

# Differences Between Male and Female Division III Athletes in Eating Attitudes, Body Perception, and Reason for Exercise

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Most research shows that college athletics are a Petri dish for eating disorders (Carter & Rudd, 2005; Garner, Rosen, & Berry, 1998). Not only are college athletes at the age when eating disorders usually develop but they also face enormous pressure from coaches, parents, and society to perform and excel both on and off the field. According to Hausenblaus & Carron (1999), there are four indices of why athletes are at particular risk:

1. Sociocultural explanation- Society through the media and common assumption put a tremendous amount of pressure on athletes to look a certain way and perform.
2. Sport's Environment explanation- There are common myths in sports that the thinner an athlete is the better he/she looks and the faster (in sports like Cross country and swimming) and the more agile (in sports like dance and diving) the athlete will be. Conversely, there is also beliefs in sports like football where the bigger and more "jacked" the athlete is the better they will do.
3. Behavioral explanation- Excessive exercise and obsessive training that athletics sometimes encourage is usually associated with eating disorders.
4. Intraindividual explanation- Athletes share a lot of nonsymptom psychological risks such as neuroticism, perfectionism, and obsessions that are also associated with eating disorders.

These factors when combined can lead athletes to feel that to achieve in their sport they must turn to drastic measures to be "great" like adding in extra workouts to burn more calories, restrict their diets to lose or maintain their shape, or obsess over every little detail to make their diet and training perfect. After all, if we based our knowledge of most health adds, sports magazines, and models, thinner equates to faster, stronger, and success or, for males, that bigger is better, more powerful, and sexier.

While the above indices do seem to be present in college athletics, research actually shows mixed results to whether college athletes are actually an at risk group. Some studies show that the prevalence of eating disorders—especially bulimia and anorexia—is higher in female athletes than non athlete cohorts (Hausenblaus & Carron, 1999; Carter & Rudd, 2005) while some studies found that female athletes are not an at risk group at all (Warren, Stanton, & Blessing, 1990; Stoutjesdyk and Jevne, 1993). The differences in findings can be partially explained by the theory that athletes display eating disorder behavior and characteristics but do not actually meet the diagnostic criteria for them. An NCAA funded study found that there was a very small percentage of female athletes who actually met the DSM-IV criteria for either bulimia or anorexia nervosa, but there was a high prevalence of struggling with eating disorder behavior such as severe dieting and weekly episodes of binging/purging, thus showing that athletes are at risk (Johnson, Powers, & Dick, 1999). This differentiation between diagnostic criteria and just showing behavior makes it important to go beyond mere diagnostics and evaluate the psychopathology that drive athletes to develop eating disorders.

These findings, however, are limited in that they were only done on Division I athletes, raising the question of whether they are applicable to other athletic divisions where athletics have less of an emphasis and competitive atmosphere. Research shows that eating disorder behavior varies with level of competition (Stoutjesdyk & Jevne, 1993; Hinton & Kubas, 2005; Picard, 1998; Holm-Denoma, Scaringi, Gordon, Van Orden, & Joiner, 2009; Garner, Rosen, & Barry, 1998; ). Picard found that Division I female athletes showed more signs of pathological eating and were more at risk of developing eating disorders than Division III female athletes. Holm-Denoma *et al.* found similar correlation between varsity athletes, club athletes, independent exercisers, and non exercisers so that as level of competition increased eating disorder behavior also increased. One purpose of this study therefore is to look into whether eating disorder pathology exists on the Division III level.

Another problem with previous research is that it has focused primarily on females, neglecting males. The prevalence of eating disorders among males is quite low but increasing drastically as new, gender-neutral and male specific evaluations and diagnostic criteria are created (Braun, Sunday, Huang, & Halmi, 1998).

Eating disorders in males, however, differ significantly from those in females both in etiological factors and symptoms. Unlike females, males usually want to gain muscle mass and feel that they are never too big, what therapists have termed “bigorexia” (Varnado-Sullivan, Horton, & Savoy, 2006). Instead of turning to restricting calories, males typically turn to excessive exercise as a means to get bigger and improve their bodies (Lewinsohn, Seeley, Moerk, & Striegel-Moore, 2002). While the conditions may differ, male eating disorders are nevertheless serious health conditions, and therefore need to be researched more to find out the etiological factors and prevalence among college athletes. Since males and females do differ in how they display eating disorders, it can be assumed that the etiological factors also differ.

