

## Preliminary Results

# The Healthier Options for Public Schoolchildren (HOPS) Study



AGATSTON  
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Childhood obesity increasingly is becoming a major public health problem, with profound implications for the development of cardiovascular and other chronic diseases in later life. In the United States, the number of overweight children has doubled in the past two decades, with approximately 35.8% of children ages six to 19 being considered at risk for overweight or overweight.<sup>1</sup> In Florida,

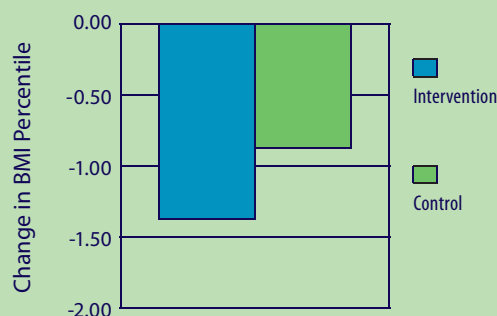
based on data collected from 3rd, 6th, and 9th graders in 2001, 33.8% of children were classified as at risk for overweight or overweight.<sup>2</sup>



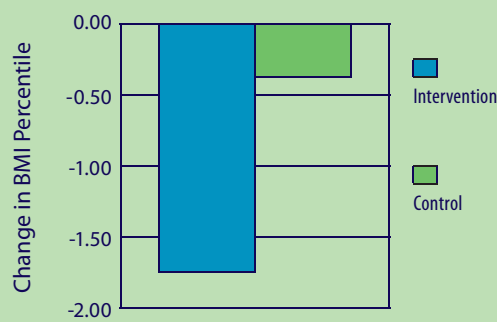
## HOPS intervention children experience improvements in body mass index

HOPS Study children attending intervention schools experienced significantly more improvements in their body mass index (BMI) for age and gender percentile scores than children attending HOPS control schools. This means that the HOPS intervention children experienced a greater reduction in their BMI scores, which is positive health indicator.

Change in BMI Percentile by Intervention Status  
HOPS 1: Fall 2004 to Spring 2005



Change in BMI Percentile by Intervention Status  
HOPS 2: Fall 2005 to Spring 2006



The passage of

Public Law 108: Section 204, which is part of the Child Nutrition and WIC Reauthorization Act of 2004, created a federal mandate to address childhood obesity in the school setting by requiring all school districts that participate in the National School Lunch Program to implement a *local wellness policy* by July 1, 2006. The local wellness policies mandated in this legislation must include goals for nutrition education, physical activity, and nutrition guidelines, as well as plans for measuring results of implementation.

A few years prior to implementation of the federal wellness policy mandate, in the fall of 2004, the School District of Osceola County got a head start on addressing the issue of childhood obesity in the public school setting as it commenced the *Healthier Options for Public Schoolchildren (HOPS) Study*. The HOPS Study, which also helped kick-start the development of the county's local wellness policy, is an innovative feasibility study that includes a rigorous set of interventions – the types of interventions that are necessary to combat the epidemic of childhood obesity in a setting where children spend many hours each day: at school!

During the past two and a half years, a group of elementary schools in the School District of Osceola County have been successfully implementing the HOPS Study holistic nutritional and lifestyle management program activities, which are modeled everyday in each HOPS Study cafeteria during breakfast, lunch, and extended day snack times.

HOPS Study activities resulted in *improvements in the health and well-being*, as measured by improved weight measures, of many children in HOPS Study intervention schools. This report showcases the health and wellness gains of these children, and explains some of the school-based interventions that are producing these healthy, exciting results.



Avocado! One of the January 2007 HOPS Foods of the Month!

<sup>1</sup>Ogden CL, Carroll MD, Curtin LR, McDowell MA, Tabak CJ, Flegal KM. Prevalence of overweight and obesity in the United States, 1999-2004. JAMA. 2006;295:1549-1555.

<sup>2</sup><http://www.doh.state.fl.us/Family/obesity/florida/obesity.html> (accessed on January 9, 2007)



## Overview of HOPS 1 and HOPS 2

# Gradual Implementation...Healthy Results

**T**he *Healthier Options for Public Schoolchildren (HOPS) Study* has evolved over time which allowed intervention schools to gradually implement dietary, nutrition, and healthy lifestyle programming in a manageable fashion, *with great, healthy results!*

## HOPS 1: School year 2004-2005

HOPS 1 commenced during the 2004-5 school year by introducing a dietary intervention led by the *Campus Grille*, with technical assistance from a Registered Dietitian of the *Agatston Research Foundation*. During this time, breakfast, lunch, and extended day snack menus were created that included nutrient-dense items and ingredients, with higher amounts of dietary fiber and reduced amounts of fats and sugars. These new menus resulted in real challenges for school foodservice staff as they had to learn new processes for ordering, acquiring, and preparing school foods based on menus that met both the federal Child Nutrition Program requirements and the HOPS Study Dietary Guidelines. These challenges were met skillfully by an expert team in the *Campus Grille*, and the managers at each intervention school – all of whom continue to create and serve innovative menus that meet HOPS Study Guidelines to HOPS Study intervention children everyday.

