



## Comparison of Body Image between Athletes and Nonathletes: A Meta-Analytic Review

Heather A. Hausenblas & Danielle Symons Downs

To cite this article: Heather A. Hausenblas & Danielle Symons Downs (2001) Comparison of Body Image between Athletes and Nonathletes: A Meta-Analytic Review, Journal of Applied Sport Psychology, 13:3, 323-339, DOI: [10.1080/104132001753144437](https://doi.org/10.1080/104132001753144437)

To link to this article: <https://doi.org/10.1080/104132001753144437>



Published online: 30 Nov 2010.



Submit your article to this journal [↗](#)



Article views: 3276



View related articles [↗](#)



Citing articles: 23 View citing articles [↗](#)



## Comparison of Body Image between Athletes and Nonathletes: A Meta-Analytic Review

HEATHER A. HAUSENBLAS AND DANIELLE SYMONS DOWNS

*University of Florida*

Due to the equivocal research examining body image between athletes and nonathletes and the serious negative effects of body image disturbance a meta-analytic review of the literature was undertaken ( $N = 78$  studies, 294 effect sizes). A small effect was found which indicated that athletes had a more positive body image compared to the nonathletes. Examination of the moderator variables revealed that the magnitude of the effect size: (a) for unpublished research was larger compared to published research; (b) for comparison groups which were included within the study was smaller than for comparison groups based on normative data; (c) did not differ between the female athletes compared to the male athletes; (d) did not vary among the aesthetic, endurance, and ball game sport athletes; and (e) did not differ by age or body mass index. Possible explanations for the more positive body image of the athletes than the nonathletes are discussed.

Body image is defined as the internal representation of your outer appearance (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). Disturbances of body image are prevalent in North America (Cash & Henry, 1995; Garner, 1997), Europe (Allaz, Berstein, Rouget, Archinard, & Morabia, 1998), and other developed countries (Maude, Wertheim, Paxton, Gibbons, & Szmukler, 1993) with estimates ranging depending on the population assessed and the body image measure utilized. For example, large scale survey studies conducted by Psychology Today reveal that appearance dissatisfaction has increased from 23% to 56% for females and 15% to 43% for males from 1972 to 1996 (Berscheid, Walster, & Bohrnstedt, 1973; Garner, 1997). The estimated cost of body image disturbance to society and the individual is excessive and is manifested through, for example, cosmetic surgery, diet products, and mental and physical illnesses (Thompson et al., 1999). Due to the high prevalence and expense of body image disturbance and its relationship with negative affect, behaviors, and cognitions, as well as representing a

---

Manuscript submitted 2 October 2000; revision received 3 April 2001.

Address correspondence to Heather Hausenblas, Ph.D., ESS FLG 146, PO Box 118205, University of Florida, Gainesville, FL 32611-8205. Phone: 352-392-0584 ext. 1292; Fax: 352-392-5262. Email: heatherh@hnp.ufl.edu

diagnostic criteria for bulimia nervosa, anorexia nervosa, and body dysmorphic disorder (APA, 1994), examining its perpetuating and precipitating factors are essential to establishing effective prevention and treatment programs.

Several theories have been advanced to explain the acquisition and maintenance of body image disturbance (Thompson et al., 1999). The most empirically supported theory is sociocultural, which identifies social pressure (e.g., media, friends, family, teammates) as the impetus for an individual's desire to conform to unrealistic body shape standards (Cusumano & Thompson, 1997). The sociocultural model emphasizes that the current aesthetic standard of a thin and toned physique for females (i.e., low percent body fat and physically fit) and a lean and muscular physique for males (i.e., low percent body fat and muscular, especially upper body muscularity) is omnipresent and virtually impossible for people to achieve without excessive dieting, exercise, or both (Cusumano & Thompson, 1997; Thompson et al., 1999).

Disparities in body image disturbance exist among population groups. For example, the prevalence of body image disturbance is higher among females than males (Garner, 1997), younger compared to older individuals (APA, 1994), among Caucasians than ethnic minorities (Altabe, 1998; Smith, Thompson, Raczynski, & Hilner, 1999), among the more affluent than the lower affluent (Allaz et al., 1998; APA, 1994), and among people with a greater percent body fat than those with a lower percent body fat (Focht & Hausenblas, 2000).

Another population suggested by some researchers to be at-risk for body image disturbance are athletes because of task (e.g., performance advantages, weight requirements) and social (e.g., coach, judge, teammates) pressures to attain an ideal physique (Davis & Cowles, 1989; Rao & Overman, 1986). In contrast, other researchers have found that athletes report lower or similar body image concerns compared to nonathletes (Anderson, Zager, Hetzler, Nahikian-Nelms, & Syler, 1996; Fulkerson, Keel, Leon, & Dorr, 1999; Hausenblas & Mack, 1999). In short, research examining body image disturbance between athletes and nonathletes is equivocal and no comprehensive synthesis of the literature has been located.

If athletes have a more positive body image compared to nonathletes then examining the mediating and moderating effects for this relationship may aid in the development of body image interventions for nonathletes. In contrast, if athletes report greater body image disturbance compared to nonathletes then investigating the sociocultural influences within the athlete's environment which may be perpetuating this problem must be addressed due to the serious adverse outcomes of body image concerns such as negative behaviors (e.g., excessive dieting and exercising, purging), attitudes (e.g., lower self-esteem, increased depression), and cognitions (e.g., distorted thought processes).

There are several methodological reasons which may, in part, have resulted in the equivocal literature on body image between athletes compared to nonathletes. It is important to emphasize that these methodological issues are not limited to the sport research but are evident in the general body image literature (Thompson et al., 1999). First, the operational definition and terminology of body image has varied and has often not been explicitly explained (Bane & McAuley, 1998). For

example, constructs assessed under the rubric of body image include body size perception, appearance evaluation, physique anxiety, and avoidant behaviors related to appearance (Thompson et al., 1999). Due to the casual use of the term, caution must be taken when comparing studies that claim to assess body image because, for example, one study may examine *perceptions* of appearance whereas the other may assess *attitudes* about appearance.

