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# Promoting Physical Activity and Nutrition in Adolescents

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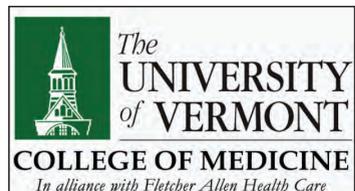
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# Promoting Physical Activity and Nutrition in Adolescents

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## Introduction/Background

In the United States, childhood obesity has become the leading pediatric chronic disease. Increased caloric intake and decreased energy expenditure is hypothesized as contributing to the upward trend of obesity.<sup>1</sup> Independent of adult weight, obese children have increased morbidity and mortality from metabolic syndrome as adults.<sup>2</sup> Individuals engaging in exercise programs as short as 6 months have shown improvement in risk factors including body fat mass, waist/hip ratio, ambulatory systolic blood pressure, fasting insulin, triglycerides, and low-density lipoprotein ratio.<sup>3</sup>

In our study, adolescents were taught a foundation of health and well-being that incorporated regular exercise. Nutrition was taught through an evidence-based systems approach, including lessons about the cardiovascular, musculoskeletal, and gastrointestinal systems. Our aim was to improve adolescent food choices and increase physical activity through interactive educational sessions.

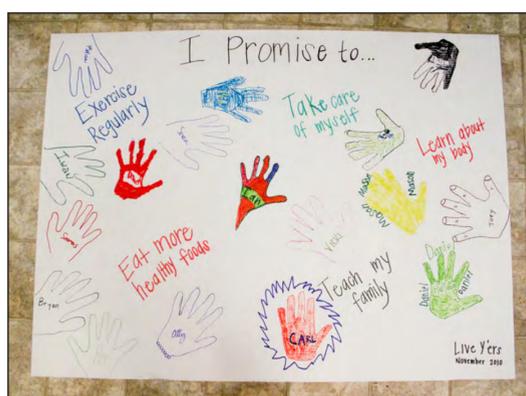
## Methods

We held 6 teaching sessions for 11 middle school-aged children in an after-school program at the Greater Burlington YMCA. Each lesson consisted of:

- 30 minutes of organized exercise activities
- 30 minutes of systems- and nutrition-based education
- Surveys were distributed to parents via paper copies and e-mail at the beginning and conclusion of the project.
- Both surveys had the same 15 questions about behavior, nutrition, and exercise
- The second survey had additional questions about participants' learning experiences

## Results

The 11 pre-intervention surveys showed this population generally made healthy nutritional choices and had good

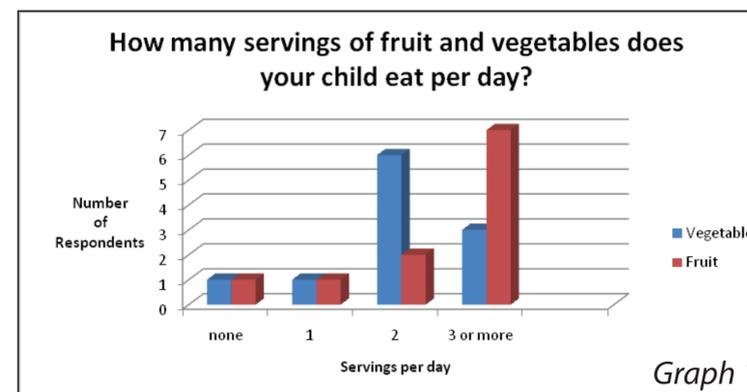


Students made specific promises to maintain a healthy lifestyle during the last learning session.

exercise habits. Most ate whole wheat bread and did not drink soda frequently. 64% of our adolescents ate 3 or more servings of fruit a day compared to survey results of Vermont youth, with 34% of students consuming 2 or more servings of fruit a day (*Graph 1*).<sup>4</sup> Ten of our participants were at or near the American Academy of Pediatrics recommendation that children receive at least 60 minutes of physical activity a day (*Graph 2*).<sup>5</sup> The survey revealed that students were curious about the healthfulness of their food choices as well as the workings of their bodies. Most did not skip meals or eat fast foods on a routine basis.

Only 2 follow-up surveys were received, precluding comment about possible alteration in healthy lifestyle habits resulting from the teaching sessions. Sample parent comments, such as: "Yes, he learned something: he has insisted

that he needs vitamins and will randomly spit out facts about bones," and "He loved it—should do more!" have led us to believe that this sort of educational session was beneficial.



Graph 1

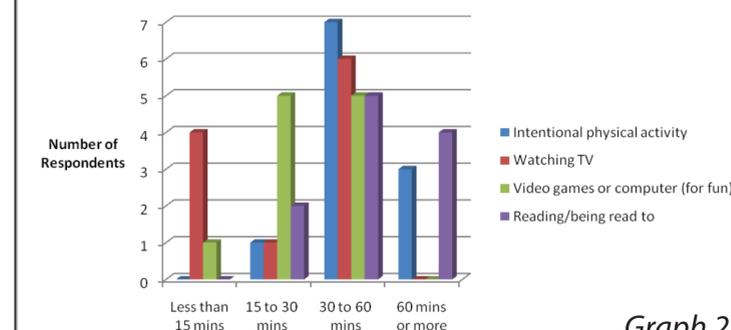
## Discussion

This study focused on increasing physical activity and health education to promote a healthier lifestyle. We were able to create a 6 week lesson plan that could easily be incorporated into a school curriculum. This sample group had fairly healthy lifestyles at baseline, and as a result, might not have benefited as much as a more diverse population. Fruits and vegetables were consumed frequently and almost all participants met or were near published recommendations for daily physical activity.

A small sample size combined with the difficulties of collecting follow-up surveys hampered assessment of our



How much time does your child spend on these activities?



Graph 2

impact. Other challenges included an inability to directly measure the students' knowledge of diet and nutrition, the lack of personal contact between researchers and parents, and an inconsistent sample population due to varied attendance at each session.

## Recommendations

- Meet parents personally to discuss project: adds personal connection and motivation for survey completion
- Obtain IRB approval for future study: allows direct assessment of initial student knowledge and the impact of our teaching
- Implement program in a population with less healthy baseline lifestyle habits
- Investigate the development of this sample population's healthy lifestyles and integrate lessons learned into future educational sessions

## References

<sup>1</sup>Nemet D. and et al. "Short- and long-term beneficial effects of a combined dietary-behavioral-physical activity intervention for the treatment of childhood obesity." *Pediatrics* 115.4 (2005):e443-9. <sup>2</sup>Must A. and et al. "Long-term morbidity and mortality of overweight adolescents. A follow-up of the Harvard Growth Study of 1922 to 1935." *New England Journal of Medicine* 327.19 (1992):1350-5. <sup>3</sup>Meyer A. and et al. "Improvement of early vascular changes and cardiovascular risk factors in obese children after a six-month exercise program." *Journal of American College of Cardiology* 48.9 (2006):1865-70. <sup>4</sup>2009 Vermont Youth Risk Behavior Survey. 2009. 5 Jan 2011. <<http://healthvermont.gov/research/yrebs.aspx>>. <sup>5</sup>Physical Activity Guidelines Advisory Committee. *Physical Activity Guidelines Advisory Committee Report*, 2008. Washington, D.C.: U.S. Department of Health and Human Services, 2008. 5 Jan 2011. <<http://www.health.gov/paguidelines>>.