

## Self-perception in Elite Collegiate Female Gymnasts, Cross-Country Runners, and Track-and-Field Athletes

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• **Objective:** To compare self-perception between a group of competitive, elite female collegiate athletes (participating in gymnastics, cross country, and track and field) and a group of female political science students (nonathletic control subjects). We hypothesized that the athletic group would rate athletics as more important than would the nonathletic group, that the perception of athletic competence would correlate positively with self-worth for athletes only, and that the perception of athletic competence would have a stronger influence on self-worth in the athletic group.

• **Subjects and Methods:** The Self-perception Profile for College Students was completed by 32 athletes and 13 nonathletes. This profile measures 12 subscales plus Global Self-worth independently and generates scores that reflect the subject's perceived importance of and competence in each of the subscale areas.

• **Results:** The athletes rated athletics as more important than did nonathletes, although this trend was nonsignificant when adjusted for age. As age increased, the importance of athletics decreased for both groups. There

was a direct relationship between perceived athletic competence and self-worth for the athletes but not for the nonathletes. Variables that accounted for the Global Self-worth score in athletes were perceptions of Competence subscales for Appearance, Social Acceptance, Friendship, and Job. Variables that accounted for the Global Self-worth scores in the nonathletes were perceptions of Competence subscales for Romance, Morality, Humor, and Appearance. The athletic group had significantly lower Global Self-worth scores than the nonathletic group.

• **Conclusions:** The female athletes in this study derived a large component of their self-worth from their perceived athletic competence. Clinicians should bear in mind the relative importance of athletics to young female athletes and the relationship of perceived athletic ability to self-worth when treating these individuals.

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NCAA = National Collegiate Athletic Association

Several common features have been attributed to athletes, including emotional health, extroversion, tough-mindedness, assertion, and self-confidence. Cooper<sup>1</sup> noted that athletes manifest a greater motivation to achieve a higher degree of emotional stability and seem better adjusted socially compared with nonathletes. However, Gavin<sup>2</sup> noted that there are many unsystematic and conflicting descriptions of persons involved in sport.

Finkenbergl et al<sup>3</sup> studied the self-concept of elite female collegiate athletes but found no differences between groups of athletes or between athletes and nonathletes when using the Tennessee Self-concept Scale. Small sample size may have influenced these results.

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Brewer<sup>4</sup> observed that athletes who have a strong and exclusive identification with the athlete role—ie, their athletic identity—may be vulnerable to depression if they suffer an injury. He suggested that athletes with high scores on athletic identity may bind their self-esteem to their athletic performance. Occasional newspaper anecdotes describe athletes who are injured or perform poorly in important career-determining events and subsequently attempt suicide or suffer from severe emotional distress.<sup>5</sup>

Research performed to date<sup>6,7</sup> on personality characteristics comparing athletes with nonathlete controls has been incomplete. Little empirical data are available to provide insight to health care professionals on the meaning or value of sport participation to the athlete, and some argue<sup>8,9</sup> that athletes should be treated differently by health care professionals. The purpose of this study was to determine the meaning that competitive, elite female athletes assign to athletic participation. This was done by analyzing the responses to a questionnaire that represented several factors and studying the relationship between these factors and self-worth. Delineating the factors that correlate most strongly with Global Self-worth might reflect areas of potential vulnerability, should an athlete sustain a loss in 1 of

these areas. This could help health care professionals focus on potential problem areas. (Loss in this context is defined as a loss [eg, injury, athletic competence, loss of personal friendships, loss of parental relationship, loss of academic competence, romantic relationship] in 1 of the 12 subscale areas that make up the Global Self-worth score in this study.)

Three hypotheses were tested in this study: (1) performing in athletic activities is more important for athletes than for nonathletes; (2) self-perception of athletic competence correlates positively with Global Self-worth in the athletic group; and (3) the most powerful influence on an athlete's Global Self-worth is her athletic competence.