Thompson et al. (1999) clarified that body image disturbance is an umbrella term which is conceptualized as encompassing perceptions, cognitions, affect, behaviors, and subjective evaluations related to body image. The *affective* component consists of distress or anxiety regarding one's appearance (e.g., social physique anxiety). The *cognitive* component includes how body image schema affects the input, storage, and retrieval processing of the mental encyclopedia. For example, body-related thoughts dominate the cognitions of individuals with severe body image disturbance. The *behavioral* aspect includes avoidance of situations or environments that are perceived to elicit body image scrutiny (e.g., swimming at a public beach) or engaging in behaviors related to weight change/maintenance (e.g., dieting, exercising). The *perceptual* component is defined as the accuracy of estimation of the size of body sites. Finally, *subjective evaluation* is conceptualized as the most global measure because it captures the essence of a person's subjective evaluation and may be associated with affective, cognitive, and behavioral features of body image (Thompson et al., 1999). For example, the degree that one is dissatisfied with the size/shape of specific body parts or the whole body represents the subjective evaluation of body image disturbance. As Thompson et al. (1999) states, the body image disturbance term is "almost useless without a specification of which particular subjective, affective, cognitive, behavioral, or perceptual processes are intended and whether the foci are specific body sites or a more global aspect of overall appearance" (p. 10).

Second, there are numerous body image measures which vary depending on which aspect of body image disturbance is being assessed. These instruments differ substantially in regards to their psychometric properties, feasibility, and frequency of use (Bane & McAuley, 1998). The subjective evaluation domain of body image contains the most assessment tools. These measures assess, for example, body image satisfaction, esteem, appearance, and evaluation. The interested reader is referred to Bane and McAuley (1998) and Thompson et al. (1999) for a review of body image measures.

Third, failure to examine the moderating effects of competitive level (e.g., high school, college, elite), age, body composition, sport type (e.g., basketball, gymnastics), and ethnicity may have led to conflicting findings in the body image and athlete literature (Brownell & Rodin, 1992). As previously mentioned, body image disturbance is negatively related to age, positively associated to body composition, and Caucasians report more disturbance than minorities. Research examining the moderating effects of competitive level and sport type on the body image of athletes, however, has been mixed (Brownell & Rodin, 1992).

In summary, due to the large number of studies which have examined body image between athletes and nonathletes, the methodological study limitations, the

serious negative effects of body image disturbance, and the variability of the findings, a quantitative synthesis of this literature is necessary. The primary purpose of the present study was to meta-analytically review the research on body image between athlete and nonathletes. It was hypothesized that the athletes would report less body image disturbance than the nonathletes. This was based on the fact that athletes because of their high levels of physical activity may be more likely to experience the positive physical (e.g., lean, toned, and muscular physique) and psychological (e.g., increased self-esteem, decreased depression) benefits of physical activity than the control groups (Fox, 2000; Landers & Arent, 2001).

The secondary purpose was to examine the influence of the potential moderating variables of age, sport type, gender, body composition, publication status, competitive level, and ethnicity on body image between athletes and nonathletes. It was hypothesized that there would be a: (a) negative relationship between body image disturbance and age, (b) positive relationship between body image disturbance and body composition, (c) larger effect for published than unpublished research, and (d) larger negative effect for Caucasians compared to minorities. Due to the discrepant literature on the relationship between sport type and competitive level for athletes' body image no a priori hypothesis were advanced.

## METHOD

### *Literature Search*

Three methods were undertaken to conduct the literature search. First, the key words of body image, body dissatisfaction/satisfaction, body esteem, athlete, sport, and body image disturbance were used for computer searches in Dissertation Abstracts Online, Educational Resources in Completion, Medline, Psychinfo, and Sportdiscus. Second, the reference list of review articles and all located studies were searched. Third, published conference abstracts in the following journals were examined: *Journal of Sport & Exercise Psychology* (1994–2000), *Medicine and Science in Sports and Exercise* (1986–2000), *Research Quarterly for Exercise and Sport* (1992–2000), and *Journal of Applied Sport Psychology* (1994–1995).

The scrutiny of approximately 300 sources yielded 78 studies containing 13,037 athletes with 294 effect sizes that met the following inclusion criteria: (a) the study participants included male athletes, female athletes, or both (athlete was operationally defined as individuals participating in structured competitive physical activity that is governed by rules; Fox, Boutcher, Faulkner, & Biddle, 2000); (b) the study had a comparison group of individuals not involved in competitive sport or normative data was available; (c) the dependent variable was a body image measure; and (d) there was sufficient information to compute an effect size. Calculating an effect size required one of the following: (a) mean, standard deviation, and sample size for the athlete and comparison groups; (b) the critical value from a statistical test (i.e.,  $t$  or  $F$ ) and the size of the athlete and comparison groups; (c) the significance level and the size of the athlete and comparison groups; or (d) the percentage of individuals in the athlete and comparison groups with body image disturbance (Rosenthal, 1994).

### *Coding the Studies*

The two authors coded each study independently then compared responses and discussed coding difference to achieve consensus. No instances of irreconcilable differences were encountered.

*Participant characteristics.* The participant characteristics coded included age, gender, body composition (e.g., body mass index [BMI], percent body fat), competitive level (e.g., high school, college, elite), ethnicity, and sport type. Over 55 different sports were examined, making it impossible to statistically analyze the moderating effect of sport type separately. Thus, sports were sorted into the following five categories based on their similar sport-specific demands: (a) aesthetic (e.g., figure skating, diving); endurance (e.g., running, triathlon); ball game (e.g., soccer, basketball); weight-dependent (e.g., wrestling); and power (e.g., sprinting; Sundgot-Borgen & Larsen, 1993). The comparison groups coded were: (a) female athletes versus female controls, (b) male athletes versus male controls, and (c) combined male and female athletes versus combined male and female controls.

*Study characteristics.* The study characteristics coded were publication status (i.e., published versus unpublished), control group (i.e., control group from the study versus control group based on available normative data), response rate, publication year, study design, and country of origin.

*Body image measures.* Over 25 different body image tests were used in the studies reviewed. Each test was coded separately. Because of the large number of body image measures and their infrequent use, studies were further coded as to which body image category was assessed.<sup>1</sup> Based on the organizational schema of Thompson et al. (1999), the body image measures were categorized as either perceptual, cognitive, affective, behavioral, or subjective evaluation.

### *Calculation of Effect Sizes*

The statistical methods used to compute effect sizes are those outlined by Hedges (1981, 1982) and Hedges and Olkin (1985). Because effect sizes are positively biased in small samples, a correction factor was used on each effect size prior to subsequent analysis. This correction ensured that the mean effect size did not statistically overestimate the effect. Thus, each effect size was weighted by the reciprocal of its variance prior to combining the effect size. Therefore, an overall weighted mean estimate and an estimate of the variance of the effect size was obtained. A negative effect size indicates that the athletic group had a more positive body image than the control group.

