A SCHOOL-BASED PROGRAM TO ACHIEVE HEALTHY WEIGHT
AMONG RURAL SCHOOL-AGED CHILDREN

by

Kimberly Paige Ammons

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This Master’s project has been approved on the date shown below:

________________________________________________________
Elaine Jones, PhD, RN
Associate Professor of Nursing

Date:
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ABSTRACT

Overweight and obesity are two growing problems present in the nation’s youth today. Many risk factors related to overweight and obesity are preventable with lifestyle modifications that occur at an early age. Physical exercise, healthy dietary choices, decreases in sedentary activities and family involvement are all modifiable behavioral choices. An extensive review of literature shows interventions that occur in the home as well as in the school setting can contribute to healthier behavioral choices in children that can carry forth into adulthood. The following document proposes an intervention designed to increase awareness of healthy dietary and activity choices in rural-living school-aged children, the adults they live with and the teachers in the school setting. The interventions for the children are information and activity booklets with daily logs for recording sedentary activity and poor food choices. The materials provided to the parents and teachers are designed to complement the children’s booklets to help guide their support and education for the children through the program. The logs are kept for weeks 1 and 4 of the program and are then compared to evaluate improvement in activity and dietary behavioral choices in the children. A phone number will be provided to the parents and teachers for any additional questions regarding the program or materials.
CHAPTER ONE

Introduction

The incidence of overweight and obesity in our nation's youth has increased dramatically and continues to climb as behavioral activity choices and options for eating and nutrition change. Children are oftentimes targeted through media campaigns, commercials and computer companies with products such as breakfast cereals, snacks, sodas, fruit juices and microwavable meals tailored for children. These are not always healthy choices and increased consumption of these leads to increased weight. School aged children are not necessarily able to wisely choose the healthier options for activity or nutrition and as a consequence many are overweight and at risk for the long term health problems and social stigma of obesity in adulthood. Decreased exercise plays a role in the obesity trend since sedentary activity provides less energy expenditure. Interventions at an early age are a key in prevention of overweight and obesity.

Background

The consequences of overweight and obesity in our youth are far-reaching and affect physical health and economics as well as psychological development. The consequences are such that the U.S. Government included overweight and obesity in the Healthy People 2010’s Leading Indicators as a major health problem facing the nation (US DHHS Healthy People 2010). For example, a study conducted by Himes and Dietz (1994) showed a 41 % likelihood that obese children will become obese adults. Physical consequences of being overweight or obese as a child can extend into adulthood and can contribute to long-term deleterious effects on one’s overall quality of life. Some
of the progressive physical diseases include childhood and adult diabetes, cardiovascular problems such as hyperlipidemia and hypertension and pulmonary problems including asthma exacerbations and obstructive sleep apnea. Orthopedic, metabolic, neurological, renal and hepatic systems are also problems related to overweight and obesity (American Heart Association, 2005). Diabetes is one of the most prevalent complications that can occur from being overweight or obese for an extended period and a growing health concern for school aged children. This is compounded by the statistic that heavier patients are more likely to delay or cancel appointments for healthcare or preventive services secondary to the biased attitudes toward these patients from healthcare workers (Schwartz, Chambliss, Brownell, Blair, & Billington, 2003). These healthcare workers include but are not limited to nurses, physicians, therapists and even nutritionists and dieticians. From these data it is clear that the physical consequences of being obese or overweight can have a tremendous impact on one’s life. A study conducted by Calle, Thun, Petrelli, Rodriguez, and Health, (1999) found a direct relationship between Body Mass Index (BMI) (weight in pounds divided by the square of the height in inches) and cardiovascular disease mortality with these negative outcomes shortening ones expected overall lifespan. A high body mass was most predictive of death from cardiovascular disease in both men and women and the risk of death increased with an increasing body mass index in all age groups. The optimal body mass index for longevity fell between 20.5 and 24.9 for all age groups in men and women.

In addition to the physical complications that occur from being overweight or obese, there are economic problems for people who are overweight and obese, and for
society as a whole. The economic cost associated with overweight and obese is becoming an increased burden to society with the economic effects seen primarily through a decrease in productivity and higher health care costs (USDHHS, 1999)). There are also penalties the individual might experience economically when an employer might hold a bias against the person who is overweight or obese. They may pay an obese person less than someone considered average weight for the same job or position or not give an earned promotion to someone who is overweight (The Obesity Society, 2007).

