CRITICAL ELEMENTS THAT AFFECT COLLEGIATE ATHLETES’ RISK OF EATING DISORDER AND PERFORMANCE PERFECTIONISM

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In life, I will always remember that sacrifice, hard work, determination, and a little blessing from God will enable me to succeed in my adventures. I will remember: “Never let the fear of striking out, keep you from playing the game” – Babe Ruth.
ABSTRACT

Purpose: This study examined how sexual orientation, gender, collegiate division, and type of sport affected risk of developing an eating disorder and performance perfectionism in collegiate athletes. It was hypothesized that female athletes and Division I athletes would exhibit a higher level of perceived pressures and a higher risk of developing an eating disorder than male athletes and other divisions, respectively. In addition, homosexual athletes and athletes in aesthetic sports would report greater levels of perceived performance pressures and would express greater risk of developing an eating disorder than their counterparts. Methods: Two hundred and seventy-seven collegiate athletes (57 males; 210 females) from Division I (N = 64), II (N = 79), and III (N = 119) colleges and universities participated in this study. Participants completed a demographics questionnaire, Eating Attitudes Test-16, and the Sport-Multidimensional Perfectionism Scale to evaluate the eating attitudes and performance perfection of collegiate athletes. Factorial MANOVAs were used to examine the mean vector scores of perfectionism between genders and divisions I, II, and between sexual orientation and type of sports. Factorial ANOVAs were used to examine mean differences of risk of developing an eating disorder between genders and among athletes in divisions as well as sexual orientation and type of sports. A hierarchical multiple regression was used to predict eating disorders from gender and other independent variables. Results: A significant difference in PS and PPP were found between Divisions I and III athletes.
Significant differences in COM, PS, PPP, and PCP were found between athletes in aesthetic and non-aesthetic sports participants. Likewise, significant differences were found for COM, PPP, and PCP based on sexual orientation. Female athletes had a significantly greater risk of developing an eating disorder than male athletes, and they are at a significantly higher risk of developing an eating disorder in non-aesthetic and aesthetic sports than male athletes. A moderate positive correlation between risk of developing an eating disorder and COM and between COM and PCP was found. Gender was found to be a significant predictor of eating disorders in athletes. **Conclusion:** Extrinsic and personal pressures influence collegiate athletes to pursue perfectionism within sport that could negatively affect psychological, physical, and emotional health. Gender differences in eating attitudes suggest eating disorders remain more prominent in female athletes; however, pathological eating disorders are still present in male athletes. These results suggest that training and awareness programs must be established within athletic departments to reduce discrimination, promote early detection, and create an open environment conducive to all members participating.
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1.1 Background Information

Collegiate athletes are presented with social and personal pressures to perform to a high level of athleticism and maintain a body type conducive to their sport. Social and personal pressures to perform as a collegiate athlete are present throughout an athlete’s entire career. However, how does an athlete’s gender, the type of sport, the level of competition, and sexual orientation affect his or her risk of developing an eating disorder and perfectionism within sport? Researchers have discovered that eating disorders have become a major health crisis not only in the United States, but also around the world and among athletes. In 2003, twenty-four million people suffered from eating disorders within the United States, where eating disorders had the highest mortality rate among mental illness (The Renfrew Center Foundation for Eating Disorders, 2003). Crow et al. (2009) suggested that based on the known cases of eating disorders, the mortality rate of
anorexia nervosa had reached 4%, while the morality rate for bulimia nervosa had reached 3.9%. Among the adult population, 0.6% will suffer from anorexia nervosa and 1.0% will suffer from bulimia nervosa (Hudson, Hiripi, Pope, & Kessler, 2007); whereas among the female population, 1.5% will experience bulimia and 0.9% will experience anorexia (Hudson et al., 2007). Though adolescent females are most often affected by eating disorders, anorexia nervosa and bulimia nervosa cases have been seen among males, college students, and athletes (Picard, 1999). Within the male population, 0.5% will experience bulimia and 0.3% will experience anorexia (Hudson et al., 2007). The DSM-IV-TR of the American Psychiatric Association defines an eating disorder as a “severe disturbance in eating behaviors” (p. 307.50). More specifically, anorexia nervosa is defined as “the refusal to maintain a minimally normal body weight” (p. 307.1) and bulimia nervosa is categorized as “repeated episodes of binge eating followed by inappropriate compensatory behaviors such as self-induced vomiting; misuse of laxatives, diuretics, or other medications; fasting; or excessive exercise” (American Psychiatric Association, 2000, p. 307.51).

Restrained eating has been operationally defined as eating until a dietary limit has been filled rather than eating until the body feels content (Werrij et al., 2009), as an attempt to fight cravings and reduce food intake to ultimately control ones weight (Herman & Mark, 1975 as cited in Stirling & Yeoman, 2003), and decreasing the quantity, frequency, and type of food ingested (Gonzalez & Vitousek, 2004; Hawks, Madanat, Smith, & De La Cruz, 2008). Eating disorders occur most often among college athletes when it is important to keep a low body weight for competition (Arthur-Cameselle & Quatromoni, 2010), and where pressures from family, friends, spectators,
coaches, and personal expectations are high (Arthur-Cameselle & Quatromoni, 2010; Sudi et al, 2004). However, additional factors (e.g. gender and sexual orientation) may influence the risk of developing an eating disorder as a collegiate athlete.

It has been reported that sexual orientation may affect males and females differently in terms of behaviors, attitudes, and body dissatisfaction (Beren, Hayden, Wilfley, & Grilo, 1996; Moore & Keel, 2002). Russel and Keel (2002) discovered that homosexual and bisexual male athletes display higher levels of body dissatisfaction, negative attitudes, low self-esteem, and drive for thinness than heterosexual males. Similar results suggest that homosexual and bisexual athletes are more likely to compare physical appearance to teammates and opponents that are more successful (Ricciardelli, McCabe, & Ridge, 2006).

Great emphasis is placed on an athlete’s ability to succeed; therefore, some failure is expected throughout an athlete’s career. Unfortunately, notions of maladaptive perfectionism may appear if failures become psychologically unbearable. Perfectionism is defined as a personality trait portrayed by males and females that strive for precision by setting exceedingly high standards of performance and disparagingly assessing personal performances (Flett & Hewitt, 2002). Perfectionism can be seen in all components of an individual’s life, including work, school, and athletics (Dunn, Gotwals, & Dunn, 2005; Stoeber & Stoeber, 2009). Researchers have found inconclusive results when investigating gender differences in performance perfectionism; however, the majority of studies performed have concluded that males and females do not differ in perfectionism (Blankstein & Winkworth, 2004; Kawamura, Frost, & Harmatz, 2002). A person’s sexual orientation may also affect an athlete’s personal standards, concern over
mistakes, perceived parental pressures, and perceived coach pressures in an attempt to achieve perfection. Little tolerance of homosexuality is present within the athletic environment creating unnecessary stressors and notions of harassment, which inhibit an athlete’s ability to perform within his or her particular sport (Rankin & Merson, 2012). Extrinsic factors have also been related to performance pressures among collegiate athletes and their inability to cope with stressors successfully. Therefore, the purpose of this study was to examine factors that influence perfectionism and the risk of developing an eating disorder within Divisions I, II, and III athletes, including type of sport, level of competition, sexual orientation, and gender.

1.2 Statement of the Problem

An extensive amount of previous research has been focused on the risk of female athletes developing an eating disorder; however, male athletes’ risks have been overlooked. It is important to address the risk of developing an eating disorder among male athletes because clinical appearances of maladaptive eating behaviors among males has recently increased, and athletics is a high stress environment that could contribute to the onset of an eating disorder as it has among females. The relationship between sexual orientation, particularly within certain types of sport and risk of developing an eating disorder has been investigated extensively, but the impact of sexual orientation on risk of developing an eating disorder when the level of competition increases has not been investigated comprehensively. Based on previous research, individuals demonstrate exceedingly high degrees of perfectionism throughout many areas of life. However, little research has investigated domain specific perfectionism. Therefore, it is important to
investigate perfectionism in the sport domain to determine factors that influence perfectionism.

1.3 Purpose of the Study

The purpose of this study is to investigate the role gender, sexual orientation, level of competition, and type of sport have on an athletes’ risk of developing an eating disorder and perfectionism. The EAT-16 (an adapted version of the EAT-26) and the Sport-Multidimensional Perfectionism Scale (Sport-MPS) will be used within the present study. The EAT-16 will examine the attitudes and behaviors towards food that collegiate athletes within Division I, II, and III exhibit. The Sport-MPS will be used to investigate athletes’ personal standards, concern over mistakes, perceived parental pressures, and the perceived coach pressures for perfection in sport.

1.4 Hypotheses

1. Female athletes would exhibit a higher level of perceived pressures than male athletes.

2. Division I student-athletes would report higher levels of perceived pressures than Divisions II and III student-athletes.

3. Student-athletes within aesthetic sports would report greater levels of perceived performance pressures than student-athletes in non-aesthetic sports.

4. Homosexual student-athletes would convey a higher degree of perceived performance pressures than heterosexual student-athletes.

5. Female athletes would exhibit a higher risk of developing an eating disorder than male athletes.
6. Division I student-athletes would demonstrate a higher risk of developing an eating disorder than Divisions II and III student-athletes.

7. Student-athletes in aesthetic sports would express greater risk of developing an eating disorder than student-athletes in non-aesthetic sports.

8. Homosexual student-athletes would demonstrate greater risk of developing an eating disorder than heterosexual student-athletes.

9. There would be a positive correlation between performance pressures and the risk of developing an eating disorder.

1.5 Delimitations

The study was conducted with Divisions I, II, and III collegiate varsity athletes.
The athletes who participated in the present study were required to be on an active roster of a varsity collegiate team.

1.6 Definitions of Terms

**Eating Disorders:** Eating disorders are defined as “Severe disturbance in eating behaviors” (American Psychiatric Association, 2000, p. 307.50).

**Anorexia Nervosa:** Anorexia nervosa is defined as “The refusal to maintain a minimally normal body weight” (American Psychiatric Association, 2000, p. 307.1)

**Bulimia Nervosa:** Bulimia nervosa is defined as “Repeated episodes of binge eating followed by inappropriate compensatory behaviors such as self-induced vomiting; misuse of laxatives, diuretics, or other medications; fasting; or excessive exercise” (American Psychiatric Association, 2000, p. 307.51).

**Homophobia:** Homophobia is an unreasonable terror or anxiety of homosexuals (MacDonald, 1976, p. 23).
**Helicopter Parents:** Parents that take too much responsibility for their child’s success and failure (Haworth-Hoeppner, 2000).

**Aesthetic Sports:** Sports that place a great emphasis on the importance of an athlete maintaining a specific body image (Steiner-Adair et al., 2002).

**Non-Aesthetic Sports:** Sports that do not place a great emphasis on the importance of maintaining a specific body image by the athletes (Steiner-Adair et al., 2002).

**Social Identity Theory:** Social Identity Theory is “A psychological analysis of the role of self-conception in group membership, group process, and intergroup relations” (Hogg, 2006, p. 111). There are three stages of social identity theory: (a) categorization, (b) identification, and (c) comparison (Roper & Halloran, 2007).

**Perfectionism:** A personality disposition represented by males and females who strive for precision by setting high standards of performance and critically assessing personal performances (Flett & Hewitt, 2002).

**Expectancy-Value Model:** Expectancy-Value Model is a model used to determine how the value of an activity influences its importance to an individual and how others expectations to succeed is different among domains (Lewin, 1938; Tolman, 1932).

**Gender Similarities Hypothesis:** A hypothesis that suggests males and females are similar in most psychological variables (Hyde, 2005).
CHAPTER II
LITERATURE REVIEW

This study examined the sexual orientation, gender, level of competition, and type of sport that influence performance pressures and risk of developing an eating disorder in Divisions I, II, and III collegiate athletes. Overviews of the previous literature pertaining to the present study were discussed in the following sections: Eating Disorders, Drive for Perfection, and Sexual Orientation.

2.1 Eating Disorders

Over decades, the population has altered their body size in an attempt to maintain attractiveness, build muscle, and to control weight (Baum, 2006). The onset of eating disorders has been associated with psychological and sociocultural dynamics. Sociocultural factors that influence eating disorders include: (a) mass media, (b) peer pressure, (c) disparagement from family members and coaches, (d) decreased levels of self-esteem, and (e) discontentment with body image (Polivy & Herman, 2002). The
media’s representation of the shape and size of a “perfect” man or woman is displayed in fashion magazines, on television, and on billboards, where males and females are depicting unrealistic body shapes and sizes for most humans (Stice, Schupak-Neuberg, Shaw, & Stein, 1994). The misrepresentation of the body creates an obsession that leads women to focus more heavily on a specific size rather than their own health and well-being more often than males.

Pope, Hudson, and Yurlegun-Todd (1984) estimated that 1% to 2% of college females suffer from anorexia nervosa, while Katzman, Wolchik, and Braver (1984) reported that 6% to 8% display symptoms of bulimia nervosa. Eating disorders among males account for approximately 10 – 15% of eating disorder cases, which could result from the cultural pressures to hide weaknesses and vulnerability (Carlat & Camargo, 1991). Zuckerman, Colby, Ware, and Lazerson (1986) showed that 13% of college males perceived themselves as being overweight when only 11% of them were actually overweight, whereas 50% of the female population considered themselves overweight when only 10% of them were actually overweight. Elias (2004) and Atkinson (2007) explain that these social norms are learned, processed, and suppressed within the mind where the nature of poor eating behaviors become unconscious and appear normal to an individual, particularly to individuals involved in athletics. Therefore, males and females perceive eating disorder behaviors as a cultural importance and necessity rather than a risk to their health.