### *Statistical Analysis*

First, all effect sizes were calculated to determine the overall average effect. As a consequence, some studies had multiple-treatments (i.e., common control groups)

---

<sup>1</sup> The individual body image tests and categories are available from the first author upon request.

or multiple-endpoints (i.e., multiple measures; Gleser & Olkin, 1994). Because multiple-treatments do not bias the mean effect size calculated (it will cause an overestimation of the corrected standard deviation, but this bias is not large), no adjustments were undertaken. Because multiple-endpoints violate the assumption of independent data points (Bangert-Drowns, 1986), each study was limited to one set of effect sizes per comparison group per body image category. Removal of effect sizes were conducted in studies with two or more measures of the same body image category per comparison. The removal order was first author-developed questionnaires and then standardized questionnaires. Finally, in studies with two or more effect sizes remaining, random removal was conducted until one effect remained per comparison per assessment modality. This procedure ensured that the assumption of independence of effects was achieved. To examine the influence of the moderator variables on the size of the effect one-way analyses of variance (ANOVA) with the effect size values as the dependent variable were conducted where sufficient data was available (Thomas & French, 1986). Finally, a  $z$  statistic was used to determine if the effect size was equal to zero ( $p < .05$ , Cooper & Hedges, 1994).

## RESULTS

### *Study, Participant, and Body Image Characteristics*

The median year of publication was 1994 (range = 1975 to 2000). The majority of the studies were undertaken in the United States (65.9%), followed by Canada (18.3%), Norway (4.9%), England (2.4%), Germany (2.4%), and Italy (2.4%). The response rate was reported in 26.9% ( $n = 21$ ) of the studies. Within these studies the average response rate was 80.5% (range = 9% to 100%). Because only 26.9% ( $n = 21$ ) of the studies indicated the participants' ethnicity examination of the moderating effect of this variable was not feasible. In regards to gender, 64.1% ( $n = 50$ ) of the studies examined female athletes, 19.2% ( $n = 15$ ) assessed male athletes, and 16.7% ( $n = 13$ ) examined both sexes. The majority of the studies (94.8%,  $n = 74$ ) were correlational, followed by intervention ( $n = 2$ ), quasi-experimental ( $n = 1$ ), and longitudinal studies ( $n = 1$ ).

Most of the body image measures were categorized in the subjective evaluation domain (96.9%), followed by perceptual (1.7%), and affective (1.3%). No measures were used that assessed the behavioral or cognitive domain. Thus, the main analyses were restricted to studies that used subjective evaluation measures. The majority of the effect sizes were obtained from the Body Dissatisfaction Subscale of the Eating Disorder Inventory-2 (56.8%; Garner, 1991; Garner & Olmsted, 1983) followed by the Body Cathexis Scale (4.2%; Secord & Jourard, 1953). Most of the studies assessed BMI (50%,  $n = 39$ ), followed by 48.7% ( $n = 38$ ) that did not examine body composition, and 17.9% ( $n = 14$ ) that measured percent body fat (e.g., skin folds, bioelectrical impedance, dual x-ray absorptometry).<sup>2</sup> Finally, for

---

<sup>2</sup> Percentages exceed 100 because some studies used more than one method.

competitive level, the majority of athletes were competing at the college level (38.5%,  $n = 30$ ), followed by elite (24.4%,  $n = 19$ ), adolescent/high school (14.1%,  $n = 11$ ), club/recreational (10.3%,  $n = 8$ ), combination of levels (10.3%,  $n = 8$ ), and unknown (2.5%,  $n = 2$ ). For comparison group, the majority were students (33.3%,  $n = 26$ ), followed by nonathletes (29.5%,  $n = 23$ ), normative data (24.4%,  $n = 19$ ), low/nonexercisers (7.6%,  $n = 6$ ), sedentary (2.6%,  $n = 2$ ), and aged-matched ( $n = 2$ , 2.6%).

### *General Analysis*

The distribution of effect sizes was homogeneous,  $\chi^2(293) = 75.27$ , ns (Hedges & Olkin, 1985). Nonetheless, the impact of potential moderators were examined because contrasts should be computed among the effect sizes irrespective of whether the homogeneity test is significant (Rosenthal, 1995). The overall effect size was  $-.27$  ( $SD = .25$ ,  $n = 294$ ,  $p < .05$ ) which revealed that the: (a) athletes had a more positive body image compared to the control groups, (b) magnitude of the effect was significantly different from zero, and (c) size of the effect was small (see Table 1). The assumption of independent effects was undertaken for the subjective evaluation category only, because the affective and perceptual categories did not contain enough data to warrant further analysis. This resulted in the retention of 190 effect sizes producing a small effect size of  $-.35$  ( $SD = .27$ ,  $p < .05$ ). Because the distribution of the effect sizes was normal parametric statistics were adopted to examine the potential moderator variables.

### *Moderator Variables*

One-way ANOVAs were conducted to determine if participant characteristics, study characteristics, and body image measures moderated the effect size (see Table 1). First, the effect size for the unpublished research (i.e., dissertations/theses;  $ES = -.45$ ) was significantly larger compared to the published research ( $ES = -.29$ ). Second, the effect size where the comparison group was from the study ( $ES = -.28$ ) was significantly smaller than in studies where the comparison group was based on normative data ( $ES = -.48$ ). Third, there was no significant difference between the magnitude of the effect size for the female athletes versus the female nonathletes ( $ES = -.36$ ) compared to the male athletes versus the male nonathletes ( $ES = -.31$ ).

Fourth, an examination by sport type was undertaken to examine whether subgroups of athletes had better body image than their counterparts. The athletes were sorted into aesthetic, endurance, and ball game sports (i.e., there were insufficient data for the other sport categories and they were, thus, excluded from the analyses). It was found that the average effect size did not differ significantly among the aesthetic ( $ES = -.23$ ), endurance ( $ES = -.43$ ), and ball game ( $ES = -.40$ ) athletes. It should be noted that the effect size for all three sport categories was significantly different from zero, indicating that the aesthetic, endurance, and ball game athlete groups had a more positive body image compared to the control groups.