## METHODS

### Study Participants

The self-perceptions of 32 National Collegiate Athletic Association (NCAA) female athletes (9 gymnasts, 13 cross-country runners, and 10 track-and-field athletes) were compared with those of a control group (nonathletes) of 13 female political science undergraduate students. All athletes were on the roster of a Division I NCAA varsity team in gymnastics, cross country, or track and field. One of us (D. S.-P.) recruited the athletes to fill out a questionnaire, which they were told was a measure of their perceptions. The 32 participants represented a 78% response rate. Graduate students presented the questionnaire to a political science class, which yielded a 62% response rate. We did not evaluate why certain students elected not to participate.

### Measurement Tool

The 98-item Self-perception Profile for College Students<sup>6</sup> was administered to each participant. For the current version of the Self-perception Profile for College Students, Harter and Neeman<sup>7</sup> conducted 2 pilot studies. In 300 subjects (70 males and 230 females; mean age, 19.8 years), the profile was reliable across 12 subscales with values for each subscale that ranged from 0.76 to 0.92 (maximum score, 1.00). Harter and Neeman<sup>7</sup> subjected the instrument to factor analysis using the Cattell screening test<sup>6</sup> to determine whether each of the 12 subscales constituted a separate factor. The subscales corresponded perfectly to the intended 12 subscales.<sup>8</sup>

The 12 content subscales, in addition to measures of Global Self-worth, were Creativity, Intellectual Ability, Scholastic Competence, Job Competence, Athletic Competence, Appearance, Romantic Relationships, Social Acceptance, Close Friendships, Parent Relationships, Humor, and Morality. Each of the content subscale domains has an Importance score (ie, how important the task was perceived as being) and a Competence score (ie, how competent one felt at a given task) and contains 4 items, while the Global Self-

worth subscale has 6 items. Scores (range, 1-4) were calculated with use of the scoring key in Harter and Neeman.<sup>7</sup>

### Statistical Methods

Two-sample comparisons were made between the athletic and the nonathletic groups using the *t* test and the nonparametric Wilcoxon rank sum test. The results of the parametric and nonparametric tests were similar (*t* tests are reported herein). Univariate and multiple regression analyses were used to determine the relationships among the variables of interest and the differences between the groups. If age was related to the dependent variable, analysis of covariance was used to adjust for age. If age was not related to the dependent variable, then no adjustment for age was necessary. Lowess smoothers<sup>9</sup> were used to illustrate graphically the relationship between the variables. S-Plus and SAS software packages were used in this analysis.

## RESULTS

The mean (SD) self-perceived Importance score was significantly higher in the athletes (3.5 [0.1]) than in the nonathletes (2.8 [0.2]) ( $P = .005$ ). Figure 1 shows the self-perception of the Importance of each subscale and Global Self-worth for the athletes and nonathletes. Mean (SD) age was significantly different between groups; the athletes (19.5 [0.5] years) were younger than the nonathletes (21.5 [0.7] years) ( $P = .002$ ). There was a negative relationship between self-perceived Importance of athletics and age ( $R^2$  adjusting for group = 0.24;  $P = .02$ ). After adjustment for age, there was no significant difference between self-perceived Importance of athletics between the 2 groups ( $P = .16$ ).

The mean (SD) Global Self-worth scores for the athletes (2.9 [0.1]) were significantly lower than those for the nonathletes (3.5 [0.2]) ( $P = .02$ ). Age was not significantly related to self-worth ( $P = .82$  for athletes,  $P = .58$  for nonathletes). For the athletes, there was a significant positive association between Competence in athletics and Global Self-worth ( $P < .001$ ). For the nonathletes, the relationship between Competence in athletics and Global Self-worth was not significant ( $P = .47$ ).

Mean (SD) self-perceived Competence in Scholastics was significantly higher for the nonathletes (3.2 [0.2]) than the athletes (2.6 [0.1]) ( $P = .01$ ). Figure 2 illustrates the self-perceived Competence of each subscale and Global Self-worth for the athletes and the nonathletes. There were no other significant differences for any of the other Importance or Competence subscales.

