

IT'S ALL ABOUT KIDS: PREVENTING
OVERWEIGHT IN ELEMENTARY
SCHOOL CHILDREN IN
TULSA, OKLAHOMA

By

NORMA DEVAULT

Bachelor of Science in Mathematics
University of Tulsa
Tulsa, Oklahoma
1968

Master of Business Administration
University of Tulsa
Tulsa, Oklahoma
1992

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
MASTER OF SCIENCE
December, 2006

IT'S ALL ABOUT KIDS: PREVENTING
OVERWEIGHT IN ELEMENTARY
SCHOOL CHILDREN IN
TULSA, OKLAHOMA

Thesis Approved:

Tay Kennedy

Thesis Adviser

Barbara Stoecker

Janice Hermann

A. Gordon Emslie

Dean of the Graduate College

ACKNOWLEDGEMENTS

I would like to thank Dr. Tay Kennedy, the chair of my committee, for her ongoing encouragement, guidance, support, and patience with this project. I would like to thank my committee members, Dr. Barbara Stoecker and Dr. Janice Hermann for their guidance and direction. I would like to thank Pam Rask and the Tulsa Health Department for their dedication to this program, their focus on improving the health and well-being of elementary students in Tulsa, and their assistance and feedback on the outcome measures process. I would like to thank Amber Jaworski for her energy and drive to help the children in Tulsa, and I am very much indebted to Lisa Griffin, Barbara Marshall, Laura Williams and the many dedicated Tulsa Public Schools personnel who constantly give of their time and energy to help the students in Tulsa. Thank you to Dr. Mwavita for his encouragement and statistical methods support. I'm grateful for gracious permission from Sally M. Davis, PhD to use the Pathways KAB survey and from Paul Mitchell to use the CATCH Food Checklist. Much appreciation goes to the families and students who participated in the study and the many community partners who provide ongoing support. Without their willingness, this study would not have been possible.

TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION	1
Purpose of the study	2
Statement of the problem	2
Subjects	2
Research questions and hypotheses	3
Definition of the terms	4
Significance of the study	5
Assumptions	6
Limitations	7
II. REVIEW OF LITERATURE.....	8
Prevalence of overweight in elementary school age children.....	8
Genetic predisposition	8
Physical inactivity	12
Poor dietary choices.....	13
Environment.....	14
Parental attitudes, behavior, and influences.....	15
Prevention	16
Validity of BMI as an obesity measure	19
Treatment of overweight in elementary school age children.....	20
Family based interventions	21
School-based interventions: more specific studies: CATCH.....	22
Reversing the trend.....	24
III. METHODOLOGY	27
Introduction.....	27
Instruments.....	27
Preliminary procedures	28
Research design and procedure	31
Group one: control group.....	32
Group two: treatment group.....	32
Pre-intervention data collection	33
Post-intervention data collection.....	33
Follow-up data collection	33

Intervention program	33
Subjects	34
Analysis of data	35
Nutrition component outcome measures	37
Physical activity outcome measures	38
 IV. FINDINGS.....	 42
Participants.....	42
Baseline.....	43
KAB baseline measures	43
CATCH baseline measures	44
FitnessGram [®] baseline measures	44
Correlation	45
Analysis of variance	46
KAB Results.....	47
Food choice intentions scale results: pretest – posttest, intervention vs control...	47
Food choice intentions scale results: pretest – posttest, intervention group.....	47
Food choice intentions scale results: pretest – posttest, control group.....	47
Food choice intentions scale results: pretest – posttest – follow-up	48
Which food has more fat scale results: pretest – posttest, intervention vs control	48
Which food has more fat scale results: pretest – posttest, intervention group.....	49
Which food has more fat scale results: pretest – posttest, control group	49
Which food has more fat scale results :pretest – posttest – follow-up	49
CATCH Food Checklist results.....	51
Total fat scale results: pretest – posttest – follow-up	51
Saturated fat scale results: pretest – posttest – follow-up.....	52
Sodium scale results: pretest – posttest – follow-up	52
CATCH Food Checklist discussion.....	53
FitnessGram [®] Results	53
Aerobic capacity scale results	53
Pacer laps: pretest - posttest.....	54
Muscle strength, endurance, and flexibility scale results	54
Push ups: pretest - posttest.....	54
Curlups: pretest - posttest.....	54
Body composition scale	55
BMI z-scores: pretest - posttest.....	55
BMI percentile: pretest - posttest	55
FitnessGram [®] discussion	55
 V. CONCLUSION	 74
Summary	74
Discussion	75
Conclusion	76
Limitations	78

Implications.....	79
Future research	81
REFERENCES.....	83
APPENDICES	93
Appendix A – Institutional Review Board approval form.....	94
Appendix B – Principal’s consent form.....	96
Appendix C - Cover letter for parental consent and child assent form	98
Appendix D - Script for teachers for recruiting parents of 4 th grade students ...	100
Appendix E - Consent form for parents of 4 th grade students.....	102
Appendix F - Knowledge, attitudes, and behaviors questionnaire (KAB)	105
Appendix G - CATCH food checklist	119
Appendix H - Coopers FitnessGram [®]	123
Appendix I - Knowledge, attitudes, and behaviors (KAB) frequencies	125
at pretest, posttest, and follow-up by intervention and control	
groups	
Appendix J - CATCH food checklist frequencies at pretest, posttest,	157
and follow-up by intervention and control groups	

LIST OF TABLES

I. Chapter 3 Tables	Page
1. Scales, number of questions, reliability (Cronbach Alpha),.....	40
response sets, and sample questions in the modified Pathways	
KAB questionnaire	
2. Nutrition curriculum by week and grade level	41
II. Chapter 4 Tables	
1. KAB scale scores by gender and all students at pretest, posttest,.....	57
and follow-up	
2. CATCH Food Checklist most frequently eaten foods in the	59
intervention and control groups at posttest, and follow-up	
3. Coopers FitnessGram [®] scores at pretest and posttest by	60
intervention and control groups	
4. Statistical tests means and standard deviations.....	61
5. Attempted weight loss in the intervention group at pretest and	66
posttest	

6. Frequency of consumption and point values in the CATCH..... 67
Food Checklist at pretest, posttest, and follow-up
7. BMI, BMI percentile and BMI z-scores at pretest and posttest in..... 68
the intervention and control groups

LIST OF FIGURES

Figure		Page
1.	Which student or students show the sizes that you think are most healthy? For boys sizes and for girls sizes in the intervention group at pretest and posttest	69
2.	BMI scores by age and gender at pretest for all 4 th grade students.....	70
3.	BMI by age and gender for boys at pretest and posttest in the intervention and control groups	71
4.	BMI by age and gender for girls at pretest and posttest in the intervention and control groups	72
5.	BMI z-scores at pretest and posttest for intervention and control groups	73

CHAPTER I

INTRODUCTION

The objective of this research was to evaluate the impact of the nutrition and physical activity components of the It's All About Kids intervention on knowledge, attitudes, and beliefs related to nutrition and physical activity, food choices, and body composition in elementary school students in Tulsa Oklahoma. In response to the childhood obesity epidemic, the Tulsa Health Department, Tulsa Public Schools, Community Health Foundation, Oklahoma State Department of Health, Saint Francis Health Systems and community partners teamed up in 2004 to initiate an eight-pronged school-based intervention aimed at changing food choices and increasing physical activities of children in grades 1-5. Overweight and at risk of overweight prevalence in these elementary schools were perceived by the Tulsa Public School system and the Tulsa Health Department to parallel the national estimate of 15%. A school-based intervention strategy was developed because 95% of the children in the Tulsa area are in public schools, receive 1-2 meals at school, and have the potential support of their teachers, school staff, and peers. The resulting program, "It's All About Kids," piloted in 2005, was implemented in the Fall of 2005 and Spring of 2006 in eighteen Title I elementary schools in Tulsa County. It's All About Kids is a grass-roots, community-driven program with significant commitment and momentum.

Following a needs assessment in the community, partnerships were formed, funding was allocated, and logistics were identified. Community involvement was

ensured through partnerships with the Tulsa Public Schools, Broken Arrow Schools, and Union Schools, as well as Saint Francis Hospital, the Midwest Dairy Council, the Oklahoma State University Extension Center, the Oklahoma University College of Nursing and Bedlam Health Clinics, Oklahoma State University Nutritional Sciences Department, the OK Fit Kids Coalition, Radio Disney, and the YMCA. The intervention program model consisted of the following eight components: 1) physical education, 2) nutrition and healthy eating, 3) health services, 4) child development services, 5) health education, 6) parental participation, 7) school personnel involvement, and 8) ancillary services which included a dental outreach program.

Purpose of the Study

The purpose of the It's All About Kids intervention program was to introduce a comprehensive prevention model for elementary school-aged youth to reduce overweight, improve school performance and enhance decision/negotiation skills. The purpose of this outcomes measurement study was to evaluate the impact and effectiveness of the nutrition and physical activity components of the It's All About Kids intervention on knowledge, attitudes, and beliefs related to nutrition and physical activity, food choices, and body composition in elementary school students in Tulsa, Oklahoma.

STATEMENT OF THE PROBLEM

Are nutrition choices and physical activity modifiable behaviors that impact childhood overweight in children, grades 1-5, of the Tulsa Public School system?

Subjects

Tulsa elementary school selection for the intervention schools was based on the following eligibility criteria: 1) schools participating in the It's All About Kids program

during the 2005-2006 school year, 2) schools with Principal consent for outcome measures. Tulsa elementary school selection for the control schools was based on the following eligibility criteria: 1) schools that qualify for Title I of the No Child Left Behind Act, 2) schools with Principal consent for the outcome measures. Since all schools participating in the It's All About Kids program qualify for Title I of the No Child Left Behind Act, it was assumed that the socio-economic status of families of students in the control and intervention schools was similar. The study subjects were all 4th grade students with parental consent to participate in the outcomes measures. Fourth grade was selected because fourth graders can read the questionnaire, their attention span is at least thirty minutes, and the validated survey instruments were available for that age group.

RESEARCH QUESTIONS AND HYPOTHESES

How effective were the nutrition and physical activity components of the It's All About Kids intervention program?

- 1) Were there changes in the students' knowledge, attitudes, and beliefs related to nutrition and physical activity after the intervention?
- 2) Were there changes in the self-reported food choices after the intervention?
- 3) Were there changes in physical fitness after the intervention?
- 4) Were there physical changes in body composition after the intervention?

H₀1: There is no significant difference in the mean KAB scores between intervention and control groups.

H₀2: There is no significant difference in the mean CATCH Food Checklist scores between intervention and control groups.

H₀3: There is no significant difference in the mean Coopers FitnessGram[®] measures between intervention and control groups.

H₀4: There is no significant difference in the mean BMI z-score of students between Intervention and control groups.

DEFINITION OF TERMS

At risk of overweight: Body mass index > 85th percentile for children of the same age and gender defined by NCHS growth charts.

CATCH Food Checklist: A simple instrument developed for the Child and Adolescent Trial for Cardiovascular Health to assess fat, saturated fat, and sodium intake in middle school children. It is a validated instrument (Dwyer, Garceau, Hoelscher, Smith, Nicklas, Lytle, et al., 2001).

Coopers FitnessGram[®]: reports aerobic capacity, muscle strength, endurance, flexibility, and body composition. It has been used by more than 6,000 schools/school districts annually to test physical fitness of millions of students (The Cooper Institute, n.d.).

KAB: Knowledge, Attitudes, and Behaviors questionnaire, is a validated instrument developed and used by the Pathways Study to prevent obesity in Native American children (Stevens, Cornell, Story, French, Levin, Becenti, et al., 1999). This instrument was modified for use by the more culturally diverse population of students in Tulsa County schools. The modifications included the omission of questions that were originally designed to identify tribal affiliation. The questions in the section with a

Physical Self Perception Profile scale were also omitted based on the results of a pilot survey with fourth graders. The students had difficulty understanding the scale.

Overweight: Body Mass Index > 95th percentile for children of the same age and gender, based on National Center for Health Statistics growth charts.

Title I schools: Schools that qualify for assistance under Title I of the No Child Left Behind Act signed by President George W. Bush in 2002. Title I schools criteria include low performing, poor attendance, no physical education teacher, poor parental involvement, limited access to health care services, greater than 80% free and reduced cost lunch meals.

SIGNIFICANCE OF THE STUDY

This study has the potential to identify modifiable behaviors and environmental factors that impact childhood obesity and to document the intervention process and outcome measures in such a way that an effective intervention may have more widespread implementation. Veuglers and Fitzgerald (2005) noted that documenting successful interventions is critical to setting evidence-based health policy and to justifying broader-based implementation of successful interventions. Further, they observed that to date, a limited number of studies have been conducted and results have varied. As a result, they found that even though school-based interventions seem to offer the best opportunity to address the growing childhood obesity epidemic, the effectiveness of these programs is not well established. The Tulsa Health Department and its partners searched for, but were unable to find, an off-the-shelf intervention program to be implemented in the Tulsa Public Schools with high expectation of success. A goal of this study is to document processes, procedures and outcome measures to determine the

effectiveness of the program. Well documented success stories could facilitate expansion of successful programs and begin to impact the childhood obesity epidemic.

ASSUMPTIONS

The following assumptions were made:

1. This intervention was an official part of the school curriculum in grades 1-5 of participating schools during the Fall 2005 and Spring 2006 semesters.
2. All children enrolled in the participating schools and grades took part in the program. In the Tulsa Public Schools, parents have the opportunity to transfer their child to another school.
3. Child assent for the It's All About Kids program that is currently in the schools is implied by enrollment in Tulsa Public School system participating schools.
Parental consent for the measurement study is obtained by parental consent form.
4. Participating schools were Title I schools, selected according to the No Child Left Behind Title I criteria.
5. The core program consisted of the nutrition, physical activity, parental involvement, and health education components.
6. The comprehensive program model included physical education, nutrition and healthy eating, health services, child development services, health education, parental participation, school personnel involvement, and ancillary services.
7. Schools that participated in an It's All About Kids pilot project in 2005 were excluded from participation in the outcome measures evaluation project.

LIMITATIONS

1. The number of schools participating in the program was limited by available funding; the school district is gradually implementing the program.
2. This paper addresses only the nutrition and physical activity components of the program model in selected 4th grade classrooms
3. It was difficult to differentiate between outcomes caused directly by the nutrition or physical activity components and those outcomes resulting from another component or combination of components. Two of the five outcome measures intervention schools received the comprehensive eight-component program; three received the core program.
4. Not every child in the classroom was measured. All 4th grade students in the outcome measures control schools and intervention schools completed the surveys. Only those surveys that were matched to a parental consent form were included in the data analysis; all other surveys were discarded.

CHAPTER II

REVIEW OF LITERATURE

Prevalence of Overweight in Elementary School Age Children

The prevalence of overweight in elementary school age children is escalating to epidemic proportions. NHANES III data indicate that 10-15% of children and adolescents are overweight (Dietz & Gortmaker, 2001). Twice as many of today's children are overweight compared to the children of two decades ago (American Academy of Pediatrics, 2003). An analysis of the effect of obesity on longevity indicates that the steady rise in life expectancy may soon end. This extra weight is a threat to the steadily increasing life expectancy Americans have experienced over the last century. Life expectancy could actually decline by 2-5 years if the obesity epidemic is not satisfactorily addressed (Olshansky, Passaro, Hershow, Layden, et al., 2005; Thorpe, List, Marx, May, Helgerson, & Frieden, 2004). "The bottom line is that we are raising the first generation of Americans who will live sicker and die younger than their parents" (Lavizzo-Mourey, 2004 p. 398).

This epidemic affects a wide range of ages, ethnic groups and socioeconomic status in disproportionate ways (Thorpe, et al., 2004). A recent survey found that one in four children in New York City public elementary schools is obese. This represents 100,000 New York City elementary school students at high risk for medical complications and psychosocial consequences because of their weight. Of 2,681

measured students in New York City elementary schools, the overall prevalence of overweight was 43% and the overall prevalence of obesity was 24%. Particularly high levels of obesity among minority groups, especially Hispanic(31%) and black (23%) children when compared to Caucasian (16%) and Asian (14%) children are insufficiently understood.

The cost of treating obesity-related diseases now exceeds the combined costs of treating tobacco- and alcohol-related diseases in the U.S. (Wolfe, 2003). This epidemic is fueled by human behavior and the forces that shape it (Lavizzo-Mourey, 2004). The interplay of a complex set of environmental factors is driving the epidemic. Reversing the epidemic requires commitments and long-term efforts by all stakeholders (Hood, 2005). The key stakeholders identified in the Institute of Medicine's recent report on preventing childhood obesity are the parents, families, schools, communities, health care, industry, media, and government (Koplan, Liverman, & Kraak, 2005).

Koplan, et al. (2005) found that the overweight child faces serious health risks both immediately and in the long term. The increase in prevalence of overweight children is accompanied by an increase in cardiovascular disease risk factors including elevated blood pressure, hyperlipidemia, and hyperinsulinemia. Overweight in childhood has also been linked to osteoarthritis and glucose intolerance as well as diabetes and asthma. Type 2 diabetes incidence has increased markedly among the young. A study by Pinhas-Hamiel, Dolan, Daniels, Standiford, Khoury, & Zeitler (1996) found a 10-fold increase in Type 2 diabetes among children and adolescents 19 years old and under between 1982 and 1994 (0.7 per 100,000 in 1982 compared to 7.2 per 100,000 in 1994). The increasing prevalence of overweight in children, together with type 2 diabetes,

“raises the spectre of myocardial infarction becoming a paediatric disease” (Ebbeling, Pawlak, & Ludwig, 2002 p. 478).

Initial concerns about childhood overweight possibly leading to adult health problems have given way to the clear evidence that significant health risks are associated with overweight during childhood as well. Approximately 40% of children who are obese at 7 years old and 70% of children who are obese as adolescents become obese adults. Unless this trend is reversed, 75% of Americans will be overweight by the year 2050 (Walters, Holloman, Blomquist, & Bollier, 2003).

Obesity increases the likelihood of impaired quality of life for overweight or at risk of overweight children (Schwimmer, Burwinkle, & Varni, 2003). In their recent study, Schwimmer, et al. (2003) found that obese children, ages 5-18 years, reported significantly ($p < .001$) lower quality of life scores related to physical health and psychosocial health, compared with healthy children and adolescents. In that study, they found the likelihood of an obese child or adolescent having impaired health related quality of life was similar to that of a child or adolescent diagnosed as having cancer, and was more than five times greater than that of a healthy child or adolescent (Schwimmer, et al., 2003).

The significant effects of childhood overweight are not limited to physical problems; there are also psychosocial problems. Overweight youth have been noted to have lower self-concept and to be more depressed, more often rejected by their peers than their non-overweight peers (Rich, DiMarco, Huettig, Essery, Anderson, & Sanborn, 2005). In a society that increasingly stigmatizes obesity, the overweight child may be burdened as well by low self-esteem and self-blame (Koplan, et al., 2005). Latner &

Stunkard (2003) found that the degree of stigmatization of obesity by 10-11 year old children has increased as demonstrated by replicating a 1961 study asking children to rank body silhouettes according to how well they liked each child represented. The obese child silhouette was consistently ranked last in both studies and the obese child silhouette was liked significantly less ($p < .001$) in 2003 than in 1961 (Latner & Stunkard, 2003). An overweight child is often targeted on the playground for discrimination and ridicule (Lynn-Garbe & Hoot, 2004/2005).

Body weight is affected by the balance between energy intake and energy expenditure. Many factors that may increase energy intake or decrease energy expenditure have been suggested. Among these factors, the primary contributing causes of obesity in children can be categorized as genetics, physical inactivity, poor dietary choices, and the environment (Walters, et al., 2003). The energy balance equation for children is affected by internal factors or heritable traits, external factors or environmental influences, and by their options and choices related to physical activity and diet.

Genetic Predisposition

Compelling evidence of the influence of our genetic predisposition comes from studies of identical twins. During 100 days of overfeeding by 1000 kcal/day, the amount of weight gained, percent of body fat and location of fat deposits were similar between twin siblings. Genetics is likely responsible for 25-40% of individual differences in body mass and body fat according to Bar-Or, Foreyr, Bouchard, Brownell, Dietz, Ravussin, et al. (2003). Children may inherit a susceptibility to overweight given an energy

imbalance. Changes in energy intake could trigger weight gain in this susceptible population (Anderson, Porteous, Foster, Higgins, Stead, Hetherington, et al., 2006).

Physical Inactivity

Children are less likely to walk to school today. Less than one-fourth of children today walk or bike to school, compared to two-thirds in the previous generation. The most common reasons given by parents include “school too far away”, “too much traffic”, “no safe walking route”, and “fear of child being abducted” (Anderson, et al., 2006). During the school day, as well (Walters et al., 2003), opportunities for physical activity have diminished. The number of public schools that offer physical education classes has declined significantly over the last decade according to the Centers for Disease Control data. The number of students participating in physical education and the time students are active in physical education classes have also declined. Nearly half of the U.S. youth (aged 12-21 years) are not vigorously active every day (Walters, et al., 2003).

The AC Nielsen Company reports that most U.S. children watch 21-23 hours of television per week. Children are spending more time watching TV than any other activities except school and sleeping (Walters, et al., 2003). Sedentary childhood activities such as TV viewing and computer games not only displace physical activity, but also tend to promote weight gain because they are often accompanied by the intake of foods with low nutrient value. Children are also influenced by media advertising of fast food, soft drinks and sweetened cereals. Between 1970 and 1999, the prevalence of multiple TVs in the home increased from 35% to 88% and the percentage of children with a TV in their bedroom increased from 6% to 77% (Anderson, et al., 2006). Children’s total “screen time,” including TV, other media, videos, video games and the

internet, were estimated to be 24.1 hours per week (Roberts, 1999). Physical inactivity contributes to the reduction in energy expenditure.

Poor Dietary Choices

Dietary choices made by U.S. youth contribute to the increase of obesity. The percentage of children and adolescents who do not eat the recommended five servings daily of fruits and vegetables is 80%; 51% do not eat even one serving of fruit per day; 29% eat less than one serving of vegetables, other than fried potatoes, daily (Centers for Disease Control [CDC], 1996; see also CDC , 2006). The U.S. Department of Health and Human Services estimates that more than 84% of young people eat too much fat and that more than 91% eat too much saturated fat.

Soft drink consumption, according to the U.S. Department of Agriculture, has increased by five fold per capita over the last five decades. The increase is attributed largely to consumption by children and adolescents. Walters, et al. (2003) note that approximately 45% of children and adolescents consume high fat and high calorie snack foods at least twice per day, and that fast food now accounts for 40% of the food budget of the average American family. In an examination of the association between eating patterns and overweight status in children who participated in the Bogalusa Heart Study, Nicklas, Yang, Baranowski, Zakaeri, & Berenson (2003) noted that consumption of sweetened beverages, sweets, meats, and total consumption of low-quality foods were positively associated with overweight status. Total amount of food consumed from snacks was also positively associated with overweight status. Eating patterns among children are changing due to increased consumption of restaurant food, larger portion

sizes, changes in beverage choices, meal frequency and patterns, and school meal participation (American Dietetic Association [ADA], 2004).

Environment

The U.S. environment is very effective at producing obesity because of pervasive factors that promote high energy intake and limit energy expenditure. These factors often subvert the efforts of individuals to maintain a healthy body weight. Among these factors are food quality, policy and advertising, sedentary lifestyle, and barriers to change which include special interests with a financial stake in the status quo, under-funded school districts, urban environments that are not conducive to physical activity, and time pressures on parents who work long hours and have little time to supervise non-sedentary activities (Ebbeling, et al., 2002). Gidding, Dennison, Birch, Daniels, Gilman, Lichtenstein, et al. (2005) note that the gap between current dietary practices and recommended diets for children is wide. Multiple caregivers, eating out, and fast food are prevalent. Many children are home alone because of parental work schedules. They often prepare their own meals and snacks. Many meals and snacks are also obtained outside the home without parental supervision. Additionally, school cafeterias are frequently criticized for serving unhealthy food, yet schools are constrained by budgetary and regulatory issues that may be in conflict with public health issues. Marketing of junk food to children is another factor contributing to childhood obesity.

Koplan et al. (2005) highlight the complex interaction of contributing factors including biological, behavioral, social, economic, environmental, and cultural causes that have, in recent decades, created a hostile environment for maintaining a healthy weight. Koplan, et al. (2005) point out that urban designs discourage walking. Time

pressures result in frequent consumption of convenience foods that are high in calories and fat. Some communities have reduced access or cannot afford fruits, vegetables and nutrient-dense foods. They add that there is decreased opportunity for physical activity before, during and after school. Leisure time once spent playing outdoors must compete with sedentary screen time. The obesity associated with unhealthy eating and inactivity has become the social norm. Just as the actions of others contributed to the development of obesity in children, the collective and focused actions of individuals, family, community, corporations and governments are required to create an environment conducive to the prevention and treatment of obesity in children (Lederman, Akabas, & Moore, 2004).

Parental attitudes, behavior, and influence

Parents can encourage a healthful lifestyle by providing regular mealtimes with appropriate portion sizes and healthy snacks, and by modeling an active lifestyle (Walters, et al., 2003). Parental perceptions shape feeding behaviors that affect childhood obesity. Recent studies involving mothers enrolled in the Supplemental Nutrition Program for Women, Infants, and Children (WIC) have highlighted parental misperceptions concerning their children's growth measurements. A prevalent perception was that a child being higher on the growth curve signified a healthier child and good parenting (Hodges, 2003). Cultural diversity introduces another contributing factor. Among Hispanic parents, for example, the view that overweight babies are healthier babies is part of the culture (Garcia, 2004 p. 217). Changing cultural attitudes toward feeding children and eating in general will be slow.

Two recent studies suggest that a substantial percentage of the parents of obese children failed to identify their child as overweight. In one study of 99 mothers of obese children, ages 1-3 years, 79% did not identify their child as obese (Baughcum, Burklow, Deeks, Powers, & Whitaker, 1998). In another study of 200 parents of obese children, ages 2-5 years, 35% did not identify their children as overweight (Myers and Vargas, 2000). Parental recognition of the problem is a vital first step to a successful intervention. Parenting influences eating behavior through accessibility of food and feeding practices including modeling of eating behaviors and providing food that leads either to positive or negative physiologic consequences (Hodges, 2003).

Parenting style also impacts the risk of childhood obesity. In a national sample of 872 children and their parents, the relationship between parenting style and overweight status in first grade was recently examined (Rhee, Lumeng, Appugliese, Kaciroti, & Bradley, 2006). Children of authoritarian mothers (low sensitivity and high expectations for self-control) had an increased risk of being overweight, compared with children of authoritative mothers (high sensitivity and high expectations for self-control). Children of permissive mothers (high sensitivity and low expectations for self-control) and children of neglectful mothers (low sensitivity and low expectations for self-control) were twice as likely to be overweight, compared with children of authoritative mothers.

Prevention

Achieving a normal weight is possible for most U.S. children since consuming more calories than needed and living a sedentary lifestyle are choices. Children have an innate desire to move and a strong sense of satiation, both of which are natural defenses against excess body weight. These natural defenses are sometimes subverted by reliance

on external factors such as parental control of the amount of food consumed or through the use of food as a reward or food deprivation as a punishment. These practices undermine the young child's ability to self-regulate by heeding their internal hunger and satiety cues. Early intervention can reestablish the internal cues for self-regulation (Hodges, 2003).

Guidelines and strategies for prevention of childhood obesity have been proposed by several organizations including The Centers for Disease Control and Prevention, The American Academy of Pediatrics, and the Society for Nutrition Education. The CDC provides guidelines for effective strategies for healthy eating among school-aged youths (CDC, 1997). According to the CDC guidelines, nutrition services are essential to a coordinated comprehensive school health program consisting of eight components. Other components include the school environment; health education curriculum; physical education curriculum; health services program; counseling, psychological, and social services program; family and community involvement activities; and a staff health promotion program (Briggs, Safaii, & Beall, 2003). Multi-faceted school programs that address the CDC guidelines have a high potential to reduce childhood obesity and comorbid conditions and to reduce long term health care spending (Veugelers & Fitzgerald, 2005). The It's All About Kids program in the Tulsa Public Schools follows these CDC guidelines.

The American Academy of Pediatrics has proposed strategies focusing on early identification of excessive weight gain and advocacy to help and encourage parents, teachers, policy makers and organizations to support healthful food choices and increased physical activity (American Academy of Pediatrics, 2003).

The Society for Nutrition Education has proposed guidelines for obesity prevention programs to promote a health-centered rather than weight-centered approach. SNE recommends a framework for addressing childhood obesity prevention, setting appropriate goals, special considerations in avoiding harm, and setting school policies. According to this view, healthy weight is defined as the natural weight the body adopts, given a healthy diet and appropriate physical activity. The SNE's framework for addressing childhood obesity prevention is to focus on supporting healthful lifestyles for children of all sizes. Weight and size acceptance is an integral part of creating a nurturing environment. School policies would include positive eating environments, physical activity opportunities for all children, promotion of weight and size acceptance and sensitive practices related to assessment, weighing, and measuring of students. The SNE recommendation is that screening for weight, height, and body fat in schools be limited to identified need and purpose, and that BMI be considered as part of an overall assessment, not as a single health status determinant (Weight Realities Division, 2003).

Regardless of which of these strategies is considered, implementing the recommended changes will require the concerted effort of key stakeholders. National efforts must also engage communities, schools, and families to meet a shared goal. These fundamental changes in the social environment will likely come slowly and with much resistance from groups with a vested interest in the status quo. A grass-roots movement involving an entire community with a passion for working through obstacles to meet the challenge of childhood obesity will be required to make and sustain the needed changes for an effective intervention.

Validity of BMI as an obesity measure

Body Mass Index (BMI) is the ratio of weight in kilograms to height in meters squared. BMI is often used as an indicator of obesity because it can be calculated from commonly available height and weight data whereas the available methods for assessing percent fat mass are more expensive, time consuming, or a burden to patients. BMI correlates well with other more accurate measures of body fatness and with obesity-related comorbid conditions; yet it is the simplicity and reproducibility of BMI that makes it a popular diagnostic tool for obesity (Wickramasinghe, Cleghorn, Edmiston, Murphy, Abbott, & Davies, 2005).

BMI is a useful tool for identifying overweight in a population, but does not clearly identify excess adiposity (Daniels, Arnett, Eckel, Gidding, Hayman, Kumanyika, et al., 2005). The ability of BMI to predict percent fat mass and accurately diagnose obesity and overweight across ethnic groups has also been challenged (Wickramasinghe, et al., 2005).

The fact that BMI in children varies with age and gender complicates its use for defining overweight in children. BMI charts for children by age and gender are readily available online for the U.S. population. Clinical judgment is required, however, and additional insight into the growth of a specific child may require longitudinal tracking of BMI by age and gender and analysis of BMI z-scores (variance from the mean). For these reasons, BMI best serves as a part of an overall assessment rather than as a stand-alone determinant of childhood obesity. BMI z-scores, for instance, are useful to control for the influence of age and gender on BMI in children.

Treatment of Overweight in Elementary School Age Children

Prevention and treatment of childhood obesity involves manipulating the energy balance equation, equipping children and their families to make healthy choices, and attenuating the adverse impact of environmental and psychosocial forces. School-age children have growing bodies, are developing intellectual maturity and are susceptible to peer pressure and targeted marketing (Ebbeling et al., 2002).

In terms of treatment programs, several recent studies have used different methods to equip children and their families to make healthy choices related to fruits and vegetables consumption. One study conducted in primary schools in Scotland (Anderson, et al., 2005) assessed the impact of a school-based intervention to increase fruit and vegetable consumption. This study included 511 students in two intervention schools and 464 students in two control schools. Fruit intake was significantly increased ($p < .05$) in the intervention group. This whole school approach, using a curriculum, newsletters, marketing materials and teacher information, had a modest but significant effect on fruit intake and on cognitive and attitude variables related to fruit intake.

Another recent study (Bere & Klepp, 2005) showed that changes in accessibility of fruits and vegetables at home and at school and changes in preferences were correlated to changes in intake. Available and accessible fruits and vegetables are a prerequisite to increasing their intake, but they are not sufficient to ensure higher intake. Awareness of the 5 a-day recommendation was found to be critical to increasing intake. Food dislikes can be transformed into liking of foods with repeated tasting or exposure to those foods. Food preferences are a determinant for food intake. The study found that, among school children, accessibility and preferences are predictors of future fruit and vegetable intake.

The authors concluded that treatment strategies should focus on modifying these factors.

In a third approach, a recent peer-modeling and rewards-based intervention featured video adventures of heroes (the Food Dudes) battling villains (the Junk Punks) along with increased access and small rewards. Significant and long-lasting increases to children's consumption of fruit and vegetables were achieved (Horne, Tapper, Lowe, Hardman, Jackson, & Woolner, 2004). In yet another randomized trial of parent-led exposure to vegetables, results indicated that daily exposure to the taste of a disliked vegetable increased children's liking and consumption of that vegetable. Repeated exposure of taste, not just visual exposure, can lead to acceptance of new foods that were previously rejected by young children (Wardle, Cooke, Gibson, Sapochnik, Sheiham, & Lawson, 2002). This finding supports the ADA's position that with 8-10 taste exposures to a food, children develop an increased preference for that food (ADA, 2004).

Family-based Interventions

Parental support, home environment, and family dynamics all affect treatment outcomes. Family therapy is often included along with dietary counseling and encouragement to exercise because family values, reinforcement, and level of support are critical to successful prevention and intervention. Families influence food choices, behavior patterns, food preparation methods, consumption trends and access to facilities for sport and play (Dietz & Gortmaker, 2001). Families provide the safe environment and nurturing for childhood nutrition and physical exercise decisions. Family-based programs that involve parents, provide dietary education, increase physical activity and target a decrease in sedentary activities may help children lose weight. Family-based

behavior modification programs in which parents act as change agents also may help children lose weight (Wilson, O'Meara, Summerbell & Kelly, 2003).

School-based Interventions More Specifics of Studies: CATCH

The Child and Adolescent Trial for Cardiovascular Health (CATCH) was a coordinated school health program designed to decrease cardiovascular risk by decreasing fat, saturated fat, and sodium in the diet of school children, increasing their physical activity, and preventing their use of tobacco (Hoelscher, Kelder, Murray, Cribb, Conroy, & Parcel, 2001). It was a multiyear, multicomponent program conducted in 96 (56 intervention, 40 control) elementary schools in four states. After the intervention, students in the treatment group consumed less fat and participated in more physical activity outside of school. School cafeterias provided meals lower in fat and students were more physically active during physical education classes. Examining the sustainability of this program, Hoelscher et al., (2001) found that the positive effects related to lower fat and increased physical activity were maintained three years after the intervention. BMI, however, was not different between intervention and control schools after two years.

Pathways was a school-based, randomized controlled trial for the prevention of obesity in American Indian school children (Caballero, Clay, Davis, Ethelbah, Holy Rock, Lohman, et al., 2003). This study involved 1704 children in 41 schools and was conducted over three years, 3rd to 5th grades, in schools in American Indian communities in three states. Pathways had four components: a change in dietary intake, increase in physical activity, classroom healthy eating and lifestyle curriculum, and a family-involvement program. The primary outcome was change in percentage body fat.

Additional results measures were dietary intake, physical activity, and knowledge, attitudes, and behaviors. A significant reduction in the percentage of energy from fat resulted in the intervention schools. Nutrition and physical activity curriculum knowledge increased compared to controls, as did self-efficacy to be physically active among girls. Healthy food intentions and participation in physically active behaviors increased in both boys and girls. Perception of healthy body size and weight loss attempts did not differ in the intervention and control groups. The program decreased fat consumption and increased physical activity, but the intervention had no significant reduction in percentage body fat.

In a meta-analysis, Atkinson & Nitzke (2001) note that results of a school-based health promotion program aimed at reducing risk factors for obesity in ten primary schools in Leeds, United Kingdom, were positive in producing school level changes. Children in the five intervention schools had a higher score for knowledge, attitudes, and self reported behavior related to healthy eating and physical activity.

School-based programs emphasizing healthy eating and physical activity provide a natural and readily available vehicle for intervention in childhood obesity. More than 95% of children, aged 5-17 years, attend public school 5 days per week, at least 6 hours per day for most of the year (Briggs et al., 2003). If the school environment is conducive to healthy nutrition, physical exercise and other related factors, the schools could be the most powerful defense and offensive weapon to prevent and treat childhood obesity.

Health professionals generally advocate for schools to play a major role in preventing childhood obesity. The child's home is also likely to have a great influence

on a child's eating and physical activity choices, and supportive school interventions can reinforce obesity prevention efforts that begin in the home.

The Centers for Disease Control's 2005 Public Health Strategies for Preventing and Controlling Overweight and Obesity in School and Worksite Settings concluded that insufficient evidence existed to determine the effectiveness of combination nutrition and physical activity interventions to prevent or reduce overweight and obesity in school settings because of the limited number of studies and non-comparable outcomes (CDC, 2005).

A review of the effectiveness of 14 intervention studies recently revealed that nutritional education and promotion of physical activity along with behavior modifications, decrease in sedentary activities and the active support of the family are likely determinants in the prevention of childhood obesity (Bautista-Castaño, Doreste & Serra-Majem, 2004).

Reversing the Trend

Behavioral, ideological, medical, political, economic, and commercial interests are at play. Reversing the trend will require a comprehensive approach involving cooperative efforts by schools, families, communities, industry and government.