Fifth, an examination of the effect size across competitive levels (i.e., college,



**Table 1**  
**Summary of the Effect Sizes, Standard Deviations (SD), F Values,**  
**Significance Levels, and Number of Effect Sizes (N)**

Variable		Effect Size	SD	Effect Size N
Overall		-.27	.26	294
Independent effects		-.35	.27	190
Publication format	$F(1, 188) = 6.37, p = .01$			
Published		-.29 <sup>a</sup>	.27	124
Unpublished		-.44 <sup>b</sup>	.27	66
Comparison group	$F(1, 188) = 10.10, p = .002$			
From study		-.28 <sup>a</sup>	.26	127
Normative data		-.48 <sup>b</sup>	.29	63
Gender differences	$F(1, 181) = .42, p = .51$			
Female athletes		-.36	.27	141
Male athletes		-.31	.31	42
Sport type	$F(2, 127) = 2.67, p = .07$			
Aesthetic		-.23	.30	45
Endurance		-.43	.30	37
Ball Game		-.40	.31	48
Level	$F(3, 169) = 2.61, p < .05$			
Elite		-.30	.20	23
College		-.41 <sup>a</sup>	.29	89
Adolescent/high school		-.38	.22	42
Club/recreational		-.13 <sup>b</sup>	.43	19
Age	$F(2, 102) = 2.89, p = .06$			
< 18		-.22	.31	38
18 to 22		-.39	.23	46
> 22		-.29	.26	21
Body Mass Index	$F(2, 84) = 1.56, p = .21$			
< 20		-.32	.27	14
20 to 22		-.42	.22	42
> 22		-.25	.25	31

**Note.** Superscripts that are different represent effects which are significantly different. All the effect sizes were significantly different from zero.

elite, adolescent/high school, and club/recreational) yielded a significant difference. The results of the post hoc analyses showed that the effect size for the college athletes ( $ES = -.41$ ) was significantly larger than the effect size for the club/recreational athletes ( $ES = -.13$ ). That is, compared to the control group the college athletes had significantly more positive body image than the club/recreational athletes. There were no other significant competitive level group differences.

Sixth, the magnitude of the effect size among individuals aged < 18 ( $ES = -.22$ ), 18 to 22 ( $ES = -.39$ ), and > 22 ( $ES = -.29$ ) was nonsignificant. The magni-

tude of the effect size among individuals with a BMI < 20, 20 to 22, and > 22 was nonsignificant. Due to the low number of studies that reported the participants' percent body fat the moderating effect of this variable was not examined. Finally, the effect size for the Body Dissatisfaction subscale of the Eating Disorder Inventory ( $ES = -.35$ ,  $SD = .29$ ,  $n = 154$ ) did not differ significantly from the other subjective evaluation measures ( $ES = -.37$ ,  $SD = .42$ ,  $n = 36$ ).

## DISCUSSION

Due to the inconsistency in the research examining body image between athletes and nonathletes and the serious negative effects of body image disturbance, a meta-analytic review of this literature was undertaken. This statistical review of 78 studies containing 294 effect sizes yielded a number of findings. The general result was that the athletes reported a more positive body image than the control groups, and the magnitude of this effect was small. This result may be due to the possibility that athletes, because of their high physical activity levels, may more closely resemble the current aesthetic ideal of a thin/lean and fit physique for females and a lean and muscular physique for males than the nonathletes (Brownell, 1991). This finding may also be due to the fact that physical activity participation is associated with increases in positive psychological characteristics (e.g., increased self-esteem, decreased mood disturbance) that are related to positive body image (Fox, 2000; Landers & Arent, 2001). The question of whether individuals with a positive body image choose to participate in sport or that they develop favorable images through athletic engagement is an area of further inquiry. This could potentially be investigated using longitudinal research designs that track athletes over the course of several years.

Several possible moderating effects of the results were examined. First, in contrast to the hypothesis BMI did not moderate the effect size. Possible reasons for this finding may be that the majority of BMI scores (i.e., 73.9%) were within a healthy range of 20 to 25; Jequier, 1987). Also, BMI has a high predictive error, especially with physically active populations (ACSM, 1995). Thus, it is conceivable for athletes to have a mesomorphic body type, which may result in higher BMI, despite the fact that they have low percent body fat. Due to the limited number of studies that assessed body composition future researchers are encouraged to examine the moderating effects of body image in athletes with more accurate assessments of body composition such as hydrostatic weighing, bod pod, and dual energy x-ray absorptiometry. Also, in contrast to the prediction, age failed to moderate the size of the effect. That is, irrespective of age, athletes reported a more positive body image than nonathletes.

Second, both the published and unpublished research yielded average effect sizes that indicated that the athletes had a more positive body image than the control groups. However, in contrast to the hypothesis, the effect size for the published research was small versus moderate for the unpublished literature. Thus, the source/location of the research findings was relevant because a stronger effect was present in unpublished (i.e., thesis/dissertation) versus published formats.

Third, a small effect was found for studies in which individuals representing the "population in general" were included for comparison purposes versus a moderate effect size for studies where normative data were used. Thus, reliance on normative data, as opposed to a more representative control group, may result in biased results. Caution is warranted when interpreting results that are based on normative data when examining body image disturbance between athletes and nonathletes. Furthermore, there was variability in the control groups ranging from nonexercisers, to nonathletes, to sedentary controls, to students, for example. It is plausible that some controls may have been former athletes/exercisers. Future researchers are encouraged to clearly define their control groups and assess for past sport/exercise participation and current physical activity behaviors.

Fourth, athletes competing in endurance, aesthetic, and ball game sports did not differ in the magnitude of the effect for body image concerns compared to the control groups. Thus, sport-type failed to moderate body image concerns despite the fact that some researchers have stated that athletes in aesthetic and endurance sports are more likely to be under onerous pressure to achieve the ideal body shape compared to their counterparts (Davis & Cowles, 1989; Sundgot-Borgen & Larsen, 1993). Due to the small number of studies examining athletes in weight-dependent and power sports, no effect size computations were undertaken. Thus, future researchers are encouraged to examine body image concerns for athletes competing in these aforementioned sports.

Finally, in comparison with the general population, college athletes had a more positive body image than club/recreational athletes. It is plausible that athletes competing at the club/recreational level may be engaging in less physical activity compared to athletes competing at higher levels and, thus, may not be as lean. Future research is warranted to examine the role that physical activity executes for body image concerns (Bane & McAuley, 1998).

