May 20th, 5:00 PM - 7:00 PM

Effects of a multicomponent wellness intervention on dyslipidemia in an overweight adolescent population

Olga T. Hardy
University of Massachusetts Medical School

Jean Wiecha
University of Massachusetts Boston

Albert Kim
University of Massachusetts Boston

See next page for additional authors

Follow this and additional works at: https://escholarship.umassmed.edu/cts_retreat

Part of the Cardiovascular Diseases Commons, Clinical Epidemiology Commons, Community Health and Preventive Medicine Commons, and the Nutritional and Metabolic Diseases Commons

Hardy, Olga T.; Wiecha, Jean; Kim, Albert; Salas, Carlos; Bricenoc, Rayna; Moody, Kwesi; Becker, Joan; Glazer, Greer; Ciccarelli, Carol A.; Shi, Ling; and Hayman, Laura L., "Effects of a multicomponent wellness intervention on dyslipidemia in an overweight adolescent population" (2011). UMass Center for Clinical and Translational Science Research Retreat. 4.
https://escholarship.umassmed.edu/cts_retreat/2011/posters/4

This material is brought to you by eScholarship@UMMS. It has been accepted for inclusion in UMass Center for Clinical and Translational Science Research Retreat by an authorized administrator of eScholarship@UMMS. For more information, please contact Lisa.Palmer@umassmed.edu.
Effects of a multicomponent wellness intervention on dyslipidemia in an overweight adolescent population

Olga T Hardy, Jean Wiche, Albert Kim, Carlos Salas, Rayna Bricenoc, Kwsie Moody, Joan Becker, Greer Glazer, Carol Ciccarelli, Ling Shi, Laura I Hayman

Department of Pediatrics, University of Massachusetts Medical School, Worcester, Massachusetts 01605; 1Dorchester Academy, Boston, Massachusetts 02124; 2Office of Academic Support Services and Undergraduate Studies, University of Massachusetts, Boston 02125

Abstract

Epidemiologic studies suggest that atherosclerotic processes begin in childhood and are associated with abnormal lipid levels. Behavioral changes may be the first line of treatment for dyslipidemia in adolescents but do not outcome data on the effectiveness of this approach are inconsistent. This study aimed to assess the effect of a 13-week multicomponent wellness intervention program on dyslipidemia in lean and overweight/obese adolescents enrolled at a public high school in Boston, Massachusetts. The intervention was conducted at a university-based youth fitness center where 9 overweight/obese adolescents (body mass index (BMI) >85th percentile for age and sex) and 5 lean adolescents (BMI <85th percentile for age and sex) participated in weekly nutrition classes and structured cardiovascular, flexibility and strength training 2 times/week for 5 weeks, followed by 10 times/week for 3 weeks. Clinical measurements (BMI, percent body fat, blood pressure, lipids and lifestyle risk factors) were assessed at baseline and at the completion of the intervention. At the completion of the study, the overweight/obese adolescents demonstrated a 15% increase in HDL-C levels (mean, 47 ± 8 mg/dL vs 54 ± 5 mg/dL), while there was no significant change in body fat, body fat percentage and LDL-C levels (P>0.05). The participants in the lean group showed a significant increase in their anthropometric and serum parameters. A multicomponent wellness intervention resulted in a significant increase in cardioprotective HDL-C levels which has been associated with coronary health in adulthood. The long-term effects of this intervention indicate that participatory and community-based healthy and others like it require further study.

METHODS

Participants

Participants were recruited from Dorchester Academy, a Boston inner-city neighborhood public high school with a high percentage of racial and ethnically diverse students from low income families. Criteria for participation included academic risk due to behavioral issues or poor performance on the Massachusetts Comprehensive Assessment System test (MCAS). The study was approved by the University of Massachusetts Medical School institutional review board. Written informed assent and consent were obtained from participants and parents.

HYPOTHESIS

The Fit2Lead pilot study consisted of a 13-week intervention that included a fitness and leadership training program. The program was designed to promote achievement, fitness, improved self-concept and work experience. The fitness intervention was delivered at the Galvanize, an innovative youth fitness, research and training center in the University of Massachusetts Boston campus. This comprehensive resource includes a full range of cardio equipment, weight machines, free weights and a game area that accommodates active participation in electronic games. During the first 5 weeks, the program consisted of nutrition education twice/week (30 minutes each), academic classes and training towards behavioral intervention that engages high school students in physical fitness and other activities, educational workshops, academic classes and training towards behavioral intervention that engages high school students in physical fitness and other activities. The remaining 8 weeks of the program included exercise education (30 minutes each), exercise 4 times (60 minutes each) per week and nutrition nutrition education 2 times (30 minutes each) per week. The exercise component of the program was led by an exercise physiologist and included warm-up exercises, stretching, strength training, cardiovascular routines, core training and circuit training. The nutrition education portion of the program was facilitated by the University of Massachusetts Extension's Supplemental Nutrition Assistance Program education program (SNAPE). In addition, assessment of the food pyramid, healthy meals, carbohydrates counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydrate counting, carbohydr...