

**Title of Intervention:** The Child and Adolescent Trial for Cardiovascular Health (CATCH)

**Website:** [http://www.epi.umn.edu/cyhp/r\\_catch.htm](http://www.epi.umn.edu/cyhp/r_catch.htm)

**Intervention Strategies:** Group Education, Supportive Relationships, Environments and Policies, Provider Education, Campaigns and Promotions

**Purpose of the Intervention:** To modify heart disease risk behaviors through a collaborative, school-based, heart health promotion program for public elementary school students

**Population:** 3rd-5th grade students

**Setting:** Public schools in San Diego, California, Austin, Texas, Minneapolis, Minnesota and New Orleans, Louisiana; school-based

**Partners:** School districts

**Intervention Description:** Schools were randomly assigned to one of three study conditions: usual health curriculum (control), school-based CATCH interventions only or school-based CATCH interventions and the family program. Each component of the CATCH intervention is described below.

- **Environments and Policies:** The *Eat Smart School Nutrition Campaign* focused on improving the nutritional quality of school meals through policies and practices regarding meal planning, food purchasing and food preparation. The program worked to reduce fat and sodium in meals.
- **Provider Education:** Food service personnel participated in a 1-day nutrition training session for the *Eat Smart School Nutrition Campaign*.
- **Group Education:** The *CATCH Physical Education* program aimed to increase physical activity in school and out of school. Teachers were encouraged to engage students in moderate to vigorous activity during at least 40% of the physical education class period. In the *CATCH Education Curriculum*, third, fourth and fifth graders participated in teacher-led, classroom curriculum, which focused on healthy eating and physical activity. The 3<sup>rd</sup> grade sessions involved skills training, modeling of healthy behaviors by cartoon characters and food preparation. The 4<sup>th</sup> and 5<sup>th</sup> grade sessions involved behavior monitoring, goal setting, skills training, healthy foods and activities. Fifth graders also participated in teacher- and peer-led classroom curriculum focused on tobacco use prevention.
- **Supportive Relationships:** The family program aimed to reinforce the concepts, activities and skills of the classroom curriculum at home. Participants received a take-home packet of learning materials and activities to be completed jointly by the child and a parent or adult figure in the home. Home activities included stories, healthy recipes, physical activities, games, goal setting, tip sheets and magnets.
- **Campaigns and Promotions:** Participation in the family program was encouraged by incentives (pencils, certificates, memo pads). Events such as Family Fun Nights, Hearty's Party and Strongheart Celebration were held to raise awareness of the goals and skills contained in CATCH in a relaxed and fun environment.

**Theory:** Behavioral Ecologic Model, Social Cognitive Theory, Diffusion of Innovation

**Resources Required:**

- **Staff/Volunteers:** School administrators, classroom teachers, physical education teachers, food service workers, parents
- **Training:** Training for administrators, teachers and food personnel stressing the importance of compliant implementation, CATCH Physical Activity measurement Manual was used to train CATCH staff in data collection
- **Technology:** Nutrition analysis software
- **Space:** Classroom and gym space for activities, space in school for Family Fun Nights, training space
- **Budget:** Not mentioned
- **Intervention:** School Meal program guide, healthy recipes, vendor product handbooks, recipe file box, progress report and intervention guide sent out regularly to each school, intervention posters, training models, table tents, menu messages, bulletin boards, CATCH tips, nutritionists, physical activity

equipment, CATCH PE Guidebook, file of activity cards with recommended physical activities, physical activity videotapes, classroom curriculum manual, curriculum guides, resource files, workbooks, family activity packets, supplies for family fun night (food, materials for activities, games, time, tables, staff, rewards for finished packets)

- Evaluation: Checklists, audit forms, nutrition analysis software, tracking forms, questionnaires