Females begin exercising to control weight in elementary school and often exhibit dietary restraint and an exercise regimen through college and adulthood (Picard, 1999). Certain groups (e.g., those in sporting activities) among the college population are at
higher risk of developing an eating disorder than others (Steiner-Adair et al., 2002).
Sundgot-Borgen and Torstveit (2004) discovered that female elite athletes report
significantly more symptoms of anorexia and bulimia (20%) than the females who are not
participating in athletics (9%). Petrie, Greenleaf, Reel, and Carter (2008) discovered
similar patterns among male athletes. Thirty-seven percent of male athletes surveyed
exercised at least one hour in addition to normal practice activities and 14.2% of athletes
dieted or practiced restrained eating habits in order to lose weight, both characteristics
previously correlated to eating disorder behaviors.

Dietary restraint is correlated with the feeling of hunger, deficiency, and
preoccupation with food, which in turn increases the likelihood of obesity, the feelings of
guilt, overeating, fixation on thinness and body size, and cognitive impairment
(Timmerman & Gregg, 2003). Reaction time and attention levels are impaired when
individuals focus extensively on dieting, body image, and when the development of high
anxiety and stress levels occur (Hawks et al., 2008). Elite athlete’s performance levels
may be negatively impacted due to the physical, mental, and emotional impairments
influenced by dietary restraint. Poor dietary behaviors are precursors for the
development of eating disorders and are specifically detrimental to the health and the
function among all athletes. Unfortunately, the risks do not outweigh the belief that only
those who exhibit a thin body type and are viewed as attractive will succeed (Hesse-
Biber, Leavy, Quinn, & Zoino, 2006). When the level of competition increases and the
type of sport is examined (Stoutjesdyke & Jevne, 1993), the necessity to be thin only
grows stronger.
Gay, Mady-Foster, Minton, Monsma, and Torres-McGeHee (2011) proposed that an individual’s desire for thinness and susceptibility to developing an eating disorder may be significantly correlated with the type of sport in which the athlete participates: Aesthetic (e.g. cheerleading, wrestling, and gymnastics) or Non-Aesthetic sports (e.g. baseball, volleyball, and soccer). Sundgot-Borgen and Torstveit (2004) indicated that 42% of athletes in aesthetic sports and 24% of athletes in non-aesthetic sports exhibited eating disorder behaviors. Eating habits among male athletes are witnessed on two extreme levels: overeating and under eating (Atkinson, 2011). Overeating, drug use, dieting (food that are low in fat or contain no fat), and excessive exercising are often seen in male athletes participating in football and weightlifting (Atkinson, 2011). Male athletes tend to under eat, dehydrate, and use exercise as methods of losing unwanted body fat when participating in sports such as running and wrestling that stress a lean body type. Male and female dancers, gymnasts, runners, and cheerleaders hold a greater risk of developing an eating disorder than individuals participating in non-aesthetic sports because these sports place a greater emphasis on the importance of maintaining a specific body image (Steiner-Adair et al., 2002). One survey showed that among male wrestlers and rowers, 52% expressed suffering from binge-eating behavior, where 11% described symptoms that could be clinically diagnosed as an eating disorder (Thiel et al., 1993). Black, Larkin, Costes, Leverenz, and Abood (2003) discovered that among those surveyed 33% of cheerleaders, 50% of gymnasts, 45% of dancers, and 45% of cross-country athletes suffered from disordered eating habits. Also, 17% of athletes in sports such as bowling and golf, and 16% of individuals in sports such as soccer, tennis, and volleyball exhibited eating disorders. Gay et al. (2011) determined that 42% of
equestrian athletes were subject to eating disorder behaviors according to the Eating Attitudes Test.

The level of competition can also drastically affect an athlete’s risk of developing an eating disorder. When investigating eating habits and training routines in Division I male athletes, Petrie, Greenleaf, Reel, and Carter (2008) discovered that 16.7% (n = 203) of participating athletes experienced binge eating at least one time every week. Stoutjesdyk and Jevne (1993) found that 5% of male athletes who completed the Eating Attitudes Test (EAT) showed characteristics of anorexia. Two studies suggested that Division I female athletes are at a high risk of developing an eating disorder when drive for thinness and total body fat were associated with the amount of achievable success in their sport (Johnson, Powers, & Dick, 1999; Powers & Johnson, 1996). Division I athletes participating in swimming, basketball, figure-skating, and gymnastics display a higher risk for eating disorders based on drive for thinness, while athletes participating in sports such as track, cross-country, and wrestling held higher risk of eating disorder based on body dissatisfaction (Engel et al., 2003; Picard, 1999). Engel et al. (2003) showed that individuals participating in basketball were less likely to show bulimic behaviors than those participating in gymnastics. Female athletes in Division II athletics did not exhibit significant differences in risk of eating disorder when compared to non-athletes. Also, type of sport, self-esteem, and social pressures did not increase the athletes’ risk of developing an eating disorder as previous research suggested for Division I athletes (Smiley & Lim, 2008). While investigating the prevalence of eating disorders, Picard (1999) found that Division I student-athletes displayed higher levels of eating disorder behaviors than Division III student-athletes. A drive for thinness was the main
reason for higher levels of eating disorder behaviors among Division I student-athletes, whereas a fear of becoming overweight or obese was the main reason for high levels of eating disorder behaviors among Division III student-athletes.

Both male and female athletes have used anabolic steroids to improve appearance or prevent unwanted weight gain. Pope, Phillips, Olivardia (2002) indicated that over two million males have used anabolic steroids within their lifetime. Steroids are most often used among males that are dissatisfied with their body image, particularly those males with small stature. Longman (2003) discovered that 4% of male athletes took steroids to increase athleticism, self-esteem, and appearance (Longman, 2003). Centers for Disease Control and Prevention (2004) stated that 5.3% females have tried anabolic steroids within their lifetimes as a form of body modification. Athletes commonly see both anabolic steroid use and eating disorder behavior as typical behavior within the athletic environment.

2.2 Drive for Perfection

Athletes demonstrate personal standards and are presented with social pressures that lead to psychological stress and drive for perfection within sports at a very young age. Perfectionism is a personality trait exhibited by individuals who struggle to acquire exactness and set high standards of performance while critically evaluating such performances (Flett & Hewitt, 2002). Signs of perfectionism are witnessed within various areas of an individual’s life, including work, school, and competitive sport/athletics (Stoeber and Stoeber, 2009; Dunn, Gotwals, Dunn, 2005). Perfectionism can be broken down into two distinct groups: Perfectionistic Strivings and Perfectionistic Concerns (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Stoeber & Otto, 2006).
Perfectionistic striving consists of individuals who attempt to capture perfection and set high standards of performance, where as perfectionistic concerns include characteristics of perfection such as concern over mistakes, anxiety related to extrinsic pressures and evaluations, and the relationship between personal expectations and performances.

Some parents and coaches believe that a player’s desire to satisfy a superior’s expectations is a respectable trait and do not find excessive competitiveness, perfection, exercise, and obedience dangerous (Rice & Mirzadeh, 2000; Sherman & Thompson, 2001). As external judgments become an important component of an individual’s everyday life and are necessary to function and feel high levels of self-esteem, accomplishments become inadequate and the criterions of others are primarily sought instead of one’s own goals (Peden, Stiles, Vandehey, & Diekhoff, 2008). An athlete begins to exhibit negative attitudes and exaggerates poor performance, disengaging himself or herself from reasonable performance levels. Athletes are unable to forget mistakes during performances; they acquire a fear of failure, lose trust in performance ability, and are unable to satisfy the desire for perfection (Frost et al., 1990).

Contrastingly, Steiner, Denny, and Stemmlle (2010) discovered that some athletes are actually less prone to mental and behavioral disorders when pressured. These may be the result of the personality traits of an athlete and their ability to decrease the effects of stress. The mindset that athletes create throughout their careers may also stimulate disengagement from their true anguished feelings, cognitive health, and fitness. Athletes may actually be under a great deal of social pressure, but they are capable of suppressing their emotional reactions in order to accomplish short-term challenges. When unexpected
adversities arise or the level of competition increases, athletes will be unable to avoid the emotional effects.

The ability to ignore physical and psychological health may appear to be a strong and valued characteristic, yet athletes may implement these abilities to unhealthy and dangerous levels in hopes of accomplishing unrealistic goals (Galli, Reel, Petrie, Greenleaf, & Carter, 2011). Attainable performance abilities may be obstructed because the athlete is preoccupied with perfecting a goal that is beyond his or her limitations. An athlete is often misguided by a coach’s instruction that “practice makes perfect” because the athlete can only reach the ability that he or she can physically and mentally perform (Dunn et al., 2006). A coach’s encouragement through the use of instructional phrases can often create issues when athletes are unable to reach goals set forth by themselves and the influential individuals surrounding them.

Parents are also a key role in an athlete’s drive for perfection. Athletes who are never encouraged or praised for the achievements they have had throughout their career are more likely to seek perfection within a sport. Similarly, athletes who are criticized for inadequacies are also more likely to strive for perfection and be concerned with making mistakes. Rice and Mirzadeh (2000) explain that many athletes who are criticized by parents inevitably become preoccupied with perfection and learn to make little or no mistakes during performances to gain acceptance and avoid condemnation. Vulnerability to external entities becomes the primary force for these athletes to be accepted by others and appear attractive and talented to surrounding individuals (Peden et al., 2008).
2.3 Sexual Orientation

Sexual orientation has become one of the leading influences on body image dissatisfaction, where homosexual and bisexual individuals display greater levels of body image displeasure, unhealthy eating behaviors, determination to achieve thinness, bulimic behaviors, negative eating attitudes, low self-esteem, and eating disorders (Boroughs & Thompson, 2001; Russell & Keel, 2002). Homosexual and bisexual males set higher standards in relation to physical fitness and often advertise their physical characteristics and weight more frequently to potential partners than do heterosexual males (Epel, Spanakos, Kasl-Godley, & Brownell, 1996; Siever, 1994). Heterosexual males do not feel as pressured to achieve a specific body type because the audiences in which they are attracting (females) do not primarily seek physical characteristics in a potential mate (Brown & Keel, 2012). Homosexual males and heterosexual females are compared in terms of body dissatisfaction and likelihood of developing an eating disorder because both groups are attracted to males who believe it is important that their mates exhibit a distinct body type (Siever, 1994). Conversely, heterosexual males and homosexual females often pursue women who are more concerned with authority and permanency than the physical appearance of a potential mate (Lacey, Reifman, Scott, Harris, & Fitzpatrick, 2004).

As homosexual and bisexual individuals struggle to maintain a physical appearance accepted within the gay community, they must also consider the physical appearance and social norms that are acceptable. Discriminatory perceptions of homosexual individuals are more prevalent when society has little interaction with homosexuals (Herek & Capitanio, 1996), when environments are less tolerant of
homosexuality (Herek, 1984), are uninformed, highly religious (Herek, 1988), and favor traditional male and female gender roles (Hinrichs & Rosenberg, 2002). An athletic director stated: “Athletics has been the last bastion of homophobia. It is one of the few places left where homophobia is tolerated. The reality is that for many of our gay, lesbian, and bisexual athletes, it’s not safe in intercollegiate athletics” (Hawes, 2001, p. 14). Homophobia, an unreasonable terror or anxiety of homosexuals (MacDonald, 1976), has been a part of the athletic environment for many years, which has inhibited homosexual and bisexual individuals from being open about their sexual orientation (Roper & Halloran, 2007).

Homosexuality within the realm of sport has been suppressed both at the professional level and between athletes as well as depicted negatively by media, further creating a fear of openly being gay, lesbian, or bisexual. The athletic environment is structured to elevate male authority and supremacy in order to maintain traditional gender roles and continue operating the conventional nature of sport (Anderson, 2002). Perceptions surrounding the sporting atmosphere create little tolerance for homosexuality and believe it to be a sign of feebleness. Additional stereotypes centered on homosexual males include preoccupation with sex, immorality, ostentatious behaviors, and characteristics often associated with females (Bernstein, 2004). Typical stereotypes homosexual females encounter within athletics include provocativeness, manliness, and confrontational personalities (Eliason, Donelan, & Randall, 1992). These stereotypes often force homosexual males and females to conceal their sexual orientation in order to be respected as strong and capable athletes. An athlete’s inability to express sexual orientation preferences may result in an identity conflict because being homosexual and
an athlete is recognized as contradictory to each other based on the inference that an athlete is a representation of masculinity and heterosexuality (Anderson, 2002).

Social Identity Theory has been used to identify the reason for discrimination within the athletic environment (Tajfel & Turner, 1979). There are three stages of the Social Identity Theory that have been investigated to justify why sexual orientation may not be openly communicated: (a) categorization, (b) identification, and (c) comparison (Roper & Halloran, 2007). The first stage is categorization, where an individual begins to form his or her own identity in order to distinguish oneself from others. Once an individual categorizes him or herself, he or she begins the identification stage. Within the identification stage, an individual learns the social standards and principles that a particular group identifies with in order to fit in and increase self-esteem. After categorization and identification, individuals compare the groups in which they identify with to other groups in order to raise confidence levels. For example, homosexual athletes are more likely to compare physical appearance and body dissatisfaction to team members and opponents who are considered more successful and exhibit the “ideal attractiveness” set forth by the media (Loland, 1999; Ricciardelli, McCabe, & Ridge, 2006) as well as participate in heterosexual behaviors in order to avoid discrimination and abide by established social norms.