This study wanted to look into how males and females differ in the etiological factors of eating disorder behavior. Based on previous research, it is hypothesized that females and males will differ on several indicators including psychopathology and reasons for exercise with males exercising more for looks and to gain muscle mass rather than to be thinner as it would appear in females.

## Method

### *Participants*

166 NCAA, Division III athletes from a small, southern liberal arts school filled out the survey. Of this group, 78 were males and 88 were females, which is a pretty large and balanced sample compared to similar studies. The average age was 19.82 years ( $SD= 1.42$  years), which is about the mean age that males and females develop eating, weight and body problems. 91.6% of participants were Caucasian/White ( $n=152$ ), 6% were African-American/Black ( $n=6$ ), 1.8% were Hispanic/Latino/Mexican American ( $n=3$ ), .6% was American Indian ( $n=1$ ), and .6% was Asian American/Pacific Islander ( $n=1$ ). This distribution is fairly skewed and does limit findings but is not uncommon in similar eating disorder studies.

The average reported weight for males was 173.68 lbs ( $SD=29.99$  lbs). The average reported weight for females was 136.62 ( $SD= 23.73$  lbs).

### *Procedure*

Questionnaires were administered and collected in three different ways. The first method was through direct administration by the researcher. Emails were sent to coaches asking for their cooperation in this study. Athletes were approached at practice or in team meetings and asked if they would like to participate in a survey about their feelings about eating, their body, and athletics. Those willing to participate signed a consent form, told that their responses would be completely anonymous and would not be seen by the coaches, health professionals, or other students; they then received, completed, and returned the questionnaires. Athletes could also take the questionnaire online through an online polling website. The online participants were also told that their responses would be completely anonymous. For sports whose athletes met at various times, the consent form, statement of confidentiality, and questionnaire were handed out by the coach, and the athletes were asked to complete the survey and return it to the researcher by mail. The coaches were told not to influence in anyway or look at the responses. The questionnaires were exactly the same in each administration case.

### *Measure*

#### *The ATHLETE Questionnaire*

The ATHLETE Questionnaire used in this study measured psychological predictors and etiological factors of disordered eating specifically in athletes (Hinton & Kubas, 2005). Section one provided demographic information including school year, race, age, height, weight, desired weight, the athlete’s frame size, the frame size of both parents, family history of weight problems, whether the athlete had been injured, other sports the athlete has participated previously, what sports and position they currently play in college, whether the athlete had been recruited, and the highest level of at which he/she has competed in. Information asking for menstrual cycle and history was removed to make the survey more gender neutral.

Section two of the ATHLETE questionnaire is composed of 40 items in a 5 point Likert format divided between into 6 subscales: Drive for thinness and performance (12 items), Social pressure on eating (5

items), Performance perfectionism (8 items), Social pressure on body shape (6 items), Athletic Identity (5 items), and Team trust (4 items).

Section three asked whether the athlete had been diagnosed with an eating disorder. The ATHLETE has strong internal consistency and external validity; it has been shown to correlate strongly with the Eating Disorder Inventory (EDI), Setting Conditions for Anorexia Nervosa Scale (SCANS), and the Questionnaire for Eating Disorder Diagnosis (Q-EDD). The ATHLETE was scored by assigning the a value of 5 to “Strongly Agree,” 4 to “Agree,” 3 to “Unsure,” 2 to “Disagree,” and 1 to “Strongly Disagree.” For reverse scored items, the scale was reversed. The scores were then summed for each factor and then divided by the number of items.

### *Obsessiveness and Neuroticism*

Obsessiveness and Neuroticism were measured with 20 True/False items, 14 items measuring neuroticism and 8 measuring obsessiveness, taken from the MMPI-2. Research has shown that these two personality traits correlate strongly with eating disorder behavior and psychopathology (Wonderlich *et al.*, 2005). The number of “true” responses were then scored (“false” for the reverse score items) to get a collected score for each personality trait.

