

Evaluation of a Theory-Based Intervention Aimed at Reducing Intention to Use Restrictive Dietary Behaviors Among Adolescent Female Athletes

Catherine Laramée, MSc, RD¹; Vicky Drapeau, PhD, RD²; Pierre Valois, PhD³; Claude Goulet, PhD²; Raphaëlle Jacob, MSc, RD¹; Véronique Provencher, PhD, RD¹; Benoît Lamarche, PhD¹

ABSTRACT

Objective: To evaluate the effectiveness of a theory-based intervention to reduce the intention to use restrictive dietary behaviors for losing weight among adolescent female athletes involved in aesthetic sports.

Design: Cluster-randomized controlled trial.

Setting: Aesthetic sport teams of adolescent female athletes aged 12–17 years.

Participants: Two teams (n = 37 athletes) in the intervention group and 3 teams (n = 33) in the comparison group.

Interventions: The 2 groups received nutrition education during 3 weekly 60-minute sessions. The intervention group was further exposed to a theory-based intervention targeting the specific determinant of intention to use restrictive dietary behaviors for losing weight, namely attitude.

Main Outcome Measures: Difference over time between groups in intention to use restrictive dietary behaviors for losing weight and in nutrition knowledge.

Analysis: Mixed models for repeated measures.

Results: The theory-based intervention contributed to maintaining a low intention of using restrictive dietary behaviors for losing weight over time in the intervention group compared with the comparison group ($P < .03$). Nutrition knowledge score increased equally in both groups.

Conclusion and Implications: Complementing nutrition education with theory-based behavior change intervention may help maintain a low intention of using restrictive dietary behaviors for losing weight among female high school athletes involved in aesthetic sports.

Key Words: adolescent, athletes, social theory, feeding and eating disorders, health education (*J Nutr Educ Behav.* 2017;49:497-504.)

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INTRODUCTION

Disordered eating (DE) refers to a wide spectrum of unhealthy eating behaviors often used in an attempt to lose weight and/or achieve a lean appearance.¹ The spectrum of DE ranges in severity from restrictive eating to abnormal eating behaviors such as bingeing and

purging to frank clinical diagnosis of eating disorders.^{1,2} Epidemiological studies showed that adolescence is a critical period for the onset of DE.³ Thin-ideal internalization, body dissatisfaction, overweight/obesity, and dieting were shown to be key risk factors of DE.^{4,5} Pressure to lose weight within specific sports environments and

some athletes' personality traits also amplify the risk of DE.^{6,7} Accordingly, DE was shown to be more prevalent among female elite athletes than among female non-athletes. Among female elite athletes, those competing in aesthetic, endurance, and weight-class sports in which leanness is emphasized are at greater risk of DE than those competing in other sports in which there is less focus on leanness.⁸ The prevalence of clinical eating disorders was shown to be as high as 20% among adolescent female elite athletes who compete in sports that emphasize leanness.⁹ This represents an issue for athletes because DE can impair physical health, psychological health, and sports performance.^{2,10}

Few studies investigated the effectiveness of interventions designed to prevent unhealthy weight control

¹Institute of Nutrition and Functional Foods, Laval University, Quebec, Canada

²Department of Physical Education, Laval University, Quebec, Canada

³Department of Educational Fundamentals and Practices, Laval University, Quebec, Canada

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Address for correspondence: Benoît Lamarche, PhD, Institute of Nutrition and Functional Foods, Laval University, 2440 Boul Hochelaga, Quebec G1V 0A6, Canada; Phone: (418) 656-2131 ext 4355; Fax: (418) 656-5877; E-mail: Benoit.lamarche@fsaa.ulaval.ca

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behaviors in high-risk populations such as female high school athletes involved in aesthetic sports. The prevalence and psychosocial determinants of intention to use restrictive dietary behaviors for losing weight were recently examined among female high school athletes using the Theory of Planned Behavior (TPB) framework.^{11,12} Results showed that an important proportion of adolescent female athletes mostly involved in aesthetic sports expressed concerns regarding body weight (67%), wanted to be thinner than their perceived body size (38%), had attempted to lose weight within the past year (40%) and had some intention to use restrictive dietary behaviors for losing weight (22%).¹² Attitude was the only significant predictor of this intention, accounting for 45% of its variance, with no apparent additional contribution of subjective norm and perceived behavioral control. Improvement in appearance was the most significant behavioral belief sustaining the favorable attitude toward the intent to use restrictive dietary behaviors in adolescent female athletes.¹² These data provided invaluable information for the development of an intervention based on these TPB psychosocial determinants.

