

## **Participation in Aesthetic Sports**

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### **Introduction**

The prevalence of overweight has doubled among US children in the past two decades (Odgen et al., 1997; Troiano, & Flegal, 1998). A lack of physical activity has been implicated as a risk factor for the development of overweight, and increases in children's physical activity and sport participation have been advocated to prevent or reduce childhood overweight. In addition to reducing risk of overweight, physical activity has been associated with positive health outcomes among children and adolescents including increased fitness and bone density (Sallis, & Owen, 1999), and positive psychological outcomes including higher self-esteem, lower anxiety, and lower stress (Calfas, & Taylor, 1994). Participation in sports and physical activity may be particularly beneficial for girls given their relatively low levels of physical activity and the benefits of sport and activity for self-esteem and the prevention of osteoporosis. Results from a number of studies, however, suggest that the type of physical activity that girls and women engage in may differentially affect their health and psychological outcomes.

Among adolescent girls and women, research shows that participation in sports that promote leanness for aesthetic reasons (e.g., figure skating, gymnastics, dance, or cheerleading) is associated with an increased risk of eating disorders and factors associated with eating disorders including elevated weight concerns, body dissatisfaction, and excessive dieting (Brooks-Gunn, Burrow, & Warren, 1988; Davis, & Cowles, 1989; Weeda-Mannak, & Drop, 1985; Zucker, Womble, Williamson, & Perrin, 1999). A recent meta-analysis of this literature concluded that athletes were somewhat more at risk for eating problems than non-athletes, and that dancers and athletes competing at an elite level were most at risk (Smolak, Murnen, & Ruble, 2000). Research assessing links between sport participation, weight concerns, and disordered eating has predominantly focused on adolescent and college-aged girls and women and elite athletes and has not considered whether the types of sport girls participate in during middle childhood shape their developing concerns about weight and body shape. We have previously found that girls as young as 5 express concerns about their weight (Davison, Markey, & Birch, 2000). In this study, we investigate the hypothesis that participation in aesthetic sports is associated with elevated weight concerns among girls at ages 5 and 7 and that the length of time girls participate in aesthetic sports is positively associated with their weight concerns.

### **Methods**

#### **Participants**

Participants were part of a longitudinal study assessing the health and development of young girls. Participants for this study included 197 and 192 girls and their mothers when girls were 5 and 7 years old, respectively. All families participating were non-Hispanic White. At time of entry into the study, two thirds of mothers had a level of education higher than a high school

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diploma and approximately equal proportions of families reported incomes below \$35,000, between \$35,000 and \$50,000, and above \$50,000.

### **Measures**

At each age, girls were individually interviewed by a trained interviewer and mothers completed a series of questionnaires. All measures outlined below were assessed when girls were 5 and 7 years of age.

### **Background Characteristics**

Mothers completed a background questionnaire assessing their years of education and their combined family income. In addition, three height and weight measurements were collected for girls and mothers and average height and weight were used to calculate girls' and mothers' Body Mass Index [BMI; weight(kg)/height(m)<sup>2</sup>].

### **Weight Concerns**

Girls' and mothers' weight concerns were assessed using the Weight Concerns Scale (Killen et al., 1994); girls completed a simplified version of this scale. The weight concerns scale includes five questions assessing fear of weight gain, worry about weight and body shape, the importance of weight, diet history, and perceived fatness. Internal consistency coefficients were 0.65 (age 5) and 0.60 (age 7) for girls and 0.82 (girls age 5) and 0.76 (girls age 7) for mothers.

### **Sport Participation**

Girls completed an activity checklist that assessed sports they participated in at an organized level (i.e., on a team or structured classes). To check the validity of girls' reports, mothers were also asked to complete the checklist for their daughters when girls were 7. Agreement between girls' and mothers' reports of girls' sport participation was approximately  $r = .65$  across the various sports.

Girls were divided into one of three sport groups at each age: (1) participation in aesthetic sports (e.g., dance, gymnastics, cheer leading, baton twirling, swimming, aerobics, and ice-skating); (2) participation in non-aesthetic sports (e.g., volleyball, soccer, basketball, Softball, hockey, tennis, martial arts, and track); or (3) no sport participation. Aesthetic sports were defined as sports in which leanness is encouraged. Girls who participated in aesthetic and non-aesthetic sports were included in the aesthetic sports group. Girls were also categorized into one of four groups based on the length of time they participated in aesthetic sports: (1) girls who participated in aesthetic sports at ages 5 and 7; (2) girls who participated in aesthetic sports at age 5 or 7; (3) girls who did not participate in aesthetic sports but participated in non-aesthetic sports at ages 5 and/or 7 years; and (4) girls who did not participate in sports at either age.

### **Results**

At age 5, popular sports included gymnastics, soccer, dance, swimming, and Softball, with 18, 12, 11, 9, and 8% of girls participating in each sport, respectively. A similar pattern of popular sports was noted at age 7, although the number of girls playing soccer (35%) tripled between the

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ages of 5 and 7 years and a greater proportion of girls reported participating in sport at age 7 (75%) than at age 5 (46%).

