
<td>2a. What sport did you play in high school?</td>
<td>Basketball</td>
</tr>
<tr>
<td></td>
<td>Swimming &amp; diving</td>
</tr>
<tr>
<td></td>
<td>Print sport:</td>
</tr>
<tr>
<td>2b. Were you an All-American ranked athlete in high school?</td>
<td>Yes</td>
</tr>
<tr>
<td>3. Current year in school</td>
<td>Freshman</td>
</tr>
<tr>
<td>4. Age</td>
<td>18</td>
</tr>
</tbody>
</table>

---

5. Ethnicity: Are you Spanish/Hispanic/Latino?...... Yes □ ...... No □ ...... —If yes, please answer 5a.

5a. Check the appropriate box.... I am...
Mexican, Mexican-American, Chicano.
I am Puerto Rican.
I am Cuban.
I am some other Spanish/Hispanic/Latino group.
Print group:

6. Ethnicity......... White □ ...... Black, African American □ ...... American Indian or Alaska Native □ ...... Asian Indian □ ...... Chinese □ ...... Filipino □ ......
Print tribe: Japanese □ ...... Korean □ ...... Vietnamese □ ...... Other Asian □ ...... Native Hawaiian □ ...... Guamanian or Chamorro □ ......
Print race: Samoan □ ...... Other Pacific Islander □ ...... Some other race □ ......
Print race:

7. Are you a United States citizen or an International student?.............. US citizen □ ...... International student □ ......

8. What is your best estimate of your family income last year?............... Less than $25k □ ...... $25k-$50k □ ...... $50k-$75k □ ...... $75k-100k □ ...... More than $100k □ ......

9. How many menstrual cycles have you had in the past twelve (12) months?.............. 0-3 □ ...... 4-9 □ ...... 10-12 □ ......

10. What is your height?............... ft. in.
11. What is your current weight (in pounds)?............... lbs.
12. What is your highest weight (excluding pregnancy)?
   ______ lbs.

   12a. How long ago did you first reach this weight?
   ______ months ago

   12b. How long did you weigh this weight?
   ______ months

13. What is your lowest adult weight?
   ______ lbs.

   13a. How long ago did you first reach this weight?
   ______ months ago

   13b. How long did you weigh this weight?
   ______ months

14. What do you believe is your ideal weight? (In other words, how much would you like to weigh?)
   ______ lbs.

15. What weight have you been at for the longest period of time?
   ______ lbs.

   15a. At what age did you first reach this weight?
   ______ years old

16. If your weight has changed a lot over the years, is there a weight that you keep coming back to when you are not dieting?
   Yes  No

   → If yes, what is that weight?
   ______ lbs.

   At what age did you first reach this weight?
   ______ years old
<table>
<thead>
<tr>
<th>17. What is the most weight you have ever lost?</th>
<th>_____ lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>17a. Did you lose this weight on purpose?</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td>17b. What weight did you lose to?</td>
<td>_____ lbs.</td>
</tr>
<tr>
<td>17c. At what age did you reach this weight?</td>
<td>___ years old</td>
</tr>
<tr>
<td>18. What do you think your weight would be if you did not consciously try to control your weight?</td>
<td>_____ lbs.</td>
</tr>
<tr>
<td>19. What is your current body fat percentage(%)?</td>
<td>.......... %</td>
</tr>
<tr>
<td>20. What do you believe is your ideal body fat percentage (%)?</td>
<td>................. %</td>
</tr>
</tbody>
</table>
Appendix B

**EAT-26**

*Instructions:* Check a response for each of the following statements.

<table>
<thead>
<tr>
<th>1. Am terrified about being overweight</th>
<th>Always ▼</th>
<th>Usually ▼</th>
<th>Often ▼</th>
<th>Sometimes ▼</th>
<th>Rarely ▼</th>
<th>Never ▼</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Particularly avoid food with high carbohydrate content (i.e. bread, rice, potatoes, etc.)</td>
<td>□ ? ......</td>
<td>□ ? ......</td>
<td>□ ? ......</td>
<td>□ ? ......</td>
<td>□ ? ......</td>
<td>□ ? ......</td>
</tr>
</tbody>
</table>

---

2 The EAT-26 has been reproduced with permission. Garner et al. (1982). The Eating Attitudes Test: Psychometric features and clinical correlates. Psychological Medicine, 12, 871-878.
### In the past 6 months have you:

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Once a month or less</th>
<th>2-3 times a month</th>
<th>Once a week</th>
<th>2-6 times a week</th>
<th>Once a day or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Gone on eating binges where you feel that you may not be able to stop?[^1]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Ever made yourself sick (vomited) to control your weight or shape?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Ever used laxatives, diet pills or diuretics (water pills) to control your weight or shape?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. Exercised more than 60 minutes a day to lose or control your weight?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. Lost 20 pounds or more in the past 6 months?</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[^1]: Defined as eating much more than most people would under the same circumstances and feeling that eating is out of control.
Appendix C