The study findings have also highlighted additional areas of future research consideration when examining body image in athletes. First, it is important to note that only 19.2% of the comparisons involved male athletes. Future research is needed to examine body image concerns with male athletes, especially due to the increasing rise of body image disturbance in this population (Garner, 1997; Pope et al., 2000). Second, most of the studies assessed the subjective evaluation of body image, in particular with the Body Dissatisfaction Subscale of Eating Disorder Inventory-2. The Body Dissatisfaction Subscale measures the preoccupation with the size and shape of certain body parts such as the hips, buttocks, and thighs. This is a narrow conceptualization of body dissatisfaction and it fails to capture areas such as the upper body that tend to be more of a concern for males. It is recommended that body image be viewed and measured as a multidimensional construct and that the dimensions of body image assessed are clearly defined (see Bane & McAuley, 1998; Thompson et al., 1999). Furthermore, the *awareness* as well as the *internalization* of social standards of appearance are needed to examine their influence on body image. Recently researchers found that the internalization of societal body image ideals account for significant levels of body image disturbance beyond that explained by awareness (Cusumano & Thompson, 1997).

Third, the state versus trait dimensions of body image have not been examined in the sport area. For example, do athletes experience body image concerns immediately prior to, during, or following competition and does this have an effect on their performance? Fourth, few studies reported on ethnicity and examined ethnic differences in body image. Body image concerns are influenced by cultural and ethnic factors. For examples, studies have found that ethnic minorities have lower body image dissatisfaction than Caucasians (Lake, Staiger, & Glowinski, 2000; Smith et al., 1999). This is an area in need of future research in the athlete literature.

In conclusion, based on the results of the meta-analytic review athletes reported a more positive body image than the control groups. Because body image disturbance represents a "normative discontent" in North America (Garner, 1997), examining why athletes have a more positive body image than nonathletes may aid in interventions designed to reduce body image disturbance in the general population. Future research is required to examine the mechanisms which lead to a more positive body image in athletes compared to nonathletes.

## REFERENCES

- \*Abood, D. A., & Black, D. R. (2000). Health education prevention for eating disorders among college female athletes. *American Journal of Health Behavior*, 24, 209–219.
- Allaz, A., Bernstein, M., Rouget, P., Archinard, M., & Morabia, A. (1998). Body weight preoccupation in middle-age and ageing women: A general population survey. *International Journal of Eating Disorders*, 23, 287–294.
- Altabe, M. (1998). Ethnicity and body image: Quantitative and qualitative analysis. *International Journal of Eating Disorders*, 23, 153–160.
- American College of Sports Medicine. (1995). *ACSM's guidelines for exercise testing and prescription* (5th ed.). Baltimore, MD: Williams & Wilkins.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- \*Anderson, S. L., Zager, K., Hetzler, R. K., Nahikian-Nelms, M., & Syler, G. (1996). Comparison of Eating Disorder Inventory-2 (EDI-2) scores of male bodybuilders to the male college student subgroup. *International Journal of Sport Nutrition*, 6, 255–262.
- \*Asci, F. H., Goekmen, H., Tiryaki, G., & Asci, A. (1997). Self-concept and body image of Turkish high school male athletes and nonathletes. *Adolescence*, 32, 959–968.
- \*Ashley, C. D., Smith, J. F., Robinson, J. B., & Richardson, M. T. (1996). Disordered eating in females in an advanced program of study: A preliminary investigation. *International Journal of Sport Nutrition*, 6, 391–401.
- \*Baker, P. (1994). *Eating attitudes and behaviors of high performance female adolescent athletes*. Unpublished doctoral dissertation, University of Alberta, Edmonton, Alberta, Canada.
- Bane, S., & McAuley, E. (1998). Body image and exercise. In J. L. Duda (Ed.), *Advances in sport and exercise psychology measurement* (pp. 311–324). Morgantown, WV: Fitness Information Technology.

---

\* Studies included in the meta-analysis.

\*\* Studies included in the meta-analysis that utilized the same sample.

- Bangert-Drowns, R. L. (1986). Review of developments in meta-analytic method. *Psychological Bulletin*, 99, 388–399.
- \*Beals, K. A. (1996). *Subclinical eating disorders in female athletes*. Unpublished doctoral dissertation, Arizona State University, Tempe.
- \*Benson, J. E., Allemann, Y., Theintz, G. E., & Howald, H. (1990). Eating problems and calorie intake levels in Swiss adolescent athletes. *International Journal of Sports Medicine*, 11, 249–252.
- Berscheid, E., Walster, E., & Bohrnstedt, G. (1973). The happy American body: A survey report. *Psychology Today*, 7, 119–131.
- \*Bettle, N., Bettle, O., Neumarker, U., & Neumarker, K. (1998). Adolescent ballet school students: Their quest for body weight change. *Psychopathology*, 31, 153–159.
- \*Bock, B. C. (1994). *Athletics, eating disturbance and body dissatisfaction: The relationship of psychological investment in fitness to eating and body shape concerns in adolescents*. Unpublished doctoral dissertation, Tufts University, Boston.
- \*Bonaparte, E. (1990). *The relationship between running and object relatedness, narcissism, and body image*. Unpublished doctoral dissertation, Adelphi University.
- \*Brooks-Gunn, J., Attie, I., Burrow, C., Rosso, J. T., & Warren, M. P. (1989, Study 2). The impact of puberty on body and eating concerns in athletic and nonathletic contexts. *Journal of Early Adolescence*, 9, 269–290.
- Brownell, K. D. (1991). Dieting and the search for the perfect body: Where physiology and culture collide. *Behavior Therapy*, 22, 1–12.
- Brownell, K. D., & Rodin, J. (1992). Prevalence of eating disorders in athletes. In K. D. Brownell, J. Rodin, & J. H. Wilmore (Eds.), *Eating, body weight and performance in athletes* (pp. 128–145). Malvern, PA: Lea & Febiger.
- \*Broxon, K. A. (1993). *The effect of high intensity anaerobic training and caloric restriction on menstrual function in elite and recreational female rock climbers*. Unpublished master's thesis, California State University, Fullerton.
- \*Campbell, J. (1985, July/August). Anorexia nervosa: Body dissatisfaction in a high risk population. *CAHPER Journal*, 36–42.
- Cash, T. F., & Henry, P. E. (1995). Women's body images: The results of a national survey in the U.S.A. *Sex Roles*, 33, 19–28.
- \*Chopak, J. S., & Taylor-Nicholson, M. (1991). Do female college athletes develop eating disorders as a result of the athletic environment? In D. H. Black (Ed.), *Eating disorders among athletes: Theory, issues, and research* (pp. 87–95). Reston, VA: American Alliance for Health, Physical Education, Recreation and Dance.
- \*Ciervo, R. L. (1998). *Relationship between family environment and eating disorders among female student-athletes*. Unpublished doctoral dissertation, Temple University, Philadelphia.
- \*Collison, S. B., Kuczmarski, M. F., & Vickery, C. E. (1996). Impact of nutrition education on female athletes. *American Journal of Health Behavior*, 20, 14–23.
- Cooper, H., & Hedges, L. V. (1994). *The handbook of research synthesis*. New York: Russell Sage Foundation.
- \*Cox, L. M., Lantz, C. D., & Mayhew, J. L. (1997). The role of social physique anxiety and other variables in predicting eating behaviors in college students. *International Journal of Sport Nutrition*, 7, 310–317.
- Cusumano, D. L., & Thompson, J. K. (1997). Body image and body shape ideals in magazines: Exposure, awareness, and internalization. *Sex Roles*, 37, 701–721.
- \*Dale, K. S., & Landers, D. M. (1999). Weight control in wrestling: Eating disorders or disordered eating? *Medicine and Science in Sports and Exercise*, 31, 1382–1389.