## HOPS 2: School year 2005-2006

HOPS 2 began at the start of school year 2005-6 with a further refinement of the dietary intervention that began in HOPS 1 and the addition of a holistic set of nutrition and healthy lifestyle education curricula designed to explain why the changes to foods served in the cafeterias are so important to one's health

and well-being. The principles of the educational intervention are modeled in the cafeteria everyday when the nutrient-dense foods presented in the fun educational lessons are offered during breakfast, lunch, extended day snack periods. By thematically integrating these lessons, which are based on a HOPS

Foods of the Month curriculum and include the *OrganWise Guys*® program, with healthy food offerings, and hands-on experiences, such as food tastings and HOPS School Gardens, nutrition and healthy lifestyle messages are better received, and understood, by children. Additionally, reports from HOPS Study school principals indicate that some children take these healthy messages home, evidenced by their requests for certain items they tried in the school cafeteria, such as spinach and whole grain bread.

## Results of HOPS Study Dietary Interventions

HOPS Study intervention schools offer modified breakfast, lunch, and extended day snack menus. The menus are created in accordance with a calorie-appropriate, lower saturated fat, lower/no transfat, higher fiber, less added-sugars philosophy that incorporates increased numbers of whole grains, fruits, and vegetables, and reduced amounts of simple sugars and processed foods. All menus are created by the *Campus Grille* with consults, upon request, with a Registered Dietitian of the *Agatston Research Foundation*. Menus are based on the food-based traditional menu planning option, and are meal pattern compliant. Accordingly, children in these schools are not on a diet, and instead, are served meals based on core principles outlined in the United States Department of Agriculture (USDA) *Dietary Guidelines for Americans 2005*, the *USDA HealthierUS School Challenge*, the *Child Nutrition Program*, and a set of *HOPS Study Dietary Guidelines*. Analyses of nutritional compositions of six weeks of HOPS 2 Study intervention menus and control school menus showed HOPS Study interventions resulted in approximately 28% less total fat, 21% less saturated fat, as well as about 2 times more dietary fiber in intervention versus control menus.<sup>1</sup>

	Total Fat	Saturated Fat	Fiber
HOPS Breakfast	8.43g	2.80g	2.14g
Control Breakfast	11.42g	3.53g	0.77g
HOPS Lunch	18.37g	5.86g	7.01g
Control Lunch	26.20g	7.49g	6.09g

## HOPS Study Holistic Nutrition and Healthier Lifestyle Programmatic Aims

- To test the feasibility of including nutrient-dense ingredients and whole foods, acquired via existing public school food distribution networks, in breakfasts, lunches, and extended day snacks in the elementary school setting
- To explore the overall acceptance and adoption of a thematic set of curricula, based on the HOPS Foods of the Month and *OrganWise Guys*® programming, that teaches elementary-aged children, their parents, teachers, and school staff about nutrition and healthy lifestyle management - lessons that are modeled in the school cafeteria meal offerings
- To test the feasibility of creating fruit and vegetable gardens in the elementary school setting, with the goal of teaching children how the nutritious fruits and vegetables that are served in their school cafeterias, their homes, and in restaurants, are grown, cultivated, and harvested.



<sup>1</sup>Almon M, Gonzalez J, Agatston AS, Hollar TL, Hollar D (2006, July). The HOPS Study: Dietary Component and Nutritional Analyses. Annual Nutrition Conference of the School Nutrition Association. Los Angeles, CA (poster). Almon M, Gonzalez J, Agatston AS, Hollar TL, Hollar D (2006, September). The Dietary Intervention of the Healthier Options for Public Schoolchildren Study - A School-Based Holistic Nutrition and Healthy Lifestyle Management Program for Elementary-Aged Children. 2006 American Dietetic Association Annual Food & Nutrition Conference & Expo. Honolulu, HI (poster).



