

Are Eating Disorder Prevention Programs Effective?

Lisa Langmessaer, MS, ATC; Susan Verscheure, PhD, ATC, CAT(C)

University of Oregon, Eugene, OR

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Clinical Questions: (1) Does presenting educational material on eating disorders produce iatrogenic (harmful because of the intervention) effects on eating attitudes and behaviors? (2) Is targeting specific populations with eating disorder prevention more beneficial than targeting general populations? (3) Which outcome variables are most affected by intervention efforts? (4) To what degree can interventions effectively influence behavioral outcome variables?

Data Sources: Studies included in the meta-analysis were found using PsycInfo, Web of Science, Dissertation Abstracts International, and ERIC. Studies were also located using the reference lists from searched articles and by contacting researchers in the field for unpublished studies. The search terms used were *eating disorders, prevention, intervention, eating, attitudes, and behaviors*. These terms were used in various combinations in the search to find appropriate articles.

Study Selection: Only empirical studies that tested interventions focused on reducing the risk of eating disorders or improving protective factors were included. These studies also had to include a nonclinical sample and a comparison group. Any studies that did not report data for a control group, did not report SDs, or only presented adjusted means were excluded because data were insufficient to determine an effect size. As a result of the small number of studies with male participants and the difference in eating disorder risk between males and females, only studies with female participants were analyzed.

Data Extraction: Because of the different clinical questions addressed, each study had specific features that were coded to ease data comparison among studies. Three categories of features were coded: population targeted, length of intervention and follow-up, and intervention strategies. To code for the targeted population, the Gordon (1983) classification system was used, including universal (normal), selective (at-risk), and indicated (symptomatic) populations. The intervention strategies used in each study were also categorized in the meta-analysis. One category of intervention strategies looked at the amount of information related to eating disorders included in the prevention program. In addition, the authors categorized the intervention strategies as being (1) purely educational, (2) enhanced educational with elements of cognitive-behavioral therapy, or (3) purely interactive cognitive-behavioral therapy with no educational component. The first 2 authors rated and coded the studies independently. Standardized mean difference effect size (d) was calculated from reported means and SDs or was estimated from reported t and F values. Statistics were analyzed using DSTAT 1.10 and Comprehensive Meta-Analysis software programs. Data were analyzed based on the outcome variables of knowledge, general eating abnormalities, dieting, body dissatisfaction, and thin-ideal internalization. These outcome variables were used to evaluate the efficacy of the intervention programs. Each outcome set had weighted mean effect sizes determined, and the variability of the effect sizes was assessed using the homogeneity statistic Q . These were calculated for both the posttest and follow-up results. Homogeneity among effect

sizes was the desired outcome, and a positive value indicated a more desirable outcome. The effect sizes were described as small ($d \leq .20$), medium ($d = .50$), or large ($d \geq .80$).

Main Results: A total of 57 studies were identified by the search criteria. Eleven studies were excluded because they provided insufficient data to calculate effect sizes. The final pool included 46 studies (32 published and 14 unpublished). All eating disorder prevention programs produced the largest positive change in participant knowledge ($d = .75$) without regard to the targeted population. The biggest gains in knowledge occurred right after completion of the prevention program ($d = 1.2$). During follow-up, the gains in knowledge decreased but still remained higher than knowledge before the program. General eating abnormalities, dieting, and thin-ideal internalization showed small positive changes. Even though the changes were relatively small at posttest for all the outcomes ($d = .17$ to $.21$), they seemed to last, because the follow-up studies showed results very similar to those obtained at posttest ($d = .13$ to $.18$). Body dissatisfaction was the most frequently measured outcome but had the smallest change. Effect sizes for body dissatisfaction at posttest ($d = .13$) and at follow-up ($d = .07$) were not different from zero (95% confidence interval = $-0.02, 0.15$). Thus, even though small positive trends were noted in participants' body dissatisfaction after the interventions, the measured changes may have been due to measurement error. All outcome variables measured appeared to show improvements; however, most of the effect sizes were small and may not be clinically significant. All outcome variables were also analyzed while comparing the targeted populations. During posttest measurements, targeted at-risk participant groups had more positive scores related to dieting ($d = .28$) than did the symptomatic ($d = .07$) and normal ($d = -.01$) groups. Targeted, symptomatic participant groups showed greater improvement regarding thin-ideal internalization during the posttest ($d = .48$) than did the at-risk ($d = .13$) or normal ($d = .18$) subgroups. At follow-up, the same positive trend was apparent, but the changes were no longer significant. Comparably, the targeted, symptomatic group also showed greater improvement with regard to body dissatisfaction ($d = .30$) than did the at-risk ($d = .11$) and normal ($d = .08$) subgroups during posttest measurements, yet the results were not significant at follow-up. General positive trends were found regarding participant knowledge for symptomatic, at-risk, and normal subgroups, but because of the wide range of results among studies, no decisive interpretations could be made. The third measured variable was intervention strategy used. No differences were noted between educational and enhanced educational interventions concerning dieting behavior at posttest, thin-ideal internalization at posttest, or body dissatisfaction at posttest or follow-up. No differences were found among groups for the outcome sets related to potential harmful effects resulting from the prevention programs. From these findings, the authors determined that no harmful effects occurred as a result of including educational information about eating disorders in an eating disorder prevention program.