When the 10 subscales were entered into the multiple regression model for both Competence and Importance, the Competence subscales of Appearance ( $P = .002$ ), Social

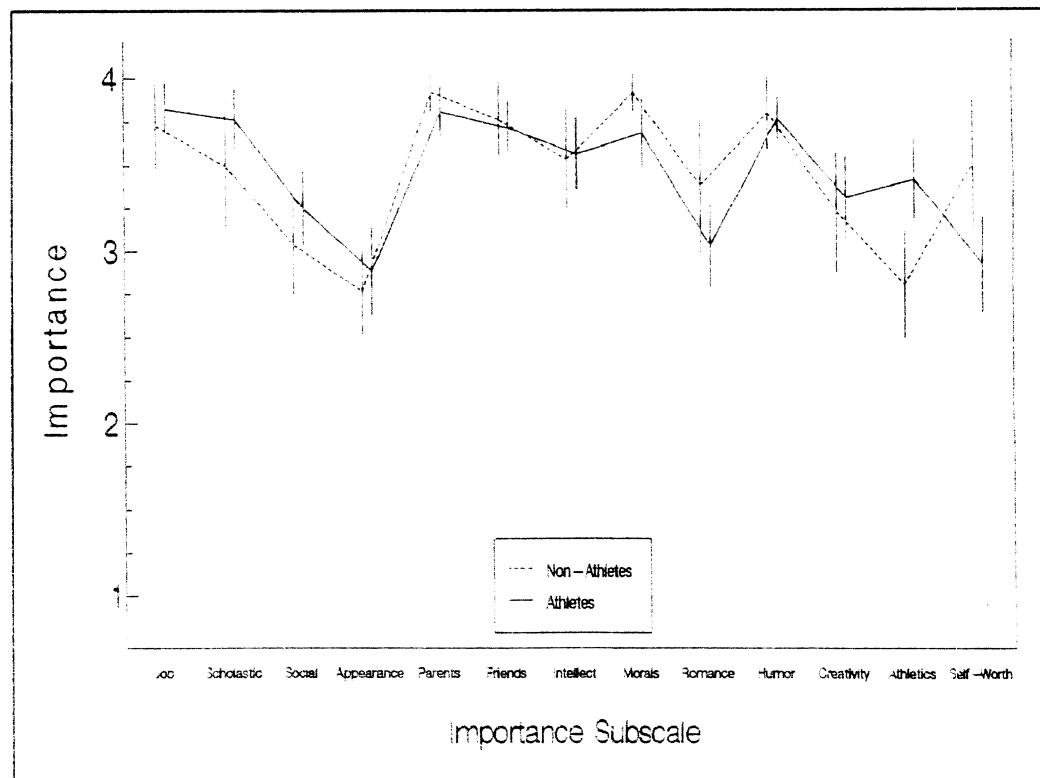


Figure 1. Mean Importance ratings of athletes and nonathletes. Error bars indicate SDs.

Acceptance ( $P = .004$ ), Morality ( $P = .04$ ), and Job ( $P = .047$ ) and the Importance subscales of Romance ( $P = .01$ ) and Job ( $P = .003$ ) were significant, resulting in  $R^2 = 0.78$  (Table 1). For the nonathletes, the Competence subscale of Romance and the Importance subscales of Morality and Humor were significant univariate predictors of Global Self-worth. When a multiple regression model was run, the only statistically significant variable for the non-athlete group was Competence in Romance, with  $R^2 = 0.59$  (Table 1).

## DISCUSSION

In support of our first hypothesis, the athletic group scored importance of athletics significantly higher than the nonathletic group. However, this trend was not significant when adjusted for age. The nonathletes were 2 years older on average, and the difference in Importance of athletics may have been attributable to this confounding variable.

The second hypothesis that perceived Competence in athletics would positively correlate with Global Self-worth scores in the athletic group was supported by the data. Athletes may derive positive emotions from performing well or may conversely experience a negative emotional

response if they perform poorly. This relationship would result in an elevation or a decrease in self-worth for the athlete as a result of perceived Competence in athletics.