### *The Reason for Exercise (REI)*

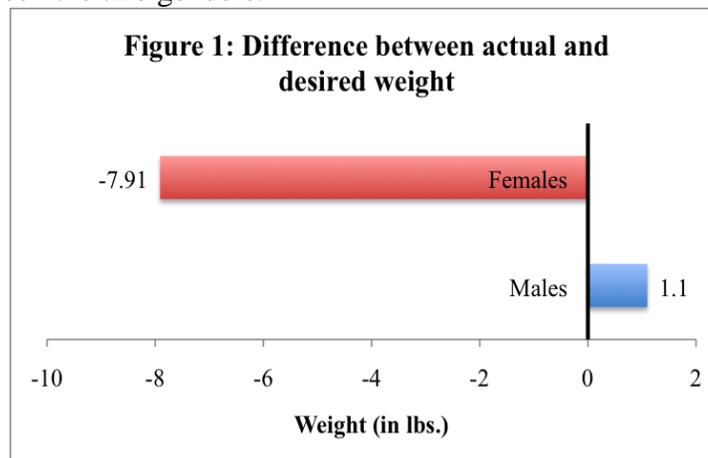
The Reason for Exercise (REI) inventory was included to assess motivations for participating in exercise (Silberstein *et al.*, 1988). It consists of a 24 items on a 7- point Likert scale with 7 dimensions, Weight Control (3 items) , Fitness (4 items), Mood (4 items), Health (4 items), Attractiveness (3 items) , Enjoyment (3 items), and Tone (3 items). Women usually exercise more for weight control compared to men, which in turn was related to disordered eating (Silberstein *et al.*, 1988). Eating disordered women also report exercising more for weight control, to feel better about themselves, and to make their bodies more attractive (Petrie *et al.*, 2009). The REI was scored by summing the scores of each item for each dimension and dividing by the number of factors. Overall, the instrument included 83 items and took about 10 minutes to complete.

## Results

### *Weight Difference*

Males and females significantly differed in the difference between desired weight and idealized weight ( $t(161)=5.275, p<.001$ ). On average, females wanted to lose 7.91 lbs. (SD=11.839 lbs) while males wanted to gain 1.10 pounds (SD=9.77) ( $p<.001$ ).

As shown in Figure 1, of the females, 65% (n=61) wanted to lose weight, 25% (n=23) desired no change in weight, and only 5% (n=4) wanted to gain weight. Of those who wanted to gain weight, two wanted to gain 2 lbs and two wanted to gain 3 lbs. Among males, however, only 37% (n=29) wanted to lose weight, 19% (n=15) desired no change in weight, and 38% (n=34) wanted to gain. Comparing these two graphs we can see a pretty wide gap between the two genders.



### ATHLETE scores

The scores on the ATHLETE questionnaire were fairly low. The majority of mean responses for each item and the each dimension were at or below 3 (a score of “unsure”).

The modes, however, show that several items had interesting distributions of responses. 41 % (n=36) of female respondents agreed (i.e. response of 4) with the statement: “I often wish I were leaner so that I could perform better,” 42% (n=37) agreed with “I put more pressure on myself than my coach puts on me,” and 48% (n= 42) agreed with “I put more pressure on myself than my parents puts on me.” Other items like, “When practice is shorter or less intense than usual I will compensate by either exercising more or eating less,” showed a even split between agree (33%, n=29) and disagree (37%, n=32).

For males, 34% (n=27) agreed with the statement “I will spend as much time and energy as it takes to train even if it means less time being with my friends,” 32% (n=24) agreed with “I would be more successful in my sport if my body looked better,” and 41% (n=30) agreed with “No matter how successful I am, I never feel satisfied.”