Conclusions: Currently, evidence supports the potential benefits of eating disorder prevention programs for targeted populations, specifically those already demonstrating signs of

an eating disorder. Eating disorder prevention programs seem to increase participants' knowledge of eating disorders. Limited evidence indicates small improvements on the behavioral outcome variables, dieting behaviors, and general eating abnormalities for a range of population groups. Knowledge is the outcome variable most affected by eating disorder prevention programs. No evidence indicating that providing educational

information about eating disorders causes potentially harmful effects on attitudes or behaviors was found. Specific symptoms that signal an eating disorder were excluded from research assessments, so accurate conclusions regarding the actual prevention of eating disorders resulting directly from eating disorder prevention programs cannot be made.

Key Words: dieting, nutrition, education

COMMENTARY

Eating disorders can cause psychological and physical problems that may result in severe health problems and even death.¹ Eating disorders have one of the highest mortality rates of any psychological disorder.² The incidence of eating disorders is much higher in females than in males, particularly in adolescent females.¹ The risk factors for developing eating disorders have been debated. Evidence³ indicates that competing in athletics can help to develop higher self-esteem. However, some of the characteristics common to good athletes can be predisposing factors to eating disorders, such as competitiveness, concern with performance, and perfectionism.³ Also, sports that place an emphasis on leanness, such as dancing, gymnastics, and swimming, may predispose those athletes to disordered eating.

Previous findings on eating disorder prevention programs have been mixed. Yet large positive effects have been found^{1,2} in high-risk participants, participants over the age of 15 years, and female-only participation groups. Carter et al⁴ evaluated an eating disorder prevention program based on education in a variety of topical areas. A group of 13- to 14-year-old females were taught about body image, weight regulation, self-esteem, eating disorders, and healthy eating habits through traditional lectures and small-group exercises. Particular emphasis was placed on educating the participants regarding the adverse effects of dieting and weight control. The girls were also given skills training for resisting social pressures. Positive results regarding resisting social pressures were found at the posttest, but during follow-up testing 6 months after the program ended, results returned to baseline scores. Interestingly, at follow-up, measurements of dietary restraint had increased over postintervention scores. The researchers⁴ concluded that eating disorder prevention programs using an education-based intervention might actually increase the risk factors for developing disordered eating habits. It is important to note that this prevention program was implemented by the researchers, not by clinically qualified individuals. Despite the mixed results,

many investigators agree that eating disorder prevention programs may be effective. Stice et al¹ found that prevention programs reduced eating disorder risk factors by 51% and reduced current or future eating abnormalities by 29%. Researchers have focused on harmful effects of eating disorder prevention programs, questioning specifically if presenting further information about eating disorders increases the incidence of disordered eating behaviors. Cororve Fingeret et al² found no differences between groups that received educational information regarding eating disorders and groups that did not, concluding that providing eating disorder information in a prevention program does not cause harmful effects. Certain authors^{1,2} have focused on reducing risk factors, such as eating abnormalities, dieting, thin-ideal internalization, and body dissatisfaction. Cororve Fingeret et al² demonstrated that eating disorder prevention programs had positive effects on participant knowledge, general eating abnormalities, dieting behaviors, and internalization of a thin-ideal body standard.

As positive as these findings are for prevention programs, some concerns remain. For example, in most studies, actual eating disorder behaviors were not tracked, making it difficult to establish a clear link between eating disorder prevention programs and decreased incidence of eating disorders.² Establishing causation between eating disorder prevention programs and reduction in eating disorder incidence would be helpful.

Because of the high mortality rate associated with eating disorders, implementing methods to prevent eating disorders is very important. As certified athletic trainers, we have the responsibility to work collaboratively with other health care professionals to implement programs that may keep the athletes for whom we care safe. Based on the current research, athletes who are involved in a high-risk sport may receive immense benefits from participating in an eating disorder prevention program, provided the program is interactive, only available to female athletes, conducted over multiple sessions, and led by a professional interventionist. Athletic trainers are in a prime position to facilitate the implementation of eating disorder prevention programs.

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Address correspondence to Lisa Langmessaer, MS, ATC, 1240 University of Oregon, Eugene, OR 97403-1240. Address e-mail to lragdsal@uoregon.edu.