- \*Davis, C. (1992). Body image, dieting behaviors, and personality factors: A study of high-performance female athletes. *International Journal of Sport Psychology*, 23, 179–192.
- \*Davis, C., & Cowles, M. (1989). A comparison of weight and diet concerns and personality factors among female athletes and non-athletes. *Journal of Psychosomatic Research*, 33, 527–536.
- \*DiNucci, J. M., Finkenberg, M. E., McCune, S. L., McCune, E. D., & Mayo, T. (1994). Analysis of body esteem of female collegiate athletes. *Perceptual and Motor Skills*, 78, 315–319.
- \*Finkenberg, M. E., DiNucci, J. M., McCune, S. L., Chenette, T., & McCoy, P. (1998). Commitment to physical activity and anxiety about physique among college women. *Perceptual and Motor Skills*, 87, 1393–1394.
- Focht, B., & Hausenblas, H. A. (2001). Influence of acute aerobic exercise performed in the naturalistic environment and quiet rest on selected psychological responses. *Journal of Sport & Exercise Psychology*.
- Fox, K. R. (2000). The effects of exercise on self-perceptions and self-esteem. In S. J. H. Biddle, K. R. Fox, & S. H. Boutcher (Eds.), *Physical activity, mental health, and psychological well-being*. London: Routledge & Kegan Paul.
- Fox, K. R., Boutcher, S. H., Faulkner, G. E., & Biddle, S. J. H. (2000). The case for exercise in the promotion of mental health and psychological well-being. In S. J. H. Biddle, K. R. Fox, & S. H. Boutcher (Eds.), *Physical activity and psychological well-being* (pp. 1–9). London: Routledge & Kegan Paul.
- \*Franseen, L. M. (1996). *Environmental pressures, personality factors and their relationship to eating disorders in elite female athletes*. Unpublished doctoral dissertation, University of Montana, Missoula.
- \*Fulkerson, J. A., Keel, P. K., Leon, G. R., & Dorr, T. (1999). Eating-disordered behaviors and personality characteristics of high school athletes and nonathletes. *International Journal of Eating Disorders*, 26, 73–79.
- \*Furst, D. M., & Tenenbaum, G. (1984). A correlation of body-cathexis and anxiety in athletes and nonathletes. *International Journal of Sport Psychology*, 15, 160–168.
- \*Garbe, K. C. (1990). *Potential for osteoporosis in selected dancers*. Unpublished doctoral dissertation, Texas Woman's University, Denton.
- Garner, D. M. (1991). *Eating Disorder Inventory-2 manual*. Odessa, FL: Psychological Assessment Resources.
- Garner, D. M. (1997, January/February). The body image survey. *Psychology Today*, 32–84.
- \*Garner, D. M., Garfinkel, P. E., Rockert, W., & Olmsted, M. P. (1987). A prospective study of eating disturbances in the ballet. *Journal of Psychotherapy and Psychosomatics*, 48, 170–175.
- Garner, D. M., & Olmsted, M. P. (1984). *The Eating Disorder Inventory manual*. Odessa, FL: Psychological Assessment Resources.
- Gleser, L. J., & Olkin, I. (1994). Stochastically dependent effect sizes. In H. Cooper, & L. V. Hedges (Eds.), *The handbook of research synthesis* (pp. 339–357). New York: Russell Sage Foundation.
- \*Guthrie, S. R. (1985). *The prevalence and development of eating disorders within a selected intercollegiate athletic population*. Unpublished doctoral dissertation, Ohio State University, Columbus.
- \*\*Guthrie, S. R. (1991). Prevalence of eating disorders among intercollegiate athletes: Contributing factors and preventative measures. In D. H. Black (Ed.), *Eating disorder-*