### *Males compared to Females on the ATHLETE*

Table 1 shows the significant results from the ATHLETE questionnaire. On the ATHLETE questionnaire, females scored significantly higher on two dimensions, Drive for thinness and performance ( $t(160)=-2.69$ ,  $p=.025$ ) and Social pressure on body shape ( $t(158)=-3.924$ ,  $p<.001$ ). On the Drive for thinness and performance factor, several items stood out as significant. Females agreed more (scored higher) with the statements “I often wish I were leaner so I could perform better” ( $t(160)=-2.297$ ,  $p=.023$ ), “Because of my sport, I am very careful not to gain weight” ( $t(139)=-3.515$ ,  $p=.001$ ), “I am trying to lose weight for my sport” ( $t(160)=-3.312$ ,  $p=.001$ ), “I spend a lot of time thinking about how many calories I have burned during practice or training each day” ( $t(160)=-2.055$ ,  $p<.05$ ). On the Social pressure on my body shape dimension, three items emerged as significantly different between males and females, “My mom makes me feel that I am too fat, overweight, or that I should lose weight” ( $t(158)=-4.302$ ,  $p<.001$ ), “My dad makes me feel that I am too fat, overweight, or that I should lose weight” ( $t(158)=-3.903$ ,  $p<.001$ ), and “Society makes me feel that I am too fat, overweight, or that I should lose weight” ( $t(160)=-3.312$ ,  $p=.001$ ).

**Table 1: Males and female differences on factors and items on the ATHLETE**

Factor and Item	$t(SD)=t\text{-stat}, p\text{ value}$
Factor 1: Drive for thinness and performance	$t(160)=-2.69, p=.025$
I often wish I were leaner so I could perform better.	$t(160)=-2.297, p=.023$
Because of my sport, I am very careful to not gain weight.	$t(139)=-3.515, p=.001$
I am trying to lose weight for my sport.	$t(160)=-3.312, p=.001$
I spend a lot of time thinking about how many calories I have burned during practice or training each day.	$t(160)=-2.055, p<.05$
Factor 2: Social pressure on body shape	$t(158)=-3.924, p<.001$
My mom makes me feel that I am too fat, overweight, or that I should lose weight.	$t(158)=-4.302, p<.001$
My dad makes me feel that I am too fat, overweight, or that I should lose weight.	$t(158)=-3.903, p<.001$
Society makes me feel that I am too fat, overweight, or that I should lose weight.	$t(160)=-3.312, p=.001$

### *Neuroticism and Obsessiveness*

Males and Female athletes did not score significantly different on either of the personality factors.

### *REI*

Table 2 shows the significant differences between men and women from factors and items on the REI. On the REI, females scored significantly higher (i.e. they agreed more strongly) on the “Weight control” dimension ( $t(158)=-3.924$ ,  $p<.001$ ) with an average score of 4.68 (i.e. to control weight was an important reason to

exercise) out of 7 (SD=1.442), but males scored significantly higher on the “Attractiveness” dimension ( $t(152)=2.683, p=.008$ ) with an average score of 5.11 (i.e. to become more attractive was an important reason to exercise) out of 7 (SD=1.65). Males also scored higher but not significantly so on the “Fitness” dimension ( $t(152)=1.924, p=.056$ ). On the Weight Control dimension, females’ scores were extremely significant on all three dimensions, “To be slim” ( $t(152)=-4.521, p<.001$ ), which females viewed as very important ( $x=5.04$  (SD=1.62) compared to 3.79 (SD=1.78) for men), “To lose weight” ( $t(152)=-3.807, p<.001$ ), which females regarded as “Moderately Important” ( $x=4.16$  (SD=1.922) compared to males’  $x=3.01$  or “not that important,” (SD=1.77), and “To maintain my current weight” ( $t(152)=-2.984, p=.003$ ), which females scored as important ( $x=4.84$ , (SD=1.55) compared to men’s  $x=4.06$  (SD=1.723)). On the Attractiveness dimension, males scored significantly higher ( $t(152)=2.683, p=.008$ ). For males, two items, “To be attractive to members of the opposite sex” ( $t(152)=3.630, p<.001$ ) and “to be sexually desirable” ( $t(152)=3.385, p<.001$ ), both were ranked as “very important” ( $x=5.20$  (SD=1.849) and  $x=5.07$  (SD=1.815) respectively) compared to females, who said it was “important” ( $x=4.11$  (SD= 1.861) and  $x=4.05$  (SD=1.912)). Both groups, however, ranked “to improve my appearance” as “very important” ( $x=5.5, SD=1.672$ ).