Planned comparisons using ANOVA were performed to test the hypotheses outlined in the Introduction; results supported the proposed hypotheses. At ages 5 and 7 years, girls in the aesthetic sport group reported significantly higher weight concerns in comparison to girls in the nonaesthetic and no sport groups ( $F(1,187) = 5.71, p < .05$  at age 5;  $F(1, 191) = 4.43, p < .05$  at age 7) (see Table 1). In addition, girls who participated in aesthetic sports at both ages had significantly higher weight concerns at age 7 than girls who participated in aesthetic sports at one age only, girls who participated in non-aesthetic sports only, and girls who did not participate in sports [ $F(1,191) = 5.70, p < .05$ ] (see Table 2). Likewise, girls who participated in aesthetic sports at age 5 or 7 had significantly higher weight concerns than girls who only participated in non-aesthetic sports and girls who did not participate in sport [ $F(1,191) = 5.69, p < .05$ ] (see Table 2). Results were independent of group differences in background characteristics including mothers' education, family income, mothers' and girls' BMI, and mothers' weight concerns.

Girls age 5	Aesthetic sports (N = 87)	Non-aesthetic sports (N = 21)	No sport (N = 168)
Girls' weight concerns <sup>1</sup>	0.29 (1.4) <sup>a</sup>	-0.64 (1.0) <sup>b</sup>	-0.05 (1.2) <sup>b</sup>
Background variables			
Mothers' weight concerns	0.08 (1.7) <sup>a</sup>	-0.64 (2.0) <sup>b</sup>	0.08 (1.6) <sup>b</sup>
Mothers' years education	15.3 (2.2) <sup>a</sup>	14.2 (2.5) <sup>b</sup>	14.1 (2.1) <sup>b</sup>
Family income	\$35,000–55,000 <sup>a</sup>	\$20,000–35,000 <sup>b</sup>	\$20,000– 35,000 <sup>b</sup>

Table 1  
Means and standard deviations for weight concerns and background variables for girls who participated in aesthetic, non-aesthetic, and no sports at ages 5 or 7 years

**Table 2**  
Means and standard deviations for weight concerns and background variables for girls in the four sport participation groups incorporating girls' sport participation at ages 5 and 7 years.

	Aesthetic sports age 5 AND 7 (N = 44)	Aesthetic sports age 5 OR 7 (N = 28)	Non-aesthetic sports age 5 and/or 7 (N = 83)	No sport ages 5 and 7 (N = 33)
Girls' weight concerns <sup>1</sup>	0.27 (1.5) <sup>†</sup>	0.04 (1.4) <sup>†</sup>	-0.31 (1.0) <sup>†</sup>	-0.19 (1.5) <sup>†</sup>
<b>Background variables</b>				
Mothers' weight concerns	0.05 (1.7) <sup>†</sup>	-0.05 (1.6) <sup>†</sup>	0.24 (1.9) <sup>†</sup>	-0.14 (1.3) <sup>†</sup>
Mothers' years education	15.6 (2.3) <sup>†</sup>	14.5 (2.2) <sup>†</sup>	14.1 (2.2) <sup>†</sup>	14.1 (2.1) <sup>†</sup>
Income	\$35,000--	\$35,000--	\$35,000--50,000 <sup>†</sup>	\$35,000--

**Table 2**

Means and standard deviations for weight concerns and background variables for girls in the four sport participation groups incorporating girls' sport participation at ages 5 and 7 years.

### Discussion

In comparison to girls who participated in non-aesthetic sports or no sports, girls who participated in aesthetic sports reported higher weight concerns at ages 5 and 7 and girls who participated in aesthetic sports at ages 5 and 7 years reported the greatest concern about their weight at age 7. These findings reveal that weight concerns are emerging very early and are linked to girls' sport participation. Findings from this study are of concern because the girls were only 5 and 7 years old and because weight concerns have been linked to unhealthy weight loss behaviors and subclinical eating disorders (Killen et al., 1996).

Girls' who participated in aesthetic sports were no more likely to be overweight or have mothers with high weight concerns than girls who participated in non-aesthetic sports and girls who did not participate in sports. Thus, while findings from this study substantiate a link between participation in aesthetic sports and the emergence of weight concerns, they do not provide information regarding the processes that may explain this relationship. Potential explanations for the relationship between sport participation and weight concerns among adolescent and adult women have been outlined by Sungot-Borgen (1994). A number of these explanations may be applicable to young girls. That is in addition to the possibility that aesthetic sports may attract girls with anorexic-like tendencies or attitudes, the realities of competition in aesthetic sports reveal that how you look is important to success, possibly leading to a heightened focus on weight and body shape. Concern about weight and shape may also be promoted by comments

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from parents and coaches and comparisons by peers and competitors. Research assessing interactions with coaches, peers, and parents are all potential areas for future investigation.

No inferences about causality should be made from these results: girls may be concerned about their weight as a result of participation in aesthetic sports or girls may participate in such sports as a result of their, or their mothers', concern about their weight. Results from this study illustrate, however, that the relationship between sport participation and weight concerns is present as early as age 5 and that research assessing the causal links between sport participation and weight concerns should focus on girls long before adolescence. While we can question whether girls as young as 5 are actually concerned about their weight, girls' reports at a minimum reflect an understanding of the dialogue surrounding weight and body shape which may have future consequences for weight regulation behavior.

In conclusion, although physical and psychological benefits of sport participation have been noted among children, findings from the present study suggest that at least for White girls, the psychological risks and benefits associated with participation in aesthetic sports may differ from those obtained from participation in other less appearance-oriented sports. In contrast to aesthetic sports, participation in sports such as soccer and basketball may promote positive health and psychological outcomes without increasing the risk of weight concerns.

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