Morantz and Torrey (2004) summarized The Institute of Medicine of the National Academies' recommendations of the following specific action steps by stakeholders:

- Schools should implement nutritional standards for all foods and beverages served on school grounds.
- Schools should provide opportunities for all students to engage in at least 30 minutes of moderate to vigorous physical activity daily.

- School health services should measure each student's weight, height, and BMI annually and provide the results to the students and families.
- Food, beverage and entertainment industries should voluntarily develop and implement guidelines for advertising and marketing directed at children and youth.
- Parents must provide healthy foods in the home and encourage physical activity by limiting their children's television time, video games, and computer time to less than two hours a day.
- Health insurance companies should designate childhood obesity prevention as a priority health issue and include screening and obesity prevention in routine clinical practice.
- Physicians, nurses and other health care professionals should actively discuss their patients' weight and BMI with parents and children in a sensitive and age-appropriate manner (Morantz & Torrey, 2004).

Ebbeling (2002) suggests a "common sense approach" to prevention and treatment of childhood obesity. This approach would involve changes in the home, school, urban design, health care, marketing and media, and politics. These measures require substantial financial investment and perseverance, but could reap major returns for society in the long term (Ebbeling et al., 2002).

The It's All About Kids program to prevent overweight in elementary school children in Tulsa, Oklahoma is an example of this common sense approach. It is a comprehensive program based on the conceptual framework of Social Learning Theory. Psychosocial factors affect dietary and physical activity behaviors and those, in turn,

influence childhood overweight. This program includes eight components: Nutrition and Healthy Eating, Physical Education, Health Services, Child Development Services, Health Education, Parental Participation, School Personnel Involvement, and Ancillary Services. It is a grassroots program designed by the Tulsa Health Department, Tulsa Public Schools, and community partners to change food choices and increase physical activity levels of students in the Tulsa Public Schools, grades 1-5. It involves changes in the home, school, health care, and politics.

CHAPTER III
METHODOLOGY

Introduction

Childhood overweight is increasing in Tulsa, Oklahoma as it is in the United States in general. The percentage of U.S. children aged 6-11 years with a Body Mass Index (BMI) above the 85th percentile of the 1963 National Health Examination Survey was 15% in 1963 and increased to 22% in 1994.

The areas addressed in this section include the measurement instruments and the research design and procedures. Approvals for this outcomes measurement study were obtained from the OSU Institutional Review Board, see Appendix A, page 94. Informed consent was obtained from the principals of the participating elementary schools, and the parents of the students whose outcome measures were reported; see Appendices B, C, D, and E, pages 96, 98, 100 and 102.

Instruments

The instruments included the following:

1. A modified version of the Pathways KAB (Knowledge, Attitudes, and Behaviors) questionnaire (Stevens, Cornell, et al., 1999). See Appendix F, page 105.
2. CATCH Food Checklist (Smith, et al., 2001)

Self-reported actual prior day food choices. See Appendix G, page 119.

3. Coopers FitnessGram[®]

Physical fitness and body composition. See Appendix H, page 123.

Preliminary Procedures

We established communication with other successful program implementers and obtained permission to use the selected instruments for this study. Permission to use the Pathways KAB questionnaire was obtained from Sally M. Davis, PhD, Professor, Department of Pediatrics, Chief, Division of Health Promotion and Disease Prevention, Director, Prevention Research Center, University of New Mexico. The KAB instrument had been validated for the fourth grade level. Permission to use the CATCH Food Checklist was obtained from Paul Mitchell, MSc, New England Research Institutes, Watertown, Massachusetts. The CATCH instrument had been validated for middle school students. We established a baseline for all program outcome measures at pretest.

The KAB questionnaire, see Appendix F page 105, was developed for the landmark Pathways study (Stevens, et al., 1999) which addressed preventing obesity in Native American children. The purpose of the original questionnaire was to assess knowledge, attitudes, and behaviors in American Indian children. Four key areas were addressed: physical activity, diet, weight-related attitudes, and cultural identity. For the purpose of the present study which has a more ethnically diverse target population, we removed the section that deals with American Indian cultural identity. Based on a pilot test of the questionnaire with one 4th grade class, we also removed the Physical Self-Perception Profile scale questions because the students had difficulty understanding the PSPP scale and additional time was required to give adequate directions. The modified KAB instrument collects information in the following categories: nutrition curriculum knowledge, food choice intentions, food self-efficacy, which food has more fat, physical

activity self-efficacy, physical activity knowledge, healthy body size perception, and attempted weight loss. Table 1, page 40, identifies the number of questions in each scale, the response set, Cronbach Alpha measure of reliability in the original study and at pretest, posttest, and follow-up in this study, and a sample item in the scale.

The Child and Adolescent Trial for Cardiovascular Health CATCH Food Checklist (Dwyer, et al., 2001) is a self-report instrument developed by another landmark study, the Child and Adolescent Trial for Cardiovascular Health (CATCH). Appendix G, page 119, shows the CATCH Food Checklist. The purpose of this prior day food checklist was to identify the sources of total fat, saturated fat, and sodium intake in the target population. The CATCH Food Checklist was selected as a validated, cost-effective, easy-to-use assessment tool for prior day food choices that could be administered in a classroom of fourth grade students. The CATCH Food Checklist was developed (Dwyer, et al., 2001) and validated (Smith, Hoelscher, Lytle, Dwyer, Nicklas, Zive, et al., 2001) for middle school students, grades 6-8.

The CATCH Food Checklist assesses group level differences in large samples rather than individual intakes. Portion size and frequency of consumption are not addressed. The CATCH Food Checklist was administered on different days in each of the ten schools and does not represent food choices from the same cafeteria offerings on a given day, but rather it represents actual self-reported foods consumed throughout the prior day. The checklist contained a list of foods clustered into 41 groups that were similar in their nutrient composition. Students were asked the question “Yesterday, did you eat or drink any of these foods?” for a series of groups such as “hamburgers, cheeseburgers, chili, tacos, meatloaf, other ground beef dishes” , “cheese dishes such as

macaroni and cheese, cheese nachos, cheese enchiladas, quesadillas”, and “whole milk (white or chocolate)”. The students circled yes or no on their survey.

Survey administrators for the KAB and CATCH instruments were trained members of the It’s All About Kids measurement team. The five person measurement team, representing the Tulsa Health Department, the Tulsa Public Schools, and the program evaluator, met for training in a consistent process for administering the KAB questionnaire and CATCH Food Checklist. The program evaluator gave them a handout detailing the survey process and the team walked through the process together. This process included the method for delivering the parental consent forms to the school, obtaining a list of fourth grade students in each class with name, gender and birthdate, collecting the parental consent forms, and a standard protocol for administering the surveys, collecting the surveys, and sorting surveys by school and class. In the standard protocol, questionnaires were distributed to children in their classrooms. The administrator read each question and its associated answer choices aloud. Students followed along and marked their answer choices on the survey form. Teachers remained in the classroom to assist, to keep order, and to translate as needed for Spanish-speaking students. Survey administrators followed a detailed script when giving instructions to the students, and they referred to a list of frequently asked questions and answers as needed. This survey process for the modified KAB survey and the CATCH Food Checklist required thirty minutes to complete. The modified KAB and CATCH surveys were administered at pretest, six weeks later at posttest, and at three week follow-up for the nutrition component of the It’s All About Kids program.

The Coopers FitnessGram[®], developed by The Cooper Institute for Aerobics Research, is used in all Tulsa Public Schools to collect information about aerobic capacity, muscle strength and endurance, and body composition of elementary school students. Twice per school year, students' FitnessGram[®] measures were taken by the school's physical education teacher or health assistant. Height and weight were measured using a standard procedure with children wearing their normal school clothing and shoes. Height was measured to the nearest inch and weight was measured to the nearest pound. Pacer laps were recorded as an indicator of aerobic capacity. The numbers of curl-ups, push-ups, and trunk lifts that a student could do with continuous movement were used as indicators of muscle strength and endurance. Body Mass Index (BMI) for age and gender and BMI Z-scores, calculated by EpiInfo, were used as indicators of body composition. The Coopers FitnessGram[®] measures were taken at pretest and posttest for the physical activity component of the It's All About Kids program.

Research Design and Procedure

This intervention was a controlled trial. In the spring of school year 2005-2006, the intervention team assessed the students' knowledge, attitudes, and behaviors related to food using the modified KAB questionnaire and the CATCH Food Checklist. In the fall and spring of school year 2005-2006, Physical Education teachers and/or health assistants in the schools measured height and weight and collected information on physical fitness using the Coopers FitnessGram[®].

Participating Principal consent for measurements was obtained for 5 of the 18 elementary schools participating in the It's All About Kids program and for 5 of the 39 elementary schools that were not participating in the program.

Anthropometric data (height and weight) were collected at the beginning of the school year and at the end of the school year in all Tulsa Public Schools. FitnessGram[®] Summary Reports, including all fitness measures and BMI calculations generated by the Coopers software, were forwarded from each school to the Tulsa Education Service Center in May. Data for the 4th grade students in the specific intervention and control schools were then made available to the It's All About Kids measurement team.

Group One: Control Group

This group served as the control group. Subjects in this group did not receive the treatment intervention. Five elementary schools were represented in Group One. The number of 4th grade students with parental consent in Group One was 69, including 28 males and 41 females. Student age at fitness pretest was 9.89 years (mean), with a range of 9.2 years to 11.7 years.

Group Two: Treatment Group

Group Two received the treatment intervention in the It's All About Kids program. Five elementary schools were represented in Group Two. The number of 4th grade students with parental consent in Group Two was 71, including 40 males and 31 females. Student age at fitness pretest was 10.1 years (mean), with a range of 9.1 years to 11.4 years.

Pre-intervention data collection

- anthropometric data

- scores from the modified KAB survey
- CATCH Food Checklist scores
- Coopers FitnessGram[®] measures.

Post-intervention data collection

- anthropometric data
- scores from the modified KAB survey
- CATCH Food Checklist scores
- Coopers FitnessGram[®] measures.

Follow-up data collection

- scores from the modified KAB survey
- CATCH Food Checklist scores

Follow-up data was collected approximately three weeks after the end of the intervention. The purpose of the follow-up was to ensure that the nutrition information was in the students' long term memory, and to check for continued change in the reported food choices.

Intervention Program

The It's All About Kids intervention nutrition component was developed by Tulsa Public Schools, Child Nutrition Department. The classes were taught by members of the Tulsa Health Department, the Tulsa Public Schools Child Nutrition Department, Oklahoma State University dietetic students, and Oklahoma University nursing students.

The nutrition component, see Table 2, page 41, consisted of six weekly 30 minute experiential, age-appropriate classroom lessons including:

- healthy eating food games

- taste-testing
- whole grain bread baking
- snack attack
- portion distortion
- food demonstrations

The physical activity component, incorporated into Physical Education classes, emphasized aerobic capacity, muscle strength and endurance. The objective was to develop a foundation of fitness by introducing the concept of physical activity for a lifetime. The process involved increasing the amount of time the student was able to sustain continuous movement focused on cardiovascular fitness, muscular endurance and body composition. The physical activity component was taught by the physical education teacher in each school. For one school that had no physical education teacher, the project funded and hired one.

Subjects

A convenience sample of all 4th grade classes in these five intervention and five control schools was selected. Parental consent/child assent was obtained for 143 (27%) of the 529 fourth grade students in the 10 schools. Fourth grade classes in the sample completed a classroom-administered questionnaire, the KAB survey, and a prior day food checklist, the CATCH Food checklist, at pretest, posttest and 3-week follow-up for the nutrition component of the program. One of the control schools did not take the follow-up survey because, due to scheduling conflicts, their pretest and posttest surveys had to be scheduled too close to the end of the school term to allow for a three week follow-up. One of the intervention schools took only the posttest because of scheduling conflicts

with other planned activities. Some students were absent, in the principal's office, or were involved in other activities away from the classroom during the scheduled survey periods.

Analysis of Data

The KAB questionnaire assessed knowledge, attitudes and behavioral intent related to nutrition and physical activity. In order to compare It's All About Kids KAB outcome measures with those of the Pathways study for which the KAB questionnaire was developed, we followed the precedents of that study in how to handle missing data and how to score each question. In cases with only one question in a scale missing, data were imputed by inserting the mean score of all children for that question (Stevens, Story, Ring, Murray, Cornell, Juhaeri, et al., 2003). If more than one question in a scale was missing, the student's data were excluded for that scale. Data were imputed due to missing, illegible, or duplicate markings on 18 of the 335 KAB surveys for a total of 23 answers (10 in the control group, 13 in the intervention group, spread across pretest, posttest, and follow-up). Only 2 of the 335 KAB surveys had more than one question in a scale missing. The outcome of significance testing for this study was the same with and without imputed data.

Mean scores for all but one scale (healthy body perception) were reported after scoring each item on the scale in the range from 0 to 1.0, with 1.0 as the most healthy answer and 0 as the least healthy answer. With this method, every question was weighted equally and a student who answered every question in a scale, such as the 8 item food self-efficacy scale, with the healthiest answer would have a mean score of 1.0 on that

scale. Likewise, a choice of all least healthy answers would produce a mean of 0.0 on that scale.

As in the Pathways study, the healthy body size perception scale was handled differently (Stevens, Story, et al., 2003). Gender-specific line drawings showing eight body sizes ranging from very thin to very heavy were shown with the question: “Which student or students show the sizes that you think are the most healthy?” Students could mark more than one figure. The figures were scored between 1 and 8 with low scores indicating a thin body size and high scores indicating an overweight body size. The mean score for the marked figures was calculated. Scores toward the middle of the range were assumed to be most healthy.

From information provided on the CATCH Food Checklist, we determined the sources of fat, saturated fat, and sodium in the diet of this population. The items on the CATCH Food Checklist were scored as “1” if the item was circled and “0” if not. Point values of one through five, as defined by Smith, et al. (2001) for total fat, saturated fat, and sodium were assigned to each of the items in the checklist. On this scale, a lower score is healthier.

The Coopers FitnessGram[®] was used to measure aerobic capacity, muscular strength and endurance and body mass index. BMI z-scores were calculated using EpiInfo, Release 3.3.2.

The repeated measures analysis of variance statistics examined scores on the same continuous scale on three occasions. To be included in the repeated measures analysis of variance, a student with parental consent needed to be present at the schools and in the classrooms on all three scheduled measurement days for the KAB and CATCH surveys

and on both days for the FitnessGram[®]. We measured changes in the mean KAB scores, mean CATCH Food Checklist scores, mean Coopers FitnessGram[®] scores, and mean BMI z-scores, by age and gender, across schools with and without the intervention using multilevel regression methods. Students were included in the independent samples and paired samples pretest-posttest statistical tests if they had completed the specific survey required for the test. The analyses controlled for gender because previous studies, such as Pathways, reported significant differences between some results for boys and for girls.

1. Nutrition component outcome measures:

- 2 x 3 repeated measures ANOVAs with Group at 2 levels (Control and Intervention) and Time at three levels (pretest, posttest, and follow-up).

The dependent variables were the mean KAB scores for Food Choice Intentions and Which Food Has More Fat, and mean CATCH Food Checklist scores for fat, saturated fat, and sodium.

- 2 x 2 repeated measures ANOVAs with Group at 2 levels, Control and Intervention, and Time at two levels (pretest and posttest).

The dependent variables were the mean KAB scores for Food Choice Intentions and Which Food Has More Fat, and mean CATCH Food Checklist scores for fat, saturated fat, and sodium.

- Paired samples t-tests were performed to evaluate the impact of the intervention on the mean KAB scores for “food choice intentions”, “which food has more fat”, and CATCH Food Checklist scores for fat, saturated fat, and sodium at pretest and posttest.

- Independent samples t-tests to evaluate the difference in scores between males and females in the intervention and control groups at pretest, posttest, and follow-up.

Independent samples t-tests included scores for Food self-efficacy, Food choice intentions, Which food has more fat, Physical activity self-efficacy, Food self-efficacy, Physical activity, Nutrition curriculum knowledge, Physical activity, Attempted weight loss, Healthy body size perception, and CATCH Food Checklist scores for fat, saturated fat, and sodium.

2. *Physical Activity outcome measures*

- 2 x 2 repeated measures ANOVAs with Group at 2 levels, Control and Intervention, and Time at two levels (beginning of school-year, end of school-year).

The dependent variables were the mean Coopers FitnessGram[®] measures of aerobic capacity, muscle strength and endurance, body composition, and EpiInfo calculations of BMI z-scores.

- Paired samples t-tests were performed to evaluate the impact of the intervention at pretest and posttest on the mean Coopers FitnessGram[®] measures of aerobic capacity, muscle strength and endurance, body composition, and BMI z-scores.
- Independent samples t-tests to evaluate the difference in scores between males and females in the intervention and control groups at pretest, posttest, and follow-up.

Independent samples t-tests included scores for the mean Coopers FitnessGram[®] measures of pacer laps, curl ups, push ups, trunklifts, body mass index by age and gender, and BMI z-scores.

The researcher used SPSS, Statistical Package for the Social Sciences, Release 13.0, to complete the statistical analysis. All hypotheses were tested at the .05 level of significance. The effect size, or proportion of variance of the dependent variable that is explained by the independent variable, was calculated using eta squared. To interpret the strength of eta squared values, we used the following guidelines: .01 = small effect; .06 = moderate effect; and .14 = large effect (Cohen, 1988, pp. 285-288).

Table 1: Scales, number of questions, reliability (Cronbach Alpha), response sets, and sample questions in the modified Pathways KAB questionnaire.

Section and scale	Measured	Number of questions	Cronbach Alpha (KAB version 2)	Cronbach Alpha (This study)	Response set	Sample Question
Food choice intentions	Which food the student would choose in different situations	8	.76	Pretest: .662 Posttest: .776 Followup: .806	Paired choice	Which would you ask the adults in your house to buy? (choices: bag of oranges or bag of tortilla chips)
Physical activity self-efficacy	Confidence to participate in physical activity	3	.61	Pretest: .714 Posttest: .869 Followup: .6236	4 point ordinal: I know I can, I think I can, I'm not sure I can, I know I can't	I can play hard during most of P.E. class.
Food self-efficacy	Self-efficacy to choose foods lower in sugar and fat	8	.76	Pretest: .687 Posttest: .783 Followup: .812	4 point ordinal: I know I can, I think I can, I'm not sure I can, I know I can't	At school, I can try a new vegetable
Nutrition curriculum knowledge	Knowledge of concepts introduced in nutrition class	5		Pretest: .375 Posttest: .068 Followup: .568	Forced choice with 3 answer options	Which part of a food label tells how much fat is in the food? (choices: the brand name, the ingredients, or the nutrition facts)
Physical activity	Knowledge of physical activity concepts introduced in nutrition class	2	.30	Pretest: .203 Posttest: .098 Followup: .123	Forced choice with 3 answer options	Which is best for getting plenty of exercise? (choices: exercise by your own exercise plan and goals, exercise only the amount you feel like each day, or exercise the same amount your friends do)
Which food has more fat?	Ability to identify higher fat foods among choices	6	.56	Pretest: .459 Posttest: .462 Followup: .643	3 answer choices including a lower fat food, a higher fat food, and "don't know"	Which has more fat? Choices show a line drawing of the foods and names of the foods (choices: Meat fried in a pan, meat cooked on a grill, don't know)
Healthy body image	Student's perception of their own body image	3	.57	Pretest: .310 Posttest: .283 Followup: .446	Dichotomous scale: yes or no	Do you worry about being too fat?
Attempted weight loss	Past and present attempts to lose weight	9	.67	Pretest: .680 Posttest: .668 Followup: .698	Dichotomous scale: yes or no	Are you now trying to lose weight?
Healthy body size perception	Perceived healthy body sizes for boys and for girls	2		Pretest: .897 Posttest: .842 Followup: .883	Gender-specific line drawings of 8 body sizes ranging from very thin (scored as 1) to very heavy (scored as 8). Students could mark more than 1 figure; the mean score was calculated.	Which student or students show the sizes that you think are the most healthy?

Table 2: Nutrition Curriculum by week and grade level.

	Lesson	Grades 1-2	Grades 3-5
Week 1	Nutrition Necessities	“Go, Glow, Grow”	“The Food Chain”
Week 2	Give Me 5 Colors that Jive!	“Tops and Bottoms”	“Fruit and Vegetable Bingo”
Week 3	Think Your Drink	“Milk Taste Test”	“Butter Display”
Week 4	Bread, Bread, Bread	“The Little Red Hen”	Food Labels/ “Bread in the Bag”
Week 5	Break the Fast!	“Breakfast Tic-Tac-Toe”	“Breakfast Tic-Tac-Toe”
Week 6	Snack Attack!	“Smart Snacking”	“Portion Distortion”

CHAPTER IV

FINDINGS

This section first reports baseline data, including demographics at pretest, and identifies similarities at the beginning of the study. It identifies areas where there was the least and most room for improvement in the baseline scores. Next, results are reported at posttest and follow-up. Last, an evaluation of the intervention using analysis of variance is presented.

Participants

Of the 143 fourth grade students with parental consent to be measured, data were collected for 140 students; three students with parental consent were not present at school during any of the measurement days. Ethnicity data were not collected. The 140 students had a mean age of 10.18 years at pretest for the KAB and CATCH surveys. This included 68 boys with mean age of 10.28 years and 72 girls with mean age 10.08 years. Of the 140 fourth grade students who were measured, 133 (95%) completed both the KAB and CATCH surveys at pretest, 116 (83%) completed the KAB and CATCH surveys at posttest, and 86 (61%) completed the follow-up surveys. The number of students who took the KAB and CATCH surveys all three times was 72 (51% of the 140 measured students), including 37 boys and 35 girls in 4 control schools and 4 intervention schools.

The Coopers FitnessGram[®] measures were available for 90 (63%) of the 143 students with parental consent, including 87 at pretest and 87 at posttest. The number of

students with parental consent who were measured two times for the physical activity component, either in September and April or in October and May, was 82 (57% of the 143 students with parental consent), including 35 boys and 47 girls in 5 control schools and 5 intervention schools. This represented the number of students with parental consent who were present at the schools and in the physical education class on scheduled measurement days. Some schools did not complete all of the physical activity measurements. For example, pretest BMI measures were available for 24 students in the intervention group and 60 students in the control group. Posttest BMI measures were available for 27 students in the intervention group and 58 students in the control group.

Baseline

KAB Baseline Measures

Mean KAB scores at pretest, as well as for posttest and follow-up, in intervention and control groups by gender are shown in Table 1, page 57. Differences in the mean scores of students in the intervention and control groups are also shown. At pretest, there were no significant differences in the control and intervention mean scale scores at the $p < .05$ level. This indicates that the control and intervention groups were comparable at the outset of the program.

While all scales showed room for improvement at pretest, some scales had more room for improvement than others. For instance, baseline scores for food choice intentions were the lowest for both boys and girls, followed by scores for attempted weight loss. For boys, the highest scores at pretest were for physical activity self-efficacy and nutrition knowledge. For girls, the highest scores at pretest were for nutrition knowledge and food self-efficacy.

Appendix I, page 125, presents the frequencies for each question on the KAB surveys at pretest, as well as for posttest and follow-up for the intervention and control groups.

Figure 1, page 69, illustrates the intervention group students' answers at pretest and posttest to the question "Which student or students show the sizes that you think are most healthy?" for boys sizes and for girls sizes.

On a scale of 1 to 8, the mean healthy body size perception among students in the intervention group at pretest was 3.78 for boy sizes and 3.96 for girl sizes. Among students in the control group at pretest, the mean healthy body size perception was 3.70 for boy sizes and 3.57 for girl sizes. Perceived healthy body size did not change significantly during the study.

CATCH Baseline Measures

The ten most frequently consumed foods in the intervention group at pretest, along with posttest and follow-up, are shown in Table 2, page 59. Appendix J, page 157, presents the frequencies for each of the 41 categories of food on the CATCH Food Checklist at pretest, as well as for posttest and follow-up, for the intervention and control groups. The control and intervention groups were comparable on mean total fat, saturated fat, and sodium scale scores at the outset of the program.

FitnessGram[®] Baseline Measures

Shown in Table 3, page 60, are the FitnessGram[®] measures at pretest, as well as at posttest. At pretest, there was a significant difference in the upper body (push ups) measure, with the control group scoring higher than the intervention group. With the

exception of upper body strength, the intervention and control groups were comparable in physical activity measures at the outset of the program.

Mean scores for BMI , BMI percentile, and BMI z-scores at pretest, as well as at posttest, for the intervention and control groups are shown in Table 7, page 68.

As illustrated graphically in Figure 2, page 70, of 83 fourth grade students whose BMI was measured at pretest, 39 (46.9%) were above the 85th percentile and 28 (33.7%) were above the 95th percentile. For boys, the mean BMI was 22.15; mean BMI z-score was 1.68 and mean BMI percentile was 72.36. For girls, the mean BMI was 21.05; mean BMI z-score was 0.87 and mean BMI percentile was 73.85.

Correlation

The relation between the answers to each KAB question at pretest and the answer to the same question at posttest was investigated using Pearson product-moment correlation coefficient. Correlations (range from .205 to .680) were significant at the $p < .05$ level (2-tailed) between pretest answers and posttest answers for all individual questions with the following exceptions (Pearson r coefficients and significance level (2-tailed) are shown in parentheses):

- I can play hard during most of recess ($r = .092, p = .363$).
- I can drink water instead of regular pop or kool-aid ($r = .128, p = .207$).
- Which of these foods has the highest amount of fat? Fried chicken, green vegetables, whole grain bread ($r = .145, p = .150$).
- Which food has more fat? Fry bread, tortilla, don't know ($r = .095, p = .351$).
- Which food has more fat? Meat fried in a pan, meat cooked on a grill, don't know ($r = .194, p = .054$).

- Which food has more fat? Corn with no butter, corn with butter, don't know ($r = .104, p = .307$).
- Which food has more fat? Boiled potato, fried potato, don't know ($r = .131, p = .193$).
- Which food has more fat? Cold cereal, fried eggs, don't know ($r = .146, p = .148$).
- I ate only cooked food to lose weight ($r = .147, p = .145$).

The relation between the answers to each CATCH Food Checklist question at pretest and the answer to the same question at posttest was investigated using Pearson product-moment correlation coefficient. As might be expected from two prior-day food checklists, for most of the 41 food groups there was not a correlation significant at the $p < .05$ level. For each of sixteen food groups, however, there was a correlation (range $r = .213$ to $.428$) significant at the $p < .05$ level (2-tailed) between pretest answers and posttest answers.

Analysis of Variance

Statistical tests that compared variance between groups and produced significant results are reported here, first for the nutrition component using KAB scales and CATCH scales, and then for the physical activity component using FitnessGram[®] scales. In areas where it was appropriate to drill down to explain variances, the ANOVA statistical tests were performed using both a 2x2 matrix for the pretest to posttest time period and then a 2x3 matrix for the pretest, posttest., and follow-up time period. Paired samples t-tests were also used to identify differences within groups, and independent samples t-tests were used to explore differences between groups.

KAB Results

Food Choice Intentions Scale Results: Pretest – Posttest, Intervention vs. Control

A one-way repeated measures ANOVA was conducted to compare scores on the Food Choice Intentions scale at Time 1 (prior to the nutrition intervention) and Time 2 (following the intervention). The means and standard deviations are presented in Table 4, page 61. There was a significant effect for time [Wilks' Lambda = .794, $F(1,98)=25.35$, $p<.0005$, multivariate partial eta squared =.206.] This result suggests a very large effect size for changes in food choice intentions. There was also a significant effect for control versus intervention [Wilks' Lambda = .940, $F(1,98)=6.26$, $p<.014$, multivariate partial eta squared =.060.] This result suggests a moderate effect size for changes in food choice intentions in the intervention group versus the control group at posttest versus pretest.

Food Choice Intentions Scale Results: Pretest – Posttest, Intervention Group

A paired samples t-test was conducted to evaluate the impact of the intervention on the Food Choice Intentions scale in the intervention group at pretest and posttest. The means and standard deviations are presented in Table 4, page 61. There was a statistically significant increase in Food Choice Intentions score from Time 1 ($M= .4940$, $SD=.2536$) to Time 2 [$M=.6800$, $SD=.2780$, $t(-4.189)$, $p<.0005$] The eta squared statistic (.324) indicated a very large effect size.

Food Choice Intentions Scale Results: Pretest – Posttest, Control Group

A paired samples t-test was conducted to evaluate the change in the Food Choice Intentions scale in the control group at pretest and posttest. The means and standard deviations are presented in Table 4, page 62. There was a statistically significant increase in Food Choice Intentions score from Time 1 ($M= .4425$, $SD=.2627$) to Time 2

[$M=.5050$, $SD=.2708$, $t(-2.017)$, $p<.049$] The eta squared statistic (.077) indicated a moderate effect size.

Mean scores on the Food Choice Intentions scale increased in both the intervention and control groups over time. In the pretest to posttest time period, the effect size was very large in the intervention group and moderate in the control group.

Food Choice Intentions Scale Results: Pretest – Posttest – Follow-up

A one-way repeated measures ANOVA was conducted to compare scores on the Food Choice Intentions scale at Time 1 (prior to the nutrition intervention), Time 2 (following the intervention) and Time 3 (three week follow-up). The means and standard deviations are presented in Table 4, page 61. There was a significant effect for time [Wilks' Lambda = .759, $F(2,69)=10.94$, $p<.0005$, multivariate partial eta squared =.241.] This result suggests a very large effect size for changes in food choice intentions over the pretest, posttest, follow-up period. There was a significant effect for time for both male students and female students. For males, Wilks' Lambda = .756, $F(2,34)=5.474$, $p<.009$, multivariate partial eta squared =.244. For females, Wilks' Lambda = .754, $F(2,32)=5.232$, $p<.011$, multivariate partial eta squared = .246. These results suggest a very large effect size for changes in food choice intentions over the pretest, posttest, and follow-up period regardless of gender.

Which Food Has More Fat Scale Results: Pretest – Posttest, Intervention vs. Control

A one-way repeated measures ANOVA was conducted to compare scores on the Which Food Has More Fat scale at Time 1 (prior to the nutrition intervention) and Time 2 (following the intervention). The means and standard deviations are presented in Table 4, page 62. There was a significant effect for time [Wilks' Lambda=.930, $F(1,98)=7.427$,

$p < .008$, multivariate partial eta squared = .070. This result suggests a moderate effect size for knowledge of which food has more fat over the pretest to posttest time period.

Which Food Has More Fat Scale Results: Pretest – Posttest, Intervention Group

A paired samples t-test was conducted to evaluate the impact of the intervention on the Which Food Has More Fat scale in the intervention group at pretest and posttest. The means and standard deviations are presented in Table 4, page 62. There was a statistically significant increase in the Which Food Has More Fat score from Time 1 ($M = .6983$, $SD = .21553$) to Time 2 [$M = .7889$, $SD = .20696$, $t(-2.170)$, $p < .035$] in the intervention group. The eta squared statistic (.088) indicated a moderate effect size.

Which Food Has More Fat Scale Results: Pretest – Posttest, Control Group

A paired samples t-test was conducted to evaluate the change in the Which Food Has More Fat scale in the control group at pretest and posttest. The means and standard deviations are presented in Table 4, page 63. There was not a statistically significant difference in the Which Food Has More Fat score from Time 1 ($M = .7167$, $SD = .18748$) to Time 2 [$M = .7633$, $SD = .19222$, $t(-1.656)$, $p < .104$] in the control group.

Which Food Has More Fat Scale Results – Pretest – Posttest – Follow-up

A one-way repeated measures ANOVA was conducted to compare scores on the Which Food Has More Fat scale at Time 1 (prior to the nutrition intervention), Time 2 (following the intervention) and Time 3 (three week follow-up). The means and standard deviations are presented in Table 2, page 62. There was not a significant effect for time [Wilks' Lambda = .969, $F(2,69) = 1.072$, $p < .348$ over the pretest, posttest, follow-up period.

Mean scores on the Which Food Has More Fat scale increased significantly with a moderate effect size in the intervention group over the pretest to posttest time period, but did not increase in the control group over the same period. In the pretest, posttest, follow-up time period, there was not a significant effect for time. The increase in the intervention group at posttest was not maintained through the follow-up period.

Results at posttest and follow-up for the KAB survey are shown in Table 1, page 57. Significant differences between control and intervention group scores at posttest were found in the areas of physical activity knowledge among boys and food choice intentions among girls. At follow-up, significant differences between control and intervention group scores remained in the areas of food choice intentions among girls and were found in physical activity self-efficacy among boys. Knowledge of which food has more fat increased significantly with a moderate effect size in the pretest to posttest time period and with a moderate effect size in the intervention group.

Among students who were trying to lose weight, the percentage of students who changed what and how much they eat and who exercised more to lose weight increased while the percentage of students who skipped meals or went without eating for a whole day decreased. Attempted weight loss in the intervention group at pretest and posttest is outlined in Table 5, page 66. Although these changes were not at a significant level, the movement is in the direction of healthier weight management methods. For example, the percentage of students who reported skipping a whole meal to lose weight decreased from 25.4% at pretest to 21.1% at posttest and the percentage of students who went for a whole day without eating to lose weight decreased from 14% at pretest to 8% at posttest.

The percentage that changed what or how much they ate to lose weight increased from 33% at pretest to 46% at posttest and the percentage who exercised more to lose weight increased from 46% at pretest to 50% at posttest. At posttest, the mean healthy body size perception among students in the intervention group was 4.15 for boy sizes and 4.10 for girl sizes. Among students in the control group at posttest, the mean healthy body size perception was 4.06 for boy sizes and 3.91 for girl sizes. Perceived healthy body size did not change significantly during the study.

Gender differences were shown in the independent t-test results. At posttest, boys in the intervention group had increased scores that almost reached the level of significance ($p < .055$) for physical activity knowledge, compared to the scores of boys in the control group. At follow-up, boys in the intervention group had significantly increased scores ($p < .035$) for physical activity self-efficacy compared to the boys in the control group. Girls in the intervention group had significantly increased food choice intentions at both posttest ($p < .039$) and at follow-up ($p < .007$) compared to the scores of girls in the control group.

CATCH Food Checklist Results

The frequency of consumption of the 41 food categories at pretest, posttest, and follow-up as well as assigned point values in the CATCH Food checklist are shown in Table 6, page 67.

Total Fat Scale Results: Pretest – Posttest – Follow-up

A one-way repeated measures ANOVA was conducted to compare scores on the CATCH Food Checklist Total Fat scale at Time 1 (prior to the nutrition intervention), Time 2 (following the intervention) and Time 3 (three week follow-up). The means and

standard deviations are presented in Table 4, page 63. There was a not a significant effect for time [Wilks' Lambda = .966, $F(1,71)=2.479$, $p<.120$, multivariate partial eta squared=.034.]

Saturated Fat Scale Results: Pretest – Posttest – Follow-up

A one-way repeated measures ANOVA was conducted to compare scores on the CATCH Food Checklist Saturated Fat scale at Time 1 (prior to the nutrition intervention), Time 2 (following the intervention) and Time 3 (three week follow-up). The means and standard deviations are presented in Table 4, page 63. There was a significant effect for time [Wilks' Lambda = .848, $F(2,48)=4.31$, $p<.019$, multivariate partial eta squared =.152] This result suggests a large effect size for changes in saturated fat over the pretest, posttest, follow-up period.

Sodium Scale Results: Pretest – Posttest – Follow-up

A one-way repeated measures ANOVA was conducted to compare scores on the CATCH Food Checklist Sodium scale at Time 1 (prior to the nutrition intervention), Time 2 (following the intervention) and Time 3 (three week follow-up). The means and standard deviations are presented in Table 4, page 64. There was a significant effect for time [Wilks' Lambda = .829, $F(2,34)=3.50$, $p<.041$, multivariate partial eta squared =.171.] This result suggests a large effect size for changes in sodium over the pretest, posttest, follow-up period.

The mean value of reported actual prior day food choices related to total fat, saturated fat and sodium improved (decreased) in both the intervention and control groups at posttest compared to pretest. The mean value for saturated fat and sodium also improved (decreased) in both the intervention and control groups at follow-up compared

to posttest. There was a large effect for saturated fat and sodium over time. These findings reflect improvement in actual food choices. For instance, the percentage of intervention students who consumed 2% fat milk increased from 31% to 38% (from a mean of .3556 to a mean of .4889, $p < .160$) while the percentage of intervention students who consumed whole milk decreased from 42% to 33% (from a mean of .5556 to a mean of .3778, $p < .073$), as shown in Table 6, page 67. Although not at a significant level, this slight shift toward lower fat milk may be associated with a nutrition curriculum segment called “Think Your Drink” in which a butter display is used to visually illustrate the amount of fat in nonfat, 2% fat, and whole milk by adding teaspoons of butter to a cup of nonfat milk to reflect the amount of fat that would be present in each type of milk.

CATCH Food Checklist Discussion

The developers of the CATCH Food Checklist reported (Dwyer et al., 2001) that in their results, the most commonly eaten foods were bread, cookies, cold cereal, and potato chips – all eaten by more than 44% of the children on their recall day. In the It’s All About Kids study, see Table 2, page 59, the most commonly eaten foods at pretest were potato chips, whole milk, ice cream, cold cereal and cookies. At posttest, the most commonly eaten foods were 2% milk, cookies, a vitamin/mineral, whole milk, and cold cereal. At follow-up, the most commonly eaten foods were potato chips, 2% milk, hamburgers, ice cream, and a vitamin/mineral.

FitnessGram[®] Results

Coopers FitnessGram[®] results at pretest and posttest by intervention and control groups are summarized in Table 3, page 60. BMI, BMI percentile and BMI z-scores at pretest and posttest in the intervention and control groups are shown in Table 7, page 68.

