

Healthy Choices, Healthy Me! Improves Students' Food Choices

Formative evaluation results of second grade students participating in a nutrition education program.

Introduction

Dairy Council of California's *Healthy Choices, Healthy Me! (HCHM)* program is a nutrition education program that provides classroom teachers materials to educate first and second grade students on healthful eating. This program features a Behavior Change Model that supports multiple learning styles. Students learn the importance of eating a variety of foods from all five food groups in USDA's *MyPyramid* food guidance system, and how to classify foods into each of these groups. Appropriate growth and development is addressed by focusing on consumption of food-group foods, minimizing consumption of extras and balancing calorie intake with 60 minutes of physical activity. Ten lessons use a variety of learning strategies: teacher-directed content, a storybook, a color student workbook, color photographed food pictures, and a food pyramid poster. Lessons provide strong writing and graphing opportunities to assist teachers in meeting core content standards. Nutrition content is integrated into Health, Language Arts, History, Math, Science and Social Studies subject areas.

Purpose of the study

In the 2005-06 school year, Dairy Council of California contracted with WestEd evaluation staff to review and evaluate the *HCHM* program in second grade classrooms.

- * Do students improve their knowledge and food choices after participating in the *HCHM* program compared to students who did not participate?
- * Did students in the intervention group whose parents received the *Note to Parents* or the *Note to Parents* and the *Making Meals Matter for Your School-Age Child* brochure improve their knowledge and food choices?
- * To what extent are the teachers satisfied with the program?

Methods—How the Study Was Implemented

Classroom Component

The study used a pre- and post-test assessment randomized control-group design consisting of 806 second grade students from 38 classrooms at 19 schools across California. Two teachers at each school were randomly assigned to receive the *HCHM* program (treatment group) or to receive the program after the final survey was conducted (control group).

Teachers in the treatment group taught all 10 lessons from the *HCHM* curriculum. Teachers in the treatment group completed a survey consisting of 25 questions assessing reactions to each lesson, including the teacher guide, the storybook, and the student workbook.

Home Connection With Parents

All children in the treatment group brought home at the beginning of the *HCHM* program a *Note to Families* sheet. The parents of students from 10 treatment classes also received an eight-page brochure—*Making Meals Matter for Your School-Age Child (MMM)* and completed a brief survey about the parent materials. A parent survey asked parents if they recalled seeing the *Note to Families* and/or the *Making Meals Matter* brochure and whether they had used or planned to use any of the information in the materials.

Students who participated in *HCHM* and those in the control group all took a pre-test, a post-test, and a follow-up survey about four months after the post-test. Student surveys were conducted in individual classrooms by a WestEd proctor to ensure consistent survey administration. The analytical sample includes 699 second graders (n=354 treatment; n=345 control) who took the pre-test and the post-test and/or the 4-month follow-up surveys.

Student Results

Student understanding of foods, classifying foods into food groups and identifying that each food group provides different key nutrients is fundamental knowledge. Recognizing the composition of a well-balanced diet is important before students can begin to make positive changes in their food choices. The vast array of high-calorie but low-nutrient foods readily available can provide a challenge to educating children on the concepts of balance, variety and moderation. Students must be able to make healthful choices at school and to encourage the home meal preparer to provide more under-consumed foods—fruits, vegetables, low-fat dairy and whole grains.

As a result of participating in *HCHM*, significantly more students in the treatment group answered correctly on the food-group classification questions between pre-, post- and follow-up tests for the following groups: Grains, Breads, & Cereals; Milk & Milk Products; and “Extra Foods.” See Table 1 for specific percent change for each group over time.

Table 1. Percent of Students Answering Correctly on Food-Group Classification by Condition

Food-Group Classification	Treatment			Control		
	Pre-test (%)	Post-test (%)	4 Mo. Follow-up (%)	Pre-test (%)	Post-test (%)	4 Mo. Follow-up (%)
Grains, Breads & Cereals group	40.1	79.7 ^a	80.6 ^b	45.6	56.9	59.2
Vegetable group	72.7	86.2	87.4	75.3	82.9	85.1
Fruit group	90.6	91.9	93.3	88.7	92.0	94.0
Meat, Beans & Nuts group	78.3	86.2	88.5	76.7	80.1	84.0
Milk & Milk Products group	58.3	88.1 ^a	84.5 ^b	66.9	71.1	72.5
Extra foods	27.5	61.8 ^a	51.0 ^b	26.8	30.3	36.3

Notes: ^a Significant post- and pre-test changes in intervention group compared to comparison group (p<.05)

^b Significant follow-up- pre-test changes in intervention group compared to comparison group (p<.05)

Student Dietary Behavior and Intent

Improving dietary intake to align with the dietary guidelines and USDA’s *MyPyramid* is an *HCHM* outcome goal. Through the program’s Individualized Learning Model, students grow along a continuum with knowledge preceding a change in food intake. Students should advance to the next stage, and ultimately, although not immediately, change behavior. Intent to change behavior is an intermediate step and a strong predictor of future behavior change.