Twelve percent of the national healthcare budget goes towards treatment costs of obesity (The Obesity Society, 2007). Figures from the third National Health and Nutrition Examination Survey (NHANES III) show costs of co-morbidities associated with obesity equaled 31% of the total costs of treatment of these diseases (NHANES III, 1999). Thompson, Edelsberg, Kinsey and Oster (1998) estimated that in 1994 alone the costs to employers for paid sick leave and disability insurance related to obesity was more than $3 billion. Research conducted by Dietz & Wang (2002) show that hospitalizations for diseases associated with obesity increased sharply between 1979 and 1999 among school aged children. The potential costs associated with childhood obesity have been described by the American Academy of Pediatrics as “staggering” and an “unprecedented burden” on children’s health (American Academy of Pediatrics, 2003).

The impact of being overweight as a child can have long term negative psychological effects as the child experiences the negative social repercussions of being overweight. As a child grows and matures into adulthood many factors contribute to their self esteem and overall feelings of self worth. Some very important problems can develop
such as symptoms of depression, development of a poor body image, feelings of low self-concept and an increased risk for eating disorders (NAASO, The Obesity Society, 2007).

Symptoms of depression can include anxiety, poor psychological adjustment, increased loneliness and sadness with an increased likelihood to consume alcohol or smoke (Strauss, 2000) and social isolation. There is a negative bias or stigmatization that overweight or obese people must endure. These affect the activities and interpersonal interactions in a detrimental way. Such stigma can be in different forms and include verbal types commonly seen in stereotyping, ridicule or teasing. Other forms like barriers or obstacles due to weight like seats in public venues that are too narrow to accommodate an obese person or medical equipment that is too small may occur. The school setting is a frequent venue where stigma occurs and children in particular may feel this bias through negative attitudes from teachers or other educators, and especially their peers. Children oftentimes attribute many negative characteristics to their overweight peers including being ugly, mean, unhappy, lazy, stupid and having few friends. Emotional well-being in children is greatly affected by their internalization of negative attitudes and self-blame for the negative social experiences they endure. More alarming is the discovery of a positive association between obesity and suicide attempts among youth (NAASO, The Obesity Society, 2007).

If this trend continues our nation will be facing continued loss of resources and productivity as well as a continued spiral towards more children; 1) developing diabetes and other serious health and psychological conditions at a younger age, 2) higher health
care costs including the costs of insurance coverage, and 3) an overall decline in our nation’s health.

Significance of problem

The Center for Disease Control (CDC) uses the following definitions for measuring childhood overweight: A body mass index (BMI) for age between 85th percentile and <95th percentile is considered ‘at risk for overweight’ while having a BMI for age > 95th percentile as ‘overweight’ (Center for Disease Control, 2005). The incidence of overweight and obesity in school aged children has increased dramatically with the likelihood of one being overweight increasing by almost two and a half times over a 30 year period. The incidence of school aged children who are overweight has increased from 6.5 percent in 1976 to 18.8 percent in 2004. Statistics now indicate the percent of school aged children who are overweight today reaches over 30% (National Center Health Statistics, 2003). This is very significant considering the health care costs associated with treatment of co-morbidities related to long term effects in children who are overweight or obese.

Purpose

The purpose of this project is to develop recommendations for a school-based program with home partners designed to achieve healthy weight among elementary school age children. The goals of this project are to develop interventions for weight loss and decreased sedentary activity in school aged children and modify them to implement in a rural setting. Additionally, measurement of specific goals of the interventions for at home and in school activities will be taken. There are three targeted goals: 1) reduction in
time spent in the sedentary activity (watching television) by one hour in an at home challenge, 2) reduction of intake of the *red* food group by 15% in at home challenge, and 3) reduction of consumption of the *red* food group by a goal determined by the class and teacher by classroom in at school activity by completion of the program.

Summary

This chapter introduced this project designed to educate and implement strategies for school aged children to achieve and maintain a healthy weight. It delineated the problem, background, significance and purpose of the project as well as identified the long term consequences of being overweight or obese as a child and into adulthood.
CHAPTER TWO

Introduction

This section presents an overview of literature about programs targeting weight loss in school aged children. There is extensive research regarding interventions for weight loss and healthy eating habits for health promotion in relation to overweight and obesity in children. Results from these studies have shown that not all interventions are effective in decreasing weight in school aged children. Eating habits such as poor food choices and an overall higher caloric intake contribute to the weight gain that leads to overweight and obesity in youth. A lack of understanding of basic nutrition and guidelines presented by the Food Guide Pyramid also contribute to weight gain. Activity choices have changed with an increase in the number of choices in sedentary activities being available to children which leads to an increase in participation in these sedentary behaviors as well as a decrease in overall physical activity. Most of this research has been conducted in urban settings and with school-based interventions with little attention to circumstances in rural or minority communities (Epstein, Myers, Raynor, & Saelens, 1998).