BMI by age and gender at pretest and posttest in the intervention and control groups is shown in Figure 3, page 71, for boys and in Figure 4, page 72, for girls. Figure 5, page 73, illustrates the BMI z-scores at pretest and posttest for intervention and control groups in the study.

Aerobic Capacity Scale Results

Pacer Laps: Pretest – Posttest.

A one-way repeated measures ANOVA was conducted to compare scores on the pacer laps scale at Time 1 (beginning of the school year), and Time 2 (end of the school year). The means and standard deviations are presented in Table 4, page 64. There was a significant effect for time [Wilks' Lambda = .846, $F(1,90)=16.372$, $p<.000$, multivariate partial eta squared =.154] This result suggests a large effect size for time.

Muscle Strength, Endurance, and Flexibility Scale Results

Push Ups: Pretest – Posttest.

A one-way repeated measures ANOVA was conducted to compare scores on the push ups scale at Time 1 (prior to the nutrition intervention), and Time 2 (following the intervention). The means and standard deviations are presented in Table 4, page 64.

There was a significant effect for time [Wilks' Lambda =.783, $F(1,90)=24.954$, $p<.000$, multivariate partial eta squared =.217] This result suggests a large effect size for time.

There was also a moderate effect size for control versus intervention [Wilks' Lambda = .890, $F(1,90) = 11.170$, $p<.001$, multivariate partial eta squared = .110.

Curlups: Pretest – Posttest.

A one-way repeated measures ANOVA was conducted to compare scores on the curlups scale at Time 1 (prior to the nutrition intervention), and Time 2 (following the

intervention). The means and standard deviations are presented in Table 4, page 65.

There was a significant effect for time [Wilks' Lambda = .822, $F(1,91)=19.651$, $p<.000$, multivariate partial eta squared =.178] This result suggests a large effect size for time.

Body Composition Scale

BMI Z-scores: Pretest – Posttest.

A one-way repeated measures ANOVA was conducted to compare scores on the BMI z-scores scale at Time 1 (prior to the nutrition intervention), and Time 2 (following the intervention). The means and standard deviations are presented in Table 4, page 65.

There was a significant effect for time [Wilks' Lambda =.902, $F(1,73)=7.890$, $p<.006$, multivariate partial eta squared =.098] This result suggests a moderate effect size for time.

BMI Percentile: Pretest – Posttest.

A one-way repeated measures ANOVA was conducted to compare scores on the BMI percentile scale at Time 1 (prior to the nutrition intervention), and Time 2 (following the intervention). The means and standard deviations are presented in Table 4, page 65. There was a significant effect for time [Wilks' Lambda = .898, $F(1,73)=8.302$, $p<.005$, multivariate partial eta squared =.102] This result suggests a moderate effect size for time.

FitnessGram[®] Discussion

There was a large effect over time for pacer laps, pushups, and curlups. There was a moderate effect over time for BMI z-score and BMI percentile. BMI z-scores decreased 18.7% from a mean of .8370 to a mean of .6805 among the 20 intervention

students measured at both pretest and posttest, $p < .006$, partial eta squared = .098. The small size of this group, however, detracts from the significance of the finding.

Table 1: KAB scale scores by gender and all students at pretest, posttest, and follow-up.

		Intervention		Control		Mean Difference	P value
		N	Mean	N	Mean		
PRETEST	Boys						
	Food self-efficacy	35	.7788	24	.7386	-.04016	.489
	Food choice intentions	35	.4557	24	.4271	-.02861	.710
	Which food has more fat?	35	.7333	24	.6771	-.05625	.304
	Physical activity self-efficacy	35	.8753	24	.8185	-.05682	.314
	Physical activity knowledge	35	.7071	24	.6146	-.09256	.257
	Nutrition curriculum knowledge	35	.8457	24	.8375	-.00821	.855
	Attempted weight loss	35	.6233	24	.6090	-.01432	.837
	Healthy body size perception – Boy Sizes	35	3.5743	24	3.8750	-.30071	.367
	Healthy body size perception – Girl Sizes	24	3.5000	23	3.6014	-.10145	.765
	Girls						
	Food self-efficacy	24	.8329	36	.7460	-.08689	.088
	Food choice intentions	24	.5208	36	.4618	-.05903	.306
	Which food has more fat?	24	.6806	36	.7454	.06481	.231
	Physical activity self-efficacy	24	.8232	36	.7113	-.11187	.147
	Physical activity knowledge	24	.7500	36	.8049	.05491	.347
	Nutrition curriculum knowledge	24	.8833	36	.9153	.03194	.241
	Attempted weight loss	24	.5325	36	.5660	.03349	.627
Healthy body size perception – Boy Sizes	19	4.1579	31	3.5645	.59338	.055	
Healthy body size perception – Girl Sizes	24	4.4306	36	3.5509	.87963	.005	
POSTTEST	Boys						
	Food self-efficacy	32	.7896	22	.7849	-.00463	.942
	Food choice intentions	32	.6172	23	.4891	-.12806	.132
	Which food has more fat?	32	.6916	23	.6957	.00407	.946
	Physical activity self-efficacy	32	.8915	22	.7961	-.09540	.182
	Physical activity knowledge	32	.7734	23	.6630	-.11039	.055
	Nutrition curriculum knowledge	32	.8500	23	.8211	-.02894	.457
	Attempted weight loss	32	.5685	23	.5924	-.02388	.738
	Healthy body size perception – Boy Sizes	33	3.9697	23	4.0000	-.03030	.933
	Healthy body size perception – Girl Sizes	31	4.0484	23	3.6739	.37447	.256
	Girls						
	Food self-efficacy	29	.8355	33	.7816	-.05393	.310
	Food choice intentions	29	.6509	33	.5054	-.14545	.039
	Which food has more fat?	29	.8113	33	.7929	-.01841	.700
	Physical activity self-efficacy	29	.7972	33	.7524	-.04479	.547
	Physical activity knowledge	29	.8113	33	.7929	-.03448	.575
	Nutrition curriculum knowledge	29	.8563	33	.8879	.03160	.319
	Attempted weight loss	29	.5991	33	.5537	-.04546	.489
Healthy body size perception – Boy Sizes	28	4.3750	28	4.1071	.26786	.468	
Healthy body size perception – Girl Sizes	29	4.1724	33	4.0758	.09666	.757	
FOLLOW-UP	Boys						
	Food self-efficacy	28	.8145	15	.8016	-.01293	.844
	Food choice intentions	28	.6563	15	.4750	-.18125	.098
	Which food has more fat?	28	.7071	15	.6921	-.01499	.864
	Physical activity self-efficacy	28	.9198	15	.7982	-.12154	.035
	Physical activity knowledge	28	.7411	15	.7667	.02560	.727
	Nutrition curriculum knowledge	28	.8250	15	.8667	.04167	.519
	Attempted weight loss	28	.5339	15	.6583	.12440	.183
	Healthy body size perception – Boy Sizes	28	3.7143	15	3.6333	.08095	.823
	Healthy body size perception – Girl Sizes	28	4.0000	11	4.0909	-.09091	.800
	Girls						
	Food self-efficacy	19	.8501	24	.7976	-.05246	.462
	Food choice intentions	19	.7237	24	.5052	-.21848	.007
	Which food has more fat?	19	.7632	24	.8403	.07712	.215
	Physical activity self-efficacy	19	.8291	24	.8090	-.02010	.793
	Physical activity knowledge	19	.7368	24	.8229	.08607	.225
	Nutrition curriculum knowledge	19	.8737	24	.9292	.05548	.070
	Attempted weight loss	19	.6250	24	.5885	-.03646	.619
Healthy body size perception – Boy Sizes	19	4.3947	19	3.9474	.44737	.216	
Healthy body size perception – Girl Sizes	19	4.3596	24	3.6875	.67215	.060	

Table 1 continued: KAB scale scores by gender and all students at pretest, posttest, and follow-up.

		Intervention		Control		Mean Difference	P value
		N	Mean	N	Mean		
PRETEST	All 4 th grade students						
	Food self-efficacy	59	.8008	60	.7431	.05773	.121
	Food choice intentions	59	.4822	60	.4479	.03427	.463
	Which food has more fat?	59	.7119	60	.7181	-.00619	.869
	Physical activity self-efficacy	59	.8541	60	.7542	.09992	.035
	Physical activity knowledge	59	.7246	60	.7288	-.00420	.933
	Nutrition curriculum knowledge	59	.8610	60	.8842	-.02315	.374
	Attempted weight loss	59	.5864	60	.5832	.00319	.947
	Healthy body size perception – Boy Sizes	54	3.7796	55	3.7000	-.07963	.722
Healthy body size perception – Girl Sizes	48	3.9653	59	3.5706	.39466	.095	
POSTTEST	All 4 th grade students						
	Food self-efficacy	61	.8114	55	.7829	.02848	.481
	Food choice intentions	61	.6332	56	.4987	.13447	.012
	Which food has more fat?	61	.7485	56	.7530	-.00446	.908
	Physical activity self-efficacy	61	.8467	55	.7699	.07678	.135
	Physical activity knowledge	61	.7787	56	.7143	.06440	.125
	Nutrition curriculum knowledge	61	.8530	56	.8604	-.00745	.763
	Attempted weight loss	61	.5831	56	.5696	.01349	.777
	Healthy body size perception – Boy Sizes	61	4.1557	51	4.0588	-.09691	.704
Healthy body size perception – Girl Sizes	60	4.1083	56	3.9107	-.19762	.378	
FOLLOW-UP	All 4 th grade students						
	Food self-efficacy	47	.8289	39	.7991	.02975	.525
	Food choice intentions	47	.6835	39	.4936	.18992	.004
	Which food has more fat?	47	.7297	39	.7833	-.05354	.310
	Physical activity self-efficacy	47	.8831	39	.8049	.07825	.095
	Physical activity knowledge	47	.7394	39	.8013	-.06192	.208
	Nutrition curriculum knowledge	47	.8447	39	.9051	-.06045	.081
	Attempted weight loss	47	.5707	39	.6154	-.04464	.436
	Healthy body size perception – Boy Sizes	47	3.9894	34	3.8088	-.18054	.481
Healthy body size perception – Girl Sizes	47	4.1454	35	3.8143	-.33110	.204	

Table 2: CATCH Food Checklist most frequently eaten foods in the intervention and control groups at pretest, posttest, and follow-up.

Pretest			
Intervention Group, N=71		Control Group, N=69	
Food Category	% Students Eating Item	Food Category	% Students Eating Item
Potato chips	43.7	Cold cereal	50.7
Whole milk	42.3	Whole milk	47.8
Ice cream	36.6	Potato chips	44.9
Cold cereal	36.6	Chocolate candy	40.6
Cookies	35.2	Cookies	39.1
Vitamin/mineral	32.4	Ice cream	37.7
2% milk	31.0	Vitamin/mineral	37.7
Doughnuts	29.5	2% milk	37.7
Fried chicken	28.2	Fried chicken	36.2
Ketchup	25.4	Bread	33.3
Posttest			
Intervention Group, N=71		Control Group, N=69	
2% milk	38.0	Cold cereal	47.8
Cookies	38.0	Potato chips	46.4
Vitamin/mineral	36.6	Whole milk	34.8
Whole milk	33.8	Fried chicken	33.3
Cold cereal	33.8	2% milk	31.9
Ice cream	31.0	Ice cream	30.4
Hamburgers	31.0	Chocolate candy	29.0
Potato chips	31.0	Ketchup	29.0
Chocolate candy	29.6	Cookies	27.5
Spanish rice	28.2	Cold cuts	27.5
Follow-up			
Intervention Group, N=71		Control Group, N=69	
Potato chips	32.4	Potato chips	27.5
2% milk	29.6	Ketchup	26.1
Hamburgers	28.2	2% milk	24.6
Ice cream	28.2	Cookies	23.2
Vitamin/mineral	25.4	Vitamin/mineral	23.2
Cold cereal	25.4	Whole milk	20.3
Whole milk	22.5	French fries	18.8
Cookies	22.5	Cold cereal	18.8
Cheese dishes	21.1	Fried chicken	18.8
Pizza	19.7	Eggs	18.8

Table 3: Coopers FitnessGram® scores at pretest and posttest by intervention and control groups.

	Intervention		Control		Mean Difference	P value
	N	Mean	N	Mean		
PRETEST						
Pacer Laps	23	15.78	60	18.30	2.517	.304
Upper Body	23	8.00	60	12.75	4.750	.014
(Abdominal) Curl Ups	27	22.52	60	28.22	5.698	.192
(Trunk Extension) Trunk Lift	22	8.82	60	11.82	2.998	.000
(Body Mass Index) BMI	24	19.7383	60	22.1995	2.46117	.095
BMI Z-score	23	.6430	59	1.4197	.77662	.243
POSTTEST						
Pacer Laps	25	20.16	58	23.12	2.961	.407
Upper Body	26	10.38	58	17.52	7.133	.003
(Abdominal) Curl Ups	23	23.70	58	33.03	9.339	.041
(Trunk Extension) Trunk Lift	23	8.61	58	12.02	3.409	.000
(Body Mass Index) BMI	27	20.7022	58	22.0703	1.36812	.344
BMI Z-score	27	.8100	57	1.0423	.23228	.382

Table 4: Statistical tests means and standard deviations

ANOVA 2x3 Food Choice Intention

Descriptive Statistics

	Control or	Mean	Std. Deviation	N
Pre: KAB Mean Food Choice Intention	C	.4336	.24590	32
	I	.5232	.24716	41
	Total	.4839	.24895	73
Post: KAB Mean Food Choice Intention	C	.5313	.27679	32
	I	.6860	.28521	41
	Total	.6182	.29009	73
FU: KAB Mean Food Choice Intention	C	.5117	.26442	32
	I	.6829	.32003	41
	Total	.6079	.30712	73

ANOVA 2x2 Food Choice Intention

Descriptive Statistics

	Control or	Mean	Std. Deviation	N
Pre: KAB Mean Food Choice Intention	C	.4425	.26270	50
	I	.4940	.25359	50
	Total	.4682	.25818	100
Post: KAB Mean Food Choice Intention	C	.5050	.27077	50
	I	.6800	.27798	50
	Total	.5925	.28682	100

Paired Samples t-test Intervention Group Food Choice Intention

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Pre: KAB Mean Food Choice Intention	.4940	50	.25359	.03586
Post: KAB Mean Food Choice Intention	.6800	50	.27798	.03931

Table 4 continued: Statistical tests means and standard deviations

Paired Samples t-test Control Group Food Choice Intention

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre: KAB Mean Food Choice Intention	.4425	50	.26270	.03715
	Post: KAB Mean Food Choice Intention	.5050	50	.27077	.03829

ANOVA 2x3 Which Food Has More Fat?

Descriptive Statistics

		Control or	Mean	Std. Deviation	N
Pre: KAB Mean Which Food Has More Fat?	C		.7292	.16396	32
	I		.7134	.22901	41
	Total		.7203	.20192	73
Post: KAB Mean Which Food Has More Fat?	C		.7734	.19770	32
	I		.7846	.21888	41
	Total		.7797	.20850	73
FU: KAB Mean Which Food Has More Fat?	C		.7801	.19872	32
	I		.7390	.29163	41
	Total		.7570	.25432	73

ANOVA 2x2 Which Food Has More Fat?

Descriptive Statistics

		Control or	Mean	Std. Deviation	N
Pre: KAB Mean Which Food Has More Fat?	C		.7167	.18748	50
	I		.6983	.21553	50
	Total		.7075	.20118	100
Post: KAB Mean Which Food Has More Fat?	C		.7633	.19222	50
	I		.7889	.20696	50
	Total		.7761	.19913	100

Paired Samples t-test Intervention Group Which Food Has More Fat?

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre: KAB Mean Which Food Has More Fat?	.6983	50	.21553	.03048
	Post: KAB Mean Which Food Has More Fat?	.7889	50	.20696	.02927

Table 4 continued: Statistical tests means and standard deviations

Paired Samples Control Group Which Food Has More Fat?

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre: KAB Mean Which Food Has More Fat?	.7167	50	.18748	.02651
	Post: KAB Mean Which Food Has More Fat?	.7633	50	.19222	.02718

ANOVA 2x3 CATCH Food Checklist Total Fat

Descriptive Statistics

	Control or	Mean	Std. Deviation	N
Pre: Total Fat	C	8.5556	6.95062	36
	I	9.9189	7.83290	37
	Total	9.2466	7.39140	73
Post: Total Fat	C	7.8889	4.45150	36
	I	7.9189	5.28298	37
	Total	7.9041	4.85674	73
FU: Total Fat	C	8.5556	6.95062	36
	I	9.9189	7.83290	37
	Total	9.2466	7.39140	73

ANOVA 2x3 CATCH Food Checklist Saturated Fat

Descriptive Statistics

	Control or	Mean	Std. Deviation	N
Pre: Saturated Fat	C	9.4583	7.17471	24
	I	9.5556	7.32925	27
	Total	9.5098	7.18435	51
Post: Saturated Fat	C	7.8333	4.89602	24
	I	7.3704	5.38622	27
	Total	7.5882	5.11537	51
FU: Saturated Fat	C	6.2917	5.78964	24
	I	6.9259	5.42023	27
	Total	6.6275	5.54963	51

Table 4 continued: Statistical tests means and standard deviations

**ANOVA 2x3 CATCH Food Checklist Sodium
Descriptive Statistics**

	Control or	Mean	Std. Deviation	N
Pre: Sodium	C	13.0000	10.90871	17
	I	13.7500	12.13466	20
	Total	13.4054	11.43450	37
Post: Sodium	C	12.9412	7.10168	17
	I	11.5500	7.70833	20
	Total	12.1892	7.36673	37
FU: Sodium	C	9.5882	8.63900	17
	I	10.0500	7.91052	20
	Total	9.8378	8.13946	37

ANOVA 2x2 Pacer Laps

Descriptive Statistics

	Control or	Mean	Std. Deviation	N
Past Pacer Laps	Control	17.69	8.240	58
	Intervention	18.89	10.574	36
	Total	18.15	9.167	94
Current Pacer Laps	Control	23.12	13.976	58
	Intervention	21.89	13.671	36
	Total	22.65	13.799	94

ANOVA 2x2 Push Ups

Descriptive Statistics

	Control or	Mean	Std. Deviation	N
(Upper Body)	Control	12.67	8.219	58
	Intervention	9.31	6.173	36
	Total	11.38	7.646	94
(Upper Body)	Control	17.52	10.253	58
	Intervention	10.28	6.008	36
	Total	14.74	9.515	94

Table 4 continued: Statistical tests means and standard deviations

ANOVA 2x2 Curlups

Descriptive Statistics

	Control or	Mean	Std. Deviation	N
(Abdominal) Past Curl Up	Control	28.53	19.642	58
	Intervention	23.59	8.918	37
	Total	26.61	16.440	95
(Abdominal) Current Curl Up	Control	33.03	19.326	58
	Intervention	26.08	12.571	37
	Total	30.33	17.281	95

ANOVA 2x2 BMI Z-score

Descriptive Statistics

	Control or	Mean	Std. Deviation	N
Pre: BMI Z-score	Control	1.1028	1.18827	57
	Intervention	.8370	1.01413	20
	Total	1.0338	1.14511	77
Post: BMI Z-score	Control	1.0423	1.16524	57
	Intervention	.6805	1.11248	20
	Total	.9483	1.15558	77

ANOVA 2x2 BMI Percentile

Descriptive Statistics

	Control or	Mean	Std. Deviation	N
Pre: BMI Percentile	Control	75.6926	27.83345	57
	Intervention	70.0370	27.90203	20
	Total	74.2236	27.77939	77
Post: BMI Percentile	Control	71.5846	30.15315	57
	Intervention	62.6815	32.86469	20
	Total	69.2721	30.90969	77

Table 5: Attempted Weight Loss in the intervention group at pretest and posttest.

Intervention Pretest: Attempted Weight Loss
N=71 (40 Male, N=31 Female)

	Yes			
	Frequency			Percent T
	M	F	T	
Do you think you are too skinny? too fat? about right?	7 5 23	6 5 13	13 10 36	18.3 14.1 50.7
Do you worry about being too skinny? being too fat?	7 22	5 17	12 39	16.9 54.9
Have you ever tried to lose weight?	19	15	24	47.9
Are you now trying to lose weight?	16	12	28	39.4
I changed what or how much I ate to lose weight.	13	11	24	33.8
I exercised more to lose weight.	19	14	33	46.5
I skipped a whole meal to lose weight.	10	8	18	25.4
I went for a whole day without eating to lose weight.	6	4	10	14.1

Intervention Posttest: Attempted Weight Loss
N=71 (40 Male, N=31 Female)

	Yes			
	Frequency			Percent T
	M	F	T	
Do you think you are too skinny? too fat? about right?	5 6 21	7 4 18	12 10 39	16.9 14.1 54.9
Do you worry about being too skinny? being too fat?	8 21	18 17	41 38	57.7 53.5
Have you ever tried to lose weight?	23	19	42	59.2
Are you now trying to lose weight?	17	13	30	42.3
I changed what or how much I ate to lose weight.	17	16	33	46.5
I exercised more to lose weight.	21	15	36	50.7
I skipped a whole meal to lose weight.	6	9	15	21.1
I went for a whole day without eating to lose weight.	2	4	6	0.8

Table 6: Adapted from (Smith, 2001): Frequency of consumption and point values in the CATCH Food Checklist at pretest, posttest, and follow-up.

	Food Item	Intervention			Control			Point Values		
		Percent of students marking item			Percent of students marking item			Total fat	Sat. fat	Sodium
		Pre N=64	Post N=61	FU N=47	Pre N=69	Post N=55	FU N=39			
1.	Hamburgers, cheeseburgers, chili, tacos, meatloaf, other ground beef dishes	18.3	31.0	28.2	26.1	23.2	15.9	1	1	1
2.	Hot dogs, frankfurters, corn dogs	14.1	15.5	12.7	15.9	11.6	13.0	4	3	1
3.	Beef, such as steaks, roasts, beef fajita, Stir-fried beef, ribs, stew beef (not hamburger)	14.1	16.9	8.5	15.9	18.8	14.5	5	3	3
4.	Fried chicken, chicken nuggets, chicken patty, steak sticks, fried fish, fish nuggets, fried shrimp, fried oysters, chicken fried steak, egg rolls, dim-sum	28.2	22.5	16.9	36.2	33.3	18.8	1	1	1
5.	Turkey or chicken with skin eaten (not fried)	9.9	11.3	5.6	11.6	7.2	4.3	1	1	0
6.	Chicken salad, tuna salad, shrimp salad	14.1	12.7	11.3	8.7	14.5	10.1	1	0	1
7.	Cold cuts, bologna, ham, turkey luncheon meat, deli roast beef, other deli meat	18.3	18.3	18.3	18.8	27.5	15.9	0	0	3
8.	Bacon, sausage, chorizo, pickled pork	12.7	16.9	7.0	18.8	14.5	14.5	4	1	5
9.	Pork, including pork chops, spare ribs, roast pork	7.0	11.3	4.2	10.1	8.7	5.8	1	1	0
10	Soup	22.5	14.1	11.3	15.9	13.0	8.7	0	0	3
11	Spaghetti or other pasta with meat and tomato sauce	9.9	15.5	8.5	10.1	14.5	10.1	1	1	1
12	Pizza, lasagna	19.7	22.5	19.7	31.9	18.8	7.2	1	2	4
13.	Cheese dishes such as macaroni and cheese, cheese nachos, cheese enchiladas, quesadillas	22.5	18.3	21.1	24.6	20.3	13.0	1	1	1
14	Cheese or cheese spread, including American, Swiss, Cheddar	14.1	7.0	12.7	21.7	17.4	10.1	3	3	2
15	Eggs, including scrambled, fried, omelets, hard boiled eggs, egg salad	16.9	12.7	11.3	17.4	11.6	18.8	1	0	0
16	Whole milk (white or chocolate)	42.3	33.8	22.5	47.8	34.8	20.3	2	3	1
17	2% fat milk (white or chocolate)	31.0	38.0	29.6	37.7	31.9	24.6	1	1	1
18.	Bread, buns (hamburger or hotdog), bagels, rolls (not sweet), tortillas, English muffins	18.3	25.4	19.7	33.3	24.6	11.6	0	0	1
19	Biscuits, cornbread	16.9	16.9	12.7	23.2	17.4	11.6	0	0	4
20	Beans such as red or white beans, baked beans, refried beans	18.3	14.1	8.5	8.7	4.3	7.2	0	0	1
21	Spanish rice, fried rice, other mixed rice dishes	25.4	28.2	14.1	14.5	13.0	7.2	1	0	1
22	French fries, hash browns, tater tots, potato rounds	19.7	16.9	12.7	20.3	21.7	18.8	2	0	1
23	Cold cereal	36.6	33.8	25.4	50.7	47.8	18.8	0	0	1
24	Pancakes, waffles	22.5	29.6	15.5	20.3	17.4	10.1	0	0	6
25	Pretzels	5.6	12.7	5.6	20.3	11.3	5.8	0	0	1
26	Potato chips, corn chips, tortilla chips, popcorn, crackers, cheese puffs, other snack chips	43.7	31.0	32.4	44.9	46.4	27.5	1	0	1
27	Pickles, olives	16.9	16.9	12.7	14.5	13.0	11.6	0	0	1
28	Peanut butter, peanuts	18.3	12.7	11.3	20.3	17.4	5.8	1	0	0
29.	Cookies and bars, muffins, sweet rolls, cakes, snack cakes, granola bars	35.2	38.0	22.5	39.1	27.5	23.2	1	0	1
30	Doughnuts, brownies, pies, pastries, croissants	29.6	14.1	19.7	29.0	18.8	17.4	2	3	1
31	Ice cream, ice cream bars (not frozen yogurt, Popsicles or fruit ice)	36.6	31.0	28.2	37.7	30.4	14.5	1	2	1
32	Chocolate candy	21.1	29.6	19.7	40.6	29.0	17.4	2	3	0
33	Margarine	5.6	2.8	2.8	4.3	5.8	10.1	1	0	0
34	Butter	9.9	11.3	9.9	21.7	21.7	17.4	1	1	0
35	Mayonnaise	9.9	9.9	15.5	15.9	10.1	4.3	1	1	0
36	Salad dressings such as Ranch, Italian, Thousand Island, French	16.9	12.7	9.9	26.1	20.3	8.7	1	1	2
37	Gravy, cheese sauce	15.5	11.3	8.5	15.9	20.3	8.7	2	3	5
38	Whipped cream, sour cream	9.9	15.5	5.6	11.3	10.1	7.2	1	1	0
39	Ketchup, mustard, barbecue sauce	25.4	19.7	19.7	26.1	29.0	26.1	0	0	1
40	Salt, soy sauce	15.5	19.7	15.5	23.2	15.9	7.2	0	0	2
41	Vitamin or mineral	32.4	36.6	25.4	37.7	24.6	23.2			

Table 7: BMI, BMI Percentile, and BMI z-scores at pretest and posttest in the intervention and control schools

	Time 1 (Pretest)			Time 2 (Posttest)			P
		Mean	SD		Mean	SD	
Intervention	<u>BMI</u>			<u>BMI</u>			
	M (n=12)	23.2682	4.96374	M (n=12)	21.0243	4.65111	.217
	F (n=12)	19.3867	5.55878	F (n=12)	20.3554	5.80917	.218
	<u>BMI %ile</u>			<u>BMI %ile</u>			
	M (n=12)	70.7264	29.45929	M (n=12)	69.2943	34.13670	.449
	F (n=12)	63.1633	32.73894	F (n=12)	66.3215	28.80612	.120
Control	<u>BMI z-score</u>			<u>BMI z-score</u>			
	M (n=12)	.9291	.98664	M (n=12)	.9864	1.02699	.449
	F (n=12)	.3808	1.52162	F (n=12)	.6200	1.08776	.098
	<u>BMI</u>			<u>BMI</u>			
	M (n=12)	20.0900	7.91110	M (n=12)	22.9677	8.28108	.430
	F (n=12)	21.5808	5.23218	F (n=12)	21.5219	5.34394	.513
Control	<u>BMI %ile</u>			<u>BMI %ile</u>			
	M (n=12)	73.1832	31.74597	M (n=12)	67.4667	35.41817	.685
	F (n=12)	77.2205	24.77891	F (n=12)	73.9867	26.86641	.391
	<u>BMI z-score</u>			<u>BMI z-score</u>			
	M (n=12)	2.0618	4.81304	M (n=12)	1.1648	1.35468	.678
	F (n=12)	1.0378	1.04010	F (n=12)	.9708	1.05357	.313

Figure 1: Which student or students show the sizes that you think are most healthy? for boys sizes and for girls sizes in the intervention group at pretest and posttest.

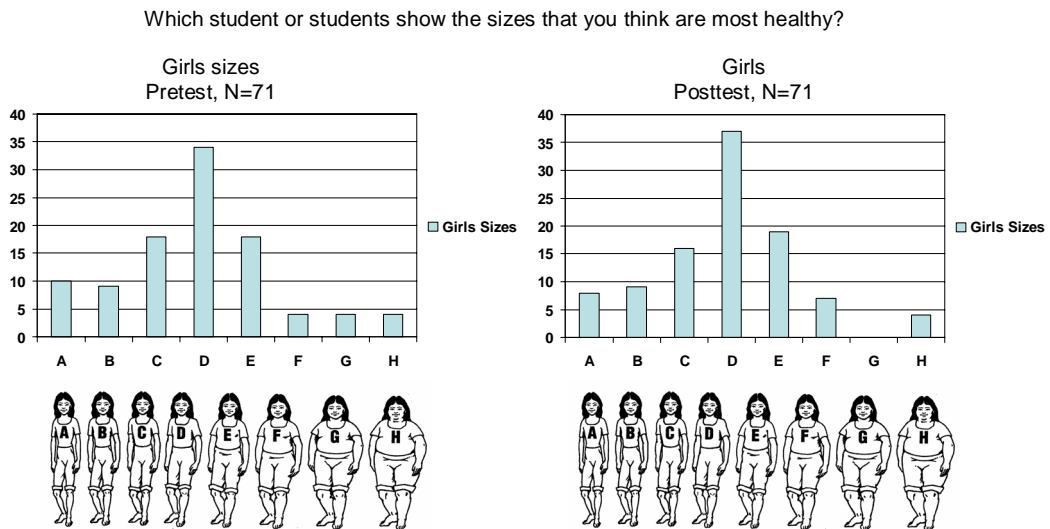
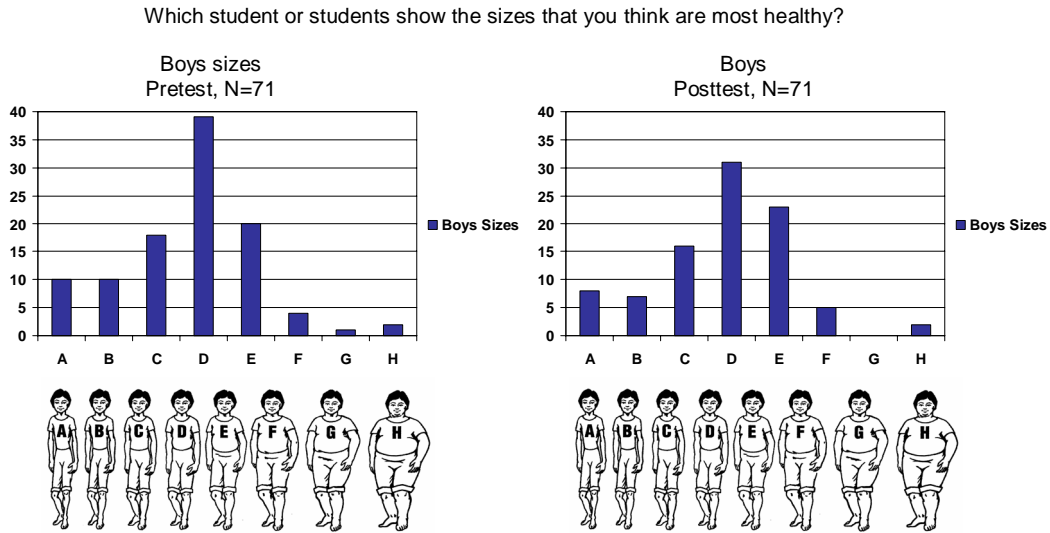


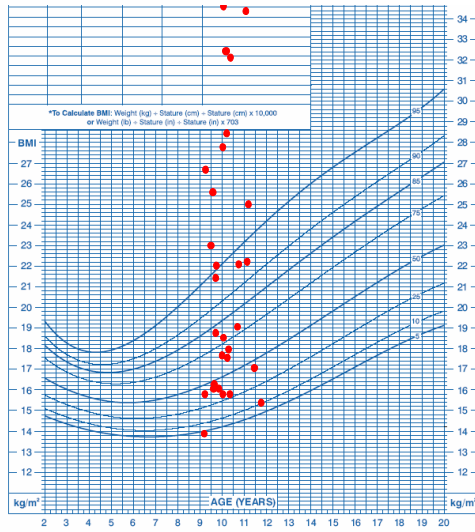
Figure 2: BMI scores by age and gender at pretest for 4th grade students in the It's All About Kids study

Boys

Pretest

Girls

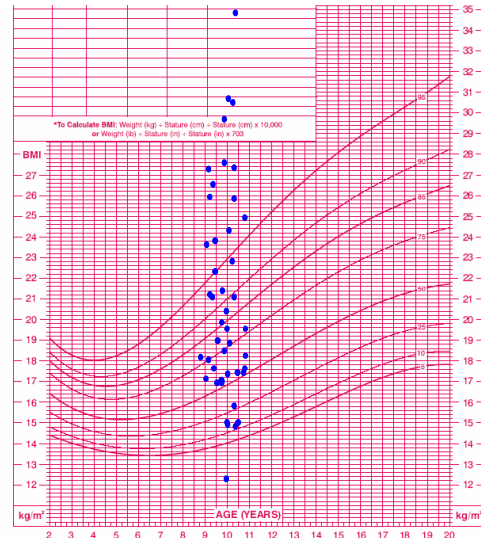
CDC BMI for Age Percentiles: 2-20 Years



Published May 30, 2000 (revised 10/16/00)
 SOURCE: Developed by the National Center for Health Statistics in collaboration with
 the National Center for Chronic Disease Prevention and Health Promotion (2000).
<http://www.cdc.gov/growthcharts>



SAFER • HEALTHIER • PEOPLE™



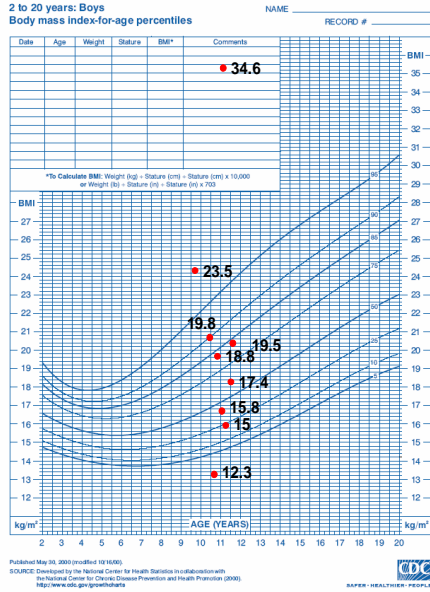
Published May 30, 2000 (revised 10/16/00)
 SOURCE: Developed by the National Center for Health Statistics in collaboration with
 the National Center for Chronic Disease Prevention and Health Promotion (2000).
<http://www.cdc.gov/growthcharts>



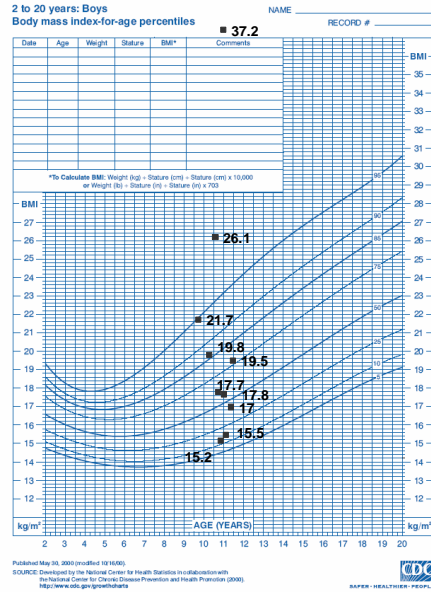
SAFER • HEALTHIER • PEOPLE™

Figure 3: BMI by age and gender for boys at pretest and posttest in the intervention and control groups