- ders among athletes: Theory, issues, and research* (pp. 43–65). Reston, VA: American Alliance for Health, Physical Education, Recreation, and Dance.
- \*Guthrie, S. R., Ferguson, C., & Grimmett, D. (1994). Elite women bodybuilders: Ironing out nutritional misconceptions. *The Sport Psychologist*, 8, 271–286.
- \*Hallinan, C. J., Pierce, E. F., Evans, J. E., DeGrenier, J. D., & Andres, F. F. (1991). Perceptions of current and ideal body shape of athletes and nonathletes. *Perceptual and Motor Skills*, 72, 123–130.
- \*Harris, M. B., & Greco, D. (1990). Weight control and weight concern in competitive female gymnasts. *Journal of Sport & Exercise Psychology*, 12, 427–433.
- \*Hausenblas, H. A. (1998). *Eating disorders and athletes (Study 1)*. Unpublished doctoral dissertation, University of Western Ontario, London, Ontario, Canada.
- \*Hausenblas, H. A., & Mack, D. E. (1999). Social physique anxiety and eating disorder correlates among female athletic and nonathletic populations. *Journal of Sport Behavior*, 22, 502–513.
- Hedges, L. V. (1981). Distribution theory for Glass's estimator of effect size and related estimators. *Journal of Educational Statistics*, 6, 107–128.
- Hedges, L. V. (1982). Fitting categorical models to effect sizes from a series of experiments. *Journal of Educational Statistics*, 7, 119–137.
- Hedges, L. V., & Olkin, I. (1985). *Statistical methods for meta-analysis*. New York: Academic Press.
- \*Ho, L., & Walker, J. E. (1981). Female athletes and nonathletes: Similarities and differences in self perception. *Journal of Sport Behavior*, 5, 12–27.
- \*Huddy, D. C., & Cash, T. F. (1997). Body-image attitudes among male marathon runners: A controlled comparative study. *International Journal of Sport Psychology*, 28, 227–236.
- \*Huddy, D. C., Nieman, D. C., & Johnson, R. L. (1993). Relationship between body image and percent body fat among college male varsity athletes and nonathletes. *Perceptual and Motor Skills*, 77, 851–857.
- \*Jackman, L. P., Williamson, D. A., Netemeyer, R. G., & Anderson, D. A. (1995). Do weight-preoccupied women misinterpret ambiguous stimuli related to body size? *Cognitive Therapy and Research*, 19, 341–355.
- Jequier, E. (1987). Energy, obesity, and body weight standards. *American Journal of Clinical Nutrition*, 45, 1035–1047.
- \*Joesting, J., & Clance, P. R. (1979). Comparison of runners and nonrunners on the body-cathexis and self-cathexis scales. *Perceptual and Motor Skills*, 48, 1046.
- \*Klock, S. C., & DeSouza, M. J. (1995). Eating disorder characteristics and psychiatric symptomatology of eumenorrheic and amenorrheic runners. *International Journal of Eating Disorders*, 17, 161–166.
- \*Kurtzman, F. D., Yager, J., Landsverk, J., Wiesmeier, E., & Bodurka, D. C. (1989). Eating disorders among selected female student populations at UCLA. *Journal of the American Dietetic Association*, 89, 45–53.
- \*Kurtzman, F. D., Yager, J., Landsverk, J., Wiesmeier, E., & Bodurka, D. C. (1990). Eating disorders and associated symptoms among dancers and other student populations at UCLA. *Kinesiology and Medicine for Dance*, 13, 16–32.
- Lake, A. J., Staiger, P. K., & Glowinski, H. (2000). Effect of western culture on women's attitudes to eating and perceptions of body shape. *International Journal of Eating Disorders*, 27, 83–89.
- Landers, D. M., & Arent, S. M. (2001). Physical activity and mental health. In R. N. Singer, H. A. Hausenblas, & C. M. Janelle (Eds.), *Handbook of research on sport psychology* (pp. 740–765). New York: John Wiley & Sons.

- \*Lemmon, C. R. (1991). *A study of athletics as a risk factor for the eating disorders*. Unpublished doctoral dissertation, University of Mississippi, Oxford.
- \*Lenart, E. B., Goldberg, J. P., Bailey, S. M., Sallal, G. E., & Koff, E. A. (1995). Current and ideal physique choices in exercising and nonexercising college women from a pilot athletic image scale. *Perceptual and Motor Skills*, 81, 831–848.
- \*Loosemore, D. J., Mable, H. M., Galgan, R. J., Balance, W. D. G., & Moriarty, R. J. (1989). Body image disturbance in selected groups of men. *Psychology, A Journal of Human Behavior*, 26, 56–59.
- \*Marsh, H. W., Hey, J., Roche, L. A., & Perry, C. (1997). Structure of physical self-concept: Elite athletes and physical education students. *Journal of Educational Psychology*, 89, 369–380.
- \*Marshall, J. D., & Harber, V. J. (1996). Body dissatisfaction and drive for thinness in high performance field hockey athletes. *International Journal of Sports Medicine*, 17, 541–544.
- \*Mason, M. A. (1997). *An educational intervention for the prevention of eating disorders in college female athletes: A risk factor approach*. Unpublished doctoral dissertation, Florida State University, Tallahassee.
- Maude, D., Wertheim, E. H., Paxton, S., Gibbons, K., & Szmulker, G. (1993). Body dissatisfaction, weight loss behaviours, and bulimic tendencies in Australian adolescents with an estimate of female data representativeness. *Australian Psychologist*, 28, 128–132.
- \*Miller, J. L., & Levy, G. D. (1996). Gender role conflict, gender-typed characteristics, self-concepts, and sport socialization in female athletes and nonathletes. *Sex Roles: A Journal of Research*, 35, 111–122.
- \*Nudelman, S., Rosen, J. C., & Leitenberg, H. (1988). Dissimilarities in eating attitudes, body image distortion, depression, and self-esteem between high intensity male runners. *International Journal of Eating Disorders*, 7, 625–634.
- \*O'Connor, P. J., Lewis, R. D., & Kirchner, E. M. (1995). Eating disorder symptoms in female college gymnasts. *Medicine and Science in Sports and Exercise*, 27, 550–555.
- \*O'Neil, M. S. (1990). *Body image distortion, athletic participation, and steroid use by high school students in Southwestern Ontario*. Unpublished master's thesis, University of Windsor, Ontario, Canada.
- \*Parker, R. M., Lambert, M. J., & Burlingame, G. M. (1994). Psychological features of female runners presenting with pathological weight control behaviors. *Journal of Sport & Exercise Psychology*, 16, 119–134.
- \*Petrie, T. A. (1996). Differences between male and female college lean sport athletes, non-lean sport athletes, and nonathletes on behavioral and psychological indices of eating disorders. *Journal of Applied Sport Psychology*, 8, 218–230.
- Pope, H. G., Gruber, A. J., Mangweth, B., Beaulieu, B., deCol, C., Jouvent, R., & Hudson, J. I. (2000). Body image perception among men in three countries. *American Journal of Psychiatry*, 157, 1297–1301.
- \*Puddu, C. (1997). *The relationship between stress and eating attitudes and behaviour in female dancers and field hockey players*. Unpublished master's thesis, University of Alberta, Edmonton, Alberta, Canada.
- \*Puddu, C., Geithner, C. A., & Bracko, M. R. (1999). Prevalence of disordered eating tendencies in young female ice hockey players. *Medicine and Science in Sports and Exercise*, 31, S215.
- \*Rainey, C. J., McKeown, R. E., Sargent, R. G., & Valois, R. F. (1998). Adolescent athleticism, exercise, body image, and dietary practices. *American Journal of Health Behavior*, 22, 193–205.