MPS

Instructions: Please mark the box that best corresponds to your agreement with each statement below.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree ▼</th>
<th>Disagree ▼</th>
<th>Neutral ▼</th>
<th>Agree ▼</th>
<th>Strongly agree ▼</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. My parents set very high standards for me...............................</td>
<td>□ 1......</td>
<td>□ 2......</td>
<td>□ 3......</td>
<td>□ 4......</td>
<td>□ 5......</td>
</tr>
<tr>
<td>2. Organization is very important to me.................................</td>
<td>□ 1......</td>
<td>□ 2......</td>
<td>□ 3......</td>
<td>□ 4......</td>
<td>□ 5......</td>
</tr>
<tr>
<td>3. As a child, I was punished for doing things less than perfectly.....</td>
<td>□ 1......</td>
<td>□ 2......</td>
<td>□ 3......</td>
<td>□ 4......</td>
<td>□ 5......</td>
</tr>
<tr>
<td>4. If I do not set the highest standards for myself, I am likely to end up a second rate person........</td>
<td>□ 1......</td>
<td>□ 2......</td>
<td>□ 3......</td>
<td>□ 4......</td>
<td>□ 5......</td>
</tr>
<tr>
<td>5. My parents never tried to understand my mistakes........................</td>
<td>□ 1......</td>
<td>□ 2......</td>
<td>□ 3......</td>
<td>□ 4......</td>
<td>□ 5......</td>
</tr>
<tr>
<td>6. It is important to me that I be thoroughly competent in everything I do...</td>
<td>□ 1......</td>
<td>□ 2......</td>
<td>□ 3......</td>
<td>□ 4......</td>
<td>□ 5......</td>
</tr>
<tr>
<td>7. I am a neat person......................................................</td>
<td>□ 1......</td>
<td>□ 2......</td>
<td>□ 3......</td>
<td>□ 4......</td>
<td>□ 5......</td>
</tr>
<tr>
<td>8. I try to be an organized person.........................................</td>
<td>□ 1......</td>
<td>□ 2......</td>
<td>□ 3......</td>
<td>□ 4......</td>
<td>□ 5......</td>
</tr>
<tr>
<td>9. If I fail at work/school, I am a failure as a person...................</td>
<td>□ 1......</td>
<td>□ 2......</td>
<td>□ 3......</td>
<td>□ 4......</td>
<td>□ 5......</td>
</tr>
<tr>
<td>10. I should be upset if I make a mistake.................................</td>
<td>□ 1......</td>
<td>□ 2......</td>
<td>□ 3......</td>
<td>□ 4......</td>
<td>□ 5......</td>
</tr>
<tr>
<td>11. My parents wanted me to be the best at everything....................</td>
<td>□ 1......</td>
<td>□ 2......</td>
<td>□ 3......</td>
<td>□ 4......</td>
<td>□ 5......</td>
</tr>
<tr>
<td>12. I set higher goals for myself.......................................</td>
<td>□ 1......</td>
<td>□ 2......</td>
<td>□ 3......</td>
<td>□ 4......</td>
<td>□ 5......</td>
</tr>
</tbody>
</table>
than most people. □ ...... □ ...... □ ...... □ ...... □ ......

13. If someone does a task at work/school better than me, then I feel like I failed at the whole task............... □1...... □2...... □3...... □4...... □5......

14. If I fail partly, it is as bad as being a complete failure............... □ ...... □ ...... □ ...... □ ...... □ ......

15. Only outstanding performance is good enough in my family......... □1...... □2...... □3...... □4...... □5......

16. I am very good at focusing my efforts on attaining a goal... □ ...... □ ...... □ ...... □ ...... □ ......

17. Even when I do something very carefully, I often feel that it is not quite done right............... □1...... □2...... □3...... □4...... □5......

18. I hate being less than the best at things............. □ ...... □ ...... □ ...... □ ...... □ ......

19. I have extremely high goals.................. □1...... □2...... □3...... □4...... □5......

20. My parents have expected excellence from me............... □ ...... □ ...... □ ...... □ ...... □ ......

21. People will probably think less of me if I make a mistake... □1...... □2...... □3...... □4...... □5......

22. I never felt like I could meet my parents’ expectations....... □ ...... □ ...... □ ...... □ ...... □ ......

23. If I do not do as well as other people, it means I am an inferior human being....... □1...... □2...... □3...... □4...... □5......

24. Other people seem to accept lower standards from themselves
<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>25. If I do not do well all the time, people will not respect me.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>26. My parents have always had higher expectations for my future than I have.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>27. I try to be a neat person.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>28. I usually have doubts about the simple everyday things I do.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>29. Neatness is very important to me.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>30. I expect higher performance in my daily tasks than most people.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>31. I am an organized person.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>32. I tend to get behind in my work because I repeat things over and over.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>33. It takes me a long time to do something “right”.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>34. The fewer mistakes I make, the more people will like me.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>35. I never felt like I could meet my parents’ standards.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>