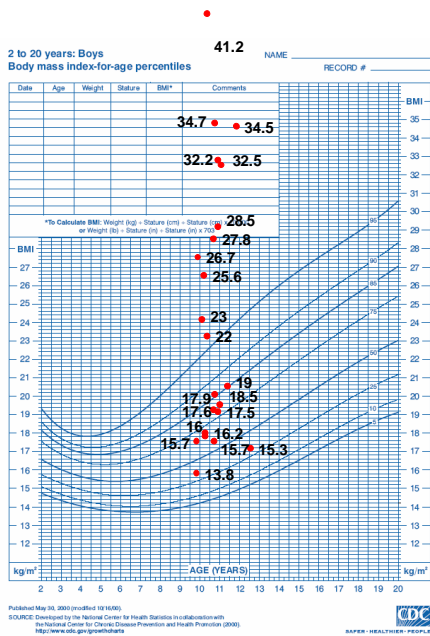
Boys: Intervention Pretest



Boys: Intervention Posttest



Boys: Control Pretest



Boys: Control Posttest

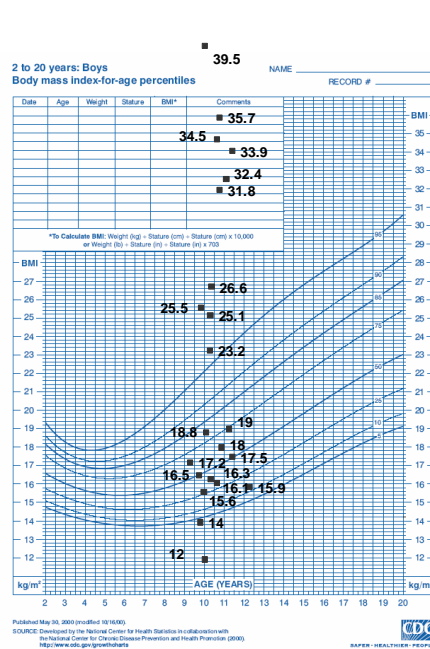
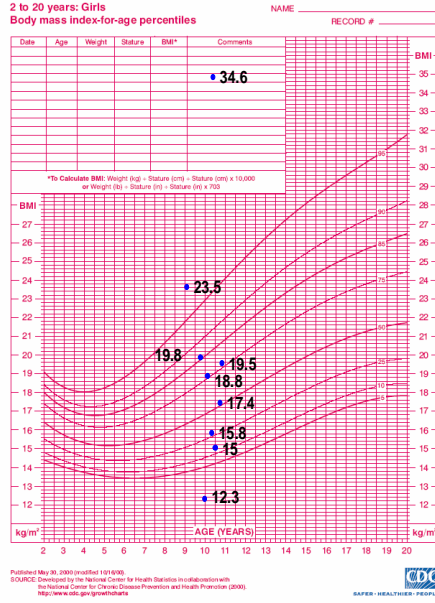
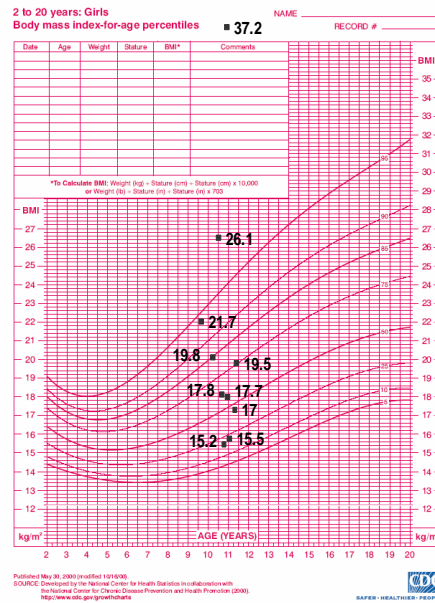


Figure 4: BMI by age and gender for girls at pretest and posttest in the intervention and control groups

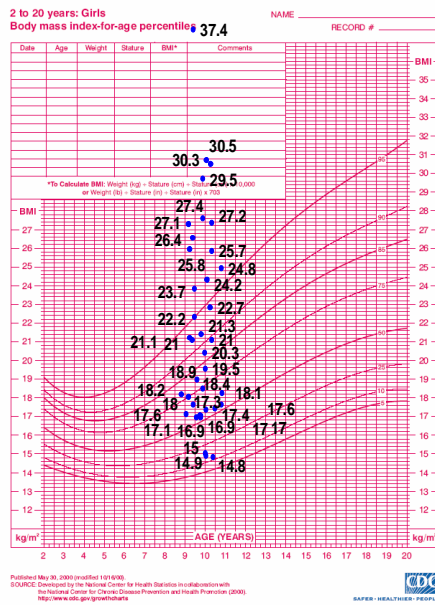
Girls: Intervention Pretest



Girls: Intervention Posttest



Girls: Control Pretest



Girls: Control Posttest

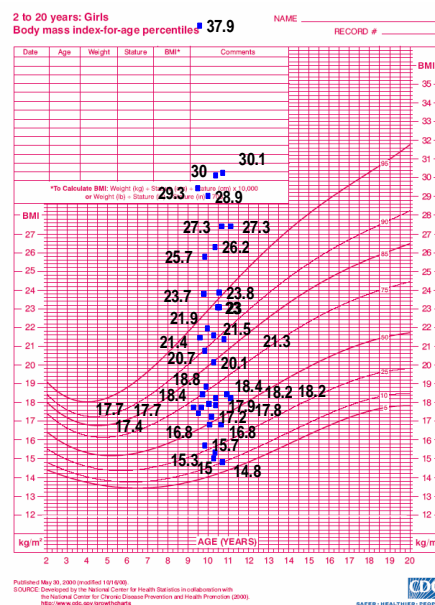
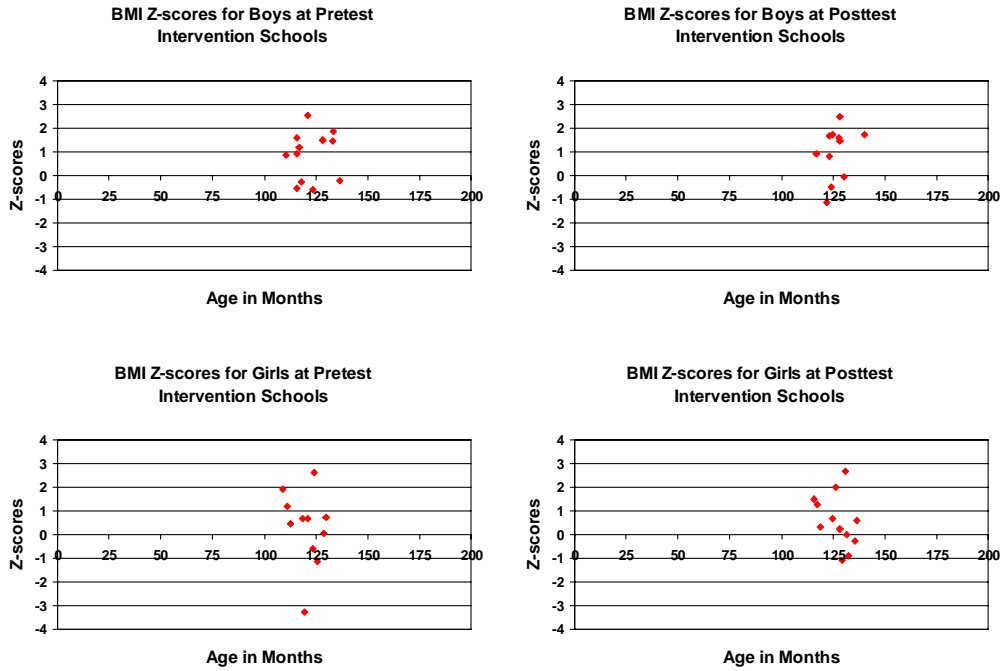
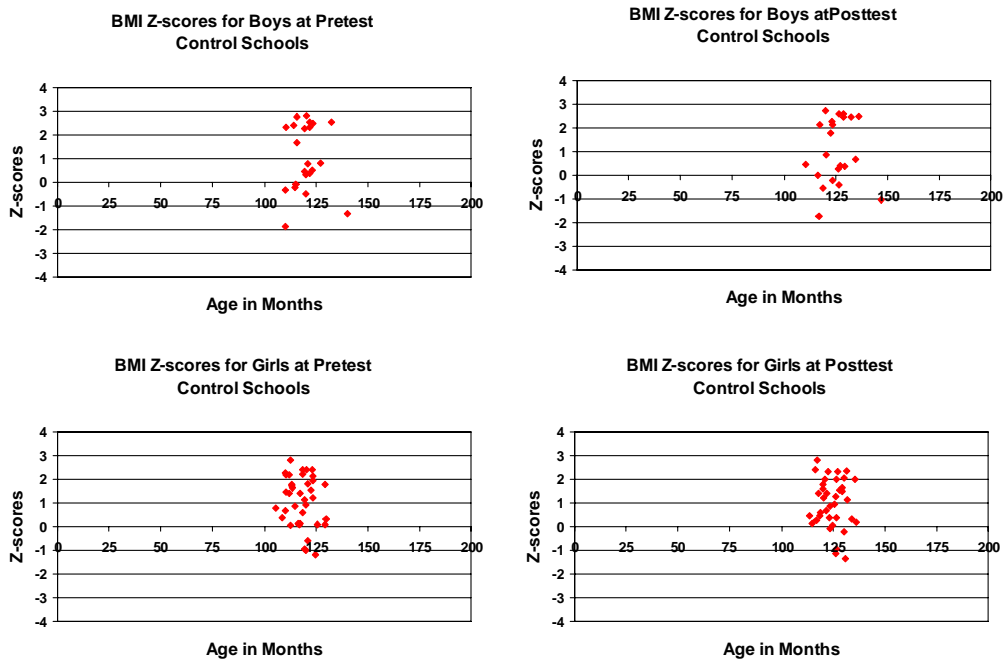


Figure 5: BMI z-scores at pretest and posttest for intervention and control groups

Intervention Schools



Control Schools



CHAPTER V
CONCLUSION

Summary

The effectiveness of the nutrition and physical activity components of the It's All About Kids program is indicated by changes in the students' knowledge, attitudes, and behaviors related to nutrition and physical activity, by changes in the self-reported food choices after the intervention, by changes in physical fitness after the intervention, and by physical changes in body composition after the intervention.

These results document the feasibility of implementing a multicomponent program to prevent overweight in elementary schools. The It's All About Kids intervention program had a positive impact on knowledge, attitudes, and behavioral intent related to some aspects of healthy eating and physical activity. The program was responsible for significant positive changes in key outcome measures that reflect the student's healthy food choice intention and knowledge of which food has more fat. There were positive changes in (decreased level of) saturated fat and sodium in the self-reported prior day food choices after the intervention and at follow-up.

Positive changes in fitness were reflected in the FitnessGram[®] measures for aerobic capacity, muscle strength and endurance. BMI z-scores showed a significant decrease over the time of the two measures as did the BMI percentiles.

A weakness of this study is that, given the small sample size for physical activity measures and the fact that students were measured with their shoes on, the FitnessGram[®] element of this study may not be generalizable. Other weaknesses of this study include those associated with KAB and CATCH data that were self-reported by 4th grade students. The extent to which children of this age may be influenced by perceived social desirability of their answers is unknown.

Discussion

Baseline measures for BMI, BMI percentile, and BMI z-scores in this study were much higher than national averages. Because of this, it was critical to identify positive changes after the intervention that could help to prevent and reduce risk of overweight and overweight in this population. Using the KAB survey, CATCH Food Checklist, and FitnessGram[®], respectively, this study attempted to discover if there were foundational changes in knowledge, attitudes and behaviors including enabling changes in intention and self-efficacy, to determine if there were changes in what students reported as their actual food choices; and to identify any resultant changes in aerobic capacity, muscle strength, endurance, and body composition after the intervention. The nutrition and physical activity components did result in changes in some aspects of knowledge, self-efficacy, intentions, and behaviors, but affected some elements differently in boys and girls. As in several other school-based studies focused on prevention of overweight in elementary school children, this study found increases in knowledge and positive changes in self-reported attitudes and behaviors. This study also showed positive changes in self-reported food choices, and some physical activity measures. Although the sample size was small, changes in BMI z-scores also reflected an improvement over time.

Conclusion

Our research questions and corresponding hypotheses were as follows:

- 1) Were there changes in the students' knowledge, attitudes, and beliefs related to nutrition and physical activity after the intervention?
- 2) Were there changes in the actual self-reported food choices after the intervention?
- 3) Were there changes in physical fitness after the intervention?
- 4) Were there physical changes in body composition after the intervention?

H₀1: There is no significant difference in the mean KAB scores between intervention and control groups.

H₀2: There is no significant difference in the mean CATCH Food Checklist scores between intervention and control groups.

H₀3: There is no significant difference in the mean Coopers FitnessGram[®] measures between intervention and control groups.

H₀4: There is no significant difference in the mean BMI z-score of students between Intervention and control groups.

To answer question 1, we used a modified version of the Pathways KAB questionnaire to measure Knowledge, Attitudes, and Behavioral intent. There were significant differences in the mean KAB scores over time in the pretest, posttest, to follow-up period on the food choice intention scale. There were significant differences in the mean KAB scores over time in the pretest to posttest period, but not in the pretest, posttest, follow-up time period on the which food has more fat scale. More reinforcement of the message over time is likely needed to sustain some of the gains

made in this 6-week nutrition program. There were significant differences in the mean KAB scores between intervention and control groups in the areas of food choice intentions (girls), and physical activity knowledge and physical activity self-efficacy (boys) after the intervention.

To answer question 2, we used the CATCH Food Checklist to measure self-reported prior day food choices. There were significant differences within groups with large effect sizes over time for saturated fat and sodium in the CATCH scores. Improvements over time were seen in both the intervention and control groups. The between group differences were not at a significant level.

To answer question 3, we used the Coopers FitnessGram[®] to measure physical fitness in terms of aerobic capacity, muscular strength and endurance, and body composition. There were significant differences with large effect sizes over time for aerobic capacity, muscle strength and endurance, and there were moderate effect sizes over time for body composition. These physical activity improvements over time were seen in both the intervention and control groups; the difference between the groups was not at a statistically significant level, with the exception of upper body strength as measured by pushups. The significant difference recorded in favor of the control group for pushups at pretest was maintained at posttest.

To answer question 4, we used BMI z-scores calculated by EpiInfo based on FitnessGram[®] data. There was a significant effect for time, but not a significant difference between groups.

Limitations

Internal consistency of the KAB measures was comparable to that in the Pathways study for which the KAB survey was originally developed but, as in the former study, the Cronbach α coefficient was below the targeted value of 0.7 for some scales.

A particular challenge associated with completing this study was smaller than anticipated sample size due to low parental consent return rate, poor school attendance, and scheduling conflicts that precluded a follow-up nutrition survey in one school. Out of 529 consent forms that were sent home with 4th grade students, 143 (27%) were signed and returned. Low attendance, a characteristic of Title I schools, further reduced the sample population. Of the 143 students with parental consent, 133 (93%) took the nutrition pretest, 116 (81%) took the nutrition posttest, and 86 (60%) took the nutrition follow-up. Although 87 of the 143 students with parental consent (61%) were represented on the FitnessGram[®] Summary Reports, only 20 of the intervention students had BMI information recorded at both the beginning and end of the school year. Due to staff turnover, one of the larger intervention schools had a substitute physical education teacher for an extended period and did not complete the physical activity measurements. A limitation of our use of the KAB survey was that the nutrition knowledge questions were developed specifically for the Pathways nutrition curriculum. Most questions were generalizable, but may not have accurately measured knowledge of the It's All About Kids nutrition curriculum.

Although the average 4th grader's attention span and ability to follow directions is adequate for a 30 minute questionnaire, some students had difficulty staying focused on the task. Three classes were Spanish-speaking, and the instructions and questions had to

be translated by the teacher. This could have introduced a deviation from the process for administering the KAB and CATCH surveys for those classes.

Differentiating the effects of two specific components out of the eight components implemented in two of the intervention schools was not possible.

Implications

The results of this study document the feasibility of implementing a multicomponent program to prevent overweight in elementary schools. Several suggestions will be shared with program staff.

This study shows that the KAB survey is useful for children outside the Southwest Native American population. A recommendation to the program is to continue the outcomes measures with a focus on consistency in obtaining measures that are repeatable and generalizable. The physical activity measures need to continue and be taken consistently at the beginning and end of each school year. Anthropometric measures need to be done consistently with standards. In future studies, a concerted effort needs to be made to include more schools or to raise participation rates in order to increase the sample size for outcomes measurement.

In its initial year, this program has successfully mobilized its community partners to support a change program, implemented a treatment program in a substantial number of schools, and produced outcomes measurements that may help to justify additional funding for an expansion of the program to additional schools. This model may be generalized to the school health community. Forming partnerships with stakeholders was key to the success of the program. Teaming up with the health department, the school system, the local universities, hospitals, and other child-centered organizations enabled

the program to be implemented ontime and within constraints. A sound nutrition curriculum coupled with a strong physical activity component enabled positive changes in lifestyle for the students.

School-based programs that combine healthy eating and physical activity provide what may be the best opportunity to enhance health during critical periods of growth, to nurture or reinforce healthy choices and behaviors, and thus to lower the risk of chronic diseases later in life (Veuglers & Fitzgerald, 2005). A limited number of studies have been conducted in school-based overweight prevention programs. Notable among them was the Pathways study. Although Pathways resulted in no significant reduction in body fat, the main outcome, it did find significant positive changes in fat intake and in food- and health-related knowledge, attitudes, and behaviors (Caballero, et al., 2003). The Child and Adolescent Trial for Cardiovascular Health was a multiyear, multicomponent coordinated school health program. After the CATCH trial, students consumed less fat and were more physically active in school and outside of school (Hoelscher, et al., 2001). In a multilevel comparison of the effectiveness of school programs, Veuglers and Fitzgerald (2005) found that schools with a program consistent with the CDC recommendations for school-based healthy eating programs reported substantially less overweight and obesity. This present study adds to the current knowledge base by demonstrating the effectiveness of the It's All About Kids program. Implications that are broader for the profession and for the school health community will become evident as more programs are documented. That will enable communities to set evidence-based health policy and justify broader-based implementation of successful interventions.

Future Research

Future studies of both the nutrition and physical activity components may need to be more intense and longer in duration to sustain changed behaviors long enough to impact body composition. A longitudinal study of this cohort could help to establish whether there are long term benefits to the program. The effectiveness and impact of additional program components such as parental participation and community involvement through health services, ancillary services, and child development services could be explored in future research. The program could continue to build on its strengths in community partnerships by enlisting the cooperation of an entire community including grocery stores, fitness centers, schools, families, support groups, health care, urban development, and community centers to reinforce the nutrition and physical activity messages and to provide a supportive environment in which students could exercise their new decision-making and negotiating skills in relation to their food choices and physical activity behaviors. Planned intervention over several school years will reinforce and sustain the positive changes in knowledge, attitudes, and behavioral intent, and may see the positive trend in actual healthier food choices reflected in a significant improvement in physical fitness and body composition for this population.

In summary, the It's All About Kids study showed that significant improvement in knowledge, attitudes, and behaviors related to diet and exercise can be achieved by nutrition classes and increased physical activity. In its initial year, this program has documented the intervention process such that an effective intervention may have more widespread implementation. Outcome measures may be used to justify funding for further implementation of an evidence-based program. The outcome measures showed

increased knowledge, healthier reported food choices, increased physical fitness, and positive changes in body composition. These results suggest that a broader implementation of the program is warranted.

REFERENCES

- American Academy of Pediatrics. (2003). Prevention of pediatric overweight and obesity. *Pediatrics*, 112(2), 424-429.
- American Dietetic Association [ADA]. (2004). Position of the American Dietetic Association: Dietary guidance for healthy children ages 2 to 11 years. *Journal of the American Dietetic Association*, 104, 660-677.
- Anderson, A. S., Porteous, L. E. G., Foster, E., Higgins, C., Stead, M., & Hetherington, M., et al. (2005). The impact of a school-based nutrition education intervention on dietary intake and cognitive and attitudinal variables relating to fruits and vegetables. *Public Health Nutrition*, 8(6), 650-656.
- Atkinson, R. L. & Nitzke, S. A. (2001). School based programmes on obesity increase knowledge about nutrition but do not change eating habits by much. *British Medical Journal*, 323,1018-1019.
- Bar-Or, O., Foreyr, J., Bouchard, C., Brownell, K. D., Dietz, W. H., & Ravussin, E., et al. (1998). Physical activity, genetic, and nutritional considerations in childhood weight management. *Medicine & Science in Sports & Exercise*, 30(1), 2-10.
- Baughcum, A. E., Burklow, K. A., Deeks, C. M., Powers, S. W., & Whitaker, R.C.

(1998). Maternal feeding practices and childhood obesity. *Archives of Pediatric and Adolescent Medicine*, 152, 1010-1014.

Bautista-Castaño, I., Doreste, J., & Serra-Majem, L. (2004). Effectiveness of interventions in the prevention of childhood obesity. *European Journal of Epidemiology*, 19, 617-622.

Bere, E., & Klepp, K. (2005). Changes in accessibility and preferences predict children's future fruit and vegetable intake. *The International Journal of Behavioral Nutrition and Physical Activity*, 2:15doi:10.1186/1479-5868-2-15.

Briggs, M., Safaii, S., & Beall, D. L. (2003). Position of the American Dietetic Association, Society for Nutrition Education, and American School Food Service Association – Nutrition services: An essential component of comprehensive school health programs. *Journal of the American Dietetic Association* 103, 505-514.

Caballero, B., Clay, T., Davis, S. M., Ethelbah, B., Holy Rock, B., Lohman, T., et al. (2003). Pathways: A school-based randomized controlled trial for the prevention of obesity in American Indian schoolchildren. *American Journal of Clinical Nutrition*, 78: 1030-1038.

Centers for Disease Control and Prevention. (1996). Guidelines for school health programs to promote lifelong healthy eating. *MMWR* 1996; 45 (No. RR-9):1-33.

Centers for Disease Control and Prevention. (1997). Guidelines for school and community programs to promote lifelong physical activity among young people. *MMWR* 1997; 46 (No. RR-6):1-36.

Centers for Disease Control and Prevention. (2005). Public health strategies for preventing and controlling overweight and obesity in school and worksite settings. *MMWR* October 7, 2005/54(RR10);1-12.

Centers for Disease Control and Prevention. (2006). Youth risk behavior surveillance – United States, 2005. *MMWR* June 9, 2006/55(SS-5); 1-108.

Cohen, J. (1998). *Statistical power analysis for the behavioral sciences* (pp. 285-288). Hillsdale, NJ: Erlbaum.

Daniels, S. R., Arnett, D. K., Eckel, R. H., Gidding, S. S., Hayman, L. L., & Kumanyika, S., et al. (2005). Overweight in children and adolescents: Pathophysiology, consequences, prevention, and treatment. *Circulation: Journal of the American Heart Association*, 111, 1999-2012.

Dietz, W. H., & Gortmaker, S. L. (2001). Preventing obesity in children and adolescents.

Annual Review of Public Health, 22, 337-353.

Dwyer, J. T., Garceau, A. O., Hoelscher, D. M., Smith, K. W., Nicklas, T. A., & Lytle, L. A., et al. (2001). Development of a food checklist for fat, saturated fat, and sodium for middle school students. *Family Economics and Nutrition Review*, 13(2), 3-11.

Ebbeling, C. B., Pawlak, D. B., & Ludwig, D. S. (2002). Childhood obesity: Public-Health crisis, common sense cure. *The Lancet*, 360, 473-482.

Garcia, R. S. (2004). No come nada: A Mexican American pediatrician calls for nationwide backup in fighting childhood obesity among his patients. *Health Affairs*, 23(2), 215-219.

Gidding, S. S., Dennison, B. A., Birch, L. L., Daniels, S., Gilman, M. W., Lichtenstein, et al. (2005). Dietary recommendations for children and adolescents: A guide for practitioners: Consensus statement from the American Heart Association. *Circulation: Journal of the American Heart Association*, 112, 2061-2075.

Hodges, E. A. (2003). A primer on early childhood obesity and parental influence. *Pediatric Nursing*, 29(1), 13-16.

Hoelscher, D. M., Kelder, S. H., Murray, N., Cribb, P. W., Conroy, J., & Parcel, G. S.

(2001). Dissemination and adoption of the child and adolescent trial for cardiovascular health (CATCH): A case study in Texas. *Journal of Public Health Management Practice*, 7(2), 90-100.

Hood, E. (2005). Sharing solutions for childhood obesity. *Environmental Health Perspectives*, 113(8), A520-A522.

Horne, P. J., Tapper, K., Lowe, C. F., Hardman, C. A., Jackson, M. C., & Woolner, J. (2004). Increasing children's fruit and vegetable consumption: A peer-modelling and rewards-based intervention. *European Journal of Clinical Nutrition*, 58(12), 1649-1660.

Koplan, J. P., Liverman, C. T., & Kraak, V.I. (2005). Preventing childhood obesity. *Issues in Science and Technology*. Spring 57-64.

Koplan, J. P., Liverman, C. T., & Kraak, V. I. (Eds.). (2005). *Preventing childhood obesity: Health in the balance*. Washington, DC: National Academies Press.

Latner, J. D., & Stunkard, A. J. (2003). Getting worse: The stigmatization of obese children. *Obesity Research*, 11, 452-456.

Lavizzo-Mourey, R. (2004). Childhood obesity: The killer threat within. *Vital Speeches of the Day*, Apr 15; 70(13), ABI/INFORM Global, 396-400.

- Lederman, S. A., Akabas, S. R., & Moore, B. J. (2004). Editors' overview of the Conference on Prevention of Childhood Obesity. *Pediatrics*, 114(4), 1139-1145.
- Lynn-Garbe, C., & Hoot, J. L. (2004/2005). Weighing in on the issue of childhood obesity. *Childhood Education*, 81(2), 70-76.
- Morantz, C., & Torrey, B. (2004). Recommendations to reduce obesity in children and adolescents. *American Family Physician*, 70(12), Research Library, 2377-2378.
- Myers, S., & Vargas, Z., (2000). Parental perceptions of the preschool obese child. *Pediatric Nursing*, 26(1), 23-30.
- National Institutes of Health/National Institute on Aging (2005). Obesity threatens to cut U.S. life expectancy, new analysis suggests. 2005-03-21. Retrieved January 27, 2006 from <http://www.sciencedaily.com/releases/2005/03/050321085233.htm>
- Nicklas, T. A., Yang, S., Baranowski, T., Zakeri, I., & Berenson, G. (2003). Eating patterns and obesity in children: The Bogalusa Heart Study. *American Journal of Preventive Medicine*, 25(1), 9-16.
- Olshansky, S. J., Passaro, D. J., Hershow, R. C., Layden, J., et al. (2005). A potential

decline in life expectancy in the United States in the 21st century. *The New England Journal of Medicine*, 352, 1138-1146.

Pinhas-Hamiel, O., Dolan, L. M., Daniels, S. R., Standiford, D., Khoury, P. R., & Zeitler, P. (1996). Increased incidence of non-insulin-dependent diabetes mellitus among adolescents. *Journal of Pediatrics*, 128:608-15.

Rhee, K. E., Lumeng, J. C., Appugliese, D. P., Kaciroti, N., & Bradley, R. H. (2006). Parenting styles and overweight status in first grade. *Pediatrics*, 117, 2047-2054.

Rich, S. S., DiMarco, N. M., Huettig, C., Essery, E. V., Andersson, E., & Sanborn, C. F. (2005). Perceptions of health status and play activities in parents of overweight Hispanic toddlers and preschoolers. *Family and Community Health*, 28(2), 130-141.

Roberts, S. O. (2000). The role of physical activity in the prevention and treatment of childhood obesity. *Pediatric Nursing*, 26, 00979805.

Schwimmer, J. B., Burwinkle, T. M., & Varni, J. W. (2003). Health-related quality of life of severely obese children and adolescents. *Journal of the American Medical Association* 289(14), 1813-1819.

Smith, K. W., Hoelscher, D. M., Lytle, L. A., Dwyer, J. T., Nicklas, T. A., Zive, M. M.,

et al. (2001). Reliability and validity of the Child and Adolescent Trial for Cardiovascular Health (CATCH) food checklist: A self-report instrument to measure fat and sodium intake by middle school students. *Journal of the American Dietetic Association*, 101, 635-647.

Stevens, J., Cornell, C. E., Story, M., French, S. A., Levin, S., Becenti, et al. (1999).

Development of a questionnaire to assess knowledge, attitudes, and behaviors in American Indian children. *American Society for Clinical Nutrition*, 69(4), 773S-781S.

Stevens, J., Story, M., Ring, K., Murray, D.M., Cornell, C.E., Juhaeri, et al. (2003). The impact of the Pathways intervention on psychosocial variables related to diet and physical activity in American Indian schoolchildren. *Preventive Medicine*, 37, S70-S79.

The Cooper Institute, Scope of our work (n.d.). Retrieved July 17, 2006 from <http://www.cooperinst.org>

Thorpe, L. E., List, D. G., Marx, T., May, L., Helgerson, S. D., & Frieden, T.R. (2004). Childhood obesity in New York City elementary school students. *American Journal of Public Health*, 94, 1496-1500.

Veugelers, P. J., & Fitzgerald, A. L. (2005). Effectiveness of school programs in

preventing childhood obesity: A multilevel comparison. *American Journal of Public Health*, 95, 432-435.

Walters, P. H., Holloman, A., Blomquist, L., & Bollier, M. (2003). Childhood obesity: Causes and treatment. *ACSM's Health & Fitness Journal*, January/February, 17-22.

Wardle, J., Cooke, L. J., Gibson, E. L., Sapochnik, M., Sheiham, A., & Lawson, M. (2003). Increasing children's acceptance of vegetables; a randomized trial of parent-led exposure. *Appetite*, 40, 155-162.

Weight Realities Division of the Society for Nutrition Education. (2003). Guidelines for childhood obesity prevention programs: Promoting healthy weight in children. *Journal of Nutrition Education and Behavior*, 35, 1-4.

Wickramasinghe, V. P., Cleghorn, G. J., Edmiston, K. A., Murphy, A. J., Abbott, R. A., et al., (2005). Validity of BMI as a measure of obesity in Australian white Caucasian and Australian Sri Lankan children. *Annals of Human Biology*, 32, 60-71.

Wilson, P., O'Meara, S., Summerbell, C., & Kelly, S. (2003). The prevention and treatment of childhood obesity. *Quality Safety Health Care*, 12, 65-74.

Wolfe, W. (2003). Preventing childhood obesity at school, at home, and in the community. *Human Ecology*, 31(2), 23.

APPENDICES

APPENDIX A

INSTITUTIONAL REVIEW BOARD
APPROVAL FORM

Oklahoma State University Institutional Review Board

Date: Monday, November 28, 2005
IRB Application No HE0622
Proposal Title: It's All About Kids

Reviewed and Processed as: Expedited (Spec Pop)

Status Recommended by Reviewer(s): Approved Protocol Expires: 11/27/2006

Principal Investigator(s)

Norma DeVault
1528 S. Gary Pl.
Tulsa, OK 74104

Tay Seacord Kennedy
312 HES
Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Beth McTernan in 415 Whitehurst (phone: 405-744-5700, beth.mcternan@okstate.edu).

Sincerely,



Sue C. Jacobs, Chair
Institutional Review Board

APPENDIX B

PRINCIPAL'S CONSENT FORM



PRINCIPAL'S CONSENT FORM

To Whom it May Concern:

I give my consent to Norma DeVault, a graduate student from Oklahoma State University's Department of Nutritional Sciences, to collect data in the fourth grade classes at my elementary school this academic year. I understand that the study will be reviewed by the university's Institutional Review Board and that informed consent will be obtained from teachers and parents before children are allowed to participate. Research Assistants will be required to check in at the office upon entering and leaving the school and teachers' schedules will be honored. Any questions will be addressed to Norma DeVault as they arise. She can be reached at (918) 744-6489.

Principal's Signature

Date

Elementary School

APPENDIX C

COVER LETTER FOR PARENTAL CONSENT
AND CHILD ASSENT FORM



Cover Letter for Parental Consent and Child Assent Form

Hello!

I am a graduate student at Oklahoma State University. I would like to invite your child to take part in a project to find out how much fourth grade children are learning about nutrition and health. We want to know if a program of nutrition classes with food facts, games and fun food demos helps students learn more about healthy eating.

Students' answers to survey questions will remain confidential. Student names will not be recorded with the data. Students may drop out at any time with no penalty.

Please read the attached consent form and sign it if you and your child are willing to have your child participate in this study. If you do not want your child to participate, please do not return the form.

Thank you!

Norma DeVault

APPENDIX D

SCRIPT FOR RECRUITING PARENTS
OF 4th GRADE STUDENTS



Script for TEACHERS for recruiting *PARENTS OF 4TH GRADE STUDENTS*

Students,

You can be a very special part of an important study that the Tulsa Health Department and the Tulsa Public Schools are doing. With your help, they will be able to find out how much you are learning about nutrition and health. A graduate student at Oklahoma State University has asked for your help and your parent will need to sign a form giving you permission.

You would be helping us find out if food facts, games, and fun food demos help students learn about healthy eating. Please take this home for your parent to read. If you and your parents choose to participate, please bring the signed form back to school tomorrow.

Thank you!

APPENDIX E

CONSENT FORM FOR PARENTS
OF 4th GRADE STUDENTS

CONSENT FORM for PARENTS OF 4th GRADE STUDENTS

PROJECT TITLE: It's All About Kids!

INVESTIGATOR: Norma DeVault

PURPOSE: The Tulsa Public Schools system has implemented the It's All About Kids program for elementary aged youth to reduce obesity, improve school performance and enhance decision/negotiation skills. This research project will evaluate effectiveness of the nutrition and physical education components of the program.

Your child qualifies for the study because he or she is in the fourth grade.

PROCEDURES:

If you decide for your child to participate in this project, he or she will be asked to participate in the following ways:

As part of the project, your child will three times be asked to spend approximately 30 minutes completing the following (once at the beginning of the nutrition education segment of the program, once at the end, and once three weeks after the end of the program.):

- a.) One questionnaire about knowledge, attitudes, and behaviors related to nutrition and physical activity.
- b.) One Checklist that asks the child to recall specific types of foods that were eaten the day before.

These two forms will be administered during regularly scheduled class time.

Benefits of Participation

The benefits of participating in the study are as follows:

We expect children to demonstrate gains in the areas of knowledge, attitudes, and behaviors related to nutrition and physical activity.

- Help students recognize and implement a healthy eating pattern in their lifestyle.
- Help students engage in physical activity.
- Enhance decision/negotiation skills among youth.

Your child's participation will provide useful information on these topics. The findings from this project will contribute to future programs aimed to improve children's health by building healthy habits for a lifetime.

Compensation

No additional incentive is being offered for participation.

Risks of Participation

The risks to your child are minimal. It is possible (but not expected) that your child may become uncomfortable during the completion of the questionnaires. If your child is uncomfortable with answering any question on the questionnaire, he or she may leave the question blank or withdraw from the procedure at that point with absolutely no penalty.

Confidentiality

All information about your child will remain confidential and will not be released. Information we collect will be recorded with an identification number, and names will not be kept with the files after the ID is assigned. All information will be kept in a secure place that is open only to the researchers and their assistants. This information will be saved as long as it is scientifically useful; typically, such information is kept for five years after publication of the results. Results from this study may be presented at professional meetings or in publications. Any written results will discuss group findings, not information identifying individual students or parents.

Participant rights

I understand that my participation is voluntary, that there is no penalty for refusal to participate, and that I am free to withdraw my consent and participation in this project at any time, without penalty and without affecting the services I receive from the school or from Oklahoma State University.

How not to participate

If you do not want your child to participate in the evaluation of the It’s All About Kids program, simply do not sign and return this form.

Investigator termination of participation

There are several situations in which your participation may be discontinued by the research staff, for example, the end of funding for the project.

Contacts:

If you have any questions about this research project, you may contact Tay Kennedy, Nutritional Sciences, Oklahoma State University, (405) 744-5965, or Dr. Jacobs, Institutional Review Board Office, Oklahoma State University, (405) 744-1676. You may also contact the project investigator, Norma DeVault, a graduate student at Oklahoma State University, Nutritional Sciences Department, (918) 744-6489; Amber Jaworsky, School Health Coordinator/Community Relations Coordinator, Tulsa Health Department, (918) 595-4478; Laura Williams, Child Nutrition Educator, Tulsa Public Schools, (918) 746-6409 with any questions concerning the project or participant’s rights.

My child, _____ has my permission to participate in this project.

Parent’s Signature

Date

APPENDIX F

KNOWLEDGE, ATTITUDES AND BEHAVIORS
QUESTIONNAIRE (KAB)

Student Name (print name here): _____ Date: _____



**Knowledge, Attitudes and Behaviors Questionnaire
(KAB)**

Version G*
Spring 2000



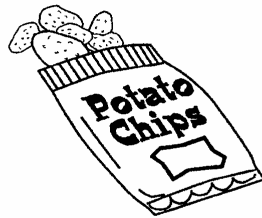
Student ID: _____ Grade: 4
Student Name: (last) _____

(first, middle initial)

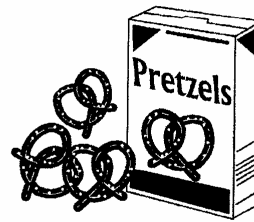
Class ID: _____
Teacher: _____

What Would You Do?

