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Olga T. Hardy

University of Massachusetts Medical School

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

Olga T Hardy, Jean Wiecha, Albert Kim, Carlos Salas, Rayna Bricenoc, Kwesi Moody, Joan Becker, Greer Glazer, Carol Ciccarelli, Ling Shi, Laura J Hayman

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

Abstract

- Atherosclerotic processes begin in childhood and are associated with abnormal lipid levels.
- Behavioral and lifestyle changes are recommended as the cornerstone of treatment for dyslipidemia in children and adolescents.
- The primary goal of this pilot study was to assess the effect of a 13-week multicomponent wellness intervention program on dyslipidemia in an overweight adolescent population.
- We conducted a sub-study of Fit2Lead, which is a longitudinal behavioral intervention that engage school students in physical activities, educational workshops, academic classes and training towards becoming future role models and mentors.

HYPOTHESIS: High activity level will lead to an improvement in lipid profiles especially HDL-C which is known to increase with consistent exercise

Background

- Atherosclerotic processes begin in childhood and are associated with abnormal lipid levels including a low concentration of high-density lipoprotein cholesterol (HDL-C).
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Conclusions and Future Directions

- Exercise and nutrition education coupled with 30-60 minutes of activity per day, 2-4 days per week for 13 weeks resulted in increased HDL-C levels among overweight and obese adolescents.
- Low concentrations of HDL-C show a significant correlation with the size of atherosclerotic lesions present in autopsies obtained from children.
- Increase in HDL-C in childhood, if maintained, could lower the lifelong risk of cardiovascular disease in adulthood.
- Lack of weight loss after the intervention suggests that weight loss does not play a major role in mediating the beneficial effect of activity on improvement of lipid profiles.
- Leadership training component may have contributed to improved self-confidence and empowerment allowing the participants to make beneficial behavioral changes.
- Majority of participants were low-income, inner-city minority youth which may limit the generalizability of the Fit2Lead intervention in rural populations.
- Future studies will assess optimal dose and duration of exercise as well as the sustained effects of the intervention on HDL-C, other indicators of cardiometabolic health, and indices of adiposity.

Results

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Fit2Lead participants were recruited from Dorchester Academy, a Boston inner-city neighborhood public high school with a high percentage of racial and ethnicity diverse students from low income families. Criteria for participation included academic risks due to behavioral issues or past performance on the Massachusetts Comprehensive Assessment System test (MCAS). The study was approved by the University of Massachusetts Medical Center’s IRB. Written informed assent and consent were obtained from participants and parents.

Materials/Methods

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References


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