Breakfast and snack intake were used as a marker of dietary change, since these are most likely prepared at home and/or students would most likely recall these meal occasions during survey administration. There were no significant differences between treatment and control-group students on frequency of breakfast consumption. Both groups increased breakfast consumption on most school days over time (87.3% to 96.3% treatment; 86.6% to 91.5% control).

Students in the treatment group reported eating significantly more cheese and fruit for breakfast at post-test compared to a decrease in these foods for students in the control group. Intake of both cheese and fruit remained higher in the treatment group over time, but the difference was not significant compared to the control group.

Similarly students in the treatment group reported eating more cheese, yogurt, fruits and vegetables for snacks at post-test compared to a decrease in these foods for students in the control group. This difference continued for cheese at follow-up. See Table 2.

Table 2. Student Report on Eating Snack Foods by Condition

Eating Snack Foods	Treatment			Control		
	Pre-test (%)	Post-test (%)	4 Mo. Follow-up (%)	Pre-test (%)	Post-test (%)	4 Mo. Follow-up (%)
Eat snacks on most school days	69.5	69.8	73.8	65.5	67.1	73.0
For snack on most school days, do you:						
Drink milk	50.9	47.0	46.1	47.0	38.1	40.4
Eat cheese	30.0	33.1 ^a	28.7 ^b	35.9	22.9	26.1
Eat yogurt	41.1	42.8 ^a	43.1	44.9	38.8	43.7
Drink juice	58.9	58.5 ^a	55.3	57.2	55.2	61.4
Eat a fruit	62.4	66.9 ^a	67.6	59.7	53.4	60.7
Eat a vegetable	33.1	38.9 ^a	30.6	34.9	30.6	31.3

Notes: ^a Significant post- and pre-test changes in intervention group compared to comparison group ($p < .05$)

^b Significant follow-up and pre-test changes in intervention group compared to comparison group ($p < .05$)

Significantly more students in the treatment group reported their intent to eat more whole grains (72.1% to 80.7% treatment; 72.7% to 72.8% control) and more fish, beans and nuts (61.7% to 78.3% treatment; 65.6% to 63.2% control) at post-test compared to the control group. This difference continued for fish, beans and nuts at follow-up. A linear trend for all food groups is evident for the treatment group. See Table 3.

Table 3. Student Report on Future Food Choices by Condition

Future Food Choices	Treatment			Control		
	Pre test (%)	Post test (%)	4 Mo. Follow-up (%)	Pre-test (%)	Post-tes (%)	4 Mo. Follow-up (%)
Will try to eat breakfast every day	93.2	97.6	97.2	90.4	91.8	94.5
Will try to eat at least 5 fruits & vegetables every day	75.7	83.2	82.5	73.3	76.8	80.8
Will try to eat less foods like candy, cookies & chips	72.0	77.0	80.4	73.6	75.2	73.0
Will try to drink less soda every day	75.7	78.5	79.1	75.9	76.7	76.6
Will try to have milk products at two meals	78.1	86.1	88.7	76.6	78.5	84.4
Will try to eat more whole grains every day	72.1	80.7 ^a	82.60	72.7	72.8	79.8
Will try to eat more fish, beans, and nuts	61.7	78.3 ^a	76.3 ^b	65.6	63.2	67.8

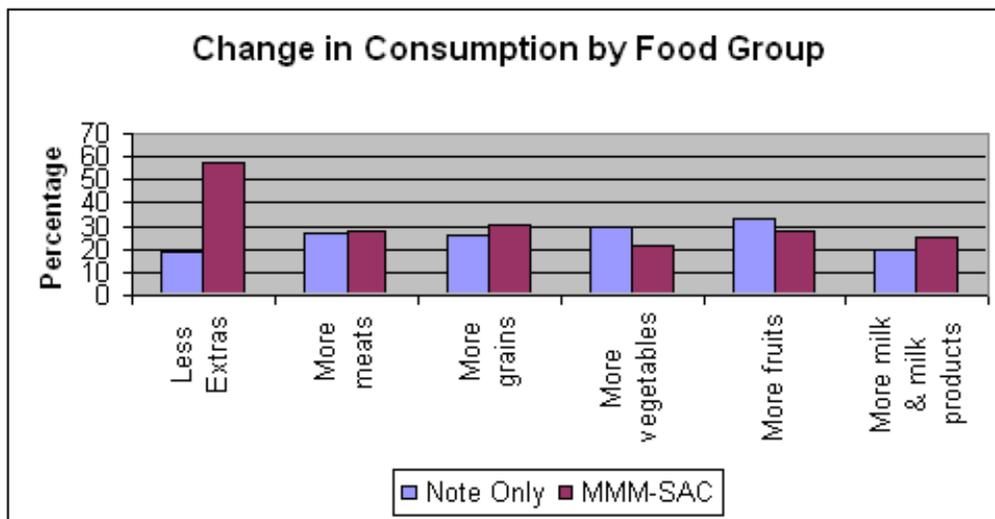
Notes: a Significant post- and pre-test changes in intervention group compared to comparison group ($p < .05$)
b Significant follow-up and pre-test changes in intervention group compared to comparison group ($p < .05$)