1 Which would you pick for a snack?

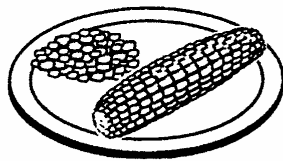


¹
potato chips

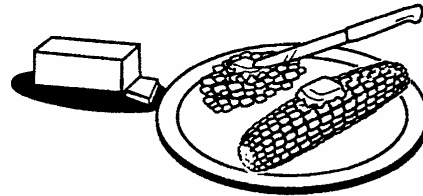


²
pretzels

2 Which would you do?

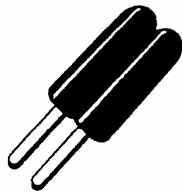


¹
eat corn with no butter



²
eat corn with butter

3 Which one would you ask for?

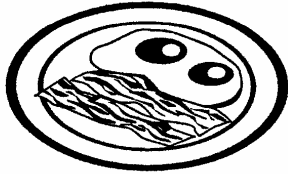


¹
popsicle



²
ice cream

4 Which would you choose for breakfast?



1
eggs, bacon



2
cold cereal

5 Which would you order at a fast food restaurant?

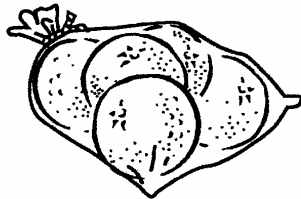


1
regular hamburger

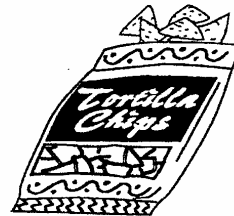


2
extra big hamburger

6 Which food would you ask the adults in your house to buy?



1
bag of oranges

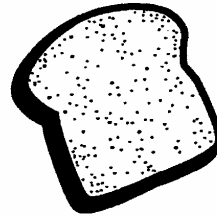


2
bag of tortilla chips

7 Which would you choose to eat in the morning?



1
donut



2
toast with no butter

8 Which would you choose to drink?



1
diet pop



2
regular pop

APPENDIX F, continued

How Sure Are You?

1 I can play hard during most of recess.

¹
I know I can ²
I think I can ³
I'm not sure I can ⁴
I know I can't

2 I can play hard during most of P.E. class.

¹
I know I can ²
I think I can ³
I'm not sure I can ⁴
I know I can't

3 I can play hard every day.

¹
I know I can ²
I think I can ³
I'm not sure I can ⁴
I know I can't

4 At the store, I can ask for a popsicle instead of ice cream.

¹
I know I can ²
I think I can ³
I'm not sure I can ⁴
I know I can't

5 I can eat a fruit (for example: banana, apple, or orange) every day.

¹
I know I can ²
I think I can ³
I'm not sure I can ⁴
I know I can't

APPENDIX F, continued

6 I can drink water instead of regular pop or Kool-aid.

¹
I know I can

²
I think I can

³
I'm not sure I can

⁴
I know I can't

7 At home, I can ask for cheese pizza instead of pepperoni pizza.

¹
I know I can

²
I think I can

³
I'm not sure I can

⁴
I know I can't

8 I can ask for corn with no butter.

¹
I know I can

²
I think I can

³
I'm not sure I can

⁴
I know I can't

9 I can drink diet pop instead of regular pop.

¹
I know I can

²
I think I can

³
I'm not sure I can

⁴
I know I can't

10 At school, I can try a new vegetable.

¹
I know I can

²
I think I can

³
I'm not sure I can

⁴
I know I can't

11 At the store, I can ask to buy fruit instead of potato chips.

¹
I know I can

²
I think I can

³
I'm not sure I can

⁴
I know I can't

APPENDIX F, continued

1 Which of these foods has the highest amount of fat?

- a. fried chicken
- b. green vegetables
- c. whole grain bread

2 How often should you eat foods that have lots of fat or beverages with lots of sugar in them?

- a. as often as you like
- b. only once in a while, not every day
- c. several times each day

3 Which beverage has the lowest amount of sugar?

- a. diet pop
- b. regular pop
- c. regular Kool-aid

4 Which is the best way to help friends who want to get more exercise?

- a. ignore them
- b. tell them some things you do to get exercise
- c. become their exercise partner

5 Which part of a food label tells how much fat is in the food?

- a. the brand name
- b. the ingredients
- c. the nutrition facts

6 Which will have the lowest amount of fat?

- a. a hamburger with cheese
- b. a hamburger with lettuce, tomato and pickle
- c. a hamburger and fries

7 Which is best for getting plenty of exercise?

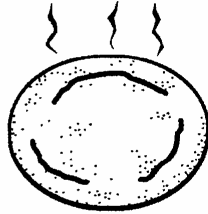
- a. exercise by your own exercise plan and goals
- b. exercise only the amount you feel like each day
- c. exercise the same amount your friends do

Page 6

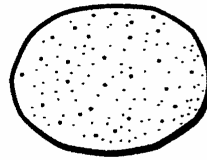
APPENDIX F, continued

Which Food Has More Fat?

1 fry bread tortilla don't know



1



2

?

3

2 meat fried in a pan meat cooked on a grill don't know



1

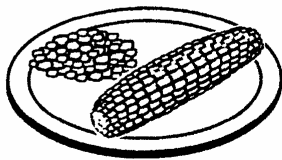


2

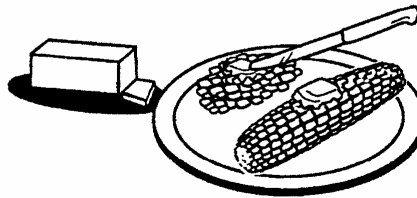
?

3

3 corn with no butter corn with butter don't know



1



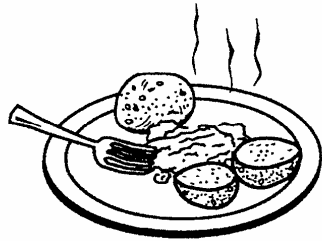
2

?

3

APPENDIX F, continued

4 boiled potato



1

fried potato



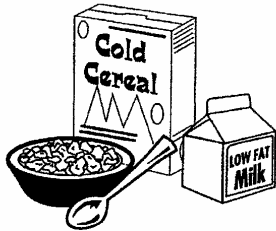
2

don't know

?

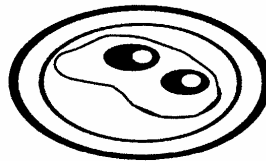
3

5 cold cereal



1

fried eggs



2

don't know

?

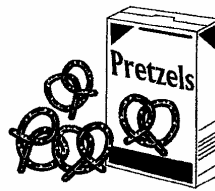
3

6 chips



1

pretzels



2

don't know

?

3

APPENDIX F, continued

What Do You Think About Yourself?

1 Do you think you are

¹
Too skinny

²
About right

³
Too fat

2 Do you worry about being too skinny?

¹
Yes

²
No

3 Do you worry about being too fat?

¹
Yes

²
No

4 Have you ever tried to lose weight?

¹
Yes

²
No

5 Are you now trying to lose weight?

¹
Yes

²
No

APPENDIX F, continued

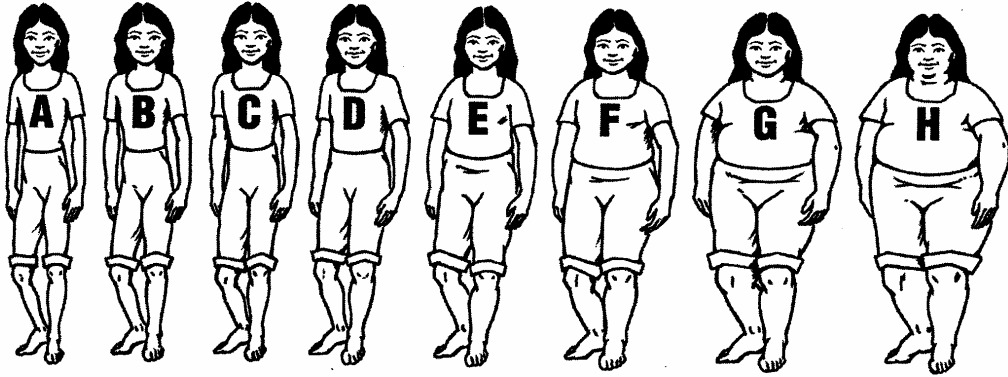
6 Circle the "Yes" beside all the things you have ever done to try to lose weight and the "No" beside all the things you have never done to try to lose weight.

- | | | |
|---|---------------------|--------------------|
| a. I changed what or how much I ate to lose weight | ¹
Yes | ²
No |
| b. I exercised more to lose weight | ¹
Yes | ²
No |
| c. I skipped a whole meal to lose weight | ¹
Yes | ²
No |
| d. I went for a whole day without eating to lose weight | ¹
Yes | ²
No |
| e. I ate only cooked food to lose weight | ¹
Yes | ²
No |
| or | | |
| f. I have never tried to lose weight | ¹
Yes | ²
No |

7 Have you ever done anything else to lose weight?

APPENDIX F, continued

GIRLS

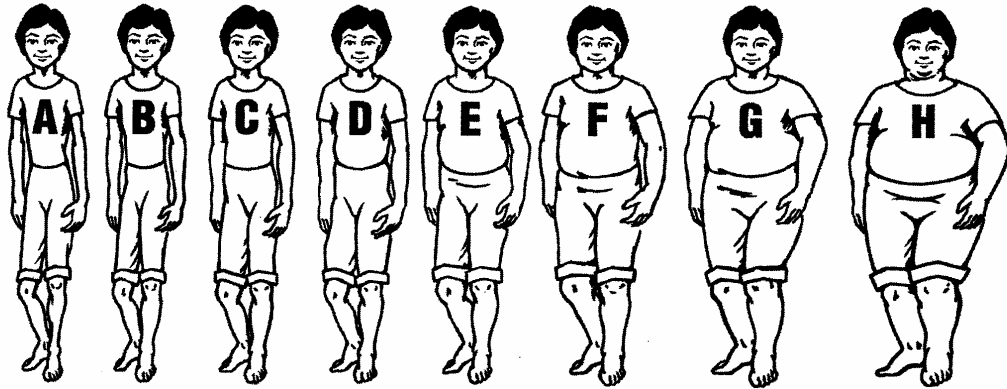


8 Which student or students show the sizes that you think are most healthy?

A B C D E F G H

APPENDIX F, continued

Boys



8 Which student or students show the sizes that you think are most healthy?

A B C D E F G H

APPENDIX G

CATCH FOOD CHECKLIST

Student Name (print name here): _____ Date: _____

Child and Adolescent Trial for Cardiovascular Health
CATCH Food Checklist*

* Modified for "It's All About Kids", Fall 2005



Student ID: _____ Grade: 4
Student Name: (last) _____
(first, middle initial) _____
Class ID: _____
Teacher: _____

APPENDIX G, continued

CATCH Food Checklist

Yesterday, did you eat or drink any of these foods:

1.	Hamburgers, cheeseburgers, chili, tacos, meatloaf, other ground beef dishes	1. No	2. Yes	1
2.	Hot dogs, frankfurters, corn dogs	1. No	2. Yes	2
3.	Beef, such as steaks, roasts, beef fajita, stir-fried beef, ribs, stew beef (not hamburger)	1. No	2. Yes	3
4.	Fried chicken, chicken nuggets, chicken patty, steak sticks, fried fish, fish nuggets, fried shrimp, fried oysters, chicken fried steak, egg rolls, dim-sum	1. No	2. Yes	4
5.	Turkey or chicken with skin eaten (not fried)	1. No	2. Yes	5
6.	Chicken salad, tuna salad, shrimp salad	1. No	2. Yes	6
7.	Cold cuts, bologna, ham, turkey luncheon meat, deli roast beef, other deli meat	1. No	2. Yes	7
8.	Bacon, sausage, chorizo, pickled pork	1. No	2. Yes	8
9.	Pork, including pork chops, spare ribs, roast pork	1. No	2. Yes	9
10.	Soup	1. No	2. Yes	10
11.	Spaghetti or other pasta with meat and tomato sauce	1. No	2. Yes	11
12.	Pizza, lasagna	1. No	2. Yes	12
13.	Cheese dishes such as macaroni and cheese, cheese nachos, cheese enchiladas, quesadillas	1. No	2. Yes	13
14.	Cheese or cheese spread, including American, Swiss, Cheddar	1. No	2. Yes	14
15.	Eggs, including scrambled, fried, omelets, hard boiled eggs, egg salad	1. No	2. Yes	15
16.	Whole milk (white or chocolate)	1. No	2. Yes	16
17.	2% fat milk (white or chocolate)	1. No	2. Yes	17
18.	Bread, buns (hamburger or hotdog), bagels, rolls (not sweet), tortillas, English muffins	1. No	2. Yes	18
19.	Biscuits, cornbread	1. No	2. Yes	19

APPENDIX G, continued

ID Label

CATCH Food Checklist (continued)

20.	Beans such as red or white beans, baked beans, refried beans	1. No	2. Yes	20
21.	Spanish rice, fried rice, other mixed rice dishes	1. No	2. Yes	21
22.	French fries, hash browns, tater tots, potato rounds	1. No	2. Yes	22
23.	Cold cereal	1. No	2. Yes	23
24.	Pancakes, waffles	1. No	2. Yes	24
25.	Pretzels	1. No	2. Yes	25
26.	Potato chips, corn chips, tortilla chips, popcorn, crackers, cheese puffs, other snack chips	1. No	2. Yes	26
27.	Pickles, olives	1. No	2. Yes	27
28.	Peanut butter, peanuts	1. No	2. Yes	28
29.	Cookies and bars, muffins, sweet rolls, cakes, snack cakes, granola bars	1. No	2. Yes	29
30.	Doughnuts, brownies, pies, pastries, croissants	1. No	2. Yes	30
31.	Ice cream, ice cream bars (not frozen yogurt, popsicles or fruit ice)	1. No	2. Yes	31
32.	Chocolate candy	1. No	2. Yes	32

Yesterday, did you or anyone else add any of these foods to other foods you ate, or did you eat any of these foods by themselves:

33.	Margarine	1. No	2. Yes	33
34.	Butter	1. No	2. Yes	34
35.	Mayonnaise	1. No	2. Yes	35
36.	Salad dressings such as Ranch, Italian, Thousand Island, French	1. No	2. Yes	36
37.	Gravy, cheese sauce	1. No	2. Yes	37
38.	Whipped cream, sour cream	1. No	2. Yes	38
39.	Ketchup, mustard, barbecue sauce	1. No	2. Yes	39
40.	Salt, soy sauce	1. No	2. Yes	40
41.	Yesterday, did you take a vitamin or mineral?	1. No	2. Yes	41

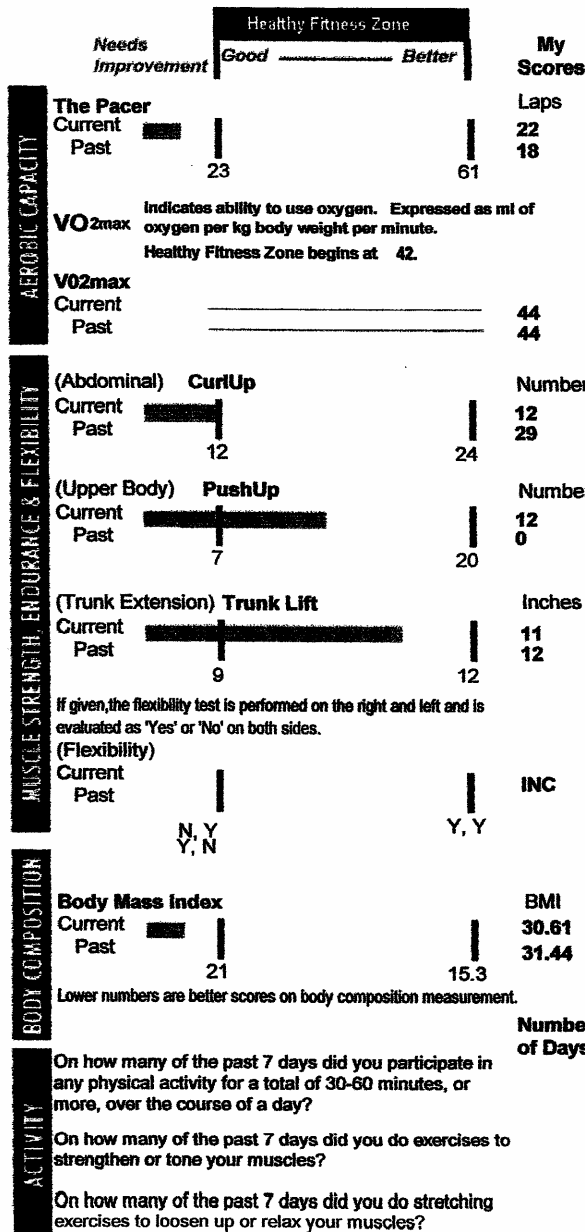
APPENDIX H

COOPERS FITNESSGRAM[®]

FITNESSGRAM®

Grade: 4 Age: 10
 ANDERSON ELEMENTARY
 Instructor: Pittman M

	Test Date	Height	Weight
Current	05/24/05	5'01"	162
Past	01/25/05	5'00"	161



MESSAGES

Way to go! Your scores on 3 of 5 test items were in or above the Healthy Fitness Zone. Scoring in the Healthy Fitness Zone will help you look and feel better. Keep up the good work!

To improve your aerobic capacity, you should be active most days of the week. Try to play active games, sports or other activities you enjoy a total of 60 minutes each day.

Your abdominal, trunk and upper body strength are all in the Healthy Fitness Zone. To maintain your fitness, abdominal and trunk exercises should be done 3 to 5 days each week. Strength activities for other parts of your body should be done 2 to 3 days each week.

It is important to do physical activity on most days to improve body composition. Also, eat a healthy diet including more fruits and vegetables and fewer fats and sugars. Improving body composition may help improve some of your other fitness scores.

To be healthy and fit it is important to do some physical activity almost every day. Aerobic exercise is good for your heart and body composition. Strength and flexibility exercises are good for your muscles and joints.

APPENDIX I

KNOWLEDGE, ATTITUDES, and BEHAVIORS (KAB)
FREQUENCIES AT PRETEST, POSTTEST,
AND FOLLOW-UP BY INTERVENTION
AND CONTROL GROUPS

Appendix I: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

Which would you pick for a snack?
Potato chips or pretzels

		Intervention				Control			
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid potato chips	26	36.6	44.1	44.1	22	31.9	36.7	36.7
	.59 pretzels	1	1.4	1.7	45.8	38	55.1	63.3	100.0
	Total	59	83.1	100.0	100.0	60	87.0	100.0	
	Missing System	12	16.9			9	13.0		
	Total	71	100.0			69	100.0		
Posttest	Valid potato chips	18	25.4	29.5	29.5	25	36.2	44.6	44.6
	pretzels	43	60.6	70.5	100.0	31	44.9	55.4	100.0
	Total	61	85.9	100.0		56	81.2	100.0	
	Missing System	10	14.1			13	18.8		
	Total	71	100.0			69	100.0		
Follow-up	Valid potato chips	13	18.3	27.7	27.7	15	21.7	38.5	38.5
	pretzels	34	47.9	72.3	100.0	24	34.8	61.5	100.0
	Total	47	66.2	100.0		39	56.5	100.0	
	Missing System	24	33.8			30	43.5		
	Total	71	100.0			69	100.0		

Which would you do?
Eat corn with no butter or eat corn with butter

		Intervention				Control			
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid eat corn with butter	30	42.3	50.8	50.8	45	65.2	75.0	75.0
	eat corn with no butter	29	40.8	49.2	100.0	15	21.7	25.0	100.0
	Total	59	83.1	100.0		60	87.0	100.0	
	Missing System	12	16.9			9	13.0		
	Total	71	100.0			69	100.0		
Posttest	Valid eat corn with butter	22	31.0	36.1	36.1	38	55.1	67.9	67.9
	eat corn with no butter	39	54.9	63.9	100.0	18	26.1	32.1	100.0
	Total	61	85.9	100.0		56	81.2	100.0	
	Missing System	10	14.1			13	18.8		
	Total	71	100.0			69	100.0		
Follow-up	Valid eat corn with butter	15	21.1	31.9	31.9	29	42.0	74.4	74.4
	eat corn with no butter	32	45.1	68.1	100.0	10	14.5	25.6	100.0
	Total	47	66.2	100.0		39	56.5	100.0	
	Missing System	24	33.8			30	43.5		
	Total	71	100.0			69	100.0		

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

Which would you ask for?
Popsicle or ice cream

		Intervention				Control			
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid ice cream	42	59.2	71.2	71.2	Valid ice cream	44	63.8	73.3
	popsicle	17	23.9	28.8	100.0	popsicle	16	23.2	26.7
	Total	59	83.1	100.0		Total	60	87.0	100.0
	Missing System	12	16.9			Missing System	9	13.0	
Total	71	100.0			Total	69	100.0		
Posttest	Valid ice cream	27	38.0	44.3	44.3	Valid ice cream	38	55.1	67.9
	popsicle	34	47.9	55.7	100.0	popsicle	18	26.1	32.1
	Total	61	85.9	100.0		Total	56	81.2	100.0
	Missing System	10	14.1			Missing System	13	18.8	
Total	71	100.0			Total	69	100.0		
Follow-up	Valid ice cream	16	22.5	34.0	34.0	Valid ice cream	24	34.8	61.5
	popsicle	31	43.7	66.0	100.0	popsicle	15	21.7	38.5
	Total	47	66.2	100.0		Total	39	56.5	100.0
	Missing System	24	33.8			Missing System	30	43.5	
Total	71	100.0			Total	69	100.0		

Which would you choose for breakfast?
Eggs, bacon or cold cereal

		Intervention				Control			
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid eggs, bacon	34	47.9	57.6	57.6	Valid eggs, bacon	40	58.0	66.7
	cold cereal	25	35.2	42.4	100.0	cold cereal	20	29.0	33.3
	Total	59	83.1	100.0		Total	60	87.0	100.0
	Missing System	12	16.9			Missing System	9	13.0	
Total	71	100.0			Total	69	100.0		
Posttest	Valid eggs, bacon	26	36.6	42.6	42.6	Valid eggs, bacon	27	39.1	49.1
	cold cereal	35	49.3	57.4	100.0	cold cereal	28	40.6	50.9
	Total	61	85.9	100.0		Total	55	79.7	100.0
	Missing System	10	14.1			Missing System	14	20.3	
Total	71	100.0			Total	69	100.0		
Follow-up	Valid eggs, bacon	15	21.1	31.9	31.9	Valid eggs, bacon	21	30.4	53.8
	cold cereal	32	45.1	68.1	100.0	cold cereal	18	26.1	46.2
	Total	47	66.2	100.0		Total	39	56.5	100.0
	Missing System	24	33.8			Missing System	30	43.5	
Total	71	100.0			Total	69	100.0		

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

Which would you order at a fast food restaurant?
Regular hamburger or extra big hamburger

		Intervention				Control				
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent	
Pretest	Valid extra big hamburger	24	33.8	40.7	40.7	Valid extra big hamburger	20	29.0	33.3	33.3
	Valid regular hamburger	35	49.3	59.3	100.0	Valid regular hamburger	40	58.0	66.7	100.0
	Valid Total	59	83.1	100.0		Valid Total	60	87.0	100.0	
	Missing System	12	16.9			Missing System	9	13.0		
	Total	71	100.0			Total	69	100.0		
Posttest	Valid extra big hamburger	15	21.1	24.6	24.6	Valid extra big hamburger	17	24.6	30.4	30.4
	Valid regular hamburger	46	64.8	75.4	100.0	Valid regular hamburger	39	56.5	69.6	100.0
	Valid Total	61	85.9	100.0		Valid Total	56	81.2	100.0	
	Missing System	10	14.1			Missing System	13	18.8		
	Total	71	100.0			Total	69	100.0		
Follow-up	Valid extra big hamburger	11	15.5	23.4	23.4	Valid extra big hamburger	11	15.9	28.2	28.2
	Valid regular hamburger	36	50.7	76.6	100.0	Valid regular hamburger	28	40.6	71.8	100.0
	Valid Total	47	66.2	100.0		Valid Total	39	56.5	100.0	
	Missing System	24	33.8			Missing System	30	43.5		
	Total	71	100.0			Total	69	100.0		

Which food would you ask the adults in your house to buy?
Bag of oranges or bag of tortilla chips

		Intervention				Control				
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent	
Pretest	Valid bag of tortilla chips	10	14.1	16.9	16.9	Valid bag of tortilla chips	10	14.5	16.7	16.7
	Valid bag of oranges	49	69.0	83.1	100.0	Valid bag of oranges	50	72.5	83.3	100.0
	Valid Total	59	83.1	100.0		Valid Total	60	87.0	100.0	
	Missing System	12	16.9			Missing System	9	13.0		
	Total	71	100.0			Total	69	100.0		
Posttest	Valid bag of tortilla chips	6	8.5	9.8	9.8	Valid bag of tortilla chips	8	11.6	14.3	14.3
	Valid bag of oranges	55	77.5	90.2	100.0	Valid bag of oranges	48	69.6	85.7	100.0
	Valid Total	61	85.9	100.0		Valid Total	56	81.2	100.0	
	Missing System	10	14.1			Missing System	13	18.8		
	Total	71	100.0			Total	69	100.0		
Follow-up	Valid bag of tortilla chips	3	4.2	6.4	6.4	Valid bag of tortilla chips	7	10.1	17.9	17.9
	Valid bag of oranges	44	62.0	93.6	100.0	Valid bag of oranges	32	46.4	82.1	100.0
	Valid Total	47	66.2	100.0		Valid Total	39	56.5	100.0	
	Missing System	24	33.8			Missing System	30	43.5		
	Total	71	100.0			Total	69	100.0		

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

Which would you choose to eat in the morning?
Donut or toast with no butter

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid donut	40	56.3	67.8	67.8
	toast with no butter	19	26.8	32.2	100.0
	Total	59	83.1	100.0	
Missing System	12	16.9			
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid donut	39	56.5	65.0	65.0
	toast with no butter	21	30.4	35.0	100.0
	Total	60	87.0	100.0	
Missing System	9	13.0			
Total	69	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid donut	27	38.0	44.3	44.3
	toast with no butter	34	47.9	55.7	100.0
	Total	61	85.9	100.0	
Missing System	10	14.1			
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid donut	32	46.4	57.1	57.1
	toast with no butter	24	34.8	42.9	100.0
	Total	56	81.2	100.0	
Missing System	13	18.8			
Total	69	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid donut	21	29.6	44.7	44.7
	toast with no butter	26	36.6	55.3	100.0
	Total	47	66.2	100.0	
Missing System	24	33.8			
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid donut	24	34.8	61.5	61.5
	toast with no butter	15	21.7	38.5	100.0
	Total	39	56.5	100.0	
Missing System	30	43.5			
Total	69	100.0			

Which would you choose to drink?
Diet pop or regular pop

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid regular pop	38	53.5	64.4	64.4
	diet pop	21	29.6	35.6	100.0
	Total	59	83.1	100.0	
	Missing System	12	16.9		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid regular pop	45	65.2	75.0	75.0
	diet pop	15	21.7	25.0	100.0
	Total	60	87.0	100.0	
	Missing System	9	13.0		
Total	69	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid regular pop	38	53.5	62.3	62.3
	diet pop	23	32.4	37.7	100.0
	Total	61	85.9	100.0	
	Missing System	10	14.1		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid regular pop	39	56.5	69.6	69.6
	diet pop	17	24.6	30.4	100.0
	Total	56	81.2	100.0	
	Missing System	13	18.8		
Total	69	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid regular pop	25	35.2	53.2	53.2
	diet pop	22	31.0	46.8	100.0
	Total	47	66.2	100.0	
	Missing System	24	33.8		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid regular pop	27	39.1	69.2	69.2
	diet pop	12	17.4	30.8	100.0
	Total	39	56.5	100.0	
	Missing System	30	43.5		
Total	69	100.0			

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

I can play hard during most of recess.

I know I can, I think I can, I'm not sure I can, or I know I can't

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent			Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid I know I can't	4	5.6	6.8	6.8	Valid I know I can't	5	7.2	8.3	8.3	
	I'm not sure I can	2	2.8	3.4	10.2	I'm not sure I can	4	5.8	6.7	15.0	
	I think I can	5	7.0	8.5	18.6	I think I can	14	20.3	23.3	38.3	
	I know I can	48	67.6	81.4	100.0	I know I can	37	53.6	61.7	100.0	
	Total	59	83.1	100.0		Total	60	87.0	100.0		
Missing System	12	16.9			Missing System	9	13.0				
Total	71	100.0			Total	69	100.0				
Posttest	Valid I know I can't	5	7.0	8.2	8.2	Valid I know I can't	6	8.7	10.9	10.9	
	I'm not sure I can	1	1.4	1.6	9.8	I'm not sure I can	3	4.3	5.5	16.4	
	I think I can	9	12.7	14.8	24.6	I think I can	9	13.0	16.4	32.7	
	.83	1	1.4	1.6	26.2	I know I can	37	53.6	67.3	100.0	
	I know I can	45	63.4	73.8	100.0	Total	55	79.7	100.0		
Total	61	85.9	100.0		Missing System	14	20.3				
Missing System	10	14.1			Total	69	100.0				
Total	71	100.0									
Follow-up	Valid I know I can't	2	2.8	4.3	4.3	Valid I know I can't	2	2.9	5.1	5.1	
	I'm not sure I can	3	4.2	6.4	10.6	I'm not sure I can	2	2.9	5.1	10.3	
	I think I can	4	5.6	8.5	19.1	I think I can	4	5.8	10.3	20.5	
	I know I can	38	53.5	80.9	100.0	I know I can	31	44.9	79.5	100.0	
	Total	47	66.2	100.0		Total	39	56.5	100.0		
Missing System	24	33.8			Missing System	30	43.5				
Total	71	100.0			Total	69	100.0				

I can play hard during most of P.E. class.

I know I can, I think I can, I'm not sure I can, or I know I can't

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent			Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid I know I can't	4	5.6	6.8	6.8	Valid I know I can't	6	8.7	10.0	10.0	
	I'm not sure I can	4	5.6	6.8	13.6	I'm not sure I can	3	4.3	5.0	15.0	
	I think I can	4	5.6	6.8	20.3	I think I can	7	10.1	11.7	26.7	
	I know I can	47	66.2	79.7	100.0	I know I can	44	63.8	73.3	100.0	
	Total	59	83.1	100.0		Total	60	87.0	100.0		
Missing System	12	16.9			Missing System	9	13.0				
Total	71	100.0			Total	69	100.0				
Posttest	Valid I know I can't	4	5.6	6.6	6.6	Valid I know I can't	4	5.8	7.3	7.3	
	I think I can	9	12.7	14.8	21.3	I'm not sure I can	3	4.3	5.5	12.7	
	I know I can	48	67.6	78.7	100.0	I think I can	14	20.3	25.5	38.2	
	Total	61	85.9	100.0		I know I can	34	49.3	61.8	100.0	
	Missing System	10	14.1			Total	55	79.7	100.0		
Total	71	100.0			Missing System	14	20.3				
					Total	69	100.0				
Follow-up	Valid I know I can't	2	2.8	4.3	4.3	Valid I know I can't	4	5.8	10.3	10.3	
	I'm not sure I can	1	1.4	2.1	6.4	I'm not sure I can	1	1.4	2.6	12.8	
	I think I can	8	11.3	17.0	23.4	I think I can	6	8.7	15.4	28.2	
	I know I can	36	50.7	76.6	100.0	I know I can	28	40.6	71.8	100.0	
	Total	47	66.2	100.0		Total	39	56.5	100.0		
Missing System	24	33.8			Missing System	30	43.5				
Total	71	100.0			Total	69	100.0				

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

I can play hard every day.

I know I can, I think I can, I'm not sure I can, or I know I can't

		Intervention				Control				
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent	
Pretest	Valid I know I can't	5	7.0	8.5	8.5	Valid I know I can't	8	11.6	13.3	13.3
	I'm not sure I can	4	5.6	6.8	15.3	.03	1.4	1.7	15.0	15.0
	I think I can	9	12.7	15.3	30.5	I'm not sure I can	9	13.0	15.0	30.0
	I know I can	41	57.7	69.5	100.0	I think I can	18	26.1	30.0	60.0
	Total	59	83.1	100.0		I know I can	24	34.8	40.0	100.0
	Missing System	12	16.9			Total	60	87.0	100.0	
Total	71	100.0			Missing System	9	13.0			
Total					Total	69	100.0			
Posttest	Valid I know I can't	5	7.0	8.2	8.2	Valid I know I can't	6	8.7	10.9	10.9
	I'm not sure I can	4	5.6	6.6	14.8	I'm not sure I can	7	10.1	12.7	23.6
	I think I can	13	18.3	21.3	36.1	I think I can	16	23.2	29.1	52.7
	I know I can	39	54.9	63.9	100.0	I know I can	26	37.7	47.3	100.0
	Total	61	85.9	100.0		Total	55	79.7	100.0	
	Missing System	10	14.1			Missing System	14	20.3		
Total	71	100.0			Total	69	100.0			
Follow-up	Valid I know I can't	2	2.8	4.3	4.3	Valid I know I can't	4	5.8	10.3	10.3
	I'm not sure I can	2	2.8	4.3	8.5	I'm not sure I can	6	8.7	15.4	25.6
	I think I can	7	9.9	14.9	23.4	I think I can	10	14.5	25.6	51.3
	I know I can	36	50.7	76.6	100.0	I know I can	19	27.5	48.7	100.0
	Total	47	66.2	100.0		Total	39	56.5	100.0	
	Missing System	24	33.8			Missing System	30	43.5		
Total	71	100.0			Total	69	100.0			

At the store, I can ask for a popsicle instead of ice cream.

I know I can, I think I can, I'm not sure I can, or I know I can't

		Intervention				Control				
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent	
Pretest	Valid I know I can't	13	18.3	22.0	22.0	Valid I know I can't	8	11.6	13.3	13.3
	I'm not sure I can	1	1.4	1.7	23.7	I'm not sure I ca	8	11.6	13.3	26.7
	I think I can	9	12.7	15.3	39.0	I think I can	5	7.2	8.3	35.0
	I know I can	36	50.7	61.0	100.0	I know I can	39	56.5	65.0	100.0
	Total	59	83.1	100.0		Total	60	87.0	100.0	
	Missing System	12	16.9			Missing System	9	13.0		
Total	71	100.0			Total	69	100.0			
Posttest	Valid I know I can't	8	11.3	13.1	13.1	Valid I know I can't	5	7.2	9.1	9.1
	I'm not sure I can	3	4.2	4.9	18.0	I'm not sure I ca	4	5.8	7.3	16.4
	I think I can	3	4.2	4.9	23.0	I think I can	13	18.8	23.6	40.0
	I know I can	47	66.2	77.0	100.0	I know I can	33	47.8	60.0	100.0
	Total	61	85.9	100.0		Total	55	79.7	100.0	
	Missing System	10	14.1			Missing System	14	20.3		
Total	71	100.0			Total	69	100.0			
Follow-up	Valid I know I can't	4	5.6	8.5	8.5	Valid I know I can't	3	4.3	7.7	7.7
	I'm not sure I can	2	2.8	4.3	12.8	I'm not sure I ca	3	4.3	7.7	15.4
	I think I can	6	8.5	12.8	25.5	I think I can	5	7.2	12.8	28.2
	I know I can	35	49.3	74.5	100.0	I know I can	28	40.6	71.8	100.0
	Total	47	66.2	100.0		Total	39	56.5	100.0	
	Missing System	24	33.8			Missing System	30	43.5		
Total	71	100.0			Total	69	100.0			

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

I can eat a fruit (for example: banana, apple, or orange) every day.
I know I can, I think I can, I'm not sure I can, or I know I can't

		Intervention				Control			
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid I know I can't	3	4.2	5.1	5.1	3	4.3	5.0	5.0
	I'm not sure I can	1	1.4	1.7	6.8	5	7.2	8.3	13.3
	I think I can	5	7.0	8.5	15.3	5	7.2	8.3	21.7
	I know I can	50	70.4	84.7	100.0	47	68.1	78.3	100.0
	Total	59	83.1	100.0		60	87.0	100.0	
Missing System	12	16.9			9	13.0			
Total	71	100.0			69	100.0			
Posttest	Valid I know I can't	3	4.2	4.9	4.9	3	4.3	5.5	5.5
	I'm not sure I can	2	2.8	3.3	8.2	3	4.3	5.5	10.9
	I think I can	2	2.8	3.3	11.5	5	7.2	9.1	20.0
	I know I can	54	76.1	88.5	100.0	44	63.8	80.0	100.0
	Total	61	85.9	100.0		55	79.7	100.0	
Missing System	10	14.1			14	20.3			
Total	71	100.0			69	100.0			
Follow-up	Valid I think I can	3	4.2	6.4	6.4	2	2.9	5.1	5.1
	I know I can	44	62.0	93.6	100.0	5	7.2	12.8	17.9
	Total	47	66.2	100.0		32	46.4	82.1	100.0
	Missing System	24	33.8			39	56.5	100.0	
	Total	71	100.0			69	100.0		

I can drink water instead of regular pop or Kool-aid.
I know I can, I think I can, I'm not sure I can, or I know I can't

		Intervention				Control			
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid I know I can't	9	12.7	15.3	15.3	5	7.2	8.3	8.3
	I'm not sure I can	2	2.8	3.4	18.6	3	4.3	5.0	13.3
	I think I can	8	11.3	13.6	32.2	10	14.5	16.7	30.0
	I know I can	40	56.3	67.8	100.0	42	60.9	70.0	100.0
	Total	59	83.1	100.0		60	87.0	100.0	
Missing System	12	16.9			9	13.0			
Total	71	100.0			69	100.0			
Posttest	Valid I know I can't	6	8.5	9.8	9.8	2	2.9	3.6	3.6
	I'm not sure I can	4	5.6	6.6	16.4	3	4.3	5.5	9.1
	I think I can	3	4.2	4.9	21.3	8	11.6	14.5	23.6
	I know I can	48	67.6	78.7	100.0	42	60.9	76.4	100.0
	Total	61	85.9	100.0		55	79.7	100.0	
Missing System	10	14.1			14	20.3			
Total	71	100.0			69	100.0			
Follow-up	Valid I know I can't	4	5.6	8.5	8.5	3	4.3	7.7	7.7
	I'm not sure I can	2	2.8	4.3	12.8	7	10.1	17.9	25.6
	I think I can	2	2.8	4.3	17.0	29	42.0	74.4	100.0
	I know I can	39	54.9	83.0	100.0	39	56.5	100.0	
	Total	47	66.2	100.0		69	100.0		
Missing System	24	33.8			30	43.5			
Total	71	100.0			69	100.0			

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

At home, I can ask for cheese pizza instead of pepperoni pizza.
I know I can, I think I can, I'm not sure I can, or I know I can't

		Intervention				Control				
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent	
Pretest	Valid I know I can't	2	2.8	3.4	3.4	Valid I know I can't	9	13.0	15.0	15.0
	I'm not sure I can	5	7.0	8.5	11.9	I'm not sure I can	3	4.3	5.0	20.0
	I think I can	3	4.2	5.1	16.9	I think I can	8	11.6	13.3	33.3
	I know I can	49	69.0	83.1	100.0	I know I can	40	58.0	66.7	100.0
	Total	59	83.1	100.0		Total	60	87.0	100.0	
Missing System	12	16.9			Missing System	9	13.0			
Total	71	100.0			Total	69	100.0			
Posttest	Valid I know I can't	7	9.9	11.5	11.5	Valid I know I can't	5	7.2	9.1	9.1
	I'm not sure I can	6	8.5	9.8	21.3	I'm not sure I can	4	5.8	7.3	16.4
	I think I can	48	67.6	78.7	100.0	I think I can	13	18.8	23.6	40.0
	I know I can	61	85.9	100.0		I know I can	33	47.8	60.0	100.0
	Total	61	85.9	100.0		Total	55	79.7	100.0	
Missing System	10	14.1			Missing System	14	20.3			
Total	71	100.0			Total	69	100.0			
Follow-up	Valid I know I can't	4	5.6	8.5	8.5	Valid I know I can't	7	10.1	17.9	17.9
	I'm not sure I can	1	1.4	2.1	10.6	I'm not sure I can	5	7.2	12.8	30.8
	I think I can	7	9.9	14.9	25.5	I think I can	27	39.1	69.2	100.0
	I know I can	35	49.3	74.5	100.0	I know I can	39	56.5	100.0	
	Total	47	66.2	100.0		Total	30	43.5		
Missing System	24	33.8			Missing System	30	43.5			
Total	71	100.0			Total	69	100.0			

I can ask for corn with no butter.
I know I can, I think I can, I'm not sure I can, or I know I can't

		Intervention				Control				
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent	
Pretest	Valid I know I can't	4	5.6	6.8	6.8	Valid I know I can't	17	24.6	28.3	28.3
	I'm not sure I can	3	4.2	5.1	11.9	I'm not sure I can	4	5.8	6.7	35.0
	I think I can	52	73.2	88.1	100.0	I think I can	8	11.6	13.3	48.3
	I know I can	59	83.1	100.0		I know I can	31	44.9	51.7	100.0
	Total	59	83.1	100.0		Total	60	87.0	100.0	
Missing System	12	16.9			Missing System	9	13.0			
Total	71	100.0			Total	69	100.0			
Posttest	Valid I know I can't	5	7.0	8.2	8.2	Valid I know I can't	15	21.7	27.3	27.3
	I'm not sure I can	4	5.6	6.6	14.8	I'm not sure I can	4	5.8	7.3	34.5
	I think I can	7	9.9	11.5	26.2	I think I can	4	5.8	7.3	41.8
	I know I can	45	63.4	73.8	100.0	I know I can	32	46.4	58.2	100.0
	Total	61	85.9	100.0		Total	55	79.7	100.0	
Missing System	10	14.1			Missing System	14	20.3			
Total	71	100.0			Total	69	100.0			
Follow-up	Valid I know I can't	5	7.0	10.6	10.6	Valid I know I can't	9	13.0	23.1	23.1
	I'm not sure I can	1	1.4	2.1	12.8	I'm not sure I can	4	5.8	10.3	33.3
	I think I can	5	7.0	10.6	23.4	I think I can	5	7.2	12.8	46.2
	I know I can	36	50.7	76.6	100.0	I know I can	21	30.4	53.8	100.0
	Total	47	66.2	100.0		Total	39	56.5	100.0	
Missing System	24	33.8			Missing System	30	43.5			
Total	71	100.0			Total	69	100.0			

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

I can drink diet pop instead of regular pop.