If this relationship holds true, then it would appear that the self-worth of athletes could be negatively impacted by events that affect their perceived Competence across subscale areas compared with the controls. Influences such as praise from coaches and parents or media attention may bolster an athlete's perceived Competence in athletics and might lead to increased Global Self-worth, in contrast to the nonathletic group who did not demonstrate this trend. The opposite could also hold true: the effect of performing poorly may signal a lack of Competence to an athlete and negatively affect her Global Self-worth.

The third hypothesis that the strongest influence on shaping the athlete's Global Self-worth scores would be Competence in athletics was not supported by the data. The female athletes in this study presented a number of influences affecting their Global Self-worth scores. In addition to the Competence in athletics subscale, Appearance, Social Acceptance, Friends, Job, Morality, Intellectual Ability, Parents, Creativity, and Scholastics combined to account for more than 75% of the variance in the Global

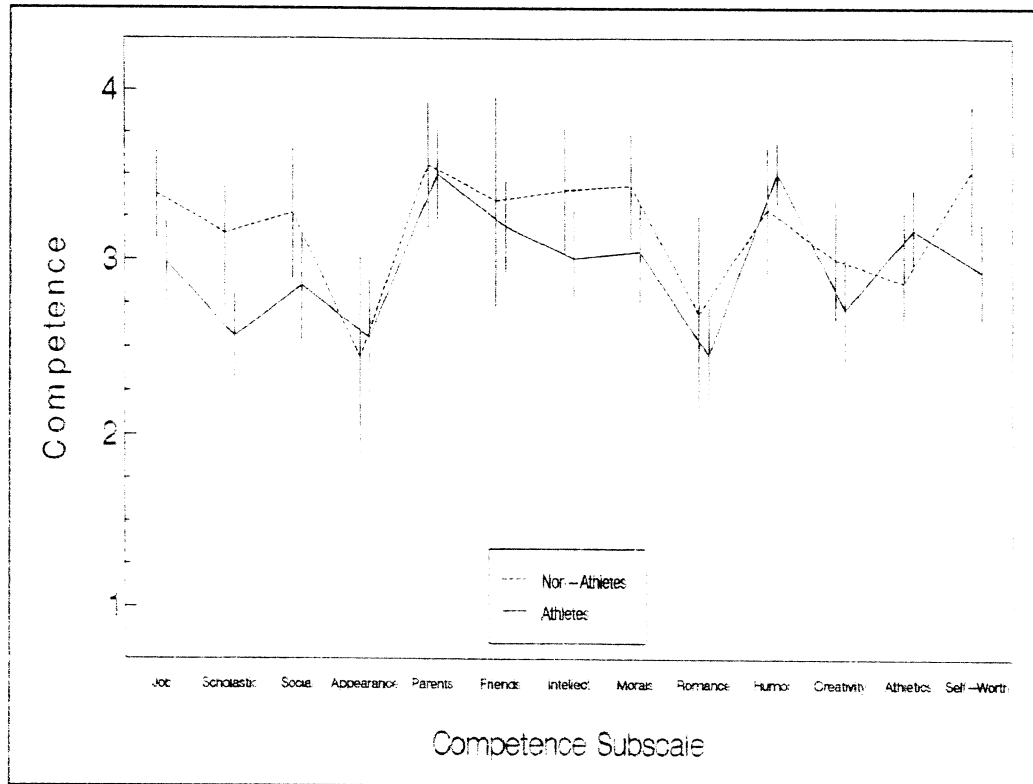


Figure 2. Mean Competence ratings of athletes and nonathletes. Error bars indicate SDs.

Self-worth score in athletes. Therefore, the female athlete's self-worth is not defined solely by the perceived Competence in or Importance of athletics.