# Highlights of HOPS Study Findings



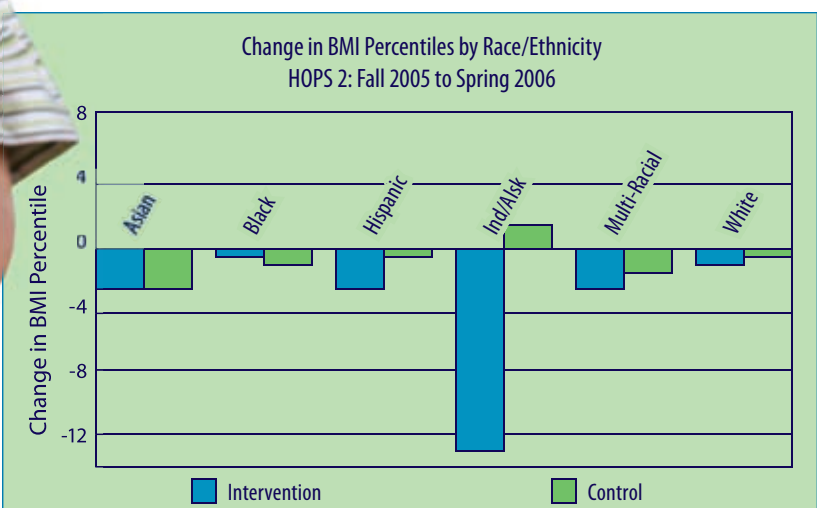
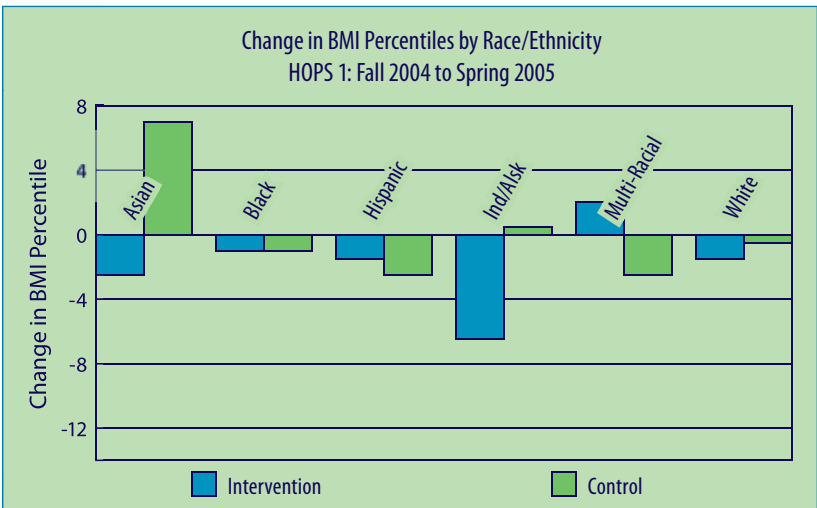
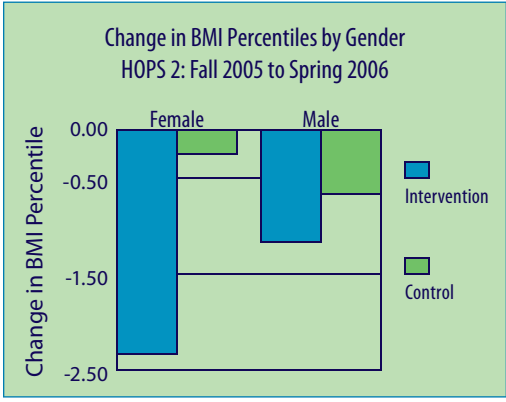
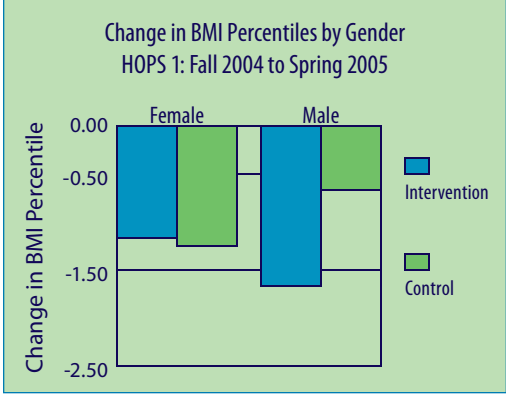
**A**nalyses of HOPS Study data collected during HOPS 2, a time when the dietary intervention was ramped up and the nutrition and healthy lifestyle education programming was initiated, reveal that HOPS Study interventions are having positive health impacts. Overall, compared to children in HOPS Study control schools, children in HOPS

Study intervention schools experienced more improvement, in a statistically significant manner, in their body mass index (BMI) for age and gender percentiles. This means that the BMI percentile scores went down, indicating improved health outcomes, in more children attending intervention schools than in those attending control schools. As shown in the graphics on this page, greater health improvements, which were measured by the change in children's BMI percentile scores from Fall 2005 to Spring 2006, occurred for intervention children as compared to control children regardless of gender or racial/ethnic group, except for black children.

