

The effects of a physical activity and nutrition intervention on body dissatisfaction, drive for thinness, and weight concerns in pre-adolescents

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Abstract

The primary aim was to examine the effects of a physical activity and nutrition intervention on Body Dissatisfaction, Drive for Thinness, and Weight Concerns in pre-adolescents. Eighty-four 10–12 years old were studied as part of a larger trial of a family-based physical activity and nutrition intervention. Forty-nine children participated in the 8-week intervention (35 in control group) and completed Body Dissatisfaction, Drive for Thinness, and Weight Concerns measures at baseline and post-test. Participants in both groups showed positive but non-significant changes in body image and Drive for Thinness following the trial, but there were no significant between group differences. This was the first study to examine the effects of a physical activity and nutrition intervention on body image and related variables in pre-adolescents. Body Dissatisfaction, Drive for Thinness, and Weight Concerns were not positively or negatively influenced by the intervention.

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Introduction

Children as young as 6 have expressed body dissatisfaction and weight concerns (Davison, Markey, & Birch, 2000; Kater, Rohwer, & Levine, 2000; Smolak & Levine, 1994) which appears to increase with age (Mellin, Irwin, & Scully, 1992). Body dissatisfaction may be well established by 12 years old in both females and males, and although common, it is not always

benign (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). A concern about body image disturbance in children is that it appears to be a risk factor for the later development of eating disorders (Koff & Rierdan, 1991). Even in children, body image disturbance predicts weight control techniques such as unhealthy dieting and compulsive exercising (Shisslak et al., 1998; Stice, Cameron, Killen, Hayward, & Taylor, 2000). Dieting poses unique physical health risks in youth due to their physical development needs (Kirkley & Burge, 1989; Pugliese, Lifshitz, Grad, Fort, & Marks-Katz, 1983) as well as problems in psychosocial functioning (Hill & Pallin, 1998; Stice, Hayward, Cameron, Killen, & Taylor, 2000b).

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Many studies report a significant inverse relationship between physical activity and body image dissatisfaction. Both prospective (Fisher & Thompson, 1994; Williams & Cash, 2001) and physical activity intervention studies (Koff & Bauman, 1997; Ossip-Klein et al., 1989) have documented positive effects on body image. Most of the studies have been in college age or adult women in aerobic, walking, or strength training conditions. Positive effects were also found in males following a 16-week weight-training program (Tucker, 1987).

The majority of studies that have examined the effects of activity interventions on body image have found improvements in body image satisfaction. However, some researchers are concerned that engaging in physical activity may lead to increased awareness and concern about weight and shape that might lead to increased body dissatisfaction (Davis, 1990; Katz, 1986; Kron, Katz, Gorzynski, & Weiner, 1978). Only one prospective study found that a physical activity intervention had a negative impact on body image (Zabinski, Calfas, Gehrman, Wilfley, & Sallis, 2001). An increase in Drive for Thinness (a correlate of body image dissatisfaction) was found in college females after a 16-week physical activity intervention. Intervention participants did not have significant changes in physical activity or fitness. Although not into the clinical range, the trend in Drive for Thinness was cause for concern, especially since this intervention emphasized the health benefits of physical activity and addressed body image issues. The results of this study raised concerns about the secondary effects of physical activity interventions.

Although it is intuitive that poor body image can lead to changes in eating behavior, there is also evidence that initial attempts at changing dietary habits may increase body image dissatisfaction. Most of the evidence on body image and dietary practices suggests a negative relationship (Hill, 1993; Hill & Pallin, 1998). No study has examined the secondary effects of a dietary intervention on body image. It can be hypothesized that having children focus on changing nutritional practices could overly sensitize them to how intake affects their bodies. This might lead to heightened body image concerns in some children.

The purpose of this study was to examine the effects of a physical activity and nutrition intervention on Body Dissatisfaction, Drive for Thinness, and Weight concerns in pre-adolescents. Previous studies of this type were conducted on adults, but it is essential to examine the potential side effects of behavior change interventions in pre-teens, due to their vulnerable developmental stage and elevated risk of misperceptions related to

disordered eating (Woodside & Garfinkel, 1992). The primary hypothesis was that the intervention would have a positive impact on body satisfaction, weight concerns and Drive for Thinness in experimental participants and no change (or possible slight increase) in Body Dissatisfaction, Weight Concerns and Drive for Thinness in control participants (as tends to occur with age in pre-teens).

Method

Participants

Eighty-four families participated in this study. The child sample consisted of 32 males and 52 females. The sample was ethnically diverse, including 45% Caucasian, 38% Hispanic, 8% African-American, and 8% of children from “other” ethnic backgrounds. The children ranged from 10.1 to 13.3 years of age, with a mean age of 11.5 ($SD = 0.96$) years. The mean body mass index (BMI) was 22.1 ($SD = 4.7$) and ranged from 14.5 to 31.5. Percent body-fat ranged from 9.8% to 53.2% with a mean of 30.5% ($SD = 11.2$).

The current study was part of a larger trial to examine the effectiveness of behavioral training to increase physical activity and calcium consumption in children to prevent osteoporosis. The current sub-study investigated the impact of the exercise and nutrition intervention on Body Dissatisfaction, Drive for Thinness, and Weight Concerns in child participants. A two group repeated measures (pre- and post-intervention) design was used. These analyses involved 84 children.

Families with children between the ages of 10 and 12 were sequentially recruited from the community to a health promotion program. Eligible families had at least one child between the ages of 10–12 who had not been diagnosed with a medical condition that would limit physical activity or dietary change, or a psychological condition that could limit their participation in the study (e.g., depression, obsessive-compulsive disorder, or an eating disorder). Only one eligible child per family, selected at random, was included. At least one parent was willing to participate in the intervention. Eligible children had a body mass index of 32 or less, and could not currently be participating in a weight lifting program or certain high-impact organized sports (gymnastics, volleyball, soccer, basketball, and/or martial arts) for 3 or more days per week during 9 or more months of the year. Following baseline measures, children were randomly assigned to either a physical activity and nutrition intervention or an injury prevention control.

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