I know I can, I think I can, I'm not sure I can, or I know I can't

Intervention

Control

	Intervention		Control	
	Frequency	Percent	Frequency	Percent
Pretest				
Valid I know I can't	17	23.9	19	27.5
I'm not sure I can	6	8.5	4	5.8
I think I can	3	4.2	9	13.0
I know I can	33	46.5	27	39.1
Total	59	83.1	59	85.5
Missing System	12	16.9	10	14.5
Total	71	100.0	69	100.0
Posttest				
Valid I know I can't	18	25.4	16	23.2
I'm not sure I can	4	5.6	3	4.3
I think I can	7	9.9	5	7.2
I know I can	32	45.1	31	44.9
Total	61	85.9	55	79.7
Missing System	10	14.1	14	20.3
Total	71	100.0	69	100.0
Follow-up				
Valid I know I can't	14	19.7	8	11.6
I'm not sure I can	3	4.2	2	2.9
I think I can	7	9.9	5	7.2
I know I can	23	32.4	24	34.8
Total	47	66.2	39	56.5
Missing System	24	33.8	30	43.5
Total	71	100.0	69	100.0

At school, I can try a new vegetable.

I know I can, I think I can, I'm not sure I can, or I know I can't

Intervention

Control

	Intervention		Control	
	Frequency	Percent	Frequency	Percent
Pretest				
Valid I know I can't	10	14.1	9	13.0
I'm not sure I can	8	11.3	6	8.7
I think I can	7	9.9	12	17.4
I know I can	34	47.9	33	47.8
Total	59	83.1	60	87.0
Missing System	12	16.9	9	13.0
Total	71	100.0	69	100.0
Posttest				
Valid I know I can't	12	16.9	7	10.1
I'm not sure I can	3	4.2	3	4.3
I think I can	11	15.5	11	15.9
I know I can	35	49.3	34	49.3
Total	61	85.9	55	79.7
Missing System	10	14.1	14	20.3
Total	71	100.0	69	100.0
Follow-up				
Valid I know I can't	5	7.0	3	4.3
I'm not sure I can	4	5.6	4	5.8
I think I can	8	11.3	8	11.6
I know I can	30	42.3	24	34.8
Total	47	66.2	39	56.5
Missing System	24	33.8	30	43.5
Total	71	100.0	69	100.0

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

At the store, I can ask to buy fruit instead of potato chips.
I know I can, I think I can, I'm not sure I can, or I know I can't

		Intervention				Control			
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid I know I can't	4	5.6	6.8	6.8	7	10.1	11.9	11.9
	I'm not sure I can	1	1.4	1.7	8.5	3	4.3	5.1	16.9
	I think I can	6	8.5	10.2	18.6	8	11.6	13.6	30.5
	I know I can	48	67.6	81.4	100.0	41	59.4	69.5	100.0
	Total	59	83.1	100.0		59	85.5	100.0	
	Missing System	12	16.9			10	14.5		
Total	71	100.0			69	100.0			
Posttest	Valid I know I can't	4	5.6	6.6	6.6	3	4.3	5.5	5.5
	I'm not sure I can	1	1.4	1.6	8.2	3	4.3	5.5	10.9
	I think I can	5	7.0	8.2	16.4	4	5.8	7.3	18.2
	I know I can	51	71.8	83.6	100.0	45	65.2	81.8	100.0
	Total	61	85.9	100.0		55	79.7	100.0	
	Missing System	10	14.1			14	20.3		
Total	71	100.0			69	100.0			
Follow-up	Valid I know I can't	2	2.8	4.3	4.3	4	5.8	10.3	10.3
	I'm not sure I can	5	7.0	10.6	14.9	2	2.9	5.1	15.4
	I think I can	4	5.6	8.5	23.4	2	2.9	5.1	20.5
	I know I can	36	50.7	76.6	100.0	31	44.9	79.5	100.0
	Total	47	66.2	100.0		39	56.5	100.0	
	Missing System	24	33.8			30	43.5		
Total	71	100.0			69	100.0			

Which of these foods has the highest amount of fat?
Fried chicken, green vegetables, whole grain bread

		Intervention				Control			
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid green vegetables	1	1.4	1.7	1.7	1	1.4	1.7	1.7
	whole grain bread	1	1.4	1.7	3.4	3	4.3	5.0	6.7
	fried chicken	57	80.3	96.6	100.0	56	81.2	93.3	100.0
	Total	59	83.1	100.0		60	87.0	100.0	
	Missing System	12	16.9			9	13.0		
	Total	71	100.0			69	100.0		
Posttest	Valid green vegetables	1	1.4	1.6	1.6	4	5.8	7.1	7.1
	whole grain bread	3	4.2	4.9	6.6	52	75.4	92.9	100.0
	fried chicken	57	80.3	93.4	100.0	56	81.2	100.0	
	Total	61	85.9	100.0		13	18.8		
	Missing System	10	14.1			69	100.0		
	Total	71	100.0						
Follow-up	Valid green vegetables	2	2.8	4.3	4.3	1	1.4	2.6	2.6
	whole grain bread	1	1.4	2.1	6.4	38	55.1	97.4	100.0
	fried chicken	44	62.0	93.6	100.0	39	56.5	100.0	
	Total	47	66.2	100.0		30	43.5		
	Missing System	24	33.8			69	100.0		
	Total	71	100.0						

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

How often should you eat foods that have lots of fat or beverages with lots of sugar in them?

As often as you like, only once in a while, not every day, or several times each day

Intervention

Control

Pretest

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid several times each d	2	2.8	3.4	3.4
as often as you like	5	7.0	8.5	11.9
only once in a while, not every day	52	73.2	88.1	100.0
Total	59	83.1	100.0	
Missing System	12	16.9		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid several times each d	4	5.8	6.7	6.7
as often as you like	3	4.3	5.0	11.7
only once in a while, not every day	53	76.8	88.3	100.0
Total	60	87.0	100.0	
Missing System	9	13.0		
Total	69	100.0		

Posttest

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid several times each d	3	4.2	4.9	4.9
as often as you like	2	2.8	3.3	8.2
only once in a while, not every day	56	78.9	91.8	100.0
Total	61	85.9	100.0	
Missing System	10	14.1		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid several times each d	4	5.8	7.1	7.1
as often as you like	2	2.9	3.6	10.7
.92	1	1.4	1.8	12.5
only once in a while, not every day	49	71.0	87.5	100.0
Total	56	81.2	100.0	
Missing System	13	18.8		
Total	69	100.0		

Follow-up

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid several times each d	4	5.6	8.5	8.5
as often as you like	3	4.2	6.4	14.9
only once in a while, not every day	40	56.3	85.1	100.0
Total	47	66.2	100.0	
Missing System	24	33.8		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid as often as you like	2	2.9	5.1	5.1
only once in a while, not every da	37	53.6	94.9	100.0
Total	39	56.5	100.0	
Missing System	30	43.5		
Total	69	100.0		

Which beverage has the lowest amount of sugar?

Diet pop, regular pop, regular Kool-aid

Intervention

Control

Pretest

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid regular pop	4	5.6	6.8	6.8
regular Kool-aid	15	21.1	25.4	32.2
diet pop	40	56.3	67.8	100.0
Total	59	83.1	100.0	
Missing System	12	16.9		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid regular pop	2	2.9	3.3	3.3
regular Kool-aid	15	21.7	25.0	28.3
diet pop	43	62.3	71.7	100.0
Total	60	87.0	100.0	
Missing System	9	13.0		
Total	69	100.0		

Posttest

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid regular pop	6	8.5	9.8	9.8
regular Kool-aid	6	8.5	9.8	19.7
.83	2	2.8	3.3	23.0
diet pop	47	66.2	77.0	100.0
Total	61	85.9	100.0	
Missing System	10	14.1		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid regular pop	6	8.7	10.7	10.7
regular Kool-aid	9	13.0	16.1	26.8
diet pop	41	59.4	73.2	100.0
Total	56	81.2	100.0	
Missing System	13	18.8		
Total	69	100.0		

Follow-up

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid regular pop	5	7.0	10.6	10.6
regular Kool-aid	6	8.5	12.8	23.4
diet pop	36	50.7	76.6	100.0
Total	47	66.2	100.0	
Missing System	24	33.8		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid regular pop	1	1.4	2.6	2.6
regular Kool-aid	2	2.9	5.1	7.7
diet pop	36	52.2	92.3	100.0
Total	39	56.5	100.0	
Missing System	30	43.5		
Total	69	100.0		

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

Which is the best way to help friends who want to get more exercise?
Ignore them, tell them some things you do to get exercise, become their exercise partner

		Intervention				Control			
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid ignore them	1	1.4	1.7	1.7	3	4.3	5.0	5.0
	Valid tell them some things you do to get exercise	30	42.3	50.8	52.5	25	36.2	41.7	46.7
	Valid become their exercise partner	28	39.4	47.5	100.0	1	1.4	1.7	48.3
	Valid Total	59	83.1	100.0		31	44.9	51.7	100.0
	Missing System	12	16.9			60	87.0	100.0	
Total	71	100.0			69	100.0			
Posttest	Valid ignore them	1	1.4	1.6	1.6	3	4.3	5.4	5.4
	Valid tell them some things you do to get exercise	33	46.5	54.1	55.7	27	39.1	48.2	53.6
	Valid become their exercise partner	27	38.0	44.3	100.0	26	37.7	46.4	100.0
	Valid Total	61	85.9	100.0		56	81.2	100.0	
	Missing System	10	14.1			13	18.8		
Total	71	100.0			69	100.0			
Follow-up	Valid ignore them	1	1.4	2.1	2.1	1	1.4	2.6	2.6
	Valid tell them some things you do to get exercise	27	38.0	57.4	59.6	17	24.6	43.6	46.2
	Valid become their exercise partner	19	26.8	40.4	100.0	21	30.4	53.8	100.0
	Valid Total	47	66.2	100.0		39	56.5	100.0	
	Missing System	24	33.8			30	43.5		
Total	71	100.0			69	100.0			

Which part of a food label tells how much fat is in the food?
The brand name, the ingredients, the nutrition facts

		Intervention				Control			
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid the brand name	1	1.4	1.7	1.7	11	15.9	18.3	18.3
	Valid the ingredients	9	12.7	15.3	16.9	49	71.0	81.7	100.0
	Valid the nutrition facts	49	69.0	83.1	100.0	60	87.0	100.0	
	Valid Total	59	83.1	100.0		9	13.0		
	Missing System	12	16.9			69	100.0		
Total	71	100.0							
Posttest	Valid the brand name	5	7.0	8.2	8.2	3	4.3	5.4	5.4
	Valid the ingredients	8	11.3	13.1	21.3	5	7.2	8.9	14.3
	Valid the nutrition facts	48	67.6	78.7	100.0	48	69.6	85.7	100.0
	Valid Total	61	85.9	100.0		56	81.2	100.0	
	Missing System	10	14.1			13	18.8		
Total	71	100.0			69	100.0			
Follow-up	Valid the brand name	3	4.2	6.4	6.4	1	1.4	2.6	2.6
	Valid the ingredients	8	11.3	17.0	23.4	8	11.6	20.5	23.1
	Valid the nutrition facts	36	50.7	76.6	100.0	30	43.5	76.9	100.0
	Valid Total	47	66.2	100.0		39	56.5	100.0	
	Missing System	24	33.8			30	43.5		
Total	71	100.0			69	100.0			

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

Which will have the lowest amount of fat?

A hamburger with cheese, a hamburger with lettuce, tomato and pickle, a hamburger with fries

Intervention

Control

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a hamburger and fries	12	16.9	20.3
	a hamburger with cheese	12	16.9	20.3
	a hamburger with lettuce, tomato and pickle	35	49.3	59.3
	Total	59	83.1	100.0
Missing System	12	16.9		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a hamburger and fries	6	8.7	10.0
	a hamburger with cheese	11	15.9	18.3
	a hamburger with lettuce, tomato and pickle	42	60.9	70.0
	Total	60	87.0	100.0
Missing System	9	13.0		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a hamburger and fries	11	15.5	18.0
	a hamburger with cheese	18	25.4	29.5
	a hamburger with lettuce, tomato and pickle	32	45.1	52.5
	Total	61	85.9	100.0
Missing System	10	14.1		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a hamburger and fries	8	11.6	14.3
	a hamburger with cheese	16	23.2	28.6
	a hamburger with lettuce, tomato and pickle	32	46.4	57.1
	Total	56	81.2	100.0
Missing System	13	18.8		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a hamburger and fries	5	7.0	10.6
	a hamburger with cheese	17	23.9	36.2
	a hamburger with lettuce, tomato and pickle	25	35.2	53.2
	Total	47	66.2	100.0
Missing System	24	33.8		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a hamburger and fries	3	4.3	7.7
	a hamburger with cheese	14	20.3	35.9
	a hamburger with lettuce, tomato and pickle	22	31.9	56.4
	Total	39	56.5	100.0
Missing System	30	43.5		
Total	69	100.0		

Which is the best for getting plenty of exercise?

Exercise by your own exercise plan and goals, exercise only the amount you feel like each day, exercise the same amount your friends do

Intervention

Control

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	exercise only the amount you feel like each day	14	19.7	23.7
	exercise the same amount your friends do	5	7.0	8.5
	exercise by your own exercise plan and goals	40	56.3	67.8
	Total	59	83.1	100.0
Missing System	12	16.9		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	exercise only the amount you feel like each day	15	21.7	25.0
	exercise the same amount your friends do	3	4.3	5.0
	exercise by your own exercise plan and goals	41	59.4	68.3
	Total	60	87.0	100.0
Missing System	9	13.0		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	exercise only the amount you feel like each day	5	7.0	8.2
	exercise the same amount your friends do	9	12.7	14.8
	exercise by your own exercise plan and goals	47	66.2	77.0
	Total	61	85.9	100.0
Missing System	10	14.1		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	exercise only the amount you feel like each day	12	17.4	21.8
	exercise the same amount your friends do	7	10.1	12.7
	exercise by your own exercise plan and goals	36	52.2	65.5
	Total	55	79.7	100.0
Missing System	14	20.3		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	exercise only the amount you feel like each day	6	8.5	12.8
	exercise the same amount your friends do	8	11.3	17.0
	exercise by your own exercise plan and goals	33	46.5	70.2
	Total	47	66.2	100.0
Missing System	24	33.8		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	exercise only the amount you feel like each day	4	5.8	10.3
	exercise the same amount your friends do	4	5.8	10.3
	exercise by your own exercise plan and goals	31	44.9	79.5
	Total	39	56.5	100.0
Missing System	30	43.5		
Total	69	100.0		

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

Which food has more fat?
Fry bread, tortilla, don't know

Intervention

Control

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid tortilla	14	19.7	23.7	23.7
don't know	15	21.1	25.4	49.2
fry bread	30	42.3	50.8	100.0
Total	59	83.1	100.0	
Missing System	12	16.9		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid tortilla	23	33.3	38.3	38.3
don't know	22	31.9	36.7	75.0
fry bread	15	21.7	25.0	100.0
Total	60	87.0	100.0	
Missing System	9	13.0		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid tortilla	11	15.5	18.0	18.0
don't know	11	15.5	18.0	36.1
.67	1	1.4	1.6	37.7
fry bread	38	53.5	62.3	100.0
Total	61	85.9	100.0	
Missing System	10	14.1		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid tortilla	13	18.8	23.6	23.6
don't know	16	23.2	29.1	52.7
fry bread	26	37.7	47.3	100.0
Total	55	79.7	100.0	
Missing System	14	20.3		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid tortilla	7	9.9	14.9	14.9
don't know	6	8.5	12.8	27.7
fry bread	34	47.9	72.3	100.0
Total	47	66.2	100.0	
Missing System	24	33.8		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid tortilla	9	13.0	23.1	23.1
don't know	5	7.2	12.8	35.9
fry bread	25	36.2	64.1	100.0
Total	39	56.5	100.0	
Missing System	30	43.5		
Total	69	100.0		

Which food has more fat?

Meat fried in a pan, meat cooked on a grill, don't know

Intervention

Control

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid meat cooked on a grill	22	31.0	37.3	37.3
don't know	8	11.3	13.6	50.8
meat fried in a pan	29	40.8	49.2	100.0
Total	59	83.1	100.0	
Missing System	12	16.9		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid meat cooked on a grill	21	30.4	35.0	35.0
don't know	8	11.6	13.3	48.3
meat fried in a pan	31	44.9	51.7	100.0
Total	60	87.0	100.0	
Missing System	9	13.0		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid meat cooked on a grill	20	28.2	32.8	32.8
don't know	6	8.5	9.8	42.6
meat fried in a pan	35	49.3	57.4	100.0
Total	61	85.9	100.0	
Missing System	10	14.1		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid meat cooked on a grill	18	26.1	32.7	32.7
don't know	4	5.8	7.3	40.0
meat fried in a pan	33	47.8	60.0	100.0
Total	55	79.7	100.0	
Missing System	14	20.3		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid meat cooked on a grill	17	23.9	36.2	36.2
don't know	3	4.2	6.4	42.6
meat fried in a pan	27	38.0	57.4	100.0
Total	47	66.2	100.0	
Missing System	24	33.8		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid meat cooked on a grill	14	20.3	35.9	35.9
don't know	3	4.3	7.7	43.6
meat fried in a pan	22	31.9	56.4	100.0
Total	39	56.5	100.0	
Missing System	30	43.5		
Total	69	100.0		

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

Which food has more fat?

Corn with no butter, corn with butter, don't know

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent			Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid	7	9.9	11.9	11.9	Valid	8	11.6	13.3	13.3	
	corn with no butt	9	12.7	15.3	27.1	don't know	8	11.6	13.3	26.7	
	don't know	43	60.6	72.9	100.0	corn with butter	44	63.8	73.3	100.0	
	corn with butter	59	83.1	100.0		Total	60	87.0	100.0		
	Total	12	16.9			Missing System	9	13.0			
Missing System	71	100.0			Total	69	100.0				
Total											
Posttest	Valid	13	18.3	21.3	21.3	Valid	7	10.1	12.7	12.7	
	corn with no butt	3	4.2	4.9	26.2	don't know	9	13.0	16.4	29.1	
	don't know	45	63.4	73.8	100.0	corn with butter	39	56.5	70.9	100.0	
	corn with butter	61	85.9	100.0		Total	55	79.7	100.0		
	Total	10	14.1			Missing System	14	20.3			
Missing System	71	100.0			Total	69	100.0				
Total											
Follow-up	Valid	11	15.5	23.4	23.4	Valid	4	5.8	10.3	10.3	
	corn with no butt	2	2.8	4.3	27.7	don't know	4	5.8	10.3	20.5	
	don't know	1	1.4	2.1	29.8	.79	1	1.4	2.6	23.1	
	.79	33	46.5	70.2	100.0	corn with butter	30	43.5	76.9	100.0	
	corn with butter	47	66.2	100.0		Total	39	56.5	100.0		
Missing System	71	100.0			Missing System	30	43.5				
Total					Total	69	100.0				

Which food has more fat?

Boiled potato, fried potato, don't know

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent			Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid	9	12.7	15.3	15.3	Valid	10	14.5	16.7	16.7	
	boiled potato	8	11.3	13.6	28.8	don't know	5	7.2	8.3	25.0	
	don't know	42	59.2	71.2	100.0	fried potato	45	65.2	75.0	100.0	
	fried potato	59	83.1	100.0		Total	60	87.0	100.0		
	Total	12	16.9			Missing System	9	13.0			
Missing System	71	100.0			Total	69	100.0				
Total											
Posttest	Valid	7	9.9	11.5	11.5	Valid	13	18.8	23.2	23.2	
	boiled potato	5	7.0	8.2	19.7	don't know	5	7.2	8.9	32.1	
	don't know	49	69.0	80.3	100.0	fried potato	38	55.1	67.9	100.0	
	fried potato	61	85.9	100.0		Total	56	81.2	100.0		
	Total	10	14.1			Missing System	13	18.8			
Missing System	71	100.0			Total	69	100.0				
Total											
Follow-up	Valid	4	5.6	8.5	8.5	Valid	5	7.2	12.8	12.8	
	boiled potato	4	5.6	8.5	17.0	don't know	3	4.3	7.7	20.5	
	don't know	39	54.9	83.0	100.0	fried potato	31	44.9	79.5	100.0	
	fried potato	47	66.2	100.0		Total	39	56.5	100.0		
	Total	24	33.8			Missing System	30	43.5			
Missing System	71	100.0			Total	69	100.0				
Total											

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

**Which food has more fat?
Cold cereal, fried eggs, don't know**

		Intervention				Control			
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid cold cereal	14	19.7	23.7	23.7	6	8.7	10.0	10.0
	don't know	11	15.5	18.6	42.4	7	10.1	11.7	21.7
	fried eggs	34	47.9	57.6	100.0	47	68.1	78.3	100.0
	Total	59	83.1	100.0		60	87.0	100.0	
	Missing System	12	16.9			9	13.0		
Total	71	100.0			69	100.0			
Posttest	Valid cold cereal	12	16.9	19.7	19.7	4	5.8	7.1	7.1
	don't know	2	2.8	3.3	23.0	2	2.9	3.6	10.7
	fried eggs	47	66.2	77.0	100.0	50	72.5	89.3	100.0
	Total	61	85.9	100.0		56	81.2	100.0	
	Missing System	10	14.1			13	18.8		
Total	71	100.0			69	100.0			
Follow-up	Valid cold cereal	14	19.7	29.8	29.8	4	5.8	10.3	10.3
	don't know	1	1.4	2.1	31.9	3	4.3	7.7	17.9
	fried eggs	32	45.1	68.1	100.0	32	46.4	82.1	100.0
	Total	47	66.2	100.0		39	56.5	100.0	
	Missing System	24	33.8			30	43.5		
Total	71	100.0			69	100.0			

**Which food has more fat?
Chips, pretzels, don't know**

		Intervention				Control			
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid pretzels	9	12.7	15.3	15.3	7	10.1	11.7	11.7
	don't know	3	4.2	5.1	20.3	3	4.3	5.0	16.7
	chips	47	66.2	79.7	100.0	50	72.5	83.3	100.0
	Total	59	83.1	100.0		60	87.0	100.0	
	Missing System	12	16.9			9	13.0		
Total	71	100.0			69	100.0			
Posttest	Valid pretzels	14	19.7	23.0	23.0	7	10.1	12.5	12.5
	don't know	2	2.8	3.3	26.2	6	8.7	10.7	23.2
	chips	44	62.0	72.1	100.0	43	62.3	76.8	100.0
	Total	61	85.9	100.0		56	81.2	100.0	
	Missing System	10	14.1			13	18.8		
Total	71	100.0			69	100.0			
Follow-up	Valid pretzels	14	19.7	29.8	29.8	5	7.2	12.8	12.8
	don't know	2	2.8	4.3	34.0	1	1.4	2.6	15.4
	chips	31	43.7	66.0	100.0	33	47.8	84.6	100.0
	Total	47	66.2	100.0		39	56.5	100.0	
	Missing System	24	33.8			30	43.5		
Total	71	100.0			69	100.0			

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

**Do you think you are
Too skinny, about right, too fat**

		Intervention				Control				
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent	
Pretest	Valid	Too fat	10	14.1	16.9	16.9	11	15.9	18.3	18.3
		Too skinny	13	18.3	22.0	39.0	9	13.0	15.0	33.3
		About right	36	50.7	61.0	100.0	40	58.0	66.7	100.0
		Total	59	83.1	100.0		60	87.0	100.0	
	Missing	System	12	16.9			9	13.0		
	Total	71	100.0			69	100.0			
Posttest	Valid	Too fat	10	14.1	16.4	16.4	11	15.9	20.0	20.0
		Too skinny	12	16.9	19.7	36.1	7	10.1	12.7	32.7
		About right	39	54.9	63.9	100.0	37	53.6	67.3	100.0
		Total	61	85.9	100.0		55	79.7	100.0	
	Missing	System	10	14.1			14	20.3		
	Total	71	100.0			69	100.0			
Follow-up	Valid	Too fat	7	9.9	14.9	14.9	5	7.2	12.8	12.8
		Too skinny	6	8.5	12.8	27.7	5	7.2	12.8	25.6
		About right	34	47.9	72.3	100.0	29	42.0	74.4	100.0
		Total	47	66.2	100.0		39	56.5	100.0	
	Missing	System	24	33.8			30	43.5		
	Total	71	100.0			69	100.0			

**Do you worry about being too skinny?
Yes, No**

		Intervention				Control				
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent	
Pretest	Valid	Yes	12	16.9	20.3	20.3	15	21.7	25.0	25.0
		No	47	66.2	79.7	100.0	1	1.4	1.7	26.7
		Total	59	83.1	100.0		44	63.8	73.3	100.0
	Missing	System	12	16.9			60	87.0	100.0	
		Total	71	100.0			9	13.0		
	Total	71	100.0			69	100.0			
Posttest	Valid	Yes	19	26.8	31.1	31.1	13	18.8	23.2	23.2
		.72	1	1.4	1.6	32.8	43	62.3	76.8	100.0
		No	41	57.7	67.2	100.0	56	81.2	100.0	
		Total	61	85.9	100.0		13	18.8		
	Missing	System	10	14.1			69	100.0		
	Total	71	100.0							
Follow-up	Valid	Yes	13	18.3	27.7	27.7	10	14.5	25.6	25.6
		No	34	47.9	72.3	100.0	1	1.4	2.6	28.2
		Total	47	66.2	100.0		28	40.6	71.8	100.0
	Missing	System	24	33.8			39	56.5	100.0	
		Total	71	100.0			30	43.5		
	Total	71	100.0			69	100.0			

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

Do you worry about being too fat?
Yes, No

		Intervention				Control			
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid Yes	39	54.9	66.1	66.1	44	63.8	73.3	73.3
	Valid No	20	28.2	33.9	100.0	16	23.2	26.7	100.0
	Valid Total	59	83.1	100.0		60	87.0	100.0	
	Missing System	12	16.9			9	13.0		
Total	71	100.0			69	100.0			
Posttest	Valid Yes	38	53.5	62.3	62.3	29	42.0	53.7	53.7
	Valid No	23	32.4	37.7	100.0	25	36.2	46.3	100.0
	Valid Total	61	85.9	100.0		54	78.3	100.0	
	Missing System	10	14.1			15	21.7		
Total	71	100.0			69	100.0			
Follow-up	Valid Yes	24	33.8	51.1	51.1	20	29.0	51.3	51.3
	Valid No	23	32.4	48.9	100.0	19	27.5	48.7	100.0
	Valid Total	47	66.2	100.0		39	56.5	100.0	
	Missing System	24	33.8			30	43.5		
Total	71	100.0			69	100.0			

Have you ever tried to lose weight?
Yes, No

		Intervention				Control			
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid Yes	34	47.9	57.6	57.6	37	53.6	61.7	61.7
	Valid No	25	35.2	42.4	100.0	1	1.4	1.7	63.3
	Valid Total	59	83.1	100.0		60	87.0	100.0	
	Missing System	12	16.9			9	13.0		
Total	71	100.0			69	100.0			
Posttest	Valid Yes	42	59.2	68.9	68.9	40	58.0	71.4	71.4
	Valid No	19	26.8	31.1	100.0	16	23.2	28.6	100.0
	Valid Total	61	85.9	100.0		56	81.2	100.0	
	Missing System	10	14.1			13	18.8		
Total	71	100.0			69	100.0			
Follow-up	Valid Yes	32	45.1	68.1	68.1	27	39.1	69.2	69.2
	Valid No	15	21.1	31.9	100.0	12	17.4	30.8	100.0
	Valid Total	47	66.2	100.0		39	56.5	100.0	
	Missing System	24	33.8			30	43.5		
Total	71	100.0			69	100.0			

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

Are you now trying to lose weight?
Yes, No

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid Yes	28	39.4	47.5	47.5
	.48	1	1.4	1.7	49.2
	No	30	42.3	50.8	100.0
	Total	59	83.1	100.0	
	Missing System	12	16.9		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid Yes	33	47.8	55.0	55.0
	No	27	39.1	45.0	100.0
	Total	60	87.0	100.0	
	Missing System	9	13.0		
	Total	69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid Yes	30	42.3	49.2	49.2
	No	31	43.7	50.8	100.0
	Total	61	85.9	100.0	
	Missing System	10	14.1		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid Yes	29	42.0	51.8	51.8
	No	27	39.1	48.2	100.0
	Total	56	81.2	100.0	
	Missing System	13	18.8		
	Total	69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid Yes	26	36.6	55.3	55.3
	No	21	29.6	44.7	100.0
	Total	47	66.2	100.0	
	Missing System	24	33.8		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid Yes	17	24.6	43.6	43.6
	No	22	31.9	56.4	100.0
	Total	39	56.5	100.0	
	Missing System	30	43.5		
	Total	69	100.0		

I changed what or how much I ate to lose weight
Yes, No

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid Yes	24	33.8	40.7	40.7
	No	35	49.3	59.3	100.0
	Total	59	83.1	100.0	
	Missing System	12	16.9		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid Yes	26	37.7	43.3	43.3
	No	34	49.3	56.7	100.0
	Total	60	87.0	100.0	
	Missing System	9	13.0		
	Total	69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid Yes	33	46.5	55.0	55.0
	No	27	38.0	45.0	100.0
	Total	60	84.5	100.0	
	Missing System	11	15.5		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid Yes	30	43.5	53.6	53.6
	No	26	37.7	46.4	100.0
	Total	56	81.2	100.0	
	Missing System	13	18.8		
	Total	69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid Yes	25	35.2	53.2	53.2
	No	22	31.0	46.8	100.0
	Total	47	66.2	100.0	
	Missing System	24	33.8		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid Yes	17	24.6	43.6	43.6
	No	22	31.9	56.4	100.0
	Total	39	56.5	100.0	
	Missing System	30	43.5		
	Total	69	100.0		

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

I exercised more to lose weight
Yes, No

Intervention

Control

			Frequency	Percent	Valid Percent	Cumulative Percent
	Valid	Yes	33	46.5	55.9	55.9
	No	26	36.6	44.1	100.0	
	Total	59	83.1	100.0		
Missing	System	12	16.9			
Total		71	100.0			

			Frequency	Percent	Valid Percent	Cumulative Percent
	Valid	Yes	40	58.0	66.7	66.7
	No	20	29.0	33.3	100.0	
	Total	60	87.0	100.0		
Missing	System	9	13.0			
Total		69	100.0			

			Frequency	Percent	Valid Percent	Cumulative Percent
	Valid	Yes	36	50.7	60.0	60.0
	No	24	33.8	40.0	100.0	
	Total	60	84.5	100.0		
Missing	System	11	15.5			
Total		71	100.0			

			Frequency	Percent	Valid Percent	Cumulative Percent
	Valid	Yes	32	46.4	57.1	57.1
	No	24	34.8	42.9	100.0	
	Total	56	81.2	100.0		
Missing	System	13	18.8			
Total		69	100.0			

			Frequency	Percent	Valid Percent	Cumulative Percent
	Valid	Yes	24	33.8	51.1	51.1
	No	23	32.4	48.9	100.0	
	Total	47	66.2	100.0		
Missing	System	24	33.8			
Total		71	100.0			

			Frequency	Percent	Valid Percent	Cumulative Percent
	Valid	Yes	28	40.6	71.8	71.8
	No	11	15.9	28.2	100.0	
	Total	39	56.5	100.0		
Missing	System	30	43.5			
Total		69	100.0			

I skipped a whole meal to lose weight
Yes, No

Intervention

Control

			Frequency	Percent	Valid Percent	Cumulative Percent
	Valid	Yes	18	25.4	30.5	30.5
	No	41	57.7	69.5	100.0	
	Total	59	83.1	100.0		
Missing	System	12	16.9			
Total		71	100.0			

			Frequency	Percent	Valid Percent	Cumulative Percent
	Valid	Yes	16	23.2	26.7	26.7
	No	44	63.8	73.3	100.0	
	Total	60	87.0	100.0		
Missing	System	9	13.0			
Total		69	100.0			

			Frequency	Percent	Valid Percent	Cumulative Percent
	Valid	Yes	15	21.1	25.0	25.0
	No	45	63.4	75.0	100.0	
	Total	60	84.5	100.0		
Missing	System	11	15.5			
Total		71	100.0			

			Frequency	Percent	Valid Percent	Cumulative Percent
	Valid	Yes	11	15.9	20.0	20.0
	No	44	63.8	80.0	100.0	
	Total	55	79.7	100.0		
Missing	System	14	20.3			
Total		69	100.0			

			Frequency	Percent	Valid Percent	Cumulative Percent
	Valid	Yes	15	21.1	32.6	32.6
	No	31	43.7	67.4	100.0	
	Total	46	64.8	100.0		
Missing	System	25	35.2			
Total		71	100.0			

			Frequency	Percent	Valid Percent	Cumulative Percent
	Valid	Yes	7	10.1	17.9	17.9
	No	32	46.4	82.1	100.0	
	Total	39	56.5	100.0		
Missing	System	30	43.5			
Total		69	100.0			

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

I went for a whole day without eating to lose weight
Yes, No

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid Yes	10	14.1	16.9	16.9
	No	49	69.0	83.1	100.0
	Total	59	83.1	100.0	
	Missing System	12	16.9		
	Total	71	100.0		
Posttest	Valid Yes	6	8.5	10.0	10.0
	No	54	76.1	90.0	100.0
	Total	60	84.5	100.0	
	Missing System	11	15.5		
	Total	71	100.0		
Follow-up	Valid Yes	9	12.7	19.6	19.6
	No	37	52.1	80.4	100.0
	Total	46	64.8	100.0	
	Missing System	25	35.2		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid Yes	10	14.5	16.7	16.7
	No	50	72.5	83.3	100.0
	Total	60	87.0	100.0	
	Missing System	9	13.0		
	Total	69	100.0		
Posttest	Valid Yes	14	20.3	25.0	25.0
	No	42	60.9	75.0	100.0
	Total	56	81.2	100.0	
	Missing System	13	18.8		
	Total	69	100.0		
Follow-up	Valid Yes	3	4.3	7.7	7.7
	No	36	52.2	92.3	100.0
	Total	39	56.5	100.0	
	Missing System	30	43.5		
	Total	69	100.0		

I ate only cooked food to lose weight
Yes, No

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid Yes	19	26.8	32.2	32.2
	.75	1	1.4	1.7	33.9
	No	39	54.9	66.1	100.0
	Total	59	83.1	100.0	
	Missing System	12	16.9		
Total	71	100.0			
Posttest	Valid Yes	14	19.7	23.3	23.3
	.76	1	1.4	1.7	25.0
	.76	1	1.4	1.7	26.7
	No	44	62.0	73.3	100.0
	Total	60	84.5	100.0	
Missing System	11	15.5			
Total	71	100.0			
Follow-up	Valid Yes	11	15.5	23.9	23.9
	No	35	49.3	76.1	100.0
	Total	46	64.8	100.0	
	Missing System	25	35.2		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid Yes	10	14.5	16.7	16.7
	No	50	72.5	83.3	100.0
	Total	60	87.0	100.0	
	Missing System	9	13.0		
	Total	69	100.0		
Posttest	Valid Yes	11	15.9	19.6	19.6
	No	45	65.2	80.4	100.0
	Total	56	81.2	100.0	
	Missing System	13	18.8		
	Total	69	100.0		
Follow-up	Valid Yes	8	11.6	20.5	20.5
	No	31	44.9	79.5	100.0
	Total	39	56.5	100.0	
	Missing System	30	43.5		
	Total	69	100.0		

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

I have never tried to lose weight
Yes, No

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid Yes	28	39.4	47.5	47.5
	.53	1	1.4	1.7	49.2
	No	30	42.3	50.8	100.0
	Total	59	83.1	100.0	
	Missing System	12	16.9		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid Yes	27	39.1	45.0	45.0
	.53	1	1.4	1.7	46.7
	No	32	46.4	53.3	100.0
	Total	60	87.0	100.0	
	Missing System	9	13.0		
Total	69	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid Yes	21	29.6	35.0	35.0
	No	39	54.9	65.0	100.0
	Total	60	84.5	100.0	
	Missing System	11	15.5		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid Yes	25	36.2	44.6	44.6
	.60	1	1.4	1.8	46.4
	No	30	43.5	53.6	100.0
	Total	56	81.2	100.0	
	Missing System	13	18.8		
Total	69	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid Yes	17	23.9	36.2	36.2
	No	30	42.3	63.8	100.0
	Total	47	66.2	100.0	
	Missing System	24	33.8		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid Yes	13	18.8	33.3	33.3
	No	26	37.7	66.7	100.0
	Total	39	56.5	100.0	
	Missing System	30	43.5		
	Total	69	100.0		

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

Have you ever done anything else to lose weight?