Review of Contemporary Literature

A review of literature completed by Gottesman (2003) indicated that a change in environmental factors is a primary factor contributing to the increase in obesity. Many things can contribute to weight gain, especially in children. It is estimated that over 40% of children do not eat breakfast and this is associated to a higher incidence of being overweight. An increase in consumption of soft drinks and a lack of meeting the Food
Guide Pyramid's guidelines contributes to an unhealthy increase in weight. A decrease or lack of physical activity leads to a positive energy balance therefore leading to an increase in weight.

In 2000 The Center for Disease Control (CDC) and Prevention’s School Health Policies Programs Study found the required health education component for school aged children included only five hours of nutritional content per year (Gottesman, 2003). These things are lifestyle choices that can be modified to improve ones overall health and life.

**Nutritional Education**

The Child and Adolescent Trial for Cardiovascular Health (CATCH) was a study designed to examine outcomes of health behavior interventions in schools. Several factors were assessed including family involvement, the effects of safety of classroom and school environmental interventions on school policies and practices such as physical education, nutrition and smoking cessation or nonuse of tobacco products. This study took place within the elementary schools setting and focused on the elementary school environment, home programs and classroom curricula. The study included 96 elementary school and subjects who participated voluntarily with a sample size of 5,106 children. Components of the interventions included modifications in the food served with education of food service personnel to prepare more nutritious meals, education of teachers to teach the students about eating habits, nonuse of tobacco on campus, physical activity in P.E. classes and educating physical education trainers to improve the fun during physical education classes (Luepker, Perry, McKinlay, Nader, Parcel, Stone, et al.,
1996). Results indicated positive long term effects among those children in the experimental group. The experimental group continued to obtain fewer dietary energy from saturated and total fat at the three year follow up, and continued to participate in longer periods of vigorous activity than did the control group (Luepker et al., 1996). The interventions in this study showed promise for future implementation but suggested programs that combine the school environment, health education as well as a behavioral component can offer improvement in physical activity and better nutritional choices. Lack of a comprehensive nutritional component in the required health education of school aged children might be a target area for future intervention.

*Parental Involvement in Modification of Behavior*

Yackel (2003) supported the consensus that the declining physical activity of children at home and at school is one of the main factors leading to children becoming or remaining overweight. The study was designed to evaluate a program that increased awareness of the importance of exercise in children by engaging parents in actively selecting and participating in a home based physical activity intervention with their children. The sample size included 12 children, 7 males and 5 females, 9 Caucasian, 2 African-American, and 1 Hispanic. The program lasted 4 weeks and consisted of an activity packet, recommendations for exercise and instructions to parents to review the materials and assist their children in completing and participating in listed activities. The results showed over half the parents reported an increase in awareness of the importance of exercise in their children. Additionally, parents became more aware of the importance of family involvement in exercise suggesting that a home based intervention can be
successful in raising awareness about the importance of physical exercise both in parents and their children. The study did not specify whether actual behavior changes took place.

Television/Sedentary Activities and Obesity

Gortmaker, Peterson, Wiecha, Sobol, Dixit, Fox, et al., (1999) state that although some factors are not modifiable such as genetics, the majority of environmental components that contribute to overweight and obesity can be controlled. One sedentary behavior targeted as a major culprit in the growing overweight and obesity problem in our youth is television watching. Combine this with a decrease in physical activity and an increase in consumption of high-fat, high calorie foods it is easy to see how lower energy expenditure leads to this issue of ever increasing body weight and obesity in our youth.

The purpose of this study was to evaluate how a school-based health behavior intervention impacted obesity in children in grades 6 to 8. The intervention included health sessions focused on decreasing consumption of high fat foods, increasing fruit and vegetable intake and decreasing television viewing. The sample size included 1,295 boys and girls of diverse ethnicities. The study was a randomized controlled field trial. In this school-based study the authors used behavioral choice and social cognitive theories to investigate whether four different behaviors that contribute to being overweight could be changed in participants, specifically, a reduction in television viewing. Results were promising in female students with a reduction in prevalence in obesity in the intervention schools and an increase in the prevalence in obesity in the control schools with television viewing time reduced predicting reductions in obesity among girls. The outcomes did not differ significantly in boys, which might indicate variations in the implementation of this
intervention need to be used for girls and boys. There was no long term follow up or research to evaluate whether these changes remained over time (Gortmaker et al., 1999).