For instance, a heterosexual environment is strongly represented in the team’s locker room, where heterosexual talk is often expressed between teammates (Curry, 1991). Male athletes discuss sexual encounters with women and speak predominantly about females’ bodies inappropriately. Conversations of such nature increase the heterosexual atmosphere and pressure homosexual athletes to participate in conversations
in order to appear masculine and be accepted. Also, reinforcing the heterosexual sport environment by tolerating degrading remarks towards homosexual and bisexual individuals ultimately strengthens homophobic perceptions and discrimination (Anderson, 2005).

In addition, Social Identity Theory contributes to the discrimination and harassment inflicted upon homosexual, bisexual, and heterosexual female athletes. Identifying as a female athlete contradicts the stereotypical image of femininity, causing female athletes to be depicted in a masculine way (Roper & Halloran, 2007). Consequently, a female athlete’s sexual orientation is questioned by society, which in turn causes some female athletes to fear entering the sport environment and being labeled as homosexual (Krane, 2001). Female athletes, despite sexual orientation, strive to prove their heterosexuality in order to uphold their femininity. Instead of participating in a masculine perceived sport, females sometimes choose sports that focus on feminine characteristics, such as figure skating and dance, to alleviate suggested homosexual ambiguities (Lenskyj, 1994). Female athletes are confronted with a challenge to follow the social norms within sport but remain truthful to their own personal identity. As a result, female athletes often hide their sexual orientation and manage the pressures of traditional social values and expectations to avoid discrimination that openly homosexual athletes have encountered within sport.

In 2012, a study was conducted by Campus Pride to identify the influence that the college environment had on lesbian, gay, bisexual, transgender, and questioning (LGBTQ) athletes in NCAA sports. Eight thousand four hundred and eighty-one student athletes (43% females, 57% males) participated in this study, where 95% identified as
heterosexual and 5% identified as lesbian, gay, bisexual, or questioning (LGBQ; Rankin & Merson, 2012). A significantly larger number of women (8%) identified as LGBQ than men (3%). Similar results for student-athletes of “color” (7%) compared to white student athletes were witnessed (Rankin & Merson, 2012). It was discovered that 18% of LGBQ student-athletes participated in sports that generated revenue for the institution compared to the 27% of heterosexual student athletes (Rankin & Merson, 2012).

LGBQ student-athletes identified occasions of harassment twice as often as heterosexual student athletes. Athletic performance was identified as the most popular motive for the discrimination among all LGBQ participants (34%) compared to the heterosexual athletes (1%) who rarely experienced such discrimination (Rankin & Merson, 2012). LGBQ student-athletes suggested experiencing other prevalent notions of harassment as a result of athletic performance, athletic identity, and weight respectively. Student-athletes were subjected to harassment in several different forms, including being unnoticed or omitted from activities, verbal discrimination, and coaches openly showing favoritism to some players. LGBQ student-athletes experienced targeted discrimination of this nature more often than the heterosexual athletes, and experienced significantly more deliberate omission or disregard (51%) than heterosexual athletes (41%; Rankin & Merson, 2012). Also, LGBQ student athletes were forced to remain silent about sexual orientation four times as often as their heterosexual counterparts (i.e., 25% versus 6%). Harassment occurred most frequently at practice or competition by coaches or other student-athletes, and 49% of student-athletes considered leaving the team after experiencing such harassment.
2.4 Literature Review Summary

Within the athletic environment, athletes are pressured to perform at a certain level, eat specific foods, weigh a set amount, and to acquire a certain body type, which creates an environment that is often very unhealthy (Anderson, Petrie, & Neumann, 2012). The sport environment should not be a precursor for developing eating disorders nor should perfectionism be expected. However, an increase in eating disorder characteristics and drive for perfection has been witnessed among male and female athletes. Dunn et al. (2006) suggested that athletes set high standards of perfection, leading to psychological and behavioral abnormalities such as eating disorders (Hewitt, Flett, & Ediger, 1995), depression (Frost, Marten, Lahart, & Rosenblate, 1990), and anger (Hewitt & Flett, 1991). The pressures commonly seen within an athletic environment include: (1) specifications by judges in aesthetic sports (Barkley, 2001), (2) weight classifications (Dale & Landers, 1999), (3) uniforms (Reel, SooHoo, Petrie, Greenleaf, & Carter, 2010), (4) criticism from coaching staff (Kerr, Berman, & de Souza, 2006), (5) body comparisons between teammates (Krones, Strice, Batres, & Orjada, 2005), (6) personal beliefs that a thin physique will enhance performance (Bonogofski, Beerman, Massey, & Houghton, 1999), (7) poor eating behaviors exhibited within a team (Engel et al., 2003), and (8) expected physique for a particular sport.

Kerr et al. (2006) and Robles (2011) found that individuals who displayed pathological eating disorder symptoms felt significantly higher levels of pressure to lose weight from coaches, judges, and teammates than did athletes who were not suffering from eating disorder characteristics. Heffner, Ogles, Gold, Marsden, and Johnson (2003) discovered that Division I coaches believed that the concern for athletes eating behaviors
had been embellished significantly compared to Divisions II and III coach’s beliefs. Coaches within all three divisions admitted to examining or enforcing weight management techniques to varsity athletes despite awareness that a number of current athletes have struggled with eating disorders. Approximately 1/3 of the coaches surveyed admitted to weighing athletes, analyzing body fat composition, and recommending that athletes lose weight through methods of restrained eating or increased levels of exercise, notwithstanding the evidence indicating that the mere suggestion from a coach that an athlete’s body weight is unacceptable may prompt an eating disorder (Chopak & Taylor-Nicholson, 1991). Taylor and Ste-Marie (2001) discovered that 90% of figure skaters perceived excessive levels of pressure from individuals within the figure skating environment. In addition, gymnasts experiencing pressure by their coach to lose weight expressed more frequent episodes of dieting and belief that losing weight was necessary to succeed.

Similar pressures arise among teammates, where the likelihood of an athlete partaking in poor eating behaviors is dependent upon their surrounding teammates’ behaviors and attitudes towards food (Engel et al., 2003). A new member of a team may be encouraged to partake in eating disorder behaviors such as starvation and purging in order to be an accepted member of the team. Krueger and Clement (1994) suggested that athletes may overestimate the similarities of their eating behaviors and other members eating habits, creating a “false consensus effect”. Therefore, athletes may believe that their teammates practice eating disordered behavior even if they are not actually exhibiting such behavior (Krueger & Clement, 1994).
An athlete’s eating behaviors have also been correlated with family dynamics. Haworth-Hoeppner (2000) suggested that helicopter parents (parents that take too much responsibility for their child’s success and failure) and criticism were significantly related to pathological eating behaviors and body dissatisfaction among adolescents. For instance, Kluck (2010) discovered that body image concerns were directly related to a family’s opinion towards appearance and comments related to weight and size of a family member. Blackmer, Searight, and Ratwik (2011) found that male and female athletes perceived greater pressure to maintain a thin physique if parents did not allow them to express emotions and knowledge openly and the family atmosphere was not comforting and understanding.

The pressure surrounding weight control is only a small variable that contributes to the psychological and physical dangers athletes encounter within the sport environment. Perfectionism has been investigated as a general aspect of every day life; however, research on domain specific perfectionism is limited and further consideration is necessary. Personal standards, fear over mistakes, and social pressures to perform may be contributing factors to psychological and physical detriment seen among athletes. Koivula, Hassmén, and Fallby (2002) found that high self-esteem was correlated with high levels of personal standards, low fear of failure, low distrust in performance ability, low confidence levels, and high levels of nervousness before competition. It has also been found that athletes are capable of ignoring physical and psychological hazards by regulating emotions in hopes of accomplishing unrealistic levels of success (Galli, Reel, Petrie, Greenleaf, & Carter, 2011). Therefore, it is essential to investigate personal standards, fear over mistakes, perceived coach pressures, and perceived parental
pressures among athletes to better understand the psychological impact the sport environment is having on athletes at the collegiate level.

Sexual orientation is also an important component to examine among athletics. Many athletes are discriminated against consistently for their sexual orientation, and this creates high levels of stress and anxiety, which may lead to depression and psychological issues (Koh & Ross, 2006). Contrastingly, some research suggests that females who are openly homosexual with peers, family, and colleagues are often able to relieve these stressors and feel more self-confidence than homosexuals who remain quiet about their sexual orientation in fear of not being accepted by others (Jordan & Deluty, 1988). It is important to investigate the relationship between sexual orientation among male and female athletes and the risk of developing an eating disorder in the sport context as well as the effect sexual orientation has on perceived pressures to perform. Previous research indicates that homosexuality is discouraged and often unrecognized within the sport environment by both athletes (regardless of sexual orientation) and society in order to avoid discrimination (Anderson, 2002). The pressure to suppress one’s identity in order to categorize and identify oneself as part of the sport group may also increase the perceived pressures to perform well and uphold the body type expected within that sport. Investigating the effects that the heterogenic athletic environment is placing on homosexual and bisexual athletes to perform as well as the pressure to maintain a certain body type will enable the sport organization to become significantly more open minded to changing the traditional heterosexual stigma within sport, while simultaneously allowing administration and coaches to create programs and environments conducive to all participants.
The research reviewed incorporated the main variables and discussed the factors that could potentially influence risk of eating disorders and performance pressures. Researchers investigated male and female athletes’ risk of eating disorder, sexual orientation differences in body satisfaction, level of competition, and type of sport in relation to eating disorders. Gender differences in overall perfectionism have rendered inconclusive results, deeming it necessary to examine further. Perfectionism within sport has not been thoroughly assessed in relation to sexual orientation, level of competition, and type of sport, indicating further research is necessary to understand the impact of pressure on various athletes.
CHAPTER III
METHODS

3.1 Research Design

This research was causal-comparative and correlational in nature. The questionnaire was developed based on previous research using the Eating Attitudes Test (EAT; Garner, Olmsted, Bohr, & Paul, 1982) and the Sport-Multidimensional Perfectionism Scale (Sport-MPS; Dunn et al., 2002). The independent variables include: Sexual Orientation, Gender, Division, and Type of Sport. The dependent variables include: the Sport-MPS and the EAT-16 scores. The survey took approximately 7 to 10 minutes to complete.

3.2 Participants

Two hundred and seventy-seven collegiate athletes, 57 males and 210 females (10 participants did not identify gender) from eight Divisions I, II, and III universities and colleges participated in this study. Participants were selected based on a convenience
sample. Athletic directors were contacted via e-mail asking each to administer a written request for participation in the present research study (See Appendix A). Participants were required to be active members of a Division I, II, or III varsity collegiate sport. Sixty-four participants identified as Division I athletes, 79 as Division II athletes, and 119 as Division III athletes (15 participants did not identify their division). Two hundred and fifty one athletes identified their sexual orientation as heterosexual, nine as homosexual, and eight as bisexual (nine participants did not identify sexual orientation). The surveys were administered to eight different universities and colleges in the Midwest (three Division I, three Division II, and two Division III). The following sports were grouped together as aesthetic sports: Cheerleading (6), Cross Country (11), Diving (5), Gymnastics (3), Swimming (69), Water Polo (4), Track and Field (16), and Wrestling (1). The following sports were grouped together as non-aesthetic sports: Baseball (2), Basketball (16), Fencing (2), Field Hockey (15), Football (5), Golf (7), Lacrosse (17), Soccer (21), Softball (27), Tennis (4), and Volleyball (34). The present study was administered online using SurveyMonkey. Participants were asked to complete a demographic questionnaire. Each participant also completed an online survey containing the Eating Attitudes Test-16 (EAT-16) and the Sport-Multidimensional Perfectionism Scale (Sport-MPS; See Appendix B). There were no foreseen risks of participating in this study. Participation was completely voluntary. A consent form was understood and continuation with the online survey implied informed consent to participate.

3.3 Instrumentation

The Sport-Multidimensional Perfectionism Scale (Sport-MPS) was used to investigate the pressure that athletes have about their competitive abilities within their
sport (Dunn et al., 2002). The Sport-MPS (See Appendix B) contains the following four subcategories: (1) Personal Standards (7-items, e.g., ‘I think I expect higher performance and greater results in my daily sport-training than most players’), (2) Concern Over Mistakes (8-items, e.g., ‘If I fail in competition, I feel like a failure as a person’), (3) Perceived Parental Pressures (9-items, e.g., ‘In competition, I never feel like I can quite meet my parents’ expectations’), and (4) Perceived Coach Pressures (6-items, e.g., ‘Only outstanding performance in competition is good enough for my coach’). The Sport-MPS is a 5-point Likert scale, where 1 = Strongly Disagree, 2 = Disagree, 3 = Not Applicable, 4 = Agree, and 5 = Strongly Agree. This scale helped determine the attitudes towards the pressures placed on athletes during the athletic season. Each subcategory of the Sport-MPS was scored separately by averaging the scores within that particular component. The higher the average score for each subcategory of the Sport-MPS, the larger the degree of perfectionism. The Sport-MPS construct validity has been investigated and it has been determined that all four subcategories are valid. The PS, COM, PPP, and PCP measurements were determined have a coefficient alpha ≥ .70 (Dunn et al., 2006).

The Eating Attitudes Test-16 (EAT-16), which is based on the original EAT-26 (Garner, et al., 1982), was used in this study (See Appendix B). The EAT-16 is a 6-point Likert scale (1 = Always; 2 = Usually; 3 = Oftien; 4 = Sometimes; 5 = Rarely; 6 = Never) used to investigate the behaviors associated with the onset of an eating disorder (e.g. ‘I am preoccupied with the desire to be thinner’, ‘I find myself preoccupied with food’). This test was used to investigate athlete’s eating attitudes. The EAT-16 was scored using a reverse scoring method. The EAT-16 was found to be reliable (r ≥ .70; Ocker, Lam, Jensen, & Zhang, 2007). Ocker et al. (2007) identified that the EAT-16 contained
construct validity by removing unnecessary items from the original EAT-26 and verifying the tests validity without those items. The demographic questionnaire was designed to identify gender, age, current weight, lowest weight, ideal weight, heaviest weight, height, sexual orientation, type of sport, year in school, and ethnicity of the participants.