Pretest

Intervention

Control

	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20	28.2	28.2	28.2	Valid	17	24.6	24.6	24.6
I tried to lose weight by walking and running and spinning	1	1.4	1.4	29.6	Do Im way to skinny to do that the girl with the pink sleeves wrote this.	1	1.4	1.4	26.1
2 pound a day	1	1.4	1.4	31.0	Drink water eat healthy food and drink diet pop.	1	1.4	1.4	27.5
a little	1	1.4	1.4	32.4	eating regular with no extra food.	1	1.4	1.4	29.0
Do push up's and set up's.	1	1.4	1.4	33.8	exercise	1	1.4	1.4	30.4
go jogging 5 kilometers	1	1.4	1.4	35.2	I've went on walks!	1	1.4	1.4	31.9
I exercised for a whole day.	1	1.4	1.4	36.6	I am not go to lose weight.	1	1.4	1.4	33.3
I jump and up. I try to eat with a whole half a 3han.	1	1.4	1.4	38.0	I have been doing weights.	1	1.4	1.4	34.8
I never did anything to lose weight.	1	1.4	1.4	39.4	I have exercised every single day	1	1.4	1.4	36.2
I only ate 1 time a day for a week	1	1.4	1.4	40.8	I have tried the gym, slim fast	1	1.4	1.4	37.7
I rode a bike.	1	1.4	1.4	42.3	I have tried to dance.	1	1.4	1.4	39.1
I tried to not eat at school. I run the thrace.	1	1.4	1.4	43.7	I ran a mile by myself to lose weight.	1	1.4	1.4	40.6
I tried to play basketball.	1	1.4	1.4	45.1	I run alot	1	1.4	1.4	42.0
I walk or run	1	1.4	1.4	46.5	I tried to run.	1	1.4	1.4	43.5
Jog, run, jump, extirsize	1	1.4	1.4	47.9	I went and ride my bike	1	1.4	1.4	44.9
Just dont eat too much yes	1	1.4	1.4	49.3	No	5	7.2	7.2	52.2
Left wats	1	1.4	1.4	50.7	No but run	1	1.4	1.4	53.6
no	5	7.0	7.0	57.7	No I have not	4	5.8	5.8	59.4
No	11	15.5	15.5	73.2	No I have not.	1	1.4	1.4	60.9
No Becaus I am not fat I tall and skiney.	1	1.4	1.4	74.6	No I havent.	1	1.4	1.4	62.3
no because Im not fat	1	1.4	1.4	76.1	no no no	1	1.4	1.4	63.8
no I have not	1	1.4	1.4	77.5	No, because I am skinny.	1	1.4	1.4	65.2
No I havent	1	1.4	1.4	78.9	no.	1	1.4	1.4	66.7
No!	1	1.4	1.4	80.3	No.	1	1.4	1.4	68.1
No! I work and play hard, I dont have to worry!	1	1.4	1.4	81.7	nothing	1	1.4	1.4	69.6
No.	1	1.4	1.4	83.1	Nothing	2	2.9	2.9	72.5
Playing soccer	1	1.4	1.4	84.5	ran around a tree!	1	1.4	1.4	73.9
ran for 2 strit meals	1	1.4	1.4	85.9	ride mck to the stair ninsneen	1	1.4	1.4	75.4
run	1	1.4	1.4	87.3	to do pushups, run chinups ride a bike walk down the street	1	1.4	1.4	76.8
Skipping a meal, and eating a gronola bar. I would eat a whole box of gronola bars and just skip lunch.	1	1.4	1.4	88.7	Walking and riding my bicke	1	1.4	1.4	78.3
walk or run	1	1.4	1.4	90.1	Went on tracks went to the ymca to swim.	1	1.4	1.4	79.7
Walked all the way to the park	1	1.4	1.4	91.5	Yes	1	1.4	1.4	81.2
Yes	1	1.4	1.4	93.0	Yes by running all day into night.	1	1.4	1.4	82.6
yes because I don't what to be fat.	1	1.4	1.4	94.4	Yes Do exercises	1	1.4	1.4	84.1
Yes I trie to run	1	1.4	1.4	95.8	Yes have	1	1.4	1.4	85.5
Yes when I dot eat food	1	1.4	1.4	97.2	Yes Im tried to much	1	1.4	1.4	87.0
Yes, exercised to lose weight	1	1.4	1.4	98.6	Yes puch ups setups jumping jacks	1	1.4	1.4	88.4
Yes, walk for 30 mins or run or ride bikes for 1 hour or so.	1	1.4	1.4	100.0	Yes! I did do something to make me lose weight.	1	1.4	1.4	89.9
Total	71	100.0	100.0		Yes, by eating healthy foods.	1	1.4	1.4	91.3
					Yes, by lifting weights running evry day back and forth.	1	1.4	1.4	92.8
					Yes, I got invilled in alot of sports.	1	1.4	1.4	94.2
					Yes, I have been walking and I have been walking and I have been riding my bike.	1	1.4	1.4	95.7
					Yes, I tried to stop eating candy to loose weight.	1	1.4	1.4	97.1
					Also, I tried eating wheat bread.	1	1.4	1.4	98.6
					Yes. I try exersing and anthing else I can think of to do to loose weight.	1	1.4	1.4	100.0
					Yes. I workout ate vegetables and went to the gym	1	1.4	1.4	100.0
					Total	69	100.0	100.0	

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

Have you ever done anything else to lose weight?

Posttest

Intervention

Control

	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	21	29.6	29.6	29.6	Valid	17	24.6	24.6	24.6
Doing the wellemeat exercised and skipped meal.	1	1.4	1.4	31.0	exercise	1	1.4	1.4	26.1
I didn't eat for 2 days I was really hungry	1	1.4	1.4	32.4	Exercise really a lot.	1	1.4	1.4	27.5
I go to the park and run I have	1	1.4	1.4	33.8	Go to day care where sh only gives us 3 meals a day sometimes no snack	1	1.4	1.4	29.0
I have never tried to lose weight.	1	1.4	1.4	35.2	Go to the park and play soccer every day for one hour.	1	1.4	1.4	30.4
I have not.	1	1.4	1.4	36.6	I	1	1.4	1.4	31.9
I have tried running on a track	1	1.4	1.4	38.0	I ate things that were healthy.	1	1.4	1.4	33.3
I have went to a gym	1	1.4	1.4	39.4	I drink a lot of water and ran to miles.	1	1.4	1.4	34.8
I tried to play basketball	1	1.4	1.4	40.8	I go to the Y and I walk a whole two block and ate only cooked food	1	1.4	1.4	36.2
I try to not eat on weekends ecause I know I can lose weight every day	1	1.4	1.4	42.3	I have been runing.	1	1.4	1.4	37.7
Just skipping a whole meal.	1	1.4	1.4	43.7	i have been trying to lose weight.	1	1.4	1.4	39.1
no	2	2.8	2.8	45.1	I have tried to drink water for three weeks	1	1.4	1.4	40.6
No	13	18.3	18.3	46.5	I have walked all the way down Riverside several times.	1	1.4	1.4	42.0
no because i am skinny	1	1.4	1.4	49.3	I tride	1	1.4	1.4	43.5
No because I thins I'm Just right the sis	1	1.4	1.4	67.6	no	9	13.0	13.0	56.5
No but lift weght	1	1.4	1.4	69.0	No	6	8.7	8.7	65.2
No!	1	1.4	1.4	70.4	No I haven't tried anything else to try to lose wieght	1	1.4	1.4	66.7
no.	1	1.4	1.4	71.8	none	1	1.4	1.4	68.1
No.	1	1.4	1.4	73.2	nothing	4	5.8	5.8	73.9
none	1	1.4	1.4	74.6	Nothing	2	2.9	2.9	76.8
Not go to restaurants	1	1.4	1.4	75.0	Nothing, never	1	1.4	1.4	78.3
play soccer run jog pushup's jump on my trampeling	1	1.4	1.4	76.4	Rode my bike	1	1.4	1.4	79.7
play soccer.	1	1.4	1.4	77.8	Run and jog down the block	1	1.4	1.4	81.2
run run Run Run	1	1.4	1.4	79.2	Yes	4	5.8	5.8	87.0
run, skip,	1	1.4	1.4	80.6	Yes because I run all day long and it doesnt work	1	1.4	1.4	88.4
running a whole mile for a whole day	1	1.4	1.4	82.0	Yes I've done exercise	1	1.4	1.4	89.9
running, soccer.	1	1.4	1.4	83.4	Yes I ate less	1	1.4	1.4	91.3
skip a meal	1	1.4	1.4	84.8	yes I exersise and eat fr	1	1.4	1.4	92.8
work when my mom	1	1.4	1.4	86.2	Yes I have	1	1.4	1.4	94.2
yes	2	2.8	2.8	87.6	Yes I played and ran mor and did more pushups, jumping jack, and more pushups.	1	1.4	1.4	95.7
Yes I had	1	1.4	1.4	89.0	Yes I rode a bike and walked a track	1	1.4	1.4	97.1
Yes I have like, running, jumping jacks, pulling myself to the top of the stringset.	1	1.4	1.4	90.4	Yes I tried to use my crutches the quickest I can.	1	1.4	1.4	98.6
yes I ran ever day	1	1.4	1.4	91.8	Yes pushups sit up a lot.	1	1.4	1.4	100.0
Yes just skip a meal and eating salad	1	1.4	1.4	93.2	Total	69	100.0	100.0	
Yes. run	1	1.4	1.4	94.6					
Total	71	100.0	100.0						

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

Have you ever done anything else to lose weight?

Follow-up

Intervention

Control

	Frequency	Percent	Valid Percent	Cumulative Percent		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	36	50.7	50.7	50.7	Valid	32	46.4	46.4	46.4
[lay soccer	1	1.4	1.4	52.1	Cut food in half	1	1.4	1.4	47.8
going to the parks and walking.	1	1.4	1.4	53.5	eat less and excrises more	1	1.4	1.4	49.3
I have never tried to lose weight.	1	1.4	1.4	54.9	Go play soccer every day	1	1.4	1.4	50.7
I never have	1	1.4	1.4	56.3	an ate more fruits & vegetables.	1	1.4	1.4	52.2
I owese play basketball.	1	1.4	1.4	57.7	I've played harder to try to lose weight	1	1.4	1.4	53.6
I play all day to lose weight.	1	1.4	1.4	59.2	I ate more fruit.	1	1.4	1.4	55.1
I run	1	1.4	1.4	60.6	I exercised more, and I ate vestibles	1	1.4	1.4	56.5
I trying to lose weight	1	1.4	1.4	62.0	I exercised to lose weight	1	1.4	1.4	58.0
jumping jacks pushup and socer	1	1.4	1.4	63.4	I have exercise as much as I can and I went a whole day without eating.	1	1.4	1.4	59.4
no	4	5.6	5.6	69.0	I have never tried to lose weih	1	1.4	1.4	60.9
No	6	8.5	8.5	77.5	I have walked down	1	1.4	1.4	62.3
NO	1	1.4	1.4	78.9	riversid 5 times back and forth a day!	1	1.4	1.4	63.8
no because I am skinny	1	1.4	1.4	80.3	I rid my bike every day at the park	1	1.4	1.4	65.2
no.	1	1.4	1.4	81.7	I think I tried to loose whight	1	1.4	1.4	67.0
Ran the evrey day	1	1.4	1.4	83.1	i tried hard to lose weight	1	1.4	1.4	71.0
run around	1	1.4	1.4	84.5	no	4	5.8	5.8	81.2
Run around in my yerd.	1	1.4	1.4	85.9	No	7	10.1	10.1	82.6
run at riverside	1	1.4	1.4	87.3	no because I'm just right not to fat not to skinny	1	1.4	1.4	84.1
run jog jump on trampoline.	1	1.4	1.4	88.7	No I have not tryed to los weigh. I like myself how I am.	1	1.4	1.4	85.5
run, jog, and work out and situps and puch ups.	1	1.4	1.4	90.1	No I havent	1	1.4	1.4	87.0
running, soccer.	1	1.4	1.4	91.5	No jumping jax	1	1.4	1.4	88.4
Sundays I go walking with our couse but we for sometimes	1	1.4	1.4	93.0	No, I have not.	1	1.4	1.4	89.9
swimming	1	1.4	1.4	94.4	No, I haven't	1	1.4	1.4	91.3
walk for 30 minutes	1	1.4	1.4	95.8	no.	1	1.4	1.4	92.8
Yes	1	1.4	1.4	97.2	nope never!	1	1.4	1.4	94.2
Yes go walking every time.	1	1.4	1.4	98.6	run around the track.	1	1.4	1.4	95.7
Yes. Skip meals, and not eat anything. Eat off of gronola bars.	1	1.4	1.4	100.0	yes	1	1.4	1.4	97.1
Total	71	100.0	100.0		Yes I jumped rope	1	1.4	1.4	98.6
					Yes, I ran	1	1.4	1.4	100.0
					Total	69	100.0	100.0	

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

**Which student or students show the sizes that you think are most healthy?
A B C D E F G H (Girls sizes)**

Pretest

Intervention

Control

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid A	10	14.1	100.0	100.0
Missing System	61	85.9		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid A	15	21.7	100.0	100.0
Missing System	54	78.3		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid B	9	12.7	100.0	100.0
Missing System	62	87.3		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid B	13	18.8	100.0	100.0
Missing System	56	81.2		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid C	18	25.4	100.0	100.0
Missing System	53	74.6		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid C	27	39.1	100.0	100.0
Missing System	42	60.9		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid D	34	47.9	100.0	100.0
Missing System	37	52.1		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid D	39	56.5	100.0	100.0
Missing System	30	43.5		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid E	18	25.4	100.0	100.0
Missing System	53	74.6		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid E	21	30.4	100.0	100.0
Missing System	48	69.6		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid F	4	5.6	100.0	100.0
Missing System	67	94.4		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid F	2	2.9	100.0	100.0
Missing System	67	97.1		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid G	4	5.6	100.0	100.0
Missing System	67	94.4		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid G	1	1.4	100.0	100.0
Missing System	68	98.6		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid H	4	5.6	100.0	100.0
Missing System	67	94.4		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid H	2	2.9	100.0	100.0
Missing System	67	97.1		
Total	69	100.0		

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

**Which student or students show the sizes that you think are most healthy?
A B C D E F G H (Girls sizes)**

Posttest

Intervention

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid A	8	11.3	100.0	100.0
Missing System	63	88.7		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid B	9	12.7	100.0	100.0
Missing System	62	87.3		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid C	16	22.5	100.0	100.0
Missing System	55	77.5		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid D	37	52.1	100.0	100.0
Missing System	34	47.9		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid E	19	26.8	100.0	100.0
Missing System	52	73.2		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid F	7	9.9	100.0	100.0
Missing System	64	90.1		
Total	71	100.0		

	Frequency	Percent
Missing System	71	100.0

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid H	4	5.6	100.0	100.0
Missing System	67	94.4		
Total	71	100.0		

Control

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid A	12	17.4	100.0	100.0
Missing System	57	82.6		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid B	11	15.9	100.0	100.0
Missing System	58	84.1		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid C	18	26.1	100.0	100.0
Missing System	51	73.9		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid D	43	62.3	100.0	100.0
Missing System	26	37.7		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid E	20	29.0	100.0	100.0
Missing System	49	71.0		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid F	6	8.7	100.0	100.0
Missing System	63	91.3		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid G	2	2.9	100.0	100.0
Missing System	67	97.1		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid H	2	2.9	100.0	100.0
Missing System	67	97.1		
Total	69	100.0		

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

**Which student or students show the sizes that you think are most healthy?
A B C D E F G H (Girls sizes)**

Follow-up

Intervention

Control

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid A	5	7.0	100.0	100.0
Missing System	66	93.0		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid A	7	10.1	100.0	100.0
Missing System	62	89.9		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid B	7	9.9	100.0	100.0
Missing System	64	90.1		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid B	8	11.6	100.0	100.0
Missing System	61	88.4		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid C	17	23.9	100.0	100.0
Missing System	54	76.1		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid C	10	14.5	100.0	100.0
Missing System	59	85.5		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid D	29	40.8	100.0	100.0
Missing System	42	59.2		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid D	26	37.7	100.0	100.0
Missing System	43	62.3		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid E	19	26.8	100.0	100.0
Missing System	52	73.2		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid E	13	18.8	100.0	100.0
Missing System	56	81.2		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid F	4	5.6	100.0	100.0
Missing System	67	94.4		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid F	2	2.9	100.0	100.0
Missing System	67	97.1		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid G	2	2.8	100.0	100.0
Missing System	69	97.2		
Total	71	100.0		

	Frequency	Percent
Missing System	69	100.0

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid H	3	4.2	100.0	100.0
Missing System	68	95.8		
Total	71	100.0		

	Frequency	Percent
Missing System	69	100.0

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

**Which student or students show the sizes that you think are most healthy?
A B C D E F G H (Boys sizes)**

Pretest

Intervention

Control

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid A	10	14.1	100.0	100.0
Missing System	61	85.9		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid A	14	20.3	100.0	100.0
Missing System	55	79.7		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid B	10	14.1	100.0	100.0
Missing System	61	85.9		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid B	13	18.8	100.0	100.0
Missing System	56	81.2		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid C	18	25.4	100.0	100.0
Missing System	53	74.6		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid C	22	31.9	100.0	100.0
Missing System	47	68.1		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid D	39	54.9	100.0	100.0
Missing System	32	45.1		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid D	34	49.3	100.0	100.0
Missing System	35	50.7		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid E	20	28.2	100.0	100.0
Missing System	51	71.8		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid E	17	24.6	100.0	100.0
Missing System	52	75.4		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid F	4	5.6	100.0	100.0
Missing System	67	94.4		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid F	4	5.8	100.0	100.0
Missing System	65	94.2		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid G	1	1.4	100.0	100.0
Missing System	70	98.6		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid G	1	1.4	100.0	100.0
Missing System	68	98.6		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid H	2	2.8	100.0	100.0
Missing System	69	97.2		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid H	2	2.9	100.0	100.0
Missing System	67	97.1		
Total	69	100.0		

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

**Which student or students show the sizes that you think are most healthy?
A B C D E F G H (Boys sizes)**

Posttest

Intervention

Control

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid A	8	11.3	100.0	100.0
Missing System	63	88.7		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid A	8	11.6	100.0	100.0
Missing System	61	88.4		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid B	7	9.9	100.0	100.0
Missing System	64	90.1		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid B	9	13.0	100.0	100.0
Missing System	60	87.0		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid C	16	22.5	100.0	100.0
Missing System	55	77.5		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid C	16	23.2	100.0	100.0
Missing System	53	76.8		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid D	31	43.7	100.0	100.0
Missing System	40	56.3		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid D	36	52.2	100.0	100.0
Missing System	33	47.8		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid E	23	32.4	100.0	100.0
Missing System	48	67.6		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid E	11	15.9	100.0	100.0
Missing System	58	84.1		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid F	5	7.0	100.0	100.0
Missing System	66	93.0		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid F	6	8.7	100.0	100.0
Missing System	63	91.3		
Total	69	100.0		

	Frequency	Percent
Missing System	71	100.0

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid G	3	4.3	100.0	100.0
Missing System	66	95.7		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid H	2	2.8	100.0	100.0
Missing System	69	97.2		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid H	5	7.2	100.0	100.0
Missing System	64	92.8		
Total	69	100.0		

Appendix I continued: Knowledge, attitudes, and Behaviors (KAB) frequencies at pretest, posttest, and follow-up by intervention and control groups.

**Which student or students show the sizes that you think are most healthy?
A B C D E F G H (Boys sizes)**

Intervention Follow-up Control

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid A	6	8.5	100.0	100.0
Missing System	65	91.5		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid A	8	11.6	100.0	100.0
Missing System	61	88.4		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid B	5	7.0	100.0	100.0
Missing System	66	93.0		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid B	9	13.0	100.0	100.0
Missing System	60	87.0		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid C	19	26.8	100.0	100.0
Missing System	52	73.2		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid C	11	15.9	100.0	100.0
Missing System	58	84.1		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid D	28	39.4	100.0	100.0
Missing System	43	60.6		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid D	25	36.2	100.0	100.0
Missing System	44	63.8		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid E	17	23.9	100.0	100.0
Missing System	54	76.1		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid E	11	15.9	100.0	100.0
Missing System	58	84.1		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid F	5	7.0	100.0	100.0
Missing System	66	93.0		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid F	1	1.4	100.0	100.0
Missing System	68	98.6		
Total	69	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid G	2	2.8	100.0	100.0
Missing System	69	97.2		
Total	71	100.0		

	Frequency	Percent
Missing System	69	100.0

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid H	2	2.8	100.0	100.0
Missing System	69	97.2		
Total	71	100.0		

	Frequency	Percent
Missing System	69	100.0

APPENDIX J

CATCH FOOD CHECKLIST FREQUENCIES AT
PRETEST, POSTTEST, and FOLLOWUP
BY INTERVENTION AND
CONTROL GROUP

Appendix J: CATCH Food Checklist frequencies at pretest, posttest, and follow-up by intervention and control groups.

Yesterday, did you eat or drink any of these foods?
Hamburgers, cheeseburgers, chili, tacos, meatloaf, other ground beef dishes

		Intervention				Control			
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	45	63.4	77.6	77.6	42	60.9	70.0	70.0
	Yes	13	18.3	22.4	100.0	18	26.1	30.0	100.0
	Total	58	81.7	100.0		60	87.0	100.0	
	Missing System	13	18.3			9	13.0		
	Total	71	100.0			69	100.0		
Posttest	Valid No	36	50.7	62.1	62.1	40	58.0	71.4	71.4
	Yes	22	31.0	37.9	100.0	16	23.2	28.6	100.0
	Total	58	81.7	100.0		56	81.2	100.0	
	Missing System	13	18.3			13	18.8		
	Total	71	100.0			69	100.0		
Follow-up	Valid No	26	36.6	56.5	56.5	28	40.6	71.8	71.8
	Yes	20	28.2	43.5	100.0	11	15.9	28.2	100.0
	Total	46	64.8	100.0		39	56.5	100.0	
	Missing System	25	35.2			30	43.5		
	Total	71	100.0			69	100.0		

Yesterday, did you eat or drink any of these foods?
Hot dogs, frankfurters, corn dogs

		Intervention				Control			
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	48	67.6	82.8	82.8	50	72.5	82.0	82.0
	Yes	10	14.1	17.2	100.0	11	15.9	18.0	100.0
	Total	58	81.7	100.0		61	88.4	100.0	
	Missing System	13	18.3			8	11.6		
	Total	71	100.0			69	100.0		
Posttest	Valid No	47	66.2	81.0	81.0	48	69.6	85.7	85.7
	Yes	11	15.5	19.0	100.0	8	11.6	14.3	100.0
	Total	58	81.7	100.0		56	81.2	100.0	
	Missing System	13	18.3			13	18.8		
	Total	71	100.0			69	100.0		
Follow-up	Valid No	38	53.5	80.9	80.9	30	43.5	76.9	76.9
	Yes	9	12.7	19.1	100.0	9	13.0	23.1	100.0
	Total	47	66.2	100.0		39	56.5	100.0	
	Missing System	24	33.8			30	43.5		
	Total	71	100.0			69	100.0		

Appendix J continued: CATCH Food Checklist frequencies at pretest, posttest, and follow-up by intervention and control groups.

Yesterday, did you eat or drink any of these foods?
**Beef, such as steaks, roasts, beef fajita, stir-fried beef, ribs, stew beef
(not hamburger)**

		Intervention				Control			
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	47	66.2	82.5	82.5	50	72.5	82.0	82.0
	Yes	10	14.1	17.5	100.0	11	15.9	18.0	100.0
	Total	57	80.3	100.0		61	88.4	100.0	
	Missing System	14	19.7			8	11.6		
	Total	71	100.0			69	100.0		
Posttest	Valid No	46	64.8	79.3	79.3	42	60.9	76.4	76.4
	Yes	12	16.9	20.7	100.0	13	18.8	23.6	100.0
	Total	58	81.7	100.0		55	79.7	100.0	
	Missing System	13	18.3			14	20.3		
	Total	71	100.0			69	100.0		
Follow-up	Valid No	39	54.9	86.7	86.7	28	40.6	73.7	73.7
	Yes	6	8.5	13.3	100.0	10	14.5	26.3	100.0
	Total	45	63.4	100.0		38	55.1	100.0	
	Missing System	26	36.6			31	44.9		
	Total	71	100.0			69	100.0		

Yesterday, did you eat or drink any of these foods?
**Fried chicken, chicken nuggets, chicken patty, steak sticks, fried fish, fish
nuggets, fried shrimp, fried oysters, chicken fried steak, egg rolls, dim-sum**

		Intervention				Control			
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	38	53.5	65.5	65.5	35	50.7	58.3	58.3
	Yes	20	28.2	34.5	100.0	25	36.2	41.7	100.0
	Total	58	81.7	100.0		60	87.0	100.0	
	Missing System	13	18.3			9	13.0		
	Total	71	100.0			69	100.0		
Posttest	Valid No	42	59.2	72.4	72.4	33	47.8	58.9	58.9
	Yes	16	22.5	27.6	100.0	23	33.3	41.1	100.0
	Total	58	81.7	100.0		56	81.2	100.0	
	Missing System	13	18.3			13	18.8		
	Total	71	100.0			69	100.0		
Follow-up	Valid No	35	49.3	74.5	74.5	26	37.7	66.7	66.7
	Yes	12	16.9	25.5	100.0	13	18.8	33.3	100.0
	Total	47	66.2	100.0		39	56.5	100.0	
	Missing System	24	33.8			30	43.5		
	Total	71	100.0			69	100.0		

Appendix J continued: CATCH Food Checklist frequencies at pretest, posttest, and follow-up by intervention and control groups.

Yesterday, did you eat or drink any of these foods?
Turkey or chicken with skin eaten (not fried)

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	51	71.8	87.9	87.9
	Yes	7	9.9	12.1	100.0
	Total	58	81.7	100.0	
	Missing System	13	18.3		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	53	76.8	86.9	86.9
	Yes	8	11.6	13.1	100.0
	Total	61	88.4	100.0	
	Missing System	8	11.6		
Total	69	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid No	50	70.4	86.2	86.2
	Yes	8	11.3	13.8	100.0
	Total	58	81.7	100.0	
	Missing System	13	18.3		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid No	49	71.0	90.7	90.7
	Yes	5	7.2	9.3	100.0
	Total	54	78.3	100.0	
	Missing System	15	21.7		
Total	69	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid No	43	60.6	91.5	91.5
	Yes	4	5.6	8.5	100.0
	Total	47	66.2	100.0	
	Missing System	24	33.8		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid No	35	50.7	92.1	92.1
	Yes	3	4.3	7.9	100.0
	Total	38	55.1	100.0	
	Missing System	31	44.9		
Total	69	100.0			

Yesterday, did you eat or drink any of these foods?
Chicken salad, tuna salad, shrimp salad

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	48	67.6	82.8	82.8
	Yes	10	14.1	17.2	100.0
	Total	58	81.7	100.0	
	Missing System	13	18.3		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	52	75.4	89.7	89.7
	Yes	6	8.7	10.3	100.0
	Total	58	84.1	100.0	
	Missing System	11	15.9		
Total	69	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid No	49	69.0	84.5	84.5
	Yes	9	12.7	15.5	100.0
	Total	58	81.7	100.0	
	Missing System	13	18.3		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid No	42	60.9	80.8	80.8
	Yes	10	14.5	19.2	100.0
	Total	52	75.4	100.0	
	Missing System	17	24.6		
Total	69	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid No	39	54.9	83.0	83.0
	Yes	8	11.3	17.0	100.0
	Total	47	66.2	100.0	
	Missing System	24	33.8		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid No	32	46.4	82.1	82.1
	Yes	7	10.1	17.9	100.0
	Total	39	56.5	100.0	
	Missing System	30	43.5		
Total	69	100.0			

Appendix J continued: CATCH Food Checklist frequencies at pretest, posttest, and follow-up by intervention and control groups.

Yesterday, did you eat or drink any of these foods?
Cold cuts, bologna, ham, turkey luncheon meat, deli roast beef, other deli meat

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	45	63.4	77.6	77.6
	Yes	13	18.3	22.4	100.0
	Total	58	81.7	100.0	
Missing	System	13	18.3		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	47	68.1	78.3	78.3
	Yes	13	18.8	21.7	100.0
	Total	60	87.0	100.0	
Missing	System	9	13.0		
Total		69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	45	63.4	77.6	77.6
	Yes	13	18.3	22.4	100.0
	Total	58	81.7	100.0	
Missing	System	13	18.3		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	35	50.7	64.8	64.8
	Yes	19	27.5	35.2	100.0
	Total	54	78.3	100.0	
Missing	System	15	21.7		
Total		69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	34	47.9	72.3	72.3
	Yes	13	18.3	27.7	100.0
	Total	47	66.2	100.0	
Missing	System	24	33.8		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	28	40.6	71.8	71.8
	Yes	11	15.9	28.2	100.0
	Total	39	56.5	100.0	
Missing	System	30	43.5		
Total		69	100.0		

Yesterday, did you eat or drink any of these foods?
Bacon, sausage, chorizo, pickled pork

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	49	69.0	84.5	84.5
	Yes	9	12.7	15.5	100.0
	Total	58	81.7	100.0	
Missing	System	13	18.3		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	46	66.7	78.0	78.0
	Yes	13	18.8	22.0	100.0
	Total	59	85.5	100.0	
Missing	System	10	14.5		
Total		69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	45	63.4	78.9	78.9
	Yes	12	16.9	21.1	100.0
	Total	57	80.3	100.0	
Missing	System	14	19.7		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	45	65.2	81.8	81.8
	Yes	10	14.5	18.2	100.0
	Total	55	79.7	100.0	
Missing	System	14	20.3		
Total		69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	40	56.3	88.9	88.9
	Yes	5	7.0	11.1	100.0
	Total	45	63.4	100.0	
Missing	System	26	36.6		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	29	42.0	74.4	74.4
	Yes	10	14.5	25.6	100.0
	Total	39	56.5	100.0	
Missing	System	30	43.5		
Total		69	100.0		

Appendix J continued: CATCH Food Checklist frequencies at pretest, posttest, and follow-up by intervention and control groups.

Yesterday, did you eat or drink any of these foods?
Pork, including pork chops, spare ribs, roast pork

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	50	70.4	90.9	90.9
	Yes	5	7.0	9.1	100.0
	Total	55	77.5	100.0	
Missing	System	16	22.5		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	54	78.3	88.5	88.5
	Yes	7	10.1	11.5	100.0
	Total	61	88.4	100.0	
Missing	System	8	11.6		
Total		69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	49	69.0	86.0	86.0
	Yes	8	11.3	14.0	100.0
	Total	57	80.3	100.0	
Missing	System	14	19.7		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	49	71.0	89.1	89.1
	Yes	6	8.7	10.9	100.0
	Total	55	79.7	100.0	
Missing	System	14	20.3		
Total		69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	43	60.6	93.5	93.5
	Yes	3	4.2	6.5	100.0
	Total	46	64.8	100.0	
Missing	System	25	35.2		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	35	50.7	89.7	89.7
	Yes	4	5.8	10.3	100.0
	Total	39	56.5	100.0	
Missing	System	30	43.5		
Total		69	100.0		

Yesterday, did you eat or drink any of these foods?

Soup

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	41	57.7	71.9	71.9
	Yes	16	22.5	28.1	100.0
	Total	57	80.3	100.0	
Missing	System	14	19.7		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	50	72.5	82.0	82.0
	Yes	11	15.9	18.0	100.0
	Total	61	88.4	100.0	
Missing	System	8	11.6		
Total		69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	47	66.2	82.5	82.5
	Yes	10	14.1	17.5	100.0
	Total	57	80.3	100.0	
Missing	System	14	19.7		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	44	63.8	83.0	83.0
	Yes	9	13.0	17.0	100.0
	Total	53	76.8	100.0	
Missing	System	16	23.2		
Total		69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	38	53.5	82.6	82.6
	Yes	8	11.3	17.4	100.0
	Total	46	64.8	100.0	
Missing	System	25	35.2		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	33	47.8	84.6	84.6
	Yes	6	8.7	15.4	100.0
	Total	39	56.5	100.0	
Missing	System	30	43.5		
Total		69	100.0		

Appendix J continued: CATCH Food Checklist frequencies at pretest, posttest, and follow-up by intervention and control groups.

Yesterday, did you eat or drink any of these foods?
Spaghetti or other pasta with meat and tomato sauce

Intervention

Control

Pretest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	49	69.0	87.5	87.5
	Yes	7	9.9	12.5	100.0
	Total	56	78.9	100.0	
Missing	System	15	21.1		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	54	78.3	88.5	88.5
	Yes	7	10.1	11.5	100.0
	Total	61	88.4	100.0	
Missing	System	8	11.6		
Total		69	100.0		

Posttest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	47	66.2	81.0	81.0
	Yes	11	15.5	19.0	100.0
	Total	58	81.7	100.0	
Missing	System	13	18.3		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	44	63.8	81.5	81.5
	Yes	10	14.5	18.5	100.0
	Total	54	78.3	100.0	
Missing	System	15	21.7		
Total		69	100.0		

Follow-up

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	39	54.9	86.7	86.7
	Yes	6	8.5	13.3	100.0
	Total	45	63.4	100.0	
Missing	System	26	36.6		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	31	44.9	81.6	81.6
	Yes	7	10.1	18.4	100.0
	Total	38	55.1	100.0	
Missing	System	31	44.9		
Total		69	100.0		

Yesterday, did you eat or drink any of these foods?
Pizza, lasagna

Intervention

Control

Pretest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	43	60.6	75.4	75.4
	Yes	14	19.7	24.6	100.0
	Total	57	80.3	100.0	
Missing	System	14	19.7		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	39	56.5	63.9	63.9
	Yes	22	31.9	36.1	100.0
	Total	61	88.4	100.0	
Missing	System	8	11.6		
Total		69	100.0		

Posttest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	42	59.2	72.4	72.4
	Yes	16	22.5	27.6	100.0
	Total	58	81.7	100.0	
Missing	System	13	18.3		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	43	62.3	76.8	76.8
	Yes	13	18.8	23.2	100.0
	Total	56	81.2	100.0	
Missing	System	13	18.8		
Total		69	100.0		

Follow-up

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	33	46.5	70.2	70.2
	Yes	14	19.7	29.8	100.0
	Total	47	66.2	100.0	
Missing	System	24	33.8		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	33	47.8	86.8	86.8
	Yes	5	7.2	13.2	100.0
	Total	38	55.1	100.0	
Missing	System	31	44.9		
Total		69	100.0		

Appendix J continued: CATCH Food Checklist frequencies at pretest, posttest, and follow-up by intervention and control groups.