HCHM includes a lesson encouraging students to be physically active 60 minutes daily. Students in the treatment group reported less sedentary screen-time activities (TV and video games) after school compared to students in the control group.

Parent Results

HCHM includes a parent component called *A Note to Families*, which teachers send home at the beginning of the program. The two-page color sheet provides an overview of key nutrition concepts presented in the classroom, a link to our website for cooking and meal planning information, and a worksheet to help the home meal preparer prepare and serve healthy foods and to address motivators and barriers to healthy habits and meals. Ten classrooms also sent home the *Making Meals Matter for Your School-Age Child (MMM)* program to see if an additional brochure would increase family nutrition knowledge. The majority of parents reported reading either all or some of the information in a *Note to Families* (87%) and *MMM* (96%) materials. Overall, there is little change between the group of parents who received the *Note to Families* compared to parents who received both the *Note* and the *MMM*. Nevertheless, more parents receiving both the *Note* and the *MMM* reported that they used the nutrition information when shopping for food (71%) compared to parents receiving only the *Note* (60%). More than 97 percent of parents thought that receiving nutrition information from the teacher was useful. All parents reported students ate more food-group foods and fewer extras after receiving *HCHM*. Parents who received both the *Note* and *MMM* reported a greater reduction in extra food consumption than parents receiving the *Note* only (treatment 57.72% vs. control 18.45%). See Figure 1.

Figure 1



Although parent results did not differ significantly between the two groups, students whose parents received both sets of materials had greater gains. Classification of foods into food groups was significantly higher for four of the six categories for those who received *Making Meals Matter* compared to either the control group or the *Note to Family* group. Students whose parents received both sets of materials also reported intent to eat more healthy foods in general than the other groups.

The majority (60-82%) of parents reported that they already offer breakfast daily, offer fewer extras, model healthy eating, eat meals together at least once a day and participate in physical activity. The researchers infer that parents already understand the importance of these activities but may not have the specific skills to implement. Parents did identify that they planned to make healthier choices after receiving the materials at home (23%) or now make healthier restaurant choices for their child (13%).

Parents' responses demonstrate that classroom nutrition education programs complement what is taught at home and encourages greater consumption of food-group foods:

"Thank you so much! I loved the program and the new info my son has learned. We are trying our best and the info was very helpful and we are using it."

"I thought this was a great program. Although we already employ many healthy eating strategies, more awareness is always better and this caused my child to be more aware and we had several talks about food groups, nutrition, etc."

"I appreciate this being taught in class. It helps to reaffirm what I try to provide at home but sometimes get the "yeah ok mom" speech. Michael is now excited about foods. He is choosing better foods than we choose for him."

Conclusions

Nutrition education is a key element to promoting lifelong healthy eating and schools offer a way to reach a large group of children. This project focused on answering three questions to identify how well students meet the program outcomes.

The primary question of this study was whether students improved their knowledge and food choices after participating in *HCHM* compared to the control group. The results of this second-grade summative evaluation suggest that the *Healthy Choices, Healthy Me!* program positively affects students' knowledge and behaviors. Retention of knowledge was high and statistically significant compared to the control group, indicating the teachers reinforce the information throughout the school year. Increased intake of under-consumed foods was statistically significant at breakfast and snacks in students receiving *Healthy Choices, Healthy Me!* compared to the control group.

Second grade students do not choose all that they eat, but they do influence what their parents prepare for them. In school, teachers and peers, as well as the media, are important influencers of food intake. Progressively children become more independent and start making their own food choices. A strong set of skills enabling children and adults to select healthy and well-balanced meals is important. This evaluation demonstrated that materials sent home to families can improve parental reports of student food intake as well as encourage the family meal preparer to shop for healthier foods.

Dairy Council of California would like to thank those schools, teachers and students that participated in this project to help make healthy eating a part of every child's life.

Healthy Choices, Healthy Me! second grade nutrition program materials

Learn more about the *Healthy Choices, Healthy Me!* program, how it aligns with textbooks, cafeteria connections and find scope and sequences for first and second grade.

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