COMPARING FEMALE COLLEGE ATHLETES & NON-ATHLETES FOR INDICATORS OF RISK OF EATING DISORDER, BODY FAT, & BMI

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Context

Sport management professionals would benefit from exploring the multi-dimensional aspects associated with eating disorder risk among female college athletes so that pro-active strategies can be developed within the sport community to reduce the development and prevalence of such risks. Unique pressures are experienced by female college athletes that may support eating disorder risk, including self-presentation concerns, pressure to conform to a specific body shape for competitive sport, and perfectionism and high achievement personality characteristics. The purpose of this study was to compare female college athletes and non-athletes with respect to associations of psychological indicators of eating disorder risk and anthropometric measures that assess health status.

Methods

The Eating Disorder Inventory questionnaire (2nd edition, EDI-2) was used to identify psychological indicators of eating disorder risk in 148 female college athletic and non-athletic subjects. In the non-clinical setting, the EDI-2 total score is used to identify individuals who have sub-clinical eating problems, or may be at risk of developing eating disorders. The EDI-2 Drive for Thinness subscale (DT) evaluates excessive concern with dieting, pre-occupation with weight, and fear of weight gain. The EDI-2 Body Dissatisfaction subscale (BD) evaluates dissatisfaction with overall shape and size of regions of the body (i.e., stomach, hips, thighs, buttocks). High scores, regardless of context, indicate an individual has concerns related to eating and body shape. Additionally, the higher the subscale score, the greater the manifestation of that specific trait (Garner, 1990).

Weight and height measurements were obtained by self-report and were used to determine body mass index (BMI). Skinfold site measurements (triceps, thigh, supra-iliac) were used to estimate percentage body fat (PBF) (Pollock et al., 1975). For comparative purposes, high eating disorder risk was defined as an EDI-2 total score greater than 40, generally considered by researchers to be indicative of high eating disorder risk. To define high PBF status, we took the median of the associated PBF for all subjects who had a BMI value between 24.5 and 25.5 kg/m^2 (i.e. mean BMI equal to 25 kg/m^2) and used this PBF (25.1 %) as the cutoff value for classification purposes - a BMI of 25 and greater is defined as an obese condition. Contingency tables of eating disorder risk (high or low) by body fat status (high or low) for yhe athlete and non-athlete cohorts were analyzed by use of the Pearson chi-square and Cochran-Mantel-Haenszel tests.

All subjects were recruited from a small, rural, state university in eastern Kentucky. Athletes were participants in one of the following organized sports at the university: volleyball, soccer, equestrian, basketball, softball, bowling, tennis, and rifle. In an effort to have athletes with similar body composition to non-athletes, we excluded athletes from sports where leanness is likely to be perceived as important for success (i.e., long-distance running, cheerleading, dance team participation). Non-athletes were recruited from introductory nutrition and psychology courses. Subjects aged 18 to 23 were included in the analysis.

Results

Mean BMI values were not significantly different between athletes and non-athletes, demonstrating similarity of BMI classification. However, PBF was significantly less for the athletes (see Table 1).
Non-athletes (n=76): Within this group, 45% were found to have high eating disorder risk, and 37% of the entire group had high PBF. For non-athletes with low PBF, 40% had high eating disorder risk. Of non-athletes with high PBF, 54% had eating disorder risk. Within the group of non-athletes with high eating disorder risk, 56% had low PBF. Within the group of non-athletes with low eating disorder risk, 69% had low PBF.

Athletes (n=72): Within this group, 28% had high eating disorder risk, and 25% of the entire group had high PBF. For athletes with low PBF, 28% had high eating disorder risk. Of athletes with high PBF, 28% had eating disorder risk. Within the group of athletes with high eating disorder risk, 75% had low PBF. Within the group of athletes with low eating disorder risk, 75% had low PBF.

Mean psychological values of eating disorder risk for athletes were uniformly less than non-athlete values. All differences were statistically significant, except for EDI-2 total score, which was suggestive of a real difference.

Table 1: Scores for both cohorts

Subjects	*BMI (kg/m^2)†*	*PBF (%)†*	*EDI-2 Total*	*BD subscale*	*DT subscale*
Athlete	23.5±2.7	24.0±3.2	31.3±22.7	11.1±8.1	4.5±5.4
Non-athlete	24.4±5.7	26.1±6.8	38.2±23.3	15.4±7.5	6.6±5.8
p-value	0.2527	0.0226	0.0686	0.0014	0.0258

Values are reported as mean±SD. $P < 0.05$ indicates the difference between athletes and non-athletes is statistically significant. †By Satterthwaite t-test due to non-homogenous variances.

Discussion/Implications

Sport management professionals should recognize that female college athletes with a healthy body composition may have eating disorder risk (Scarano & Kalodner-Martin, 1994). Participation in organized sports has positive health and psychological benefits compared with non-athlete counterparts. However, sport management personnel should take leadership roles in pro-active strategies to identify and reduce psychological eating disorder risk and pressures contributing to eating disorder risk among female college athletes.

References

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