With a sample size of 746 youths Gortmaker, Must, Sobol, Peterson, Colditz and Dietz (1996) examined the relationship between the prevalence of overweight and the number of hours of television viewed as well as the incidence and remission of overweight from 1986 to 1990. Compared with children watching television 0-2 hours a day the authors found a 4.6% times greater possibility of being overweight in children who watched more than 5 hours of television per day (Gortmaker et al., 1996).

In addition to a higher energy intake during television viewing there is concurrently lower energy expenditure with the lack of physical activity. Dietz & Gortmaker (1985) state that watching television requires no energy except that which is supplied by our resting metabolic rate, and that this pastime reduces the time spent in more physical activities thus tipping the balance between intake and output towards more in and less out or a positive energy balance. These two researchers reviewed the statistics gathered from cycle II and Cycle III of the National Health Examination Survey conducted. Cycle II had a sample size of 6,965 children between the ages of 6 and 11 years old and Cycle III had a sample size of 2,153 adolescents who were originally studied in Cycle II. Self reports were kept with data collected regarding hours per day spent watching television, listening to the radio, reading books or magazines, or playing sports. From their research they concluded that for 6 to 11 year olds the association of obesity is proportionately related to the amount of television watched and suggests a causal relationship between the two factors (Dietz & Gortmaker, 1985). Healthy People
2010 recognize this as a problem and promotes cardio respiratory fitness in our youth with risk reduction objectives supporting a reduction in sedentary lifestyle behaviors as well as participation in vigorous physical activities (USDHHS, 1999).

Robinson (1999) found similar results in a study of how reducing video game playing, watching movies and reducing television viewing time effected physical activity, dietary intake and adiposity over a seven month period. This randomized controlled school-based trial included 192 participants with a mean age of 8.9 years. The intervention was given to children in an elementary school and included a 6-month, 18-lesson classroom curricula to reduce video watching, video game use and television watching. Robinson reported decreased television viewing and decreased number of meals eaten in front of the television in the intervention group but lacked evidence that changes an intake of high-fat foods, increases in moderate to vigorous exercise or cardio-respiratory fitness occurred in either group. The study indicated that reductions in children’s participation in watching television, playing video games or watching videos may be a promising approach towards the prevention of childhood obesity (Robinson, 1999). Reducing time spent in these sedentary activities will allow for more time for participation in more physically demanding activities and higher total energy expenditure.

The Role Television Commercials Play in Children and Overeating

In addition to watching television programs, children are exposed to commercials that promote unhealthy products containing high sugar and fat content with little nutritional value. In 2000 the American Psychological Association (APA) formed a Task
Force to review how the advertising media affects children. Brian Wilcox (as cited in APA Public Affairs Office, 2004) points out that the products including sweets, sodas, snacks, candy and sugared cereals are attributed to the contribution of “poor nutritional habits that may last a lifetime and be a variable in the current epidemic of obesity among kids” (para. 5). It is estimated that $12 billion a year is spent on targeting youth in advertising with the average child watching 40,000 commercials a year. The six member team composed of experts in child psychological development state that children under the age of eight lack the cognitive development to comprehend the persuasive intent of the advertising. Additionally, these commercials are aired during family times such as during sports programs and increases the likelihood that young children will see them. Children pressure their parents to buy these products adding to the cycle of overall unhealthy lifestyle choices. Suggestions by the Task Force include change in policy to protect children from these influences and examination of the influences of advertising directed to children in the classroom and school (American Psychological Association, 2004)).

Matheson, Killen, Want, Varady and Robinson, (2004) studied the amounts and types of foods that were consumed by children while watching television compared to foods eaten at other times of the day while examining the association to the BMI of these children. Matheson et al. found that a substantial amount of daily energy intake in children occurred during television viewing and an increase in BMI may be associated with the consumption of high-fat foods on weekends in younger children. Additionally, snacks were found to be consumed more frequently during television viewing than other
meals. The study consisted of two samples, one being a group of twelve elementary schools in a school-based randomized clinical trial on reducing television viewing and the other was part of a cross-sectional study of environmental factors affecting children's dietary intake from eight low income schools. Analyses were calculated independently since the children were sampled from two different populations. The amount of energy intake was higher on weekend days than weekdays with the average energy intake during television viewing being similar in both groups. This study suggests a reduction of the behavior of eating while watching television in children might be a strategy to affect the overall intake of food (Matheson et al., 2004) and perhaps improve the content of nutrition in the foods consumed.

The role of media in childhood obesity was also studied by the Kaiser Family Foundation. Much of the material targeting young children contains promotions for foods low in nutritional value such as candy, snacks and sodas and studies show that while using media children snack excessively (Kaiser, 2004). In this article there is additional information supporting the negative affects that the media can have on the problem of increasing weight in our youth.