The nonathlete's Global Self-worth scores correlated differently to the subscales. When all the variables were taken together for the nonathletes, Competence in Romance was the sole variable that was statistically significant in influencing the Global Self-worth scores, accounting for 59% of the variance in Global Self-worth scores for the nonathletes. Other subscales that correlated with the Global Self-worth scores for the nonathletic group included importance of Morality and Humor and, to a lesser extent, Competence in Appearance and Importance of Parents.

Previous work has demonstrated that, in female college athletes, the strongest frame of reference for self-esteem is sexual identity.<sup>11</sup> Franzoi and Shields<sup>12</sup> suggested that the most important dimensions in body esteem for women were sexual attractiveness, concerns about weight, and physical condition. While athletic competence is an important factor in influencing self-worth in female athletes, it is not an exclusive component.

The Competence in Scholastics scores were notably different between the 2 groups. The nonathletic group had significantly higher scores than the athletic group. There

were no significant differences in any of the other subscale areas between these 2 groups. The nonathletes' perceptions of and confidence in their scholastic abilities may be a result of their emphasis on achievement in academics instead of athletics. Conversely, the athletes' priorities may undermine their scholastic efforts, which may be reflected in their Competence in Scholastics scores.

The athletic group did not score significantly higher than the nonathletic group on the Competence in athletics subscale. A possible reason for this finding is that athletes who are competing at a high level may not regard themselves as exceptionally competent compared with their competition. This finding may also reflect a self-critical or perfectionistic style that athletes use to measure their athletic abilities and possibly themselves. If generalized, this may also account for their lower Global Self-worth scores compared with the nonathletic group. It is also possible that the nonathletic group considered themselves fairly athletic, and therefore no difference was noted.

The pursuit of excellence in sport seems to contribute to female athletes' Global Self-worth scores as reflected by the relative importance of athletics for competitive athletes, compared with nonathletes. Clinicians should take into account this relationship when treating elite female athletes.

Table 1. Relationships Between Competence and Importance Subscales and Global Self-worth

|                      | Univariate $R^2$ |             |
|----------------------|------------------|-------------|
|                      | Athletes         | Nonathletes |
| Competence subscales |                  |             |
| Job                  | 0.37**           | 0.14        |
| Scholastics          | 0.13*            | 0.16        |
| Social Acceptance    | 0.46**           | 0.23        |
| Appearance           | 0.54**           | 0.30        |
| Parents              | 0.28*            | 0.05        |
| Friends              | 0.42*            | 0.13        |
| Intellectual Ability | 0.29*            | 0.06        |
| Morality             | 0.33**           | 0.19        |
| Romance              | 0.05             | 0.59**      |
| Humor                | 0.01             | 0.19        |
| Creativity           | 0.28*            | 0.02        |
| Athletics            | 0.36*            | 0.05        |
| Importance subscales |                  |             |
| Job                  | 0.06†            | 0.04        |
| Scholastics          | 0.10             | 0.27        |
| Social Acceptance    | 0.06             | 0.09        |
| Appearance           | 0.22*            | <0.01       |
| Parents              | <0.01            | 0.30        |
| Friends              | 0.04             | 0.17        |
| Intellectual Ability | 0.03             | 0.19        |
| Morality             | 0.03             | 0.58*       |
| Romance              | 0.08†            | 0.19        |
| Humor                | 0.01             | 0.32*       |
| Creativity           | <0.01            | 0.08        |
| Athletics            | 0.02             | <0.01       |

\*Significant univariate predictor of Global Self-worth ( $P \leq 0.05$ ).

†Significant multivariate predictor of Global Self-worth ( $P \leq 0.05$ ).

Limitations of the study include the small sample size. The lack of objective quantification of the athletic profile from the nonathletic group may have resulted in undetected similarities between the groups. The female athletes used in this study may not be representative of athletes in other sports.

## CONCLUSION

The female athletes in this study derived a large component of their self-worth from their perceived competence in

athletics. Competitive, elite female collegiate athletes were found to have lower self-esteem than the nonathletic group. Clinicians should bear in mind the relative importance of athletics to young female athletes and the relationship of perceived athletic ability to self-worth when treating these individuals.

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