- \*Rao, V. V. P., & Overman, S. J. (1986). Psychological well-being and body image: A comparison of black women athletes and nonathletes. *Journal of Sport Behavior*, 9, 79–91.
- \*\*Reel, J. J. (1995). *An examination of psychological characteristics related to eating attitudes and behaviors of college and high school female cheerleaders*. Unpublished doctoral dissertation, University of North Carolina, Greensboro.
- \*\*Reel, J. J., & Gill, D. L. (1996). Psychosocial factors related to eating disorders among high school and college female cheerleaders. *The Sport Psychologist*, 10, 195–206.
- \*Rhea, D. J. (1993). *The perspectives of coaches and high school female athletes on eating disorders*. Unpublished master's thesis, University of Houston, Houston.
- \*\*Rhea, D. J. (1995). *Risk factors for the development of eating disorders in ethnically diverse high school athlete and non-athlete urban populations*. Unpublished doctoral dissertation, University of Houston, Houston.
- \*\*Rhea, D. J. (1999). Eating disorder behaviors of ethnically diverse urban female adolescent athletes and non-athletes. *Journal of Adolescence*, 22, 379–388.
- \*Robertson, K., Mellor, S., Hughes, M., & Sanderson, F. (1988). Psychological health and squash play. *Ergonomics*, 31, 1567–1572.
- Rosenthal, R. (1994). Parametric measures of effect size. In H. Cooper & L. V. Hedges (Eds.), *The handbook of research synthesis* (pp. 231–244). New York: Russell Sage Foundation.
- Rosenthal, R. (1995). Writing meta-analytic reviews. *Psychological Bulletin*, 118, 183–192.
- \*Rosenvinge, J. H., & Vig, C. (1993). Eating disorders and associated symptoms among adolescent swimmers. *Scandinavian Journal of Medicine and Science in Sports*, 3, 164–169.
- \*Rossi, B., & Zoccolotti, R. (1979). Body perception in athletes and nonathletes. *Perceptual and Motor Skills*, 49, 723–726.
- \*Ryujin, D. H., Breaux, C., & Marks, A. D. (1999). Symptoms of eating disorders among female distance runners: Can the inconsistencies be unraveled? *Women & Health*, 30, 71–83.
- \*Scott Robertson, L. (1996). *A psychological comparison of competitive male bodybuilders and females diagnosed with anorexia nervosa*. Unpublished master's thesis, York University, Ontario, Canada.
- Secord, P. F., & Jourard, P. F. (1953). The appraisal of body-cathexis: Body-cathexis and the self. *Journal of Consulting Psychology*, 17, 343–347.
- \*Skowron, E. A., & Friedlander, M. L. (1994). Psychological separation, self-control, and weight preoccupation among elite women athletes. *Journal of Counseling and Development*, 72, 310–315.
- Smith, D. E., Thompson, J. K., Raczynski, J. M., & Hilner, J. E. (1999). Body image among men and women in a biracial cohort: The CARDIA study. *International Journal of Eating Disorders*, 25, 71–82.
- \*Snyder, E. E., & Kivlin, J. E. (1975). Women athletes and aspects of psychological well-being and body image. *The Research Quarterly*, 46, 191–199.
- \*Stafford, S. M. (1988). *A comparative study of eating disorders in male university athletes*. Unpublished doctoral dissertation, George Washington University, Washington, D.C.
- \*Sullivan, K. T., & Steel, D. H. (1991). An exploratory study of eating disorder characteristics among adult female noncollegiate athletes. In D. H. Black (Ed.), *Eating disorders among athletes: Theory, issues, and research* (pp. 123–142). Reston, VA: American Alliance for Health, Physical Education, Recreation, and Dance.

- \*Sundgot-Borgen, J. (1996). Eating disorders, energy intake, training volume, and menstrual function in high-level modern rhythmic gymnasts. *International Journal of Sport Nutrition*, 6, 100–109.
- \*Sundgot-Borgen, J., & Corbin, C. B. (1987). Eating disorders among female athletes. *The Physician and Sports Medicine*, 16, 89–93.
- \*Sundgot-Borgen, J., & Larsen, S. (1993). Pathogenic weight-control methods and self-reported eating disorders in female elite athletes and controls. *Scandinavian Journal of Medicine and Science in Sports*, 3, 150–155.
- \*Szymanski, L. A., & Chrisler, J. C. (1991). Eating disorders, gender-role, and athletic activity. *Psychology, A Journal of Human Behavior*, 27, 20–29.
- \*Taub, D. E., & Blinde, E. M. (1992). Eating disorders among adolescent female athletes: Influence of athletic participation and sport team membership. *Adolescence*, 27, 833–847.
- \*Taylor, G., & Ste-Marie, D. M. (1998). Disordered eating tendencies among female pair and dance figure skaters: Are they more at risk than non-athletes? *Journal of Sport & Exercise Psychology*, 19, S25.
- \*Theil, A., Gottfried, H., Hesse, F. W. (1993). Subclinical eating disorders in male athletes. A study of the low weight category in rowers and wrestlers. *Acta Psychiatrica Scandinavica*, 88, 259–265.
- Thomas, J. R., & French, K. E. (1986). The use of meta-analysis in exercise and sport: A tutorial. *Research Quarterly for Exercise and Sport*, 57, 196–204.
- Thompson, J. K., Heinberg, L. J., Altabe, M., & Tantleff-Dunn, S. (1999). *Exacting beauty. Theory, assessment, and treatment of body image disturbance*. Washington, DC: American Psychological Association.
- \*Tobias, J. A. (1994). *Desperate Measures: Eating disorders in female high school and college athletes*. Unpublished master's thesis, Ball State University, Muncie, Indiana.
- \*Warren, B. J., Stanton, A. L., & Blessing, D. L. (1990). Disordered eating patterns in competitive female athletes. *International Journal of Eating Disorders*, 9, 565–569.
- \*\*Wilkins, J. A. (1995). *Examination of restraint and body image disturbance: Comparison of intercollegiate athletes and nonathletes*. Unpublished doctoral dissertation, Queens University, Kingston, Ontario, Canada.
- \*\*Wilkins, J. A., Boland, F. J., & Albinson, J. (1991). A comparison of male and female university athletes and nonathletes on eating disorder indices: Are athletes protected? *Journal of Sport Behavior*, 14, 129–143.