The Framingham Children’s Study concluded that television viewing is a risk factor for change in body fat (Proctor, Moore, et al., 2003) while Kunkel and Gantz (1992) found a lack of ads for fruits or vegetables and a predominance of ads for fast food restaurants, candy and high-sugar foods (Kunkel & Gantz, 1992). Ads are also using toys as incentives as well as popular cartoon characters to attract children to their product and to increase the ability of children to remember and recall slogans related to the
product (Lieber, 1998). Preventing these commercials impact on children and the pressure on their parents to buy the products can aid the parent in what snack choices are available to the child when they are not around to monitor what the child is eating.

Summary

The studies cited bring to light important points to utilize when examining the epidemic of overweight and obese children in our society today. These studies centered around four key issues: (a) a lack of nutritional education and awareness of proper food choices is important in making sound decisions regarding diet, (b) the importance of parental and overall family involvement in changing behavior and making healthy lifestyle changes, (c) a reduction in physical activities coupled with an increase in sedentary activities has had a significant impact on the current problem of overweight and obesity in school aged children, and (d) the role the media plays in contributing to overweight and obese youth through targeting young children. Environmental factors such as what activities we engage in and what we are exposed to through media exposure as children are modifiable factors that need to be addressed when planning interventions for weight loss in children. The increase in television viewing and overall sedentary activities along with the increase in eating high-calorie foods during these activities contribute greatly to weight gain and decreased energy expenditure. The researchers also point out by tailoring interventions to age groups with certain interventions, gender is important for positive and long term outcomes. The USDHHS promotes participation in vigorous physical activities and the well known CATCH study shows the need for education in our schools for the food service personnel, teachers and physical education
instructors in order to educate our youth in healthier lifestyle habits and nutritional choices. The next section presents a contemporary intervention building on earlier work, and provides a framework for the model proposed in this report.

Epstein’s Synthesis and Program of Research

One of the most promising programs of research in this area has been developed by L.H. Epstein. The behavioral choice theory is derived from behavioral psychology. The principles included in Epstein’s application of this theory include utilizing reinforcements to change behavioral decisions and increasing positive options to influence positive health behaviors. Epstein has identified key variables to encourage and maintain behavioral changes regarding exercise, diet, and sedentary lifestyle behaviors (Unger, 2000). Epstein states that “behavioral economic theories suggest that changing access to a competing class of behaviors can modify targeted behaviors...” (Epstein, Valoski, et al., 1995, p. 113). Research conducted by Epstein and colleagues also found that sedentary behaviors were considered reinforcing for children and even more so for obese children (Epstein, Paluch, Gordy & Dorn, 2000).

One of Epstein’s early studies included a sample of 13 mothers (35.1% were overweight) and 15 children (male and female) ages 6-12 who were 20% or more above their ideal body weight (with the average child being 64.4% overweight) living in the Pittsburgh area. The purpose of the study was to compare a family-based behavior modification to prompt and reinforce habit change intervention with a nutritional education intervention. Recruitment strategies included from physician’s offices as well as advertisements in the media. The sample of children had to have no medical problems
that would contraindicate weight loss and a parent willing to participate. A behavior modification group and a nutrition education group were formed with random assignment after children were divided at the median of age and weight. Both groups received two education sessions on calorie counting and basic nutrition but the behavioral modification group was given additional instruction on self-monitoring, training in social reinforcement and modeling, foods to avoid and slowing down the rate of eating. The Stoplight Diet was introduced, developed by Epstein in the 1970’s (Epstein, 2000 as cited in Unger, 2000) with a coding system labeling high calorie containing foods red, medium calorie containing foods yellow and those which are low in caloric content are coded green. Foods are divided based on their nutrient density and caloric values (Epstein, 2000 as cited in Unger, 2000) This is to correspond to a traffic light with the red foods being a signal to stop and evaluate prior to consumption, yellow foods should be eaten cautiously or eaten in limited amounts while the green foods are ones which can be eating often and are considered healthy. The objectives in the nutritional education included meeting daily nutritional requirements while keeping caloric intake between 1200-1500 calories per day as well as eliminating high caloric density foods. Self monitoring in the behavior group entailed keeping a food diary. The social reinforcement and modeling intervention included teaching the parent and child to be good role models for others in the family as well as praise others when they made wise food choices and changes in exercise behaviors. The change in eating behaviors included instruction on how to remove environmental stimuli that prompt eating as well as instruction to slow down when eating. Additionally there was therapist contact for the behavior modification group that
allowed for frequent phone contact and support. Results were promising in terms of behavior change and family based intervention. The percent overweight or relative weight was used as the outcome measure rather than absolute weight lost. The greatest percent of weight (measured in pounds) lost occurred in the behavior modification group with a change from 68.4% to 50.9% in the children and a change from 48.3% to 40.2% in the parents. Alternately, the nutrition education group showed changes from 60.9% to 54.5% in children and 23.8% to 20.8% in the adults. Epstein relates the difference in percent of weight lost between the two groups to the behavior modification group having received specific skills related to the regulation of food intake as well as skills for self regulation and the change in the environment to increase the probability that new behaviors are performed. He also notes that changes at the family level in eating and exercise habits have more promising outcomes (Epstein, Wing, Steranchak, Dickson & Michelson, 1980).