**Table 2: Males and female differences on factors and items on the REI**

Factor and Item	$t(SD)=t\text{-stat } p \text{ value}$
Factor 1: Weight Control	$t(158)=-3.924, p<.001$
To be slim	$t(152)=-4.521, p<.001$
To lose weight	$t(152)=-3.807, p<.001$
To maintain my current weight	$t(152)=-2.984, p=.003$
Factor 2: Fitness Average	$t(152)=1.924, p=.056$
To improve muscle tone	$t(152)=1.930, p=.055$
To improve strength	$t(151)=1.813, p=.056$
To improve endurance, stamina	$t(152)=1.905, p=.059$
To improve my flexibility, coordination	$t(152)=.727, p=.468$
Factor 3: Attractiveness Average	$t(152)=2.683, p=.008$
To be attractive to members of the opposite sex	$t(152)=3.630, p<.001$
To be sexually desirable	$t(152)=3.385, p<.001$

## Discussion

Since the ATHLETE and REI do not evaluate or diagnose eating disorders specifically but rather look at the etiology and pathology behind them, it is hard to say whether or not eating disorders exist in Division III athletes. These results do show, however, that the warning signs and potential symptoms are present for both females and males. The modes and distribution of responses show that there is group of female athletes who do feel pressure from parents and society to fit into the thinner is better mind set and male athletes to get ripped.

The majority of female athletes wanted to lose weight with only four responders wanting to gain at most 4 pounds. This finding, while not unexpected, is surprising in how much weight the average desired weight loss was. Previous studies have shown that females want to be thinner and have a higher weight dissatisfaction, a desire that is highly correlated with eating disorders especially in athletes (Silberstein *et al.*, 1988; Sundgot-Borgen, 1993). As shown in these results, females see exercise as a means to alter their weight and improve appearance (what Silberstein calls “negative reasons”) over other reasons like health, mood, or socializing (“positive reasons”). According to responses, these body image pressures stem from not only society’s demand for a perfectly thin body but also from parents. Females reported feeling that both their mother and father put pressure on them to look and eat a certain way. However, unlike D-I athletes, they did not feel pressure from coaches. Instead athletes reported that they put more pressure on themselves than their coaches did.

Male athletes, however, appear to face the opposite problem where bigger is never enough. As this and previous studies show, males typically want to gain weight rather than lose (Silberstein, 1988; Furnham, Badmin, & Sneade, 2002). This finding does not mean that males are immune to eating disorders. On the contrary, it still shows a general weight and body dissatisfaction. Unlike Females, this study shows that males even on the D-II level use exercise as way to improve physical attractiveness and fitness, which confirms previous findings (Silberstein, 1988; Furnham, Badmin, & Sneade, 2002; Stoutjesdyk and Jevne, 1993). However, these reasons for exercise have been shown to be correlated with eating disorders specifically within males. When coupled with body dissatisfaction, these drives can lead males to exercise excessively. Moreover, they feel a drive to improve appearance, linking their looks with exercise and performance. While not the typical eating disorder like anorexia and bulimia, these exercise related disorders are nevertheless serious.

There are limitation to these findings, the low mean scores could be due to the level of competition. Unlike in Division I athletes, athletes in Division III usually did not choose to come to school primarily to play a sport. Thus, the pressure to excel and succeed decreases. Future studies will have to compare both males and females on the D-I level with those in the D-III level.

The lack of difference in personality scores could be due that every participant was an athlete and thus have similar levels of neuroticism and obsessiveness.

Another possible source of error in results include the problem of self report. While every precaution was taken to make sure the athletes felt that their answers were anonymous, many athletes might have felt uncomfortable filling out the questionnaire honestly since a student was administering it. Consequently, these results might be underestimates; if they are, then they are underestimates that show the lower end of prevalence yet still some eating disorder psychopathology.

Coaches and athletic institutions need to recognize that athletes face problems with eating and body dissatisfaction regardless of level of competition or gender. While males and females appear to differ in the etiology, psychopathology, and symptoms, both cases are problems and should be recognized as such.

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