3.4 Statistical Analysis

The SPSS (version 18.0) was used to perform statistical analyses. A factorial $2 \times 3$ (gender $\times$ division) MANOVA was used to examine the mean vectors of perfectionism scores between genders in Divisions I, II, and III athletes. A factorial $2 \times 3$ (type of sport $\times$ sexual orientation) MANOVA was used to examine the mean vectors of perfectionism scores between type of sport and sexual orientation. A one-way ANOVA was used to examine the mean differences of risk of developing an eating disorder between males and females. A factorial $2 \times 3$ (gender $\times$ division) ANOVA was used to examine the mean differences of the risk of developing an eating disorder between gender and division. A factorial $2 \times 2$ (gender $\times$ type of sport) ANOVA was used to assess the likelihood of developing an eating disorder between male and female athletes in aesthetic sports vs. non-aesthetic sports. A factorial $2 \times 3$ (gender $\times$ sexual orientation) ANOVA was used to examine the likelihood of developing an eating disorder between male and female athletes of different sexual orientations. A factorial $3 \times 3$ (division $\times$ sexual orientation) ANOVA was used to examine the mean differences of risk of developing an eating disorder among divisions and sexual orientation. A factorial $2 \times 3$ (type of sport $\times$ sexual orientation) ANOVA was used to examine the likelihood of developing an eating disorder between type of sport and among sexual orientation. A factorial $2 \times 3$ (type of
sport × division) ANOVA was used to examine the likelihood of developing an eating disorder between type of sport and among divisions. Pearson Product-Moment Correlation was used to test the relationship between the four components of the Sport-MPS and the likelihood of developing an eating disorder. A Hierarchical Multiple Regression was used to examine whether a collegiate athlete's risk of developing an eating disorder is a function of gender, height, age, division, and year in school. The significance level was set at $p < .05$. 
CHAPTER IV
RESULTS & DISCUSSION

4.1 Results

All participants successfully completed the survey to determine risk of eating disorder and perfectionism levels. Athletes identified as heterosexual (251), homosexual (9), or bisexual (8). Participants’ characteristics by gender are shown in Table 1.

Table 1: Descriptive Statistics of Participants

<table>
<thead>
<tr>
<th></th>
<th>Males Mean ± (S.D.)</th>
<th>Females Mean ± (S.D.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (Yrs)</td>
<td>20.19 ± 1.38</td>
<td>20.03 ± 1.41</td>
</tr>
<tr>
<td>Current Weight (lbs)</td>
<td>178.24 ± 27.66</td>
<td>146.60 ± 24.49</td>
</tr>
<tr>
<td>Lowest Adult Weight (lbs)</td>
<td>167.56 ± 26.23</td>
<td>134.22 ± 19.71</td>
</tr>
<tr>
<td>Highest Weight (lbs)</td>
<td>185.81 ± 30.33</td>
<td>153.51 ± 25.30</td>
</tr>
<tr>
<td>Ideal Weight (lbs)</td>
<td>178.37 ± 29.04</td>
<td>137.04 ± 18.04</td>
</tr>
<tr>
<td>Height (in)</td>
<td>71.25 ± 2.63</td>
<td>66.45 ± 3.22</td>
</tr>
<tr>
<td>Body Mass Index (BMI)</td>
<td>24.60 ± 3.33</td>
<td>23.29 ± 3.12</td>
</tr>
</tbody>
</table>
### 4.2 Sport-Multidimensional Perfectionism Scale (Sport-MPS)

**Comparison of Perfectionism, Division, and Gender**

A two-way (gender × division) MANOVA was used to compare the mean vector of scores among student-athletes’ personal standards, concern over mistakes, perceived parental pressures, and perceived coach pressures of perfectionism. The multivariate tests indicated no significant interaction among the variables (Wilks’ Lambda(8, 504) = 1.195, \( p > .05 \)). Likewise, no significant main effects were found for gender (Wilks’ Lambda(4, 252) = .281, \( p > .05 \)) or division (Wilks’ Lambda(8, 504) = 1.19, \( p > .05 \)). Nevertheless, follow-up Univariate ANOVAs indicated a significant \( (p < .05) \) difference among divisions in two dependent variables: personal standards and perceived parental pressures. The personal standards of Division I athletes were significantly \( (p = .010) \) higher than Division III athletes, while there was no significant \( (p > .05) \) difference between Division I and Division II athletes or between Division II and Division III athletes. The perceived parental pressures of Division I athletes were significantly \( (p = .028) \) higher than Division III, while there was no significant \( (p > .05) \) difference between Division I and Division II athletes or between Division II and Division III athletes.

Results of the ANOVAs are shown in Table 2. The results showed that hypothesis 1 was rejected and hypothesis 2 was partially supported.
Figure 1: *Impact of Gender on Perfectionism*

**Table 2:** Univariate ANOVAs Comparing Mean Differences in Perfectionism Among Divisions I, II, and III Athletes

<table>
<thead>
<tr>
<th>Perfectionism</th>
<th>Division I</th>
<th>Division II</th>
<th>Division III</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Standards</td>
<td>27.84 ± 3.86</td>
<td>26.76 ± 5.68</td>
<td>25.84 ± 5.05</td>
<td>3.40</td>
<td>.035*</td>
</tr>
<tr>
<td>Concern Over Mistakes</td>
<td>23.28 ± 6.93</td>
<td>23.82 ± 6.88</td>
<td>22.17 ± 6.76</td>
<td>1.50</td>
<td>.226</td>
</tr>
<tr>
<td>Perceived Parental Pressures</td>
<td>21.25 ± 8.47</td>
<td>20.73 ± 6.65</td>
<td>18.68 ± 7.48</td>
<td>3.10</td>
<td>.047*</td>
</tr>
<tr>
<td>Perceived Coach Pressures</td>
<td>19.25 ± 5.91</td>
<td>20.06 ± 5.32</td>
<td>18.13 ± 5.49</td>
<td>2.97</td>
<td>.053</td>
</tr>
</tbody>
</table>

* p < .05
Comparison of Perfectionism, Type of Sport, and Sexual Orientation

A two-way (sexual orientation × sport) MANOVA was used to examine the impact sexual orientation of student-athletes’ and type of sport have on personal pressures, concern over mistakes, perceived parental pressures, and perceived coach pressures. The multivariate tests indicated an insignificant interaction between sexual orientation and type of sport on the set of dependent variables (Wilks’ Λ(4, 258) = .834, p > .05). Likewise, an insignificant main effect was found for type of sport (Wilks’ Λ(4, 258) = .928, p > .05). However, a significant main effect was found for sexual orientation (Wilks’ Λ(8, 516) = 3.2, p = .001). Follow-up Univariate ANOVAs indicated concern over mistakes of homosexual athletes were significantly (p = .014) higher than heterosexual athletes was found, while no significant (p > .05) difference was found between heterosexual athletes and bisexual athletes or between homosexual athletes and bisexual athletes. Perceived parental pressures of heterosexual athletes were significantly (p = .006) higher than bisexual athletes and homosexual athletes were significantly (p = .004) higher than bisexual athletes, while there was no significant (p > .05) difference between heterosexual and homosexual athletes. Perceived coach pressures of homosexual athletes were significantly (p = .002) higher than heterosexual, while there was no significant (p > .05) difference between homosexual and bisexual athletes or between heterosexual and bisexual athletes. The results showed that hypothesis 4 was supported. Results of ANOVAs are depicted in Table 3.

Interestingly, follow up one-way ANOVAs indicated personal standards, concern over mistakes, perceived parental pressures, and perceived coach pressures of athletes in non-aesthetic sports were significantly (p = .001, .001, .049, and .009) higher than
athletes in aesthetic sports, respectively. The results showed that hypothesis 3 was rejected. Results of ANOVAs for type of sport are depicted in Table 4.

**Table 3:** Univariate ANOVAs Comparing Mean Differences in Perfectionism Among Heterosexual, Homosexual, and Bisexual Athletes

<table>
<thead>
<tr>
<th></th>
<th>Heterosexuals</th>
<th>Homosexuals</th>
<th>Bisexuals</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean ± (SD)</td>
<td>Mean ± (SD)</td>
<td>Mean ± (SD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal Standards</td>
<td>26.57 ± 4.99</td>
<td>30.00 ± 3.20</td>
<td>24.14 ± 5.52</td>
<td>2.97</td>
<td>.053</td>
</tr>
<tr>
<td>Concern Over Mistakes</td>
<td>22.60 ± 6.84</td>
<td>28.22 ± 3.53</td>
<td>25.00 ± 4.40</td>
<td>3.41</td>
<td>.035*</td>
</tr>
<tr>
<td>Perceived Parental Pressures</td>
<td>20.03 ± 7.56</td>
<td>23.00 ± 4.15</td>
<td>12.14 ± 2.91</td>
<td>4.66</td>
<td>.010*</td>
</tr>
<tr>
<td>Perceived Coach Pressures</td>
<td>18.69 ± 5.48</td>
<td>24.56 ± 4.36</td>
<td>21.86 ± 4.56</td>
<td>6.09</td>
<td>.003*</td>
</tr>
</tbody>
</table>

*p < .05

**Table 4:** One-Way ANOVAs Comparing Mean Differences in Perfectionism Between Athletes in Aesthetic vs. Non-Aesthetic Sports

<table>
<thead>
<tr>
<th></th>
<th>Aesthetic Sports</th>
<th>Non-Aesthetic Sports</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean ± (SD)</td>
<td>Mean ± (SD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal Standards</td>
<td>25.46 ± 5.01</td>
<td>27.52 ± 4.83</td>
<td>11.54</td>
<td>.001***</td>
</tr>
<tr>
<td>Concern Over Mistakes</td>
<td>21.33 ± 7.24</td>
<td>23.99 ± 6.17</td>
<td>10.43</td>
<td>.001***</td>
</tr>
<tr>
<td>Perceived Parental Pressures</td>
<td>18.79 ± 7.80</td>
<td>20.59 ± 6.95</td>
<td>3.91</td>
<td>.049*</td>
</tr>
<tr>
<td>Perceived Coach Pressures</td>
<td>17.94 ± 5.36</td>
<td>19.72 ± 5.54</td>
<td>6.95</td>
<td>.009*</td>
</tr>
</tbody>
</table>

*p < .05; ***p < .001
4.3 Risk of Developing Eating Disorder

Comparison of Gender and Risk of Eating Disorder

A one-way ANOVA was calculated comparing gender means of participants and participant’s risk of developing an eating disorder. A significant difference was found among the genders ($F(1, 265) = 9.39, p = .002$). The analysis revealed that female athletes overall had a significantly higher risk of developing an eating disorder than male athletes (See Table 5). The results showed that hypothesis 5 was supported.

Table 5: One-Way ANOVAs Comparing Mean Differences in Risk of Developing an Eating Disorder Between Genders

<table>
<thead>
<tr>
<th></th>
<th>Males Mean ±(SD)</th>
<th>Females Mean ±(SD)</th>
<th>$F$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eating Disorder</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**$p < .01$**

Comparison of Gender, Division, and Risk of Eating Disorder

A 2 (gender) $\times$ 3 (division) between-subjects factorial ANOVA was computed comparing the risk of developing an eating disorder of varsity athletes in one of three divisions and who were either male or female. The interaction was not significant ($F(2, 255) = .96, p > .05$). The main effects for gender ($F(1, 255) = 3.42, p > .05$) and division ($F(2, 255) = 0.57, p > .05$) were not significant. Therefore, it appears that neither gender nor division have a significant effect on developing an eating disorder in collegiate athletes as shown in Figure 2. The results showed that hypothesis 6 was rejected.
Comparison of Gender, Type of Sport, and Risk of Eating Disorder

A 2 (gender) \(\times\) 2 (type of sport) between-subjects factorial ANOVA was calculated comparing athletes’ risk of developing an eating disorder in either aesthetic or non-aesthetic primary sports and who were either male or female. The interaction was not significant \((F(1, 261) = .021, p > .05)\). Likewise, the main effect for type of sport \((F(1, 261) = .094, p > .05)\) was not significant. The main effect for gender \((F(1, 261) = 9.33, p = .002)\) was significant. Thus, it appears that the type of sport does not have a significant effect on the risk of developing an eating disorder. The results showed that hypothesis 7 was rejected. However, the results reveal that females are at a significantly higher risk of developing an eating disorder than males in both non-aesthetic and aesthetic sports as shown in Table 6.
Table 6: Factorial ANOVAs Comparing Mean Differences in Risk of Developing an Eating Disorder Between Male and Female Athletes in Non-Aesthetic and Aesthetic Sports

<table>
<thead>
<tr>
<th></th>
<th>Risk of Developing an Eating Disorder</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aesthetic Sports Mean ± (SD)</td>
<td>Non-Aesthetic Sports Mean ± (SD)</td>
<td>$F$</td>
<td>$p$</td>
</tr>
<tr>
<td>Males</td>
<td>5.23 ± 6.61</td>
<td>5.00 ± 7.93</td>
<td>9.33</td>
<td>.002**</td>
</tr>
<tr>
<td>Females</td>
<td>9.64 ± 10.03</td>
<td>9.28 ± 9.36</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**$p < .01$**

Comparison of Gender, Sexual Orientation, and Risk of Eating Disorder

A 2 (gender) $\times$ 3 (sexual orientation) between-subjects factorial ANOVA was calculated comparing the risk of developing an eating disorder of male and female student-athletes and identify as one of three different sexual orientations. The interaction was not significant ($F(2, 255) = 2.010, p > .05$). The main effects for gender ($F(2, 255) = .071, p > .05$) and sexual orientation ($F(2, 255) = .692, p > .05$) were not significant. Thus, it appears that neither gender nor sexual orientation have a significant effect on developing an eating disorder in collegiate athletes as shown in Figure 3.
Comparison of Sexual Orientation, Division, and Risk of Eating Disorder

A 3 (sexual orientation) × 3 (division) between-subjects factorial ANOVA was calculated comparing the risk of developing an eating disorder of student-athletes in one of three divisions and one of three different sexual orientations. The interaction was not significant ($F(2, 255) = .07, p > .05$). The main effects for division ($F(2, 255) = .21, p > .05$) and sexual orientation ($F(2, 255) = .39, p > .05$) were not significant. Thus, it appears that neither division nor sexual orientation have a significant effect on developing an eating disorder in collegiate athletes as shown in Figure 4.
Comparison of Type of Sport, Sexual Orientation, and Risk of Eating Disorder

A 2 (type of sport) × 3 (sexual orientation) between-subjects factorial ANOVA was calculated comparing the risk of developing an eating disorder among student-athletes with different sexual orientations and participation in either aesthetic or non-aesthetic sports. The interaction was not significant ($F(1, 254) = .12, p > .05$). The main effects for aesthetic vs. non-aesthetic sports ($F(1, 261) = 2.29, p > .05$) and sexual orientation ($F(2, 261) = .32, p > .05$) were not significant. Thus, it appears that neither sexual orientation nor the type of sport have a significant effect on developing an eating disorder in collegiate athletes as shown in Figure 5.