Later Epstein and his colleagues conducted a family based study to evaluate the effects of reinforcing behavior choices, specifically looking at the difference between reinforcing obese children to be more active or less sedentary. The setting is not specified but it assumed to be urban. In this study 27 obese children between the ages of 8 and 12 participated (two thirds were female) with random assignment into one of three groups. The three groups are: 1) Reinforcement for decreasing sedentary behavior (sedentary group), 2) increasing activity (activity group), and 3) no reinforcement (control group). During the experimental days the children in the experimental groups were given points towards certain activities chosen and teachers explained how many points counted
towards each minute of each activity choice. The control group participated in any activity of their choice and was given a baseline number of points. At the end the children were given gift certificates or sports tickets for the number of points earned. The results showed an increase in active behaviors in both the activity group and sedentary group on the experimental days (groups 1 and 2) and no change in the control group (group 3). The sedentary group spent significantly more time in the lower preferred sedentary activities than the activity group. Additionally the active and sedentary groups also showed less participation time during the experimental days in high preference sedentary activities (Epstein, Saelens, & O’Brien, 1995) such as television viewing, playing video games, talking on the telephone, movies (Epstein et al., 2000) and the internet than did the control group. From a behavioral economic perspective Epstein points out that the most interesting result came from the increase in activity for children who are reinforced for decreasing the choice to engage in higher preferred sedentary activities. The authors suggest that a reduction in access to sedentary activities or behaviors may result in increases in active behavior thus increasing energy expenditure. The study also points out that reductions in sedentary behavior might also reduce opportunities for eating and reinforcing reduction in sedentary behaviors provides children the choice of reallocating the time to healthier choices or activities that require more energy expenditure during participation (Epstein et al., 1995). One point to remember is that when reducing access to sedentary behaviors or activities occurs there must be easy access to acceptable physically active alternatives or the child may not increase their activity but rather choose
to engage in other sedentary behaviors to replace those less accessible (Epstein et al., 2000).

A similar study conducted by Epstein and colleagues (1995) included 61 families recruited through referral from doctors, school nurses as well as media sources. Specification of whether the study took place in an urban vs. rural area was not stated but urban is assumed since study was conducted at the University of Pittsburgh. The inclusion criteria was similar to the previous study with the children being 20% to 100% overweight and no parent being more that 100% overweight as well as no family members on alternative weight loss programs and no child or parent having any psychiatric or medical condition that could affect the participants negatively by participating. Again, instruction on the Stoplight Diet was taught and habit books were used to keep track of energy intake during the last two weeks of the program. Other measurements were the same such as self-monitoring, stimulus control and reinforcement.

The groups were randomly divided into three groups. 1) Reducing time spent sedentary, 2) reinforcement for increasing physical activity, and 3) both of the two. Results showed that group number one had better changes (decreases in percentage overweight and percentage body fat) than group two. Group three (both interventions) fell midway between groups one and two. These results are attributed to the possibility that reinforcement for decreased sedentary activity (group 1) might have increased negative energy balance by allowing for substitution of higher expenditure activities. One point emphasized is that a reduction in sedentary behavior by reducing access to it or
reinforcement of decreased participation in it will not always result in an increase in activity. When children are reinforced for decreasing an unhealthy behavior rather than reinforced for participating in a health behavior the results are more promising.