#### **Evaluation:**

- Design: Randomized controlled trial
- Methods and Measures:
  - Process measures
    - Attendance Forms and Visit Documentation Logs to track training attendance by school staff
    - Teachers' self-report and observation of classroom or physical education sessions to track fidelity and dose of intervention activities
    - Guideline Checklists for documenting whether guidelines to lower fat and sodium of targeted menu items have been adopted
    - Monthly activities were recorded for nutrition and family programs
    - Student School Meal Participation was calculated monthly
    - School Staff Tracking Form is used to document staff turnover
    - Teacher Weekly Checklist for teachers to record which activities/lessons were completed and which were done without modification
    - Questionnaire completed by principals and food service staff documented external and competing programs or activities that may mimic CATCH interventions
    - Physical Activity Record of Classes (PARC) tracked the number of minutes of opportunities for physical activity during the school day
    - Lesson Observation Checklist completed by trained observers looking for important characteristics of a CATCH PE lesson
    - CATCH PE Debriefing Form assessed teachers' perceptions of and satisfaction with CATCH PE components
    - Student and family attendance was recorded for CATCH activities and events
    - Home Team Scorecards measured involvement by students and their families in the family intervention component
    - Teachers' assessments of the likelihood of teaching the home curricula if they were not required to do so
  - Outcome measures:
    - Injury Monitoring Form, Student Registration Form, and School Meal Participation Worksheet provided information on student characteristics such as injuries, age, gender, ethnicity and socioeconomic status
    - Menu Nutrient Analysis process of analyzing the menu and recipes
    - Self-administered School Staff Questionnaire to assess staff characteristics and confidence in their ability to implement the program
    - 24-hour food recalls to measure dietary intake of students
    - System for Observing Fitness Instruction Time, SOFIT (random observations of physical education sessions to evaluate amount of time children spent in moderate to vigorous physical activity and to assess the lesson context of physical education classes)
    - Nine-minute run for cardiorespiratory fitness
    - Self-administered physical activity checklist (SA-PAC) to measure number of minutes spent engaged in physical activities versus sedentary pursuits throughout a given day
    - Health Behavior Questionnaire evaluated factors associated with diet and exercise including psychosocial data on dietary knowledge, intentions, usual food choices, social reinforcement and support and self-efficacy
    - Student biological measures: blood pressure, height, weight, skinfold thickness, cholesterol

#### **Outcomes:**

- Short Term Impact: The *Eat Smart* program led to a significant average reduction in the percentage of calories from and absolute amounts of total fat and saturated fat in the intervention schools compared

with control schools. Students' self-reported dietary intake was also significantly reduced. The intervention schools had significant positive trends in sodium, potassium, fiber, calcium, iron and total calorie content of school lunches. The Classroom curriculum led to significant increases in dietary knowledge, intention to eat healthier and social support for eating healthier. The Physical Activity component led to significantly increased levels of moderate to vigorous physical activity and energy expenditure during physical education sessions. Significant increases were found for self-reported physical activity, self-efficacy to perform physical activity, positive support of physical activity and parental reinforcement of physical activity. The Family program increased support for physical activity and healthy eating by parents. However, the addition of family component to the school component did not result in significant differences between the two intervention groups. Measures for body size (height, weight, body mass index, skinfolds) did not differ between the intervention and control groups. There were no significant differences between intervention schools and control schools for total blood cholesterol.

- Long Term Impact: Not measured

**Maintenance:** The study was designed with diffusion of innovation in mind so that it could be easily adopted and institutionalized by other schools. The program had high participation rates for students, administrators, teachers and food service staff. School food service staff, physical education specialists and teachers all regarded CATCH dietary goals as extremely important. They were supportive of the CATCH intervention. They reported a high level of confidence in being able to implement the programs. They believed the programs were effective in changing behavior. High participation rates, favorable reviews by parents and added efficacy will be sufficient cause for long-term support of these programs.

**Citation(s):**

Luepker, R. V., C. L. Perry, et al. (1996). "Outcomes of a field trial to improve children's dietary patterns and physical activity. The Child and Adolescent Trial for Cardiovascular Health. CATCH collaborative group." JAMA **275**(10): 768-76.

Lytle, L. A., E. J. Stone, et al. (1996). "Changes in nutrient intakes of elementary school children following a school-based intervention: results from the CATCH Study." Prev Med **25**(4): 465-77.

McKenzie, T. L., P. R. Nader, et al. (1996). "School physical education: effect of the Child and Adolescent Trial for Cardiovascular Health." Prev Med **25**(4): 423-31.

McGraw, S. A., E. J. Stone, et al. (1994). "Design of process evaluation within the Child and Adolescent Trial for Cardiovascular Health (CATCH)." Health Educ Q **Suppl 2**: S5-26.

Nader, P. R., D. E. Sellers, et al. (1996). "The effect of adult participation in a school-based family intervention to improve Children's diet and physical activity: the Child and Adolescent Trial for Cardiovascular Health." Prev Med **25**(4): 455-64.

Osganian, S. K., M. K. Ebzery, et al. (1996). "Changes in the nutrient content of school lunches: results from the CATCH Eat Smart Food service Intervention." Prev Med **25**(4): 400-12.

Perry, C. L., D. E. Sellers, et al. (1997). "The Child and Adolescent Trial for Cardiovascular Health (CATCH): intervention, implementation, and feasibility for elementary schools in the United States." Health Educ Behav **24**(6): 716-35.

Perry, C. L., E. J. Stone, et al. (1990). "School-based cardiovascular health promotion: the child and adolescent trial for cardiovascular health (CATCH)." J Sch Health **60**(8): 406-13.

Raizman, D. J., D. H. Montgomery, et al. (1994). "CATCH: food service program process evaluation in a multicenter trial." Health Educ Q **Suppl 2**: S51-71.

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