Figure 4: Impact of Sexual Orientation and Division on Risk of Developing an Eating Disorder

A 2 (type of sport) × 3 (sexual orientation) between-subjects factorial ANOVA was calculated comparing the risk of developing an eating disorder among student-athletes with different sexual orientations and participation in either aesthetic or non-aesthetic sports. The interaction was not significant ($F(1, 254) = .12, p > .05$). The main effects for aesthetic vs. non-aesthetic sports ($F(1, 261) = 2.29, p > .05$) and sexual orientation ($F(2, 261) = .32, p > .05$) were not significant. Thus, it appears that neither sexual orientation nor the type of sport have a significant effect on developing an eating disorder in collegiate athletes as shown in Figure 5.
Figure 5: Impact of Sexual Orientation and Type of Sport on Risk of Developing an Eating Disorder

Comparison of Type of Sport, Division, and Risk of Eating Disorder

A 2 (type of sport) × 3 (division) between-subjects factorial ANOVA was calculated comparing the risk of developing an eating disorder of student-athletes in one of three divisions and type of sport. The interaction was not significant ($F(2, 254) = 1.40, p > .05$). The main effects for type of sport ($F(1, 254) = .04, p > .05$) and division ($F(2, 254) = .80, p > .05$) were not significant. The results showed that hypothesis 8 was rejected. Thus, it appears that neither type of sport nor division have a significant effect on developing an eating disorder in collegiate varsity athletes as shown in Figure 6.
Figure 6: Impact of Type of Sport and Division on Risk of Developing An Eating Disorder

Correlation Between Risk of Eating Disorder and Perfectionism

A Pearson correlation was calculated for the relationship between personal standards of perfectionism, concern over mistakes, perceived parental pressures, perceived coach pressures, and eating attitudes (See Table 7). A moderate correlation was found \( r(275) = .438, p < .01 \), indicating a significant linear relationship between student-athletes’ perceived coach pressures and student-athletes’ concern over mistakes. Student-athletes with higher perceived coach pressures tend to be more concerned over making mistakes in performance. A moderate correlation was found \( r(275) = .398, p < .01 \), indicating a significant linear relationship between student-athletes’ concern over mistakes and risk of developing an eating disorder. Student-athletes with higher concern over mistakes tend to have a higher risk of developing an eating disorder. A moderate
correlation was found \( r(275) = .356, p < .01 \), indicating a significant linear relationship between student athletes’ personal standards and concern over mistakes. Thus, student-athletes with higher personal standards tend to be more concerned over making mistakes in performance. The results showed that hypothesis 9 was supported.

**Table 7: Correlation Between Components of Perfectionism and Risk of Eating Disorder**

<table>
<thead>
<tr>
<th></th>
<th>PS</th>
<th>COM</th>
<th>PPP</th>
<th>PCP</th>
<th>EAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Standards (PS)</td>
<td>1</td>
<td>.356*</td>
<td>.239**</td>
<td>.151*</td>
<td>.184*</td>
</tr>
<tr>
<td>Concern Over Mistakes (COM)</td>
<td>1</td>
<td>.298**</td>
<td>.438**</td>
<td></td>
<td>.398**</td>
</tr>
<tr>
<td>Perceived Parental Pressures (PPP)</td>
<td>1</td>
<td>.304**</td>
<td></td>
<td>.087</td>
<td></td>
</tr>
<tr>
<td>Perceived Coach Pressures (PCP)</td>
<td></td>
<td></td>
<td>.208**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eating Attitudes Test (EAT)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

* \( p < .05 \)  ** \( p < .01 \)

**Predictors of Eating Disorders**

A hierarchical multiple regression was used to investigate whether collegiate athletes’ risk of developing eating disorders is a function of gender, height, current weight, age, division, and year in school. The correlations amongst the predictor variables (gender, height, current weight, age, division, and year in school) were examined and are presented in Table 8. All correlations were weak to strong. Multicollinearity among the independent variables was examined by tolerance and the variance inflation factor (VIF). The tolerance of all the variables were all larger than .20
(from .288 to .866), and the VIF scores were all less than 5 (from 1.154 to 3.474) suggesting that low level of multicollinearity was present and the estimated $\beta$s are well established.

**Table 8**: Zero-Order Correlation Among Predictor Variables and Risk of Eating Disorders

<table>
<thead>
<tr>
<th>EAT</th>
<th>Gender</th>
<th>Height</th>
<th>Weight</th>
<th>Age</th>
<th>Div. 1-3</th>
<th>Div. 2-3</th>
<th>Fresh</th>
<th>Soph</th>
<th>Junior</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAT</td>
<td>1</td>
<td>-.191*</td>
<td>-.183*</td>
<td>.047</td>
<td>-.010</td>
<td>-.025</td>
<td>.009</td>
<td>-.040</td>
<td>.056</td>
</tr>
<tr>
<td>Gender</td>
<td>1</td>
<td>.550**</td>
<td>.501**</td>
<td>.046</td>
<td>.026</td>
<td>-.187*</td>
<td>.006</td>
<td>-.041</td>
<td>.072</td>
</tr>
<tr>
<td>Height</td>
<td>1</td>
<td>.663**</td>
<td>.011</td>
<td>.004</td>
<td>-.083</td>
<td>.031</td>
<td>-.092</td>
<td>.107*</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
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<td>.072</td>
<td>.034</td>
<td>-.081</td>
<td>.01</td>
<td>-.146*</td>
<td>.126*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>1</td>
<td>-.012</td>
<td>.144**</td>
<td>.629**</td>
<td>-.157*</td>
<td>.322**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Div. 1-3</td>
<td>1</td>
<td>-.347**</td>
<td>-.049</td>
<td>.008</td>
<td>.013</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Div. 2-3</td>
<td>1</td>
<td>-.080</td>
<td>-.007</td>
<td>.044</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fresh</td>
<td>1</td>
<td>-.444**</td>
<td>-.318**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soph</td>
<td>1</td>
<td>-.367**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Junior | 1      | 1

* $p < .05$; ** $p < .01$

In model 1 of the hierarchical multiple regression, one predictor (gender) was entered. This model was statistically significant $F(1, 243) = 9.15; p < .05$ and explained 3.6% of variance in risk of developing an eating disorder. The unstandardized coefficient (B) for gender was -4.44, suggesting that female athletes have a score of 4.44 points.
higher than male athletes on the EAT scale (i.e., a higher risk of developing an eating disorder than male athletes). After entering height, current weight, and age in model 2, the total variance explained by the model as a whole was 6.1% (F(3, 240) = 2.12; \( p < .10 \)), a 2.5% change of explained variance. Gender remained significant after entering height, current weight, and age, however, the significance decreased due to the interaction between variables in model 2. The change in \( R^2 \) is significant at the .10 level, but not at the .05 level. The unstandardized coefficient for gender was reported as -3.78. A significant difference in height and current weight were also recorded. The unstandardized coefficient for height was -.55, indicating that the shorter the athlete, the higher risk of developing an eating disorder. Shorter athletes have a .55 higher risk of developing an eating disorder. The unstandardized coefficient for current weight was .06, signifying that heavier student-athletes have a .06 risk of developing an eating disorder than those that are of lower weight. Division 1 to 3, division 2 to 3, freshman, sophomore, and junior were entered in model three, the total variance explained by the model as a whole was 6.7% (F(5, 235) = .29; \( p = .92 \)), a .6% change of variance. Gender, height, and current weight remained significant; therefore the additional variables added in model three did not affect existing variables. In model one, gender was statistically significant, in model two, three out of four variables were statistically significant and in model three, three out of nine were statistically significant as shown in Table 9.
### Table 9: Hierarchical Multiple Regression Model of Risk of Developing an Eating Disorder

<table>
<thead>
<tr>
<th>Model</th>
<th>$R$</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
<th>$B$</th>
<th>Std. Error</th>
<th>$\beta$</th>
<th>$t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td>.19</td>
<td>.036*</td>
<td></td>
<td></td>
<td></td>
<td>-.19</td>
<td>-3.03*</td>
</tr>
<tr>
<td>Gender</td>
<td>-4.44</td>
<td>1.47</td>
<td>-.19</td>
<td>-3.03*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 2</td>
<td>.247</td>
<td>.061†</td>
<td>.025</td>
<td></td>
<td></td>
<td>-.16</td>
<td>-2.11*</td>
</tr>
<tr>
<td>Gender</td>
<td>-3.78</td>
<td>1.79</td>
<td>-.16</td>
<td>-2.11*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>-.55</td>
<td>.23</td>
<td>-.21</td>
<td>-2.36*</td>
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<td>Current Weight</td>
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<td>.03</td>
<td>.17</td>
<td>2.03*</td>
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<td></td>
<td></td>
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<tr>
<td>Age</td>
<td>-.09</td>
<td>.44</td>
<td>-.01</td>
<td>-.20</td>
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<td></td>
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<tr>
<td>Model 3</td>
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<td>.006</td>
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</tr>
<tr>
<td>Gender</td>
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<td>1.84</td>
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<td>-2.15*</td>
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<td></td>
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<tr>
<td>Height</td>
<td>-.55</td>
<td>.24</td>
<td>-.21</td>
<td>-2.34*</td>
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<td></td>
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<tr>
<td>Current Weight</td>
<td>.07</td>
<td>.03</td>
<td>.18</td>
<td>2.11*</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.24</td>
<td>.77</td>
<td>-.03</td>
<td>-.31</td>
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</tr>
<tr>
<td>Division 1 to 3</td>
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<td>-.04</td>
<td>-.65</td>
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<td></td>
<td></td>
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<tr>
<td>Division 2 to 3</td>
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<td>-.04</td>
<td>-.57</td>
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<td>-.05</td>
<td>-.37</td>
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<td>Sophomore</td>
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<td>-.03</td>
<td>.22</td>
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<td>Junior</td>
<td>-.51</td>
<td>2.07</td>
<td>-.01</td>
<td>-.07</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

* $p < .05$
† Significant only at $p < .10$
4.4 Discussion

4.4.1 Gender and Perceived Perfectionism

Very little research has investigated gender differences between perfectionism within the sport domain. Perfectionistic traits are expected among both male and female athletes since hours of practice, training, and competitions are consumed in hopes of accomplishing the flawless presentation, contest, or skill set within their sport (Sinclair, Czech, Joyner, & Munkasy, 2006). A degree of failure is expected since such great emphasis is placed upon athletes to succeed, however, maladaptive perfectionism may occur when failure becomes too difficult to psychologically handle. Dunn, Gotwals, and Dunn (2005) and Ryska (2003) determined that levels of perfectionism differed between males and females, suggesting that males center their self-efficacy upon achievement and perfection in athletics more than females. However the majority of the studies that investigated gender differences in performance perfectionism concluded that males and females do not exhibit differences in perfectionism (Blankstein & Winkworth, 2004; Kawamura, Frost, & Harmatz, 2002). Within the present study, hypothesis one was rejected. Gender differences in PS, COM, PPP, and PCP were not found as well as insignificant gender differences in perfectionism variables between athletes in aesthetic and non-aesthetic sports. Insignificant gender differences in the current study suggests that student-athletes are being pressured by parents and coaches and self-evaluating performances similarly, eventually leading to equal representation of unrealistic goals and perfection mindsets between males and females. An irrational need to perform and implement self-critical evaluations of performance have been directly linked to significant others expectations (Anshel, Kim, & Henry, 2009). Gill (2004) suggests that
gender differences among personal standards and perceived coach pressures may not appear because female athletes adopt more masculine personality characteristics during competition such as aggressiveness and accomplishment (p. 482). When personality characteristics are similar within goal orientation and achievement, student-athletes will strive for specific accomplishments and perceive pressures similarly in order to achieve any and all goals they have set for themselves regardless of gender. As personality traits between males and females become similar, concern over mistakes and perceived parental pressures may also become comparable.