The researchers undertook the current study to evaluate the effectiveness of a TPB-based intervention designed to reduce the intention to use restrictive dietary behaviors for losing weight among adolescent female athletes. The primary hypothesis was that combining nutrition education with a theory-based intervention targeting attitude and its underlying beliefs decreased the intention to adopt restrictive dietary behaviors compared with providing only nutrition education.

METHODS

Participants and Recruitment

Through their coaches, girls aged 12–17 years were solicited for participation in the study within the local competitive aesthetic sports communities of cheerleading, gymnastic, synchronized swimming, artistic skating, diving, circus, and dance. Five coaches from 2 high schools and 1 sports club in Québec City expressed interest in having their athletes participate on a voluntary basis in the project. The study coordinator met the different groups within

their sports setting to explain the purpose of the study and related procedures. The researchers obtained written consent from girls and their parents before the second visit for baseline data collection. Twenty gift certificates at a local sports store were given at random among study participants. The Research Ethics Committee of Laval University reviewed and approved the protocol before its undertaking.

Study Design

Using cluster randomization, teams of participants were randomly assigned to the comparison or intervention groups in this parallel arm study. Cluster randomization was considered ideal for implementation purposes as well as to eliminate the risk of contamination that occurs when participants from the same team are subjected to different interventions. Figure 1 shows the study flowchart. A total of 70 athletes completed the baseline data collection. Participation rate among athletes in the intervention and comparison groups was 84% and 91%, respectively, at week 3, and 73% and 36% after the 8- to 12-week follow-up, respectively.

The comparison group was subjected to 3 sessions of 60 minutes each, focusing on nutrition education. The following topics related to healthy

eating and sports nutrition were discussed: (1) energy needs in athletes vs sedentary individuals; (2) importance of considering hunger and satiety signals in achieving adequate energy intake; (3) importance of carbohydrates as a fuel, proteins for muscle repair and function, and the right balance of lipids to maintain good health; (4) strategies to select nutritious food while eating out; (5) identifying the right foods before, during, and after training; and (6) the importance of hydration in sports.

The intervention group was also subjected to 3 sessions of 60 minutes, which focused on behavior change in addition to providing nutrition education. The behavior change intervention, which used the TPB framework, was aimed specifically at reducing intention to use restrictive dietary behaviors for losing weight. The framework was based on data from a previous study, which identified attitude as the main determinant of this intention in this population.¹² Specific behavior change strategies were therefore developed to modify attitude toward this intention (Table 1). Persuasive communication consisted of guiding girls toward adopting an attitude by using arguments.¹³ This method was used to enhance the positive beliefs, weaken negative beliefs, and introduce new beliefs.¹⁴ Active learning was used during group

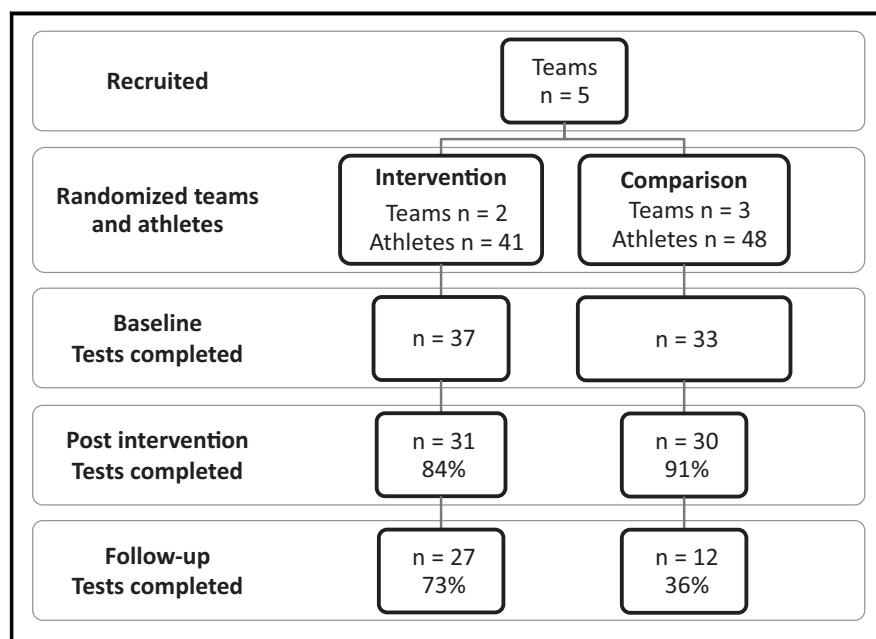


Figure 1. Flowchart for study to evaluate effectiveness of intervention with female athletes.

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