Yesterday, did you eat or drink any of these foods?
Cheese dishes such as macaroni and cheese, cheese nachos, cheese enchiladas, quesadillas

Intervention

Control

Pretest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	42	59.2	72.4	72.4
	Yes	16	22.5	27.6	100.0
	Total	58	81.7	100.0	
Missing	System	13	18.3		
Total		71	100.0		

Pretest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	42	60.9	71.2	71.2
	Yes	17	24.6	28.8	100.0
	Total	59	85.5	100.0	
Missing	System	10	14.5		
Total		69	100.0		

Posttest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	44	62.0	77.2	77.2
	Yes	13	18.3	22.8	100.0
	Total	57	80.3	100.0	
Missing	System	14	19.7		
Total		71	100.0		

Posttest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	41	59.4	74.5	74.5
	Yes	14	20.3	25.5	100.0
	Total	55	79.7	100.0	
Missing	System	14	20.3		
Total		69	100.0		

Follow-up

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	32	45.1	68.1	68.1
	Yes	15	21.1	31.9	100.0
	Total	47	66.2	100.0	
Missing	System	24	33.8		
Total		71	100.0		

Follow-up

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	30	43.5	76.9	76.9
	Yes	9	13.0	23.1	100.0
	Total	39	56.5	100.0	
Missing	System	30	43.5		
Total		69	100.0		

Yesterday, did you eat or drink any of these foods?
Cheese or cheese spread, including American, Swiss, Cheddar

Intervention

Control

Pretest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	48	67.6	82.8	82.8
	Yes	10	14.1	17.2	100.0
	Total	58	81.7	100.0	
Missing	System	13	18.3		
Total		71	100.0		

Pretest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	46	66.7	75.4	75.4
	Yes	15	21.7	24.6	100.0
	Total	61	88.4	100.0	
Missing	System	8	11.6		
Total		69	100.0		

Posttest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	53	74.6	91.4	91.4
	Yes	5	7.0	8.6	100.0
	Total	58	81.7	100.0	
Missing	System	13	18.3		
Total		71	100.0		

Posttest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	43	62.3	78.2	78.2
	Yes	12	17.4	21.8	100.0
	Total	55	79.7	100.0	
Missing	System	14	20.3		
Total		69	100.0		

Follow-up

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	36	50.7	80.0	80.0
	Yes	9	12.7	20.0	100.0
	Total	45	63.4	100.0	
Missing	System	26	36.6		
Total		71	100.0		

Follow-up

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	32	46.4	82.1	82.1
	Yes	7	10.1	17.9	100.0
	Total	39	56.5	100.0	
Missing	System	30	43.5		
Total		69	100.0		

Appendix J continued: CATCH Food Checklist frequencies at pretest, posttest, and follow-up by intervention and control groups.

Yesterday, did you eat or drink any of these foods?
Eggs, including scrambled, fried, omelets, hard boiled eggs, egg salad

Intervention

Control

Pretest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	43	60.6	78.2	78.2
	Yes	12	16.9	21.8	100.0
	Total	55	77.5	100.0	
Missing	System	16	22.5		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	48	69.6	80.0	80.0
	Yes	12	17.4	20.0	100.0
	Total	60	87.0	100.0	
Missing	System	9	13.0		
	Total	69	100.0		

Posttest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	47	66.2	83.9	83.9
	Yes	9	12.7	16.1	100.0
	Total	56	78.9	100.0	
Missing	System	15	21.1		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	46	66.7	85.2	85.2
	Yes	8	11.6	14.8	100.0
	Total	54	78.3	100.0	
Missing	System	15	21.7		
	Total	69	100.0		

Follow-up

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	38	53.5	82.6	82.6
	Yes	8	11.3	17.4	100.0
	Total	46	64.8	100.0	
Missing	System	25	35.2		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	25	36.2	65.8	65.8
	Yes	13	18.8	34.2	100.0
	Total	38	55.1	100.0	
Missing	System	31	44.9		
	Total	69	100.0		

Yesterday, did you eat or drink any of these foods?
Whole milk (white or chocolate)

Intervention

Control

Pretest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	26	36.6	46.4	46.4
	Yes	30	42.3	53.6	100.0
	Total	56	78.9	100.0	
Missing	System	15	21.1		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	27	39.1	45.0	45.0
	Yes	33	47.8	55.0	100.0
	Total	60	87.0	100.0	
Missing	System	9	13.0		
	Total	69	100.0		

Posttest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	33	46.5	57.9	57.9
	Yes	24	33.8	42.1	100.0
	Total	57	80.3	100.0	
Missing	System	14	19.7		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	30	43.5	55.6	55.6
	Yes	24	34.8	44.4	100.0
	Total	54	78.3	100.0	
Missing	System	15	21.7		
	Total	69	100.0		

Follow-up

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	31	43.7	66.0	66.0
	Yes	16	22.5	34.0	100.0
	Total	47	66.2	100.0	
Missing	System	24	33.8		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	25	36.2	64.1	64.1
	Yes	14	20.3	35.9	100.0
	Total	39	56.5	100.0	
Missing	System	30	43.5		
	Total	69	100.0		

Appendix J continued: CATCH Food Checklist frequencies at pretest, posttest, and follow-up by intervention and control groups.

Yesterday, did you eat or drink any of these foods?
2% fat milk (white or chocolate)

Intervention

Control

Pretest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	33	46.5	60.0	60.0
	Yes	22	31.0	40.0	100.0
	Total	55	77.5	100.0	
Missing	System	16	22.5		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	33	47.8	55.9	55.9
	Yes	26	37.7	44.1	100.0
	Total	59	85.5	100.0	
Missing	System	10	14.5		
Total		69	100.0		

Posttest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	29	40.8	51.8	51.8
	Yes	27	38.0	48.2	100.0
	Total	56	78.9	100.0	
Missing	System	15	21.1		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	34	49.3	60.7	60.7
	Yes	22	31.9	39.3	100.0
	Total	56	81.2	100.0	
Missing	System	13	18.8		
Total		69	100.0		

Follow-up

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	26	36.6	55.3	55.3
	Yes	21	29.6	44.7	100.0
	Total	47	66.2	100.0	
Missing	System	24	33.8		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	22	31.9	56.4	56.4
	Yes	17	24.6	43.6	100.0
	Total	39	56.5	100.0	
Missing	System	30	43.5		
Total		69	100.0		

Yesterday, did you eat or drink any of these foods?
Bread, buns (hamburger or hotdog), bagels, rolls (not sweet), tortillas, English muffins

Intervention

Control

Pretest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	44	62.0	77.2	77.2
	Yes	13	18.3	22.8	100.0
	Total	57	80.3	100.0	
Missing	System	14	19.7		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	38	55.1	62.3	62.3
	Yes	23	33.3	37.7	100.0
	Total	61	88.4	100.0	
Missing	System	8	11.6		
Total		69	100.0		

Posttest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	40	56.3	69.0	69.0
	Yes	18	25.4	31.0	100.0
	Total	58	81.7	100.0	
Missing	System	13	18.3		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	37	53.6	68.5	68.5
	Yes	17	24.6	31.5	100.0
	Total	54	78.3	100.0	
Missing	System	15	21.7		
Total		69	100.0		

Follow-up

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	31	43.7	68.9	68.9
	Yes	14	19.7	31.1	100.0
	Total	45	63.4	100.0	
Missing	System	26	36.6		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	31	44.9	79.5	79.5
	Yes	8	11.6	20.5	100.0
	Total	39	56.5	100.0	
Missing	System	30	43.5		
Total		69	100.0		

Appendix J continued: CATCH Food Checklist frequencies at pretest, posttest, and follow-up by intervention and control groups.

Yesterday, did you eat or drink any of these foods?
Biscuits, cornbread

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	44	62.0	78.6	78.6
	Yes	12	16.9	21.4	100.0
	Total	56	78.9	100.0	
	Missing System	15	21.1		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	44	63.8	73.3	73.3
	Yes	16	23.2	26.7	100.0
	Total	60	87.0	100.0	
	Missing System	9	13.0		
Total	69	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid No	46	64.8	79.3	79.3
	Yes	12	16.9	20.7	100.0
	Total	58	81.7	100.0	
	Missing System	13	18.3		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid No	43	62.3	78.2	78.2
	Yes	12	17.4	21.8	100.0
	Total	55	79.7	100.0	
	Missing System	14	20.3		
Total	69	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid No	37	52.1	80.4	80.4
	Yes	9	12.7	19.6	100.0
	Total	46	64.8	100.0	
	Missing System	25	35.2		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid No	31	44.9	79.5	79.5
	Yes	8	11.6	20.5	100.0
	Total	39	56.5	100.0	
	Missing System	30	43.5		
Total	69	100.0			

Yesterday, did you eat or drink any of these foods?
Beans such as red or white beans, baked beans, refried beans

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	45	63.4	77.6	77.6
	Yes	13	18.3	22.4	100.0
	Total	58	81.7	100.0	
	Missing System	13	18.3		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	55	79.7	90.2	90.2
	Yes	6	8.7	9.8	100.0
	Total	61	88.4	100.0	
	Missing System	8	11.6		
Total	69	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid No	48	67.6	82.8	82.8
	Yes	10	14.1	17.2	100.0
	Total	58	81.7	100.0	
	Missing System	13	18.3		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid No	53	76.8	94.6	94.6
	Yes	3	4.3	5.4	100.0
	Total	56	81.2	100.0	
	Missing System	13	18.8		
Total	69	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid No	41	57.7	87.2	87.2
	Yes	6	8.5	12.8	100.0
	Total	47	66.2	100.0	
	Missing System	24	33.8		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid No	33	47.8	86.8	86.8
	Yes	5	7.2	13.2	100.0
	Total	38	55.1	100.0	
	Missing System	31	44.9		
Total	69	100.0			

Appendix J continued: CATCH Food Checklist frequencies at pretest, posttest, and follow-up by intervention and control groups.

Yesterday, did you eat or drink any of these foods?
Spanish rice, fried rice, other mixed rice dishes

Intervention

Control

Pretest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	40	56.3	69.0	69.0
	Yes	18	25.4	31.0	100.0
	Total	58	81.7	100.0	
Missing	System	13	18.3		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	51	73.9	83.6	83.6
	Yes	10	14.5	16.4	100.0
	Total	61	88.4	100.0	
Missing	System	8	11.6		
Total		69	100.0		

Posttest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	38	53.5	65.5	65.5
	Yes	20	28.2	34.5	100.0
	Total	58	81.7	100.0	
Missing	System	13	18.3		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	47	68.1	83.9	83.9
	Yes	9	13.0	16.1	100.0
	Total	56	81.2	100.0	
Missing	System	13	18.8		
Total		69	100.0		

Follow-up

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	37	52.1	78.7	78.7
	Yes	10	14.1	21.3	100.0
	Total	47	66.2	100.0	
Missing	System	24	33.8		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	34	49.3	87.2	87.2
	Yes	5	7.2	12.8	100.0
	Total	39	56.5	100.0	
Missing	System	30	43.5		
Total		69	100.0		

Yesterday, did you eat or drink any of these foods?
French fries, hash browns, tater tots, potato rounds

Intervention

Control

Pretest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	43	60.6	75.4	75.4
	Yes	14	19.7	24.6	100.0
	Total	57	80.3	100.0	
Missing	System	14	19.7		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	46	66.7	76.7	76.7
	Yes	14	20.3	23.3	100.0
	Total	60	87.0	100.0	
Missing	System	9	13.0		
Total		69	100.0		

Posttest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	45	63.4	78.9	78.9
	Yes	12	16.9	21.1	100.0
	Total	57	80.3	100.0	
Missing	System	14	19.7		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	41	59.4	73.2	73.2
	Yes	15	21.7	26.8	100.0
	Total	56	81.2	100.0	
Missing	System	13	18.8		
Total		69	100.0		

Follow-up

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	38	53.5	80.9	80.9
	Yes	9	12.7	19.1	100.0
	Total	47	66.2	100.0	
Missing	System	24	33.8		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	26	37.7	66.7	66.7
	Yes	13	18.8	33.3	100.0
	Total	39	56.5	100.0	
Missing	System	30	43.5		
Total		69	100.0		

Appendix J continued: CATCH Food Checklist frequencies at pretest, posttest, and follow-up by intervention and control groups.

Yesterday, did you eat or drink any of these foods?
Cold cereal

Intervention

Control

Pretest

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No	31	43.7	54.4	54.4
Yes	26	36.6	45.6	100.0
Total	57	80.3	100.0	
Missing System	14	19.7		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No	25	36.2	41.7	41.7
Yes	35	50.7	58.3	100.0
Total	60	87.0	100.0	
Missing System	9	13.0		
Total	69	100.0		

Posttest

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No	32	45.1	57.1	57.1
Yes	24	33.8	42.9	100.0
Total	56	78.9	100.0	
Missing System	15	21.1		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No	23	33.3	41.1	41.1
Yes	33	47.8	58.9	100.0
Total	56	81.2	100.0	
Missing System	13	18.8		
Total	69	100.0		

Follow-up

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No	28	39.4	60.9	60.9
Yes	18	25.4	39.1	100.0
Total	46	64.8	100.0	
Missing System	25	35.2		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No	26	37.7	66.7	66.7
Yes	13	18.8	33.3	100.0
Total	39	56.5	100.0	
Missing System	30	43.5		
Total	69	100.0		

Yesterday, did you eat or drink any of these foods?
Pancakes, waffles

Intervention

Control

Pretest

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No	41	57.7	71.9	71.9
Yes	16	22.5	28.1	100.0
Total	57	80.3	100.0	
Missing System	14	19.7		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No	45	65.2	76.3	76.3
Yes	14	20.3	23.7	100.0
Total	59	85.5	100.0	
Missing System	10	14.5		
Total	69	100.0		

Posttest

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No	36	50.7	63.2	63.2
Yes	21	29.6	36.8	100.0
Total	57	80.3	100.0	
Missing System	14	19.7		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No	44	63.8	78.6	78.6
Yes	12	17.4	21.4	100.0
Total	56	81.2	100.0	
Missing System	13	18.8		
Total	69	100.0		

Follow-up

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No	35	49.3	76.1	76.1
Yes	11	15.5	23.9	100.0
Total	46	64.8	100.0	
Missing System	25	35.2		
Total	71	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No	32	46.4	82.1	82.1
Yes	7	10.1	17.9	100.0
Total	39	56.5	100.0	
Missing System	30	43.5		
Total	69	100.0		

Appendix J continued: CATCH Food Checklist frequencies at pretest, posttest, and follow-up by intervention and control groups.

Yesterday, did you eat or drink any of these foods?

Pretzels

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	51	71.8	92.7	92.7
	Yes	4	5.6	7.3	100.0
	Total	55	77.5	100.0	
Missing	System	16	22.5		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	46	66.7	76.7	76.7
	Yes	14	20.3	23.3	100.0
	Total	60	87.0	100.0	
Missing	System	9	13.0		
Total		69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	49	69.0	84.5	84.5
	Yes	9	12.7	15.5	100.0
	Total	58	81.7	100.0	
Missing	System	13	18.3		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	48	69.6	85.7	85.7
	Yes	8	11.6	14.3	100.0
	Total	56	81.2	100.0	
Missing	System	13	18.8		
Total		69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	42	59.2	91.3	91.3
	Yes	4	5.6	8.7	100.0
	Total	46	64.8	100.0	
Missing	System	25	35.2		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	34	49.3	89.5	89.5
	Yes	4	5.8	10.5	100.0
	Total	38	55.1	100.0	
Missing	System	31	44.9		
Total		69	100.0		

Yesterday, did you eat or drink any of these foods?

Potato chips, corn chips, tortilla chips, popcorn, crackers, cheese puffs, other snack chips

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	27	38.0	46.6	46.6
	Yes	31	43.7	53.4	100.0
	Total	58	81.7	100.0	
Missing	System	13	18.3		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	29	42.0	48.3	48.3
	Yes	31	44.9	51.7	100.0
	Total	60	87.0	100.0	
Missing	System	9	13.0		
Total		69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	36	50.7	62.1	62.1
	Yes	22	31.0	37.9	100.0
	Total	58	81.7	100.0	
Missing	System	13	18.3		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	24	34.8	42.9	42.9
	Yes	32	46.4	57.1	100.0
	Total	56	81.2	100.0	
Missing	System	13	18.8		
Total		69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	24	33.8	51.1	51.1
	Yes	23	32.4	48.9	100.0
	Total	47	66.2	100.0	
Missing	System	24	33.8		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	20	29.0	51.3	51.3
	Yes	19	27.5	48.7	100.0
	Total	39	56.5	100.0	
Missing	System	30	43.5		
Total		69	100.0		

Appendix J continued: CATCH Food Checklist frequencies at pretest, posttest, and follow-up by intervention and control groups.

Yesterday, did you eat or drink any of these foods?
Pickles, olives

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	45	63.4	78.9	78.9
	Yes	12	16.9	21.1	100.0
	Total	57	80.3	100.0	
Missing System	14	19.7			
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	50	72.5	83.3	83.3
	Yes	10	14.5	16.7	100.0
	Total	60	87.0	100.0	
Missing System	9	13.0			
Total	69	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid No	46	64.8	79.3	79.3
	Yes	12	16.9	20.7	100.0
	Total	58	81.7	100.0	
Missing System	13	18.3			
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid No	47	68.1	83.9	83.9
	Yes	9	13.0	16.1	100.0
	Total	56	81.2	100.0	
Missing System	13	18.8			
Total	69	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid No	38	53.5	80.9	80.9
	Yes	9	12.7	19.1	100.0
	Total	47	66.2	100.0	
Missing System	24	33.8			
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid No	31	44.9	79.5	79.5
	Yes	8	11.6	20.5	100.0
	Total	39	56.5	100.0	
Missing System	30	43.5			
Total	69	100.0			

Yesterday, did you eat or drink any of these foods?
Peanut butter, peanuts

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	44	62.0	77.2	77.2
	Yes	13	18.3	22.8	100.0
	Total	57	80.3	100.0	
Missing System	14	19.7			
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	46	66.7	76.7	76.7
	Yes	14	20.3	23.3	100.0
	Total	60	87.0	100.0	
Missing System	9	13.0			
Total	69	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid No	49	69.0	84.5	84.5
	Yes	9	12.7	15.5	100.0
	Total	58	81.7	100.0	
Missing System	13	18.3			
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid No	43	62.3	78.2	78.2
	Yes	12	17.4	21.8	100.0
	Total	55	79.7	100.0	
Missing System	14	20.3			
Total	69	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid No	38	53.5	82.6	82.6
	Yes	8	11.3	17.4	100.0
	Total	46	64.8	100.0	
Missing System	25	35.2			
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid No	35	50.7	89.7	89.7
	Yes	4	5.8	10.3	100.0
	Total	39	56.5	100.0	
Missing System	30	43.5			
Total	69	100.0			

Appendix J continued: CATCH Food Checklist frequencies at pretest, posttest, and follow-up by intervention and control groups.

Yesterday, did you eat or drink any of these foods?
Cookies and bars, muffins, sweet rolls, cakes, snack cakes, granola bars

		Intervention				Control			
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	33	46.5	56.9	56.9	33	47.8	55.0	55.0
	Yes	25	35.2	43.1	100.0	27	39.1	45.0	100.0
	Total	58	81.7	100.0		60	87.0	100.0	
	Missing System	13	18.3			9	13.0		
Total	71	100.0			69	100.0			
Posttest	Valid No	31	43.7	53.4	53.4	36	52.2	65.5	65.5
	Yes	27	38.0	46.6	100.0	19	27.5	34.5	100.0
	Total	58	81.7	100.0		55	79.7	100.0	
	Missing System	13	18.3			14	20.3		
Total	71	100.0			69	100.0			
Follow-up	Valid No	30	42.3	65.2	65.2	23	33.3	59.0	59.0
	Yes	16	22.5	34.8	100.0	16	23.2	41.0	100.0
	Total	46	64.8	100.0		39	56.5	100.0	
	Missing System	25	35.2			30	43.5		
Total	71	100.0			69	100.0			

Yesterday, did you eat or drink any of these foods?
Doughnuts, brownies, pies, pastries, croissants

		Intervention				Control			
		Frequency	Percent	Valid Percent	Cumulative Percent	Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	37	52.1	63.8	63.8	40	58.0	66.7	66.7
	Yes	21	29.6	36.2	100.0	20	29.0	33.3	100.0
	Total	58	81.7	100.0		60	87.0	100.0	
	Missing System	13	18.3			9	13.0		
Total	71	100.0			69	100.0			
Posttest	Valid No	47	66.2	82.5	82.5	43	62.3	76.8	76.8
	Yes	10	14.1	17.5	100.0	13	18.8	23.2	100.0
	Total	57	80.3	100.0		56	81.2	100.0	
	Missing System	14	19.7			13	18.8		
Total	71	100.0			69	100.0			
Follow-up	Valid No	33	46.5	70.2	70.2	27	39.1	69.2	69.2
	Yes	14	19.7	29.8	100.0	12	17.4	30.8	100.0
	Total	47	66.2	100.0		39	56.5	100.0	
	Missing System	24	33.8			30	43.5		
Total	71	100.0			69	100.0			

Appendix J continued: CATCH Food Checklist frequencies at pretest, posttest, and follow-up by intervention and control groups.

Yesterday, did you eat or drink any of these foods?
Ice cream, ice cream bars (not frozen yogurt, popsicles, or fruit ice)

Intervention

Control

Pretest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	32	45.1	55.2	55.2
	Yes	26	36.6	44.8	100.0
	Total	58	81.7	100.0	
Missing	System	13	18.3		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	34	49.3	56.7	56.7
	Yes	26	37.7	43.3	100.0
	Total	60	87.0	100.0	
Missing	System	9	13.0		
	Total	69	100.0		

Posttest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	36	50.7	62.1	62.1
	Yes	22	31.0	37.9	100.0
	Total	58	81.7	100.0	
Missing	System	13	18.3		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	35	50.7	62.5	62.5
	Yes	21	30.4	37.5	100.0
	Total	56	81.2	100.0	
Missing	System	13	18.8		
	Total	69	100.0		

Follow-up

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	26	36.6	56.5	56.5
	Yes	20	28.2	43.5	100.0
	Total	46	64.8	100.0	
Missing	System	25	35.2		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	29	42.0	74.4	74.4
	Yes	10	14.5	25.6	100.0
	Total	39	56.5	100.0	
Missing	System	30	43.5		
	Total	69	100.0		

Yesterday, did you eat or drink any of these foods?
Chocolate candy

Intervention

Control

Pretest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	42	59.2	73.7	73.7
	Yes	15	21.1	26.3	100.0
	Total	57	80.3	100.0	
Missing	System	14	19.7		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	32	46.4	53.3	53.3
	Yes	28	40.6	46.7	100.0
	Total	60	87.0	100.0	
Missing	System	9	13.0		
	Total	69	100.0		

Posttest

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	37	52.1	63.8	63.8
	Yes	21	29.6	36.2	100.0
	Total	58	81.7	100.0	
Missing	System	13	18.3		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	36	52.2	64.3	64.3
	Yes	20	29.0	35.7	100.0
	Total	56	81.2	100.0	
Missing	System	13	18.8		
	Total	69	100.0		

Follow-up

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	33	46.5	70.2	70.2
	Yes	14	19.7	29.8	100.0
	Total	47	66.2	100.0	
Missing	System	24	33.8		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	27	39.1	69.2	69.2
	Yes	12	17.4	30.8	100.0
	Total	39	56.5	100.0	
Missing	System	30	43.5		
	Total	69	100.0		

Appendix J continued: CATCH Food Checklist frequencies at pretest, posttest, and follow-up by intervention and control groups.

Yesterday, did you eat or drink any of these foods?

Margarine

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	54	76.1	93.1	93.1
	Yes	4	5.6	6.9	100.0
	Total	58	81.7	100.0	
Missing	System	13	18.3		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	56	81.2	94.9	94.9
	Yes	3	4.3	5.1	100.0
	Total	59	85.5	100.0	
Missing	System	10	14.5		
Total		69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	56	78.9	96.6	96.6
	Yes	2	2.8	3.4	100.0
	Total	58	81.7	100.0	
Missing	System	13	18.3		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	52	75.4	92.9	92.9
	Yes	4	5.8	7.1	100.0
	Total	56	81.2	100.0	
Missing	System	13	18.8		
Total		69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	45	63.4	95.7	95.7
	Yes	2	2.8	4.3	100.0
	Total	47	66.2	100.0	
Missing	System	24	33.8		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	32	46.4	82.1	82.1
	Yes	7	10.1	17.9	100.0
	Total	39	56.5	100.0	
Missing	System	30	43.5		
Total		69	100.0		

Yesterday, did you eat or drink any of these foods?

Butter

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	50	70.4	87.7	87.7
	Yes	7	9.9	12.3	100.0
	Total	57	80.3	100.0	
Missing	System	14	19.7		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	43	62.3	74.1	74.1
	Yes	15	21.7	25.9	100.0
	Total	58	84.1	100.0	
Missing	System	11	15.9		
Total		69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	50	70.4	86.2	86.2
	Yes	8	11.3	13.8	100.0
	Total	58	81.7	100.0	
Missing	System	13	18.3		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	41	59.4	73.2	73.2
	Yes	15	21.7	26.8	100.0
	Total	56	81.2	100.0	
Missing	System	13	18.8		
Total		69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	40	56.3	85.1	85.1
	Yes	7	9.9	14.9	100.0
	Total	47	66.2	100.0	
Missing	System	24	33.8		
Total		71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	27	39.1	69.2	69.2
	Yes	12	17.4	30.8	100.0
	Total	39	56.5	100.0	
Missing	System	30	43.5		
Total		69	100.0		

Appendix J continued: CATCH Food Checklist frequencies at pretest, posttest, and follow-up by intervention and control groups.

Yesterday, did you eat or drink any of these foods?
Mayonnaise

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	50	70.4	87.7	87.7
	Yes	7	9.9	12.3	100.0
	Total	57	80.3	100.0	
	Missing System	14	19.7		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	47	68.1	81.0	81.0
	Yes	11	15.9	19.0	100.0
	Total	58	84.1	100.0	
	Missing System	11	15.9		
	Total	69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid No	50	70.4	87.7	87.7
	Yes	7	9.9	12.3	100.0
	Total	57	80.3	100.0	
	Missing System	14	19.7		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid No	49	71.0	87.5	87.5
	Yes	7	10.1	12.5	100.0
	Total	56	81.2	100.0	
	Missing System	13	18.8		
	Total	69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid No	35	49.3	76.1	76.1
	Yes	11	15.5	23.9	100.0
	Total	46	64.8	100.0	
	Missing System	25	35.2		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid No	36	52.2	92.3	92.3
	Yes	3	4.3	7.7	100.0
	Total	39	56.5	100.0	
	Missing System	30	43.5		
	Total	69	100.0		

Yesterday, did you eat or drink any of these foods?
Salad dressings such as Ranch, Italian, Thousand, French

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	46	64.8	79.3	79.3
	Yes	12	16.9	20.7	100.0
	Total	58	81.7	100.0	
	Missing System	13	18.3		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	42	60.9	70.0	70.0
	Yes	18	26.1	30.0	100.0
	Total	60	87.0	100.0	
	Missing System	9	13.0		
	Total	69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid No	49	69.0	84.5	84.5
	Yes	9	12.7	15.5	100.0
	Total	58	81.7	100.0	
	Missing System	13	18.3		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid No	42	60.9	75.0	75.0
	Yes	14	20.3	25.0	100.0
	Total	56	81.2	100.0	
	Missing System	13	18.8		
	Total	69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid No	40	56.3	85.1	85.1
	Yes	7	9.9	14.9	100.0
	Total	47	66.2	100.0	
	Missing System	24	33.8		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid No	33	47.8	84.6	84.6
	Yes	6	8.7	15.4	100.0
	Total	39	56.5	100.0	
	Missing System	30	43.5		
	Total	69	100.0		

Appendix J continued: CATCH Food Checklist frequencies at pretest, posttest, and follow-up by intervention and control groups.

Yesterday, did you eat or drink any of these foods?
Gravy, cheese sauce

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	47	66.2	81.0	81.0
	Yes	11	15.5	19.0	100.0
	Total	58	81.7	100.0	
	Missing System	13	18.3		
	Total	71	100.0		
Posttest	Valid No	50	70.4	86.2	86.2
	Yes	8	11.3	13.8	100.0
	Total	58	81.7	100.0	
	Missing System	13	18.3		
	Total	71	100.0		
Follow-up	Valid No	40	56.3	87.0	87.0
	Yes	6	8.5	13.0	100.0
	Total	46	64.8	100.0	
	Missing System	25	35.2		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	48	69.6	81.4	81.4
	Yes	11	15.9	18.6	100.0
	Total	59	85.5	100.0	
	Missing System	10	14.5		
	Total	69	100.0		
Posttest	Valid No	41	59.4	74.5	74.5
	Yes	14	20.3	25.5	100.0
	Total	55	79.7	100.0	
	Missing System	14	20.3		
	Total	69	100.0		
Follow-up	Valid No	32	46.4	84.2	84.2
	Yes	6	8.7	15.8	100.0
	Total	38	55.1	100.0	
	Missing System	31	44.9		
	Total	69	100.0		

Yesterday, did you eat or drink any of these foods?
Whipped cream, sour cream

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	51	71.8	87.9	87.9
	Yes	7	9.9	12.1	100.0
	Total	58	81.7	100.0	
	Missing System	13	18.3		
	Total	71	100.0		
Posttest	Valid No	46	64.8	80.7	80.7
	Yes	11	15.5	19.3	100.0
	Total	57	80.3	100.0	
	Missing System	14	19.7		
	Total	71	100.0		
Follow-up	Valid No	43	60.6	91.5	91.5
	Yes	4	5.6	8.5	100.0
	Total	47	66.2	100.0	
	Missing System	24	33.8		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	50	72.5	86.2	86.2
	Yes	8	11.6	13.8	100.0
	Total	58	84.1	100.0	
	Missing System	11	15.9		
	Total	69	100.0		
Posttest	Valid No	48	69.6	87.3	87.3
	Yes	7	10.1	12.7	100.0
	Total	55	79.7	100.0	
	Missing System	14	20.3		
	Total	69	100.0		
Follow-up	Valid No	34	49.3	87.2	87.2
	Yes	5	7.2	12.8	100.0
	Total	39	56.5	100.0	
	Missing System	30	43.5		
	Total	69	100.0		

Appendix J continued: CATCH Food Checklist frequencies at pretest, posttest, and follow-up by intervention and control groups.

Yesterday, did you eat or drink any of these foods?
Ketchup, mustard, barbecue sauce

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	39	54.9	68.4	68.4
	Yes	18	25.4	31.6	100.0
	Total	57	80.3	100.0	
	Missing System	14	19.7		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	41	59.4	69.5	69.5
	Yes	18	26.1	30.5	100.0
	Total	59	85.5	100.0	
	Missing System	10	14.5		
Total	69	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid No	42	59.2	75.0	75.0
	Yes	14	19.7	25.0	100.0
	Total	56	78.9	100.0	
	Missing System	15	21.1		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid No	34	49.3	63.0	63.0
	Yes	20	29.0	37.0	100.0
	Total	54	78.3	100.0	
	Missing System	15	21.7		
Total	69	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid No	33	46.5	70.2	70.2
	Yes	14	19.7	29.8	100.0
	Total	47	66.2	100.0	
	Missing System	24	33.8		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid No	21	30.4	53.8	53.8
	Yes	18	26.1	46.2	100.0
	Total	39	56.5	100.0	
	Missing System	30	43.5		
Total	69	100.0			

Yesterday, did you eat or drink any of these foods?
Salt, soy sauce

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	46	64.8	80.7	80.7
	Yes	11	15.5	19.3	100.0
	Total	57	80.3	100.0	
	Missing System	14	19.7		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	42	60.9	72.4	72.4
	Yes	16	23.2	27.6	100.0
	Total	58	84.1	100.0	
	Missing System	11	15.9		
Total	69	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid No	44	62.0	75.9	75.9
	Yes	14	19.7	24.1	100.0
	Total	58	81.7	100.0	
	Missing System	13	18.3		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid No	43	62.3	79.6	79.6
	Yes	11	15.9	20.4	100.0
	Total	54	78.3	100.0	
	Missing System	15	21.7		
Total	69	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid No	35	49.3	76.1	76.1
	Yes	11	15.5	23.9	100.0
	Total	46	64.8	100.0	
	Missing System	25	35.2		
Total	71	100.0			

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid No	32	46.4	86.5	86.5
	Yes	5	7.2	13.5	100.0
	Total	37	53.6	100.0	
	Missing System	32	46.4		
Total	69	100.0			

Appendix J continued: CATCH Food Checklist frequencies at pretest, posttest, and follow-up by intervention and control groups.

Yesterday, did you take a vitamin or mineral?

Intervention

Control

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	33	46.5	58.9	58.9
	Yes	23	32.4	41.1	100.0
	Total	56	78.9	100.0	
	Missing System	15	21.1		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Pretest	Valid No	32	46.4	55.2	55.2
	Yes	26	37.7	44.8	100.0
	Total	58	84.1	100.0	
	Missing System	11	15.9		
	Total	69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid No	30	42.3	53.6	53.6
	Yes	26	36.6	46.4	100.0
	Total	56	78.9	100.0	
	Missing System	15	21.1		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Posttest	Valid No	38	55.1	69.1	69.1
	Yes	17	24.6	30.9	100.0
	Total	55	79.7	100.0	
	Missing System	14	20.3		
	Total	69	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid No	27	38.0	60.0	60.0
	Yes	18	25.4	40.0	100.0
	Total	45	63.4	100.0	
	Missing System	26	36.6		
	Total	71	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Follow-up	Valid No	23	33.3	59.0	59.0
	Yes	16	23.2	41.0	100.0
	Total	39	56.5	100.0	
	Missing System	30	43.5		
	Total	69	100.0		

VITA

Norma Jean DeVault
Candidate for the Degree of

Master of Science

Thesis: IT'S ALL ABOUT KIDS: PREVENTING OVERWEIGHT IN
ELEMENTARY SCHOOL CHILDREN IN TULSA OKLAHOMA

Major Field: Nutritional Sciences

Biographical:

Personal Data: Born in Tulsa, Oklahoma, January 20, 1947, the daughter of Norma Lee Hufford and Wayne Thomas Hufford.

Education: Graduated from Central High School, Tulsa, Oklahoma, in May of 1965; received Bachelor of Science degree in Mathematics from the University of Tulsa, Tulsa, Oklahoma in January of 1969; received Masters of Business Administration degree from Tulsa University, Tulsa, Oklahoma in May of 1992; completed Didactic Program in Dietetics at Oklahoma State University, Stillwater, Oklahoma in July of 2005; received certification as a Registered Dietitian from the Commission on Dietetic Registration in August of 2005; received licensure from the Oklahoma State Board of Medical Licensure and Supervision in November of 2005; completed requirements for the Master of Science degree with a major in Nutritional Science at Oklahoma State University, Stillwater, Oklahoma in December, 2006.

Experience: Employed by Seismograph Service Corporation, Amoco Production Company, Amoco Corporation, The Williams Companies, Amoco Corporation, and British Petroleum Amoco from January 1969 to March 2000 in technical and managerial positions supporting information technology customers in the energy and petrochemical industries. Entered private practice as a Registered Dietitian, Licensed Dietitian in November of 2005. Employed by Oklahoma State University, Nutritional Sciences Department in August of 2006 as a lecturer.

Professional Memberships: Member of the American Dietetic Association, Oklahoma Dietetic Association, and Tulsa District Dietetic Association.

Name: Norma DeVault

Date of Degree: December, 2006

Institution: Oklahoma State University

Location: Stillwater, Oklahoma

Title of Study: IT'S ALL ABOUT KIDS: PREVENTING OVERWEIGHT IN
ELEMENTARY SCHOOL CHILDREN IN TULSA OKLAHOMA

Pages in Study: 178

Candidate for the Degree of Master of Science

Major Field: Nutritional Sciences

Scope and Method of Study: Controlled trial in twenty 4th grade classrooms in 10 schools. Compared changes in mean KAB scores, CATCH scores, FitnessGram[®] measures, and BMI z-scores between intervention and control schools using repeated measures ANOVA, and controlling for gender.

Findings and Conclusions:

- Significant health improvements were achieved by nutrition classes and increased physical activity in elementary schools.
 - Positive changes in knowledge and behavioral intent
 - Lower consumption of saturated fat and sodium
 - Positive changes in fitness
- BMI z-scores decreased 18.7% from a mean of .8370 to a mean of .6805 among 20 measured intervention students.
- More reinforcement over time may be needed to sustain the level of improvement in some areas.
- These results support a broader program implementation.

ADVISER'S APPROVAL: Tay Kennedy, PhD, RD