The Gender Similarities Hypothesis also supports the insignificant gender differences found within the present study. The Gender Similarities Hypothesis suggests that males and females are similar in most psychological variables (Hyde, 2005). Hyde (2005) proposes that males and females are more alike than different, which he discovered through evaluation of previous meta-analysis of gender differences. Hyde (2005) discovered that males and females were only moderately to severely different in motor performance (throwing distance and velocity), sexuality (cases of masturbation and attitudes towards sex), and aggression. However, males and females expressed little to no differences (78%) in certain variables, such as, self-disclosure, competitiveness, leadership, anxiety, self-esteem, depression, and coping mechanisms, etc., which have all been connected with the sport environment. The Gender Similarities Hypothesis could explain the similarities in PS, COM, PPP, and PCP among males and females.

4.4.2 Divisional Impact on Perfectionistic Performances

Dunn et al. (2006) stated that student-athletes develop personal standards of perfectionism that may potentially result in psychological or behavioral abnormalities.
Within the current study, hypothesis two was partially confirmed. The present study indicated a significant difference between Divisions I and III student-athletes’ personal standards of performance. Personal standards set by athletes have been associated with the positive characteristics involved in accomplishing goals and performance expectations (Frost & Henderson, 1991). Division III student-athletes may have exhibited lower levels of personal standards because they may demonstrate higher self-esteem, which has been associated with better performances, increased levels of positive reactions to performances, and high levels of self-worth. Division I athletes may have exhibited significantly higher degrees of personal pressures because the level of competition and expectations surrounding Division I athletes is greater than those surrounding Division III athletes. Also, anxiety has been positively correlated with high personal standards and could explain why Division I athletes experience high levels of personal standards. Higher personal standards among Division I athletes could also be a result of these athletes having more to lose if they perform poorly, including loss of athletic scholarship and recruitment opportunities by professional leagues. Division III student-athletes are not given athletic scholarship and typically do not have the opportunity to compete at the professional level, which could alleviate or eliminate unnecessary personal standards.

Frost, Marten, Lahart, and Rosenblate (1990) indicated that an athletes’ concern over mistakes (COM) are most often associated with negative responses to mistakes made during competition and can influence the development of negative psychological reactions. The current study suggested no significant differences between divisions for concern over mistakes. Student-athletes experience COM as early as 24 hours prior to
the competition, experiencing an increase in personal failures, images of competitive mistakes, decreased self-efficacy, inability to focus, and heightened levels of anxiety related to fan-based discrimination after mistakes (Frost & Henderson, 1991). Similarly, athletes associated competition with the opportunity for failure and experience a level of anxiety or are to some degree threatened by competition. Negative reactions are prevalent among athletes with high levels of COM, being unable to overcome the mistakes, dwelling on them for the remaining period of competition, and amplifying the already existing pressure placed upon them. A perfectionistic athlete with COM is more likely to negatively impact their ability to perform to their highest level if they are incapable of forgetting previous mistakes and focusing on the event itself.

Ommundsen, Roberts, Lemyre, and Miller (2006) suggest that student-athletes are subjected to parental pressures and standards at a very young age that may affect the performances of young athletes. Student-athletes that have experienced excessive amounts of parental criticism for mistakes during competition become preoccupied with perfection, seek acceptance, and avoid disapproval (Rice & Mirzadeh, 2000). The Expectancy-Value Model explains the role that parents have on influencing a child’s participation in athletics (Fredricks & Eccles, 2002). According to this model, parents become role models, providers of experience, and interpreters of experience during a child’s lifetime (Fredricks & Eccles, 2002). Role modeling consists of a parent demonstrating the level of importance sports have within their own lives and physical activity patterns that a child will acknowledge and imitate. Role modeling activities include participating in sports, coaching, or watching sporting events. Parents provide children with equipment, encouragement, resources, and the opportunity to participate in
sporting events to stimulate their involvement or interest in athletics. Parents convey opinions, values, and accepted behaviors towards their child’s participation in athletics. A parent’s interpretation of an athlete’s performance can have a positive and a negative impact on an athletes’ success in sports. Athletes perceived parental pressures often impact athletes to primarily focus on being accepted by others. The present research indicated that Division I athletes perceived parental pressures significantly more than Division III. Parental interaction with young athletes may influence the levels of anxiety or pressure that they perceive as they continue to advance into their athletic careers. Division I athletes are competing at a higher level than Division III athletes, where the individuals athletic career is a primary focus compared to those at Division III levels. Student-athletes competing within Division I sports may have experienced greater parental influence and stress towards their performances in athletics at a young age, which has been known to influence an athletes sporting career as well as decisions and reactions to stressful events during competition (Dixon, Warner, & Bruening, 2008). Peden et al. (2008) states that external expectations to be as talented or appealing as another player could influence an athlete to work towards being more talented or appear more attractive than others. The expectation to exceed the talent of another teammate has the potential to be more dangerous than becoming as equally talented as a teammate. Often parents and coaches consider a players desire to reach an authority figures expectations is a trait that all athletes should acquire, but excessive competitiveness, obedience, and perfection can lead to dangerous outcomes (Sherman & Thompson, 2001; Rice & Mirzadeh, 2000). Peden et al. (2008) believes that as external requests become key factors in an individual’s life and become necessary in order to function normally and
feel high levels of self-worth, simple accomplishments become unacceptable and the approval of others is pursued instead of the individual’s own competitive goals.

An insignificant difference in perceived coach pressures was found among divisions at the .05 level ($p = .053$), but was significant at the .10 level, which may be a result of the sample size among division. Nevertheless, the post hoc examination of the perceived coach pressures among division revealed a significant difference between Divisions II and III. Division II athletes are offered both athletic and academic aid, where Division III student athletes are only offered academic aid and do not advocate as high a level of competition as Division II (Gorney & Ness, 2000). The institutional difference may impact the development of the student-athletes perceived coach pressures. Student-athletes participating in Division II athletics are required to perform effectively to maintain not only athletic scholarships, but academic scholarships as well. Division II student-athletes may also have experienced higher levels of perceived coach pressures because the level of competition is much higher compared to that of Division III. Since student-athletes in Division II are typically competing against athletes of greater talent than Division III, coaches of Division II may place higher expectations and pressure on student-athletes in order to assure that they are prepared for the competition. High levels of perceived coach pressure within Division II athletics may also be associated with the type of coaching these athletes encountered at a young age or currently encounter. Ommundsen et al. (2006) suggests that coaches must exhibit encouraging and supportive behaviors to reduce or eliminate unnecessary pressures and attempts at perfection, providing positive experiences for athletes. Coaches that do not practice constructive behaviors negatively impact an athlete’s ability to focus on a performance that he or she
is capable of achieving, but rather force an athlete to focus on extrinsic expectations and perfectionism. Dunn et al. (2006) advocates that coaches can unintentionally hurt athletes’ psychological well-being through misguided instructional statements like “practice makes perfect”. These statements provide athletes with unrealistic expectations and goals that may later create negative attitudes and unhealthy reactions to poor performances or failure. Therefore, student-athletes participating in Division II athletics may have experienced excessive levels of criticism from coaches at a young age or currently experience criticism and higher levels of instructional statements that produced increased levels of perceived coach pressures at the collegiate level compared to those participating in Division III. Furthermore, Division II institution mentality is different than Division III, where Division II focuses significantly more on athletics and Division III places academic performance above athletics.

4.4.3 Type of Sport and Sport Perfectionism

Previous researchers have devoted time investigating pressures that influence an athlete’s risk of developing an eating disorder within aesthetic and non-aesthetic sports, but researchers have not investigated the differences between personal pressures, concern over mistakes, perceived parental pressures, and perceived coach pressures among athletes within aesthetic vs. non-aesthetic sports. Within the present study, hypothesis three was rejected. A significant difference was found between athletes in all four categories when participating in aesthetic versus non-aesthetic sports. Athletes within non-aesthetic sports experienced significantly higher levels of personal pressures, concern over mistakes, perceived parental pressures, and perceived coach pressures associated with their athletic performances. One factor that may have influenced athletes
within non-aesthetic sports to perceive higher levels of coach and parental pressures compared to athletes in aesthetic sports is the environmental differences between the two sport environments. Non-aesthetic sports are primarily team sports whereas aesthetic sports are typically more individualized. Previous researchers suggest that coaches perceive significantly higher levels of stress and pressure when coaching team sports compared to when coaching individualized sports (Kulmatycki & Bukowska, 2007). As coaches are confronted with different pressures, they must learn to appropriately cope with these stressors in order to effectively eliminate unnecessary behaviors that they may pass on to their athletes. By successfully managing their own stressors, coaches become role models and are given the ability to develop strategies to analyze and attend to issues that appear within competition as well as the knowledge necessary to positively influence athletes when failure or mistakes occur. Stressors may be reduced and maladaptive responses to pressures can be decreased or eliminated completely if athletes are positively influenced. Kulmatycki and Bukowska (2007) suggested that coaches of individualized sports feel directly responsible for the success of an athlete, therefore believing that their behavior will directly impact the athlete. These beliefs typically influence a coach to adjust their level of relaxation and ability to manage pressures in order to eliminate or reduce the pressures an athlete perceives by a coach. Yet, coaches of team sports would not be as likely to control their own behaviors, ultimately, influencing their athletes responses and perceived pressures in a negative way.

Significantly higher levels of perceived parental pressures among athletes in non-aesthetic sports may have been influenced by the type of encouragement that athletes received from parents throughout their athletic careers. Parents that encouraged and
supported an athlete seemed to positively impact the athlete, whereas parents that reprimanded or appeared dissatisfied with performance decreased satisfaction and increased competitiveness and focus on winning (Sánchez-Miguel, Leo, Sánchez-Oliva, Amado, & García-Calvo, 2013). Without positive social support, athletes may feel higher levels of stress and use negative coping mechanisms to handle stressors within the athletic environment. Collegiate athletes may perceive parental pressures more significantly because they have learned the expectations that parents place on themselves and their achievements in life. Children learn coping mechanisms, work ethic, and importance of success, etc. from parents and those individuals they interact with most. Perfectionism may also be a genetically transferred personality trait that is passed down within a family, which would both increase personal pressures, and justify high levels if perceived parental pressures among student-athletes (Woodside et al., 2002).

Personal pressures and concern over mistakes could be significantly greater in non-aesthetic sports compared to aesthetic sports because athletes feel that team members add pressures that many participating in aesthetic sports do not encounter. Russell (2001) discovered that a teammates poor performance affects the remaining members of the team and the progression of the game. Athletes within team sports are more conscious of surrounding actions than individual sport athletes. If a performance affects the remaining members of the team, athletes may feel increased levels of personal standards and concern over mistakes in non-aesthetic sports rather than aesthetic sports. Personal pressures and concern over mistakes may also be greater in non-aesthetic sports because of a teammates attitude before, during, and after competitions. Teammates that contribute negative attitudes and appear uncommitted to performing well and succeeding
could increase personal pressures and concern over mistakes among other teammates because they may try to overcompensate for their teammates inadequacy with greater performances.

4.4.4 Sexual Orientation Impact on Perfectionism

The present study revealed significant differences in concern over mistakes, perceived parental pressures, and perceived coach pressures based on sexual orientation. In the current study, hypothesis four was supported. Insignificant differences in personal standards were present within the current study at the .05 level ($p = .053$), but were significant at the .01 level. These results may be due to the variation within the sample size of heterosexual, homosexual, and bisexual athletes. If the sample size was more evenly represented, a significant difference in personal standards among heterosexual, homosexual, and bisexual athletes may have appeared. However, post hoc tests indicated that homosexual athletes had significantly higher personal standards than both heterosexual and bisexual athletes. Homosexual athletes had significantly higher concern over mistakes and perceived coach pressures than heterosexual athletes, and significantly higher perceived parental pressures than bisexual athletes. Heterosexual athletes reported significantly higher levels of perceived parental pressures than bisexual athletes. The sport environment has suppressed homosexuality and has been negatively depicted by many within the environment, creating fear among lesbians, gays, and bisexuals to openly express sexuality (Anderson, 2002). Lesbian, gay, bisexual, and questioning (LGBQ) student-athletes have experienced a significant amount of discrimination, identifying instances of harassment twice as often as heterosexual student-athletes. LGBQ athletes classified athletic performance as the main reason for the discrimination,
but verbal discrimination, exclusion, and favoritism by coaches were also present (Rankin & Merson, 2012). Sexuality has also been suppressed because of the heterosexual nature of locker room conversations, which often include sexual encounters with females and discriminatory terms against homosexuals and bisexuals (Anderson, 2005; Curry, 1991). Such locker room activities pressure homosexual athletes to remain silent and join conversation to appear more masculine or to be respected as tough and accomplished athletes. LGBQ stress levels and prevalence in depression and psychological problems increase due to the discriminatory environment and intolerance within athletics (Koh & Ross, 2006). Therefore, significantly higher levels of personal standards, concern over mistakes, and perceived coach pressures among homosexual student-athletes may be the result of intolerance and fear of being excluded, mistreated, and harassed by others during team activities, creating an undesirable image for the institution, and the loss of starting positions and playing time during competition. Greater personal standards and high concern over mistakes could indicate that homosexual athletes believe that it is necessary to perform at a greater level than heterosexual athletes in order to keep the respect, masculine image, and power that is desired within a sport environment. Homosexual athletes may be greatly concerned with perfecting performances to reduce or eliminate stereotypes that distinguish homosexuality as a form of weakness and to guarantee that he or she is talented enough to maintain a starting position or playing time if his or her sexuality is revealed.