In 1997 Epstein and his colleagues evaluated the effects of decreasing sedentary behaviors on activity choice in obese children using three different methods of modification of choice in sedentary and physical activities. One method included punishment for being sedentary by removing positive reinforcers contingent on being sedentary. Another method was positive reinforcement for being less sedentary. The third was restricting access to sedentary activities. A sample of 34, 8-12 year old children was recruited through application to the State University of New York at Buffalo Childhood Weight Control program. The participants were randomly assigned to one of four groups with the three groups comprising the three methods of modification listed above as well as a control group. Points were awarded based on the time spent in different activities for the children in the reinforcement group and points were taken away from the punishment group when they participate in high-preference sedentary activity. The other two groups were given an equal amount of points regardless of their activity choices. Children who are reinforced for decreasing sedentary activities choose to replace these with non targeted sedentary activities or physical activity. Restricting children from higher preferred sedentary activities increased their time spent in less preferred sedentary activities but did not increase time spent in physical activities (Epstein, Saelens, Myers, & Vito, 1997). This supports Epstein’s hypothesis that reinforcement for choosing to reduce time spent in an unhealthy but particularly liked activity has more success than
trying to reinforce a healthy behavior the child does not want to participate in. Choice and control are important in establishing reinforcing value (Wolffgramm & Heyne, 1995). So, the more a child perceives he or she has control in their own choices the more likely the choices will be maintained, at least short term. Wolffgramm & Heyne recommended future research to explore how longer-term implementation of these contingencies, specifically whether reducing sedentary activity through reinforcement would be maintained long-term.

Long term maintenance of weight loss has been a challenge but results of studies show that the earlier the intervention the more likely a lifelong change will occur (Gottesman, 2003; The Kaiser Foundation, 2004). Combining the thought that “obese children are at higher risk of remaining so as adults” with “obese children who become obese adults have a very difficult time losing weight and maintaining a normal weight” (Epstein, 2000 as cited in Unger, 2000) it is understandable why early intervention would have more chance of success in weight management for this population. Teaching children about nutrition in the preadolescent stage is an effective component in reducing obesity (Duffy & Spence, 1993; Epstein et al., 1995; Valoski & Epstein, 1990) The stoplight diet is a promising example of programs used to teach children the differences between healthy (green) and unhealthy (red) foods. Changes in eating patterns, a reduction in consumption of “red” foods, as well as improvements in nutrient density for components such as protein, iron, thiamine, calcium, vitamin A and riboflavin have been associated with use of the stoplight diet in preadolescent children (Epstein, Myers, Raynor & Saelens, 1998).
In 2001 Epstein and colleagues developed a more specific approach to components of the Stoplight Diet and continued utilizing behavior change techniques, focusing on parents of at risk children for future obesity. Thirty families with children 6-11 years old were recruited from the Buffalo, N.Y. area with inclusion criteria focusing on prevention of obesity in children of obese parents. Inclusion criteria were that one parent had to be obese, the child had to be below the 85th BMI percentile, neither had psychological or medical contraindications present and no alternative weight loss program was being used concurrently with the study period. Random assignment occurred with the targeted behaviors being an increase in consumption of fruit and vegetables and a decrease in high-fat/high-sugar foods consumption. Five main sections included in a workbook given to parents, with behavior change techniques, introduction to weight control and prevention, healthy eating and activity environment for children, maintenance of behavior and the Stoplight Diet. By using parental behavioral change the parents may be able to reduce the risk of their child becoming obese (Epstein, Gordy, Raynor, Beddome, Kilanowski & Paluch, 2001).

Parents were taught stimulus control to increase access to fruits and vegetables (green) and decrease access to high-fat/high-calorie (red) foods as well as increase access to physical activity and reduce access to sedentary behaviors. Results showed that adults instructed to increase their consumption of fruits and vegetables did exactly that while also decreasing intake of high-fat/high-calorie foods. The children instructed to increase their consumption of fruits and vegetables continued to do so through a 1 year observation period. The adults in the other group did indeed decrease their intake of the
“red” foods but did not increase their intake of fruits and vegetables. Children in both groups decreased their consumption of the low nutrient dense foods or “red” foods. Thus the authors point out that targeting a behavior change in dietary habits that focuses on what can be eaten rather than foods that cannot be eaten can simplify the task of maintaining caloric reduction intake. This intervention was designed to improve eating habits of children in these high risk groups. Educating parents on the prevention of this trend while the child is young rather than waiting until there is a problem is a key component in prevention of childhood obesity (Epstein, Gordy, et al. 2001).