## The HOPS Study Participants

The HOPS Study began in the fall of 2004 in six elementary schools in the School District of Osceola County. During the first two years, the HOPS Study included a racially and ethnically diverse set of approximately 4,713 children (42.6% Hispanic, 41.3% white, 8.7% black, 5.1% multi-racial, 2.0% Asian/Pacific Islander, and 0.3% Indian/Alaskan Native\*), aged five through eleven. Four schools participated as HOPS intervention schools that implemented all HOPS interventions (Kissimmee Charter Elementary, Mill Creek Elementary, Partin Settlement Elementary, and PM Wells Charter Elementary) and two schools participated as HOPS control schools that did not implement HOPS interventions (Four

Corners Charter Elementary and Pleasant Hill Elementary). In the fall of 2006, three schools joined the HOPS Study, Celebration K-8 (HOPS intervention school), Sunrise Elementary (HOPS intervention school), and Cypress Elementary (HOPS control school, which replaced Four Corners Charter). \*Percentages add to slightly more than 100% due to rounding.



## The HOPS Study and Local Wellness Policy Implementation

# an evidence-based healthy partnership!



**A**ssessing the efficacy of school-based nutrition and healthy lifestyle educational programming, via evidence-based assessment methodologies such as those used in the HOPS Study, will help educators choose programming with the strongest likelihood of improving the health, well-being, and academic achievement of children. Based on the preliminary results of HOPS Study presented in this report, it appears that interventions are working – they are improving the health and well-being of children, as measured by improvements in their BMI percentile scores. The health improvements resulting from HOPS Study interventions are very exciting and hold much promise for future school-based collaborative efforts aimed to stop the epidemic of childhood obesity.

In addition to improvements in health of HOPS Study intervention children, HOPS interventions helped prepare the stage for local implementation of the new federal requirements that mandate the creation of *local wellness policies* and procedures at the district and school levels. Many HOPS Study interventions fulfill the core requirements of this federal legislation: nutritional education programming, healthy dietary offerings during the school day, emphases on increased physical activity, and measurement of the effectiveness of wellness efforts. These core federal wellness requirements are completed by each HOPS Study school, everyday, as they implement HOPS Study school-based nutrition and healthy lifestyle curricula that

are matched to the Sunshine State Standards, create and tend HOPS School Gardens, and provide school meals that meet the high nutrition standards of the HOPS Dietary Guidelines that model HOPS Study educational programming. Many of these activities are similar to those described in *The School District of Osceola County's Local Wellness Policy* dated August 7, 2006. Additionally, HOPS Study results have earned the attention of the federal government. After hearing about the HOPS Study, Drs. Agatston and Hollar were invited to discuss HOPS Study interventions and early results with representatives of the *United States Department of Agriculture (USDA) Child Nutrition Division (CND)*. The Agatston Research Foundation plans to share additional HOPS Study results, as they become available, with the USDA CND, as well as other agencies that work with children, to inform policy and programmatic change with the aim to improve the health and well-being of children.

All of us at the *Agatston Research Foundation* wish to thank the School Board of The School District of Osceola County, Superintendent Blaine Muse, Assistant Superintendent Dr. John Beall, the Campus Grille (especially Jean Palmore, Karen Fry, Nancy Shetters, and Deborah Brintley), HOPS Study Cafeteria Managers (Pam Brown, Jo Ann Drouin, Wanda Mercado, Donna Myers, Paula Scroggins, and Carla Wilkins), HOPS Study School Principals (currently: John Campbell, David Groover, Debra Neill, Rom Rylands, Tiffany Ward, and Holly Willis), and all of the teachers, school staff, and cafeteria staff who ensure implementation of the HOPS Study interventions, for your dedication of time, resources, and efforts to the HOPS Study. Our successful collaboration has shown us, and others interested in combating childhood obesity, that school-based obesity prevention programs that thematically integrate nutrition and healthy lifestyle programming with rigorous dietary changes in school cafeterias can be implemented with evidence-based success in a feasible manner. So thank you again for your hard work on the HOPS Study thus far, and we look forward to continuing our productive collaboration in the years to come.

### HOPS Study Team

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