Most research has placed bisexuals, lesbians, and gays into a single category, diminishing the possibility that experiences may be different among the three groups. In the present study, heterosexual and homosexual student-athletes had similar perceived
parental pressures. However, both heterosexual and homosexual athletes had significantly higher perceived parental pressures than bisexual athletes. These results may have occurred because bisexuality has often been ignored or considered invisible throughout the world, including within the gay and lesbian community (Alexander & Yescavage, 2004). Society ignores all possibility that an individual in a same-sex relationship could be bisexual, but instead, labels these individuals as strictly gay or lesbian. When bisexuality is acknowledged, it is often considered a temporary stage that an individual is undergoing in life before they adopt a more permanent sexual identity. In addition, bisexuals have had to fight for inclusion in programs and pride events such as the Gay Softball World Series because they identify as bisexual rather than gay or lesbian (Human Rights Commission of San Francisco, 2012). At a young age, tomboyism is considered acceptable by parents until a child reaches puberty. At the onset of puberty, parents begin to pressure their daughters to become more feminine and lose the tomboy image in order to accommodate social norms. However, many female bisexuals believe they simply concealed tomboyish behavior to satisfy the requests made by their parents until they reached adulthood (Denner & Dunbar, 2004). Female athletes, despite sexual orientation, strive to prove their heterosexuality in order prove their femininity within a stereotypical masculine environment (Krane, 2001). Safir, Rosenmann, and Klener (2003) suggested that tomboys are a depiction of genderless perpetrators of both masculinity and femininity, which ideally allows bisexual female athletes to display a masculine image of power, strength, and athletic ability and represent the ideal feminine body type and appearance that is desired within the sport environment, reducing the likelihood of perceived parental pressures. Similarly, bisexual male athletes may
perceive less parental pressures because they are representing ideal masculinity by participating in sport and confidently participating in heterosexual locker room conversations and are still able to maintain an acceptable and desirable body type without being stereotyped as weak or incapable of performance. Ultimately, bisexual athletes’ sexuality may be more easily overlooked due to the misunderstanding of bisexuality as a phase in life and their ability to accommodate the stereotypical images of the perfect athlete more than their heterosexual and homosexual teammates.

4.4.5 Gender Difference for Risk of Developing Eating Disorders

Steiner-Adair et al. (2002) suggested that particular groups within the college population are at higher risk for developing an eating disorder. In particular, college athletes not only encounter the pressures common among the general population, but are confronted with pressures specific to the sport environment, including weight requirements, coach and teammate expectations, uniform style, and method of judgment (Petrie & Greenleaf, 2007). The results of the present study indicated a significant difference between males and females’ risk of developing an eating disorder among collegiate athletes overall, supporting hypothesis five. These results support previous research suggesting that eating disorders are witnessed more often among female competitors. The significant difference observed may have occurred for several different reasons, for example, injury, sickness, loss of a coach (Sundgot-Borgen, 1994), unrealistic body image ideals, and fear of imperfection in performance (Frost, Marten, Lahart, & Rosenblate, 1990).

When gender was compared between divisions for risk of obtaining an eating disorder, a significant difference was not found. Johnson, Powers, and Dick (1999)
stated that among Division I student-athletes, both male and female athletes exhibit eating disorder behaviors, including overeating, binging, and using diuretics and laxatives to lose or gain weight. Thus, suggesting that the risk of developing a pathogenic eating disorder is present within both males and females, and there is no significant difference between the two genders that insinuates one gender is at a higher risk than the other. Also, Krueger and Clement (1994) suggested that athletes may overestimate the similarities of their eating behaviors and other members eating habits, creating a “false consensus effect.” If behaviors appear normal and are exhibited by all group members at a specific level, negative eating behaviors may not be perceived as maladaptive, but simply a part of the athletic climate within that particular sport. Therefore, both males and females would exhibit similar eating behavior attitudes and a significant gender difference would not be witnessed between or within each division.

4.4.6 Risk of Developing an Eating Disorder Among Divisions

Within the current study, an examination of the influence that level of competition has on the risk of student-athletes developing an eating disorder was conducted. Taub and Blinde (1992) concluded that coaches, parents, peers, perfectionism, personal expectations, determination, and drive for thinness are contributing factors to the prevalence of eating disorders within collegiate athletics. Picard (1999) investigated the prevalence of eating disorders among Divisions I and III student-athletes, discovering that Division I student-athletes exhibit higher levels of eating disorder behaviors than Division III student-athletes. A drive for thinness was the main influence for higher levels of eating disorder behaviors compared to Division III student-athletes fear of becoming overweight or obese. It is important to note that risk of developing eating
disorders among athletes in Division II has not been investigated thoroughly and has focused primarily on female athletes. Smiley and Lim (2008) discovered that Division II student-athletes did not show any higher risk of acquiring an eating disorder than non-athletes, suggesting that the pressures primarily associated with the sporting environment did not influence female athletes at the Division II level.

The results of the present study did not correlate with previous findings that suggest significant differences in risk of eating disorders among Divisions. A significant difference among divisions did not appear within the present study, rejecting hypothesis six. An insignificant difference among Divisions I, II, and III student-athletes’ risk of developing an eating disorder may have occurred because each collegiate athlete has the potential to encounter similar environmental pressures within collegiate athletics regardless of division. Student-athletes of all levels of competition report experiencing pressure from parents, peers, teammates and coaches to control weight and remain thin in order to perform successfully (Heffner, Ogles, Gold, Marsden, & Johnson, 2003).

Heffner et al. (2003) stated that coaches are one of the most influential determinants of a student-athlete developing an eating disorder because of the various roles these individuals take in an athlete’s personal and athletic lives (e.g. role model, therapist, and alternate parental guardian). These athletes may develop eating disorders because a coach merely stresses that his or her athletes should maintain a certain body weight to enhance performance, while never suggesting unhealthy ways of losing weight quickly (Thompson & Sherman, 1993). In addition, the insignificant difference in risk of eating disorder among all three divisions may be due to self-report and an athlete’s fear of their eating disorder being revealed. Although athletes were guaranteed anonymity, a fear of
coaches, parents, teammates, administration, etc. discovering eating disorder behaviors may have influenced survey responses of the participants.

4.4.7 Type of Sport and Risk of Developing an Eating Disorder

Within the present study, hypothesis seven was rejected. The present study indicated no significant difference in risk of developing an eating disorder between athletes in aesthetic and non-aesthetic sports. Warren, Stanton, and Blessing (1990) and Berry and Howe (2000) argued that the prevalence of eating disorders is not influenced by type of sport (aesthetic or non-aesthetic). In addition, Krentz and Warschburger (2011) discovered that athletes are only at a higher risk of developing an eating disorder within aesthetic sports if they believe weight regulation will improve their sports performance. Researchers have developed several explanations suggesting that eating disorders are not based on type of sport. For example, sport environment, exercise and physical activity, intra-individual explanations, and sports participation have all been identified as variables that influence eating disorders. The sport environment impacts eating disorder frequency because all athletes are open to body shape and weight control pressures specific to sport (Leung, Geller, & Katzman, 1996). The exercise and physical activity justification for eating disorder occurrences explains that athletes participating in sport undergo excessive exercise routines that specifically decrease the value of food reinforcement, furthermore lowering food intake (Epling & Pierce, 1988). Intra-individual explanations affect eating disorder cases because of psychological characteristics, such as, perfectionism, self-drive, and obsessiveness (Johnson, 1994). The sports participation explanation suggests that athletes are more susceptible to social norms and drive for thinness, increasing the likelihood of eating disorder. Thus, these
explanations suggest that type of sport does not influence the risk of developing an eating disorder, but rather eating disorder is influenced by other factors.

4.4.8 Sexual Orientation and Risk of Developing an Eating Disorder

Significant differences in risk of developing an eating disorder based on sexual orientation were not shown between genders, divisions, or type of sport in the present study, rejecting hypothesis eight. Significant differences based on sexual orientation may not have been witnessed between genders, divisions, or type of sport because athletes have undergone the three stages of Social Identity Theory. Social Identity Theory has been used to investigate the experiences of both heterosexual and homosexual athletes within the sport environment (Roper & Halloran, 2007). Individuals participating in athletics have already undergone the first stage of the Social Identity Theory, where they have labeled himself or herself as an athlete. Roper and Halloran (2007) suggest that through this categorization, athletes have learned the rules and standards within the athletic community and strive to follow all unwritten rules to remain an active member of the group while simultaneously comparing themselves to other members of the group to increase self-esteem and feel a sense of belonging. The importance of remaining a member of the athletic community may have influenced homosexual and heterosexual athletes to remain silent or conform to unhealthy eating behaviors or activities because remaining a member of an athletic community is more important than the long-term risks involved in such behaviors.

Sexual orientation may not have influenced risk of eating disorder, especially in male athletes, because these athletes focus on the hegemonic models of physicality among male athletes and exonerate the aesthetic principles or body types that homosexual
males are stereotypically considered to exemplify (Filault & Drummond, 2008). Female athletes undergo similar attempts to overcome stereotypical body image threats while participating in sports regardless of sexuality. Female athletes’ sexuality is often questioned simply because they are challenging social norms by participating in an environment that has been considered masculine for centuries, potentially making female athletes participate in unhealthy eating behaviors in an effort to keep a feminine body type (Krane, 2001).

4.4.9 Relationship Between Eating Disorders and Perfectionism

A moderate positive correlation was found between perceived coach pressures and concern over mistakes in performance. A correlation between these two variables suggests that as a coach’s expectations and reactions to mistakes increase, an athlete’s level of stress and concern over mistakes during competition also increase. These results support hypothesis nine and correspond with previous research suggesting a positive correlation between concern over mistakes and perceived coach pressures by student-athletes (Stoeber & Becker, 2008). In addition, a moderate correlation was found between concern over mistakes and risk of developing an eating disorder and a correlation between personal standards and concern over mistakes. The correlation between these variables supports previous research suggesting that as concern over mistakes intensifies, the risk of developing an eating disorder by an athlete increases and that high personal standards increases concern over mistakes during competition. When athletes become primarily focused on perfection, maladaptive behaviors are more likely to occur that could potentially have long term effects on the athlete even after their athletic career has ended.
4.4.10 Predictors of Eating Disorders

A hierarchical multiple regression was performed to analyze whether there was a relationship between the dependent variable (risk of developing an eating disorder) and the predictor independent variables (gender, height, current weight, age, division, and year in school). In model one, gender was examined to determine if gender was significantly related to risk of developing an eating disorder. The results of the present study indicated a significant relationship between gender and risk of developing an eating disorder and supported the hypothesis that females have a higher risk of developing an eating disorder than males. Findings support previous research indicating that gender is a predictor of eating disorders and that females are more likely to develop eating disorders than males.

After controlling for gender, height, current weight, and age were examined to determine if these variables were predictors of developing an eating disorder in model two. It was found that gender, height, and current weight were significant predictors of risk of developing an eating disorder among student-athletes. The present study suggested that the shorter the athlete the higher the risk of developing an eating disorder. This supports previous research suggesting that short stature is significantly correlated with the onset of eating disorders, where it has been suggested that individuals below 163cm (64 inches) demonstrate higher risk of developing eating disorders (Favaro et al., 2007). Within society, shorter stature can often be considered a disadvantage, especially in the athletic environment. A height disadvantage can influence body image as well as body weight, creating an increase in below average caloric intake therefore increasing the risk of developing an eating disorder. Society often discriminates against individuals of
shorter stature, ultimately lowering self-esteem in these particular individuals (Downie, Mulligan, Stratford, Betts, & Voss, 1997). Negative remarks directed towards an individual based on height and weight combined with low self-esteem has been directly correlated to the onset of eating disorders (Fairburn & Harrison, 2003). Thus, athletes of shorter stature may feel unnecessary pressure to maintain the ideal body type to perform effectively within his or her sport, increasing the chances of developing an eating disorder.

The present study also suggests that the heavier an athlete the higher the risk of developing an eating disorder. Previous research indicates that criticism associated with an individual’s weight or diet expectations within an environment influence the likelihood of an eating disorder (Shomaker & Furman, 2009). Therefore, an athlete’s current weight could influence the dangerous behaviors that he or she undergoes in order to be accepted by peers within an athletic environment as well as an attempt to satisfy personal, coaches, or parental expectations to perform well during competition.

After controlling for gender, height, current weight, and age, division and year in school were analyzed in model three to determine if these variables were predictors of developing an eating disorder. Gender, height, and current weight remained predictors of eating disorders, but age, division, and year in school were not predictors of developing an eating disorder. These results support previous research suggesting that age and year in school do not influence the onset of an eating disorder (Greenleaf, Petrie, Carter, & Reel, 2009). Athletic division did not predict the risk of developing an eating disorder, however, previous research suggested that division influenced risk of developing eating disorders when comparing division I and III student-athletes (Picard, 1999). Division and
year in school may not have been predictors within the present study because of the sample size or because student-athletes feel environmental pressures to maintain a certain body image within all levels of competition and throughout their entire college career as an athlete.

4.4.11 Chapter Summary

Overall, the results of this study suggest that gender, height, and current weight are predictors of developing the risk of eating disorder. In addition, external and personal pressures impact collegiate athletes to strive for perfection within sport that could create maladaptive psychological, physical, and emotional health. Gender differences in eating attitudes suggested eating disorders are significantly more prevalent in female athletes; however, these behaviors and mindsets are still present within male athletes. The desire to achieve perfectionism and the risk of eating disorders should be a major consideration within the athletic environment. Establishing awareness, reducing discrimination, encouraging tolerance and acceptance, and training for early detection would reduce maladaptive behaviors and prevent negative long-term health risks developing within the athletic environment.
5.1 Summary

Previous research has shown gender, division, and sexual orientation differences in an athletes’ risk of developing an eating disorder. Research has also shown how perfectionism can both positively and negatively impact an individual’s psychological and performance abilities within a specific task. The current study supports previous research suggesting that males and females have personal standards, concern over mistakes, perceived parental pressures, and perceived coach pressures in relation to athletic performance. Also, the present study supports previous research suggesting gender similarity in perfection in the sport domain. The current study suggests sexual orientation differences in perfectionism variables and that the level of competition and type of sport impacts some perfectionism variables within the sport setting. The results of this study support previous research suggesting gender differences among college athletes risk of developing an eating disorder but did not support previous research
suggesting that sexual orientation, division, and the type of sport affects an athletes’ risk of developing an eating disorder. A moderate correlation between COM and PCP and COM and risk of developing an eating disorder were suggested in the present study. The current study indicated gender, height, and current weight are predictors of eating disorders among collegiate athletes.

5.2 Conclusion

Based on the results, there was a gender difference in risk of developing an eating disorder among athletes overall, therefore the hypothesis was partially supported. No significant gender, among divisions, or between type of sport in risk of developing an eating disorder, which rejects the secondary hypothesis. Gender, height, and current weight were predictors of the risk of developing an eating disorder. The results showed significant differences in perfectionism between Divisions I and III for personal standards and perceived parental pressures. The results also indicated significant differences in an athlete’s perfectionism between Divisions II and III in perceived coach pressures, but no significant differences were seen for concern over mistakes among division, partially supporting the hypothesis. No significant differences were observed when comparing gender and personal standards, concern over mistakes, perceived parental pressures, and perceived coach pressures, rejecting the hypothesis. The results revealed significant differences in personal standards, concern over mistakes, perceived parental pressures, and perceived coach pressures between athletes in non-aesthetic and aesthetic sports. The results showed that there was a significant difference in perfectionism based on an athlete’s sexual orientation. Homosexual athletes had significantly higher personal standards than heterosexual and bisexual athletes, homosexual athletes demonstrated
significantly higher concern over mistakes than heterosexual athletes, heterosexual and homosexual athletes had significantly higher perceived parental pressures than bisexual athletes, and homosexual athletes exhibited significantly higher perceived coach pressures than heterosexual athletes. Sexual orientation did not impact perfectionism between athletes in non-aesthetic versus aesthetic sports. The results indicated a positive correlation between an athlete's concern over mistakes and perceived coach pressures, between an athlete's concern over mistakes and risk of developing an eating disorder, and between an athlete's personal standards and concern over mistakes.

5.3 Limitations

The present study was conducted at Divisions I, II, and III colleges and universities in the Midwest. Expanding the administration of the survey to Eastern, Western, Northern, and Southern locations may render different results because of cultural differences across the country. A larger sample size may also contribute to a different outcome for sexual orientation, gender, and division effects on an athlete's risk of developing an eating disorder and perfectionism. Although the survey was administered electronically to ensure anonymity, results may have been different had the survey been administered through other means, such as paper surveys. Although true responses are expected and anonymity was guaranteed, the results may have been affected because it was a self-report survey. Student-athletes may have feared that their eating disorders or maladaptive perfectionism would be discovered, therefore, would have responded accordingly.
5.4 Future Research

Future research is necessary to further examine the impact sexual orientation, gender, division, and type of sport have on positive and negative perfectionism for personal standards, concern over mistakes, perceived parental pressures, and perceived coach pressures. The affect sexual orientation has on developing eating disorders and experiencing maladaptive perfectionism should be investigated by recognizing heterosexual, bisexual, lesbian, gay, transgender, and queer athletes separately to further understand the differences among these athletes’ experiences. Research is also necessary to further investigate the increased levels of eating disorders among male athletes. Further research should include an investigation of athletes’ perfectionism and risk of eating disorder at universities with a high percentage of athletes that continue on to play professionally. Additionally, research should be performed to investigate the methods of coaching and parental support given to athletes to determine which methods would reduce perceived pressures and personal standards most effectively for student-athletes.

5.5 Application

This study has shown that sexual orientation, gender, division, and type of sport may impact perfectionism among student-athletes at the collegiate level. Understanding the impact that pressure has on perfectionism and an athlete’s ability to cope will benefit the athletic community in developing training programs that will teach coaches, athletes, parents, and administration the importance of positive feedback, support, and early detection of eating disorders. Also, understanding athletic performance and environmental pressures will provide an opportunity for participants within collegiate
athletics to enforce and exhibit more tolerance for differences and reduce stereotypes that have negatively impacted sport for many years.
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APPENDICES
Appendix A

Formal Letter to Athletic Directors and Participants

Dear Student Athletes,

My name is Rachel Gaines, a graduate student in the Sport Management Program at Cleveland State University. I am conducting a study to investigate Divisions I, II, and III collegiate athletes’ risk of developing an eating disorder as a requirement for my Master's thesis. Participants will be asked to answer questions about social pressures and eating behavior and attitudes. Our objective is to further understand the risks of developing an eating disorder in college athletics. **The survey will take approximately 7 to 10 minutes to complete.**

Your responses to these surveys will be anonymous. No coaches, faculty, staff, or other individuals are authorized to see your answers. My faculty advisor and I will be the only individuals viewing the survey responses.

Participation in this study is completely voluntary. You may feel some discomfort because of the topic of this research, but the risk is no more than that of daily living. You may withdraw from this study if at any point you feel uncomfortable. There is no reward for participating in this study. There is no penalty for not participating or withdrawing from this study.

To participate in this survey, please click on the following link: [https://www.surveymonkey.com/s/YSZTDLN](https://www.surveymonkey.com/s/YSZTDLN)

Thank you,

Rachel Gaines
Appendix B

**SPORT MULTIDIMENSIONAL PERFECTIONISM SCALE**

Rate the following factors in your primary sport on a scale 1 to 5, where 1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A), and 5 = Strongly Agree (SA)

<table>
<thead>
<tr>
<th>Personal Standards of Performance</th>
<th>SD</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. If I do not set the highest standards for myself in my sport, I am likely to end up a second-rate player.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. I hate being less than the best at things in my sport.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. It is important to me that I be thoroughly competent in everything I do in my sport.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. I think I expect higher performance and greater results in my daily sport-training than most players.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. I feel that other players generally accept lower standards for themselves in sport than I do.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. I have extremely high goals for myself in my sport.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. I set higher achievement goals than most athletes who play my sport.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Concern Over Mistakes in Performance</th>
<th>SD</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Even if I fail slightly in competition, for me, it is as bad as being a complete failure.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. If I fail in competition, I feel like a failure as a person.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. The fewer mistakes I make in competition, the more people will like me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. I should be upset if I make a mistake in competition.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. If a teammate or opponent (who plays a similar position to me) plays better than me during competition, then I feel like I failed to some degree.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. If I do not do well all the time in competition, I feel that people will not respect me as an athlete.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. People will probably think less of me if I make mistakes in competition.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. If I play well but only make one obvious mistake in the entire game, I still feel disappointed with my performance.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Perceived Parental Pressure for Performance</th>
<th>SD</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. My parents set very high standards for me in my sport.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. In competition, I never feel like I can quite meet my parents’ expectations.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. Only outstanding performance during competition is good enough in my family.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. My parents have always had higher expectations for my future in sport than I have.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. I feel like I am criticized by my parents for doing things less than perfectly in competition.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. In competition, I never feel like I can quite live up to my parents’ standards.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. My parents expect excellence from me in my sport.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. I feel like my parents never try to fully understand the mistakes I make in competition.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. My parents want me to be better than all other players who play my sport.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Perceived Coach Pressure for Performance</th>
<th>SD</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel like my coach criticizes me for doing things less than perfectly in competition.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. Only outstanding performance in competition is good enough for my coach.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. I feel like I can never quite live up to my coach’s standards.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. My coach sets very high standards for me in competition.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. My coach expects excellence from me at all times: both in training and competition.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. I feel like my coach never tries to fully understand the mistakes I sometimes make.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

### EATING ATTITUDES TEST-16

Please rate the following factors, where

1 = Always, 2 = Usually, 3 = Often, 4 = Sometimes, 5 = Rarely, and 6 = Never

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I am preoccupied with the desire to be thinner.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>I am preoccupied with the thoughts of having fat on my body.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3.</td>
<td>I am terrified about being overweight.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4.</td>
<td>I engage in dieting behavior.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5.</td>
<td>I feel extremely guilty after eating.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6.</td>
<td>I think about burning up calories when I exercise.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7.</td>
<td>I like my stomach to be empty.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8.</td>
<td>I feel uncomfortable after eating sweets.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9.</td>
<td>I particularly avoid foods with high carbohydrate content.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10.</td>
<td>I avoid foods with sugar in them.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11.</td>
<td>I eat diet foods.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12.</td>
<td>I am aware of the calorie content of foods that I eat.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13.</td>
<td>I find myself preoccupied with food.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14.</td>
<td>I feel that food controls my life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15.</td>
<td>I give too much time and thought to food.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16.</td>
<td>I have gone on eating binges where I feel I am not able to stop.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

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### Demographics

1. Year in School: 
   - □ Freshman
   - □ Sophomore
   - □ Junior
   - □ Senior
   - □ Fifth Year
   - □ Graduate Student
   - □ Other ______________________

2. Ethnicity: 
   - □ Caucasian/White
   - □ Native American
   - □ Hispanic American
   - □ African American/Black
   - □ Asian American
   - □ Other ______________________

3. Gender of Head Coach: 
   - □ Male
   - □ Female

4. Primary Sport Participated in (Sport You Relate to Most): ______________________

5. Secondary Sport Participated in (If Applicable): __________________________________

6. How many years have you been participating in your primary Sport? ______________

7. Height: _______ (inches)

8. Your Age: _______ (years)

9. Your Gender: 
   - □ Male
   - □ Female

10. Division Participating in: 
    - □ Division I
    - □ Division II
    - □ Division III

11. Current Weight: _______ (pounds)  Lowest Adult Weight: _______ (pounds)

12. Highest Weight (excluding pregnancy): _______ (pounds)  Ideal Weight: _______ (pounds)

13. Sexual Orientation: 
    - □ Heterosexual
    - □ Homosexual
    - □ Bisexual
    - □ Transgender
    - □ Pansexual
Appendix C

Institutional Review Board Approval Form

Cleveland State University

Memorandum
Institutional Review Board

To: Eddie T. C. Lam
HPERD

From: Barbara Bryant
IRB Recording Secretary

Date: August 13, 2012

Re: Results of IRB Review of your project number: #29524-LAM-HS
Co-Investigator: Rachel Gaines
Entitled: The gender and sexual orientation differences between Division I and Division III athletes risk of developing eating disorder based on eating attitudes, social pressures, and the need to remain thin for peak performance

The IRB has reviewed and approved your application for the above named project, under the category noted below. Approval for use of human subjects in this research is for one year from today. If your study extends beyond this approval period, you must contact this office to initiate an annual review of this research.

By accepting this decision, you agree to notify the IRB of: (1) any additions to or changes in procedures for your study that modify the subjects’ risk in any way; and (2) any events that affect that safety or well-being of subjects. Notify the IRB of any revisions to the protocol, including the addition of researchers, prior to implementation.

Thank you for your efforts to maintain compliance with the federal regulations for the protection of human subjects.

Approval Category: 

X Expedited Review: Project approved, Expedited Category 7

cc: Project file
Appendix D

Consent Form

My name is Rachel Gaines, a graduate student in the Sport Management Program at Cleveland State University. I am conducting a study to investigate Divisions I, II, and III collegiate athletes’ risk of developing an eating disorder as a requirement for my Master's thesis. Participants will be asked to answer questions about social pressures and eating behavior and attitudes. Our objective is to further understand the risks of developing an eating disorder in college athletics.

Your responses to these surveys will be anonymous. No coaches, faculty, staff, or other individuals are authorized to see your answers. My faculty advisor and I will be the only individuals viewing the survey responses.

Participation in this study is completely voluntary. You may feel some discomfort because of the topic of this research, but the risk is no more than that of daily living. You may withdraw from this study if at any point you feel uncomfortable. There is no reward for participating in this study. There is no penalty for not participating or withdrawing from this study.

For further information regarding this research, please contact Rachel Gaines at (330)442-2331, email: r.a.gaines@vikes.csuohio.edu, or Dr. Eddie T. C. Lam at (216)687-5051, email: t.lam@vikes.csuohio.edu. If you have any questions about your right to participate in this research study, you may contact the Cleveland State University Institutional Review Board at (216) 687-3630.

Clicking to proceed with the survey indicates your consent to participate under the conditions outlined above.
Appendix E

Sport-Multidimensional Survey Use Approval

Rachel,

You have my permission to use the Sport-MPS and/or the Sport-MPS-2 for your thesis research.

Attached are copies of both instruments (if you don't already have them).

Good luck with your research.

John

*******************************************************************************
John Dunn, PhD  
Professor  
Faculty of PE & Rec  
University of Alberta  
Edmonton, Alberta  
Canada T6G 2H9  
Tel: (780)-492-2831  
e-mail: john.dunn@ualberta.ca  
website: http://www.ualberta.ca/~jdunn
Appendix F

Eating Attitudes Test Survey Use Approval

Rachel,

Thank you for your permission request to reproduce and use the EAT-26. The EAT-26 is protected under copyright; however, all fees and royalties have been waived because it has been our wish for others to have free access to the test.

Please consider this e-mail as granting you permission to reproduce the test for the purpose suggested in your request as long as the EAT-26 is cited properly. The correct citation is: "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."

You can download a copy of the scoring instructions and the test on the homepage of the EAT-26 website. If you use the written version of the test, it is recommended that you provide respondents with the link to the EAT-26 website (www.eat-26.com) so that they can learn more about the test.

Again, thank you for requesting permission to reproduce and use the EAT-26. If you intend on publishing your work, please send me your results so that they can be included in a research database being developed on the EAT-26 website (www.eat-26.com).

Best wishes,

David M. Garner, Ph.D.
Administrative Director
River Centre Clinic
5465 Main Street
Sylvania, OH 43560
dm.garner@gmail.com