Summary of Epstein’s Research

To summarize, Epstein has tested various interventions as well as ways to implement interventions for weight loss and control in school aged children. With his research he has discovered that an early family based intervention is more successful than an individually based program for lifestyle change in children. If a behavior has a greater reinforcement value for a child he or she is less likely to reduce the time participating in that behavior than a behavior that is less reinforcing or less enjoyable for the child. For example, a child who enjoys playing a sedentary video game more than riding a bike is more likely to voluntarily decrease time riding a bike than to voluntarily decrease time playing the sedentary video game. This principle holds true for competing sedentary activities, not just a sedentary activity competing with a physical activity. An example of this would be giving a child the choice between surfing the internet (an activity he or she gets a large amount of reinforcement value from) and watching a movie (an activity the child enjoys but does not hold as high a value to the child as the previous choice).
are sedentary activities but since the child gets a higher amount of reinforcement value for surfing the internet he or she would likely choose to decrease time watching movies than to decrease time surfing the internet, (the more preferred activity). Also, Epstein’s research shows that using interventions that involve restriction or punishment aren’t as successful as choice and perceived control for behavior change in children of this age. Epstein’s use of a simple and easily understood tool for children such as the Stoplight Diet increases the likelihood that children in this age group are able to learn and understand the basic differences in foods. Using a common symbol like a stoplight as a metaphor for behavior change with the colors relating to the common rules of “stop”, “caution or slow” and “go” behaviors of eating or choice can occur and are easily applied.

Conceptual Model

The theoretical model used to guide the selected planned interventions is the ecological model of behavioral choice theory which was chosen because of the use of the connection between people and their environment (Sallis & Owen, 2002). Ecological models focus on the environmental causes of behavior such as the social and physical situations in which behavior takes place and the factors that hinder or facilitate health behavior changes and aid in identifying interventions to change these behaviors. Stokes (1992, 1996, as cited in Sallis & Owen, 2002) recommends that the environmental factors or the behavioral setting in which the unhealthy behavior takes place be changed or altered through health promotion interventions. Stokes also points out that physical and
social environment are thought to have indirect as well as direct effects on health through social cohesion and emotional well-being (Sallis & Owen).

This model also provides a framework for identifying indirect variables that influence the behavioral setting which is significant considering many of these variables could be considered outside of the locus of control for change for those wishing to alter certain behaviors or adopt new ones. Examples for this study would include dietary choices such as what snacks are purchased (family influenced), the cost of purchasing healthy snacks (financial influences) and policy regarding what snacks can be eaten in public schools (public policy influences). Activity choices and access can be influenced by indirect variables such as availability of playground equipment (community and cost influences), individual school policy regarding time spent in physical education classes (administrative influences) and living in settings where activity choices or social interaction is influenced by cultural and rural vs. urban settings (cultural and geographical influences) (Sallis & Owen, 2002).

Environmental factors or the variables believed to control the behavior are the target for the planned interventions. In this study, the behavioral economics of obesity is examined with review of specific known factors that influence obesity or the propensity of becoming or remaining overweight in school aged children. The choice between sedentary behaviors of varying degrees of enjoyment for the individual, choice between sedentary and non-sedentary behaviors, intake of food during sedentary behavior, type of food eaten during time of participation of sedentary behavior, and access to activity and behavior choices are all areas looked at for possible intervention. The planned
interventions are modified for use in a rural setting and will be translated into Spanish if needed. These modifications will be useful in the chosen population since some of the population in this area is Spanish speaking only and previous interventions are not necessarily feasible or available in a rural setting.

Summary

This chapter presented an overview of the literature that focuses on programs that target weight loss in school-aged children. It emphasized four key issues that are contributors towards overweight and obesity in school-aged children. These include a lack of adequate nutritional education in the school setting, the need for parental involvement, the role television commercials play and the role sedentary activity and lack of physical activity plays in this problem. Leonard Epstein’s research shows the need for reinforcement vs. punishment and family involvement. Behavioral economic theories suggest changing access to competing behaviors can modify targeted behaviors. Family involvement offers social reinforcement and modeling interventions that can be used for behavior modification. A review of key components such as choice, control and early intervention when implementing a weight control program was provided to show the importance selection of interventions when applying them to children. The ecological model of behavioral choice theory as used by Epstein was reviewed emphasizing the connection between people and their interaction with the environment. This model provides a framework for identifying indirect variables that influence the behavioral setting which guides the choice of interventions and how to implement them for optimal effectiveness.
CHAPTER THREE

Introduction

This chapter details the proposed program to help rural school aged children achieve a healthy weight. The process includes educating their parents and teachers about the importance of positive reinforcement and family participation. This program was developed from interventions proposed by researcher L.H. Epstein and uses the Behavioral Choice Theory for guidance.

Proposed Program to Achieve Healthy Weight

Setting/Rural Schools in Southwest Arizona.

The targeted community includes the rural communities located in Southern Arizona, specifically children in the Cochise County School District in Douglas, Arizona. This setting was chosen to evaluate the feasibility of implementation of interventions targeted at achieving healthy weight among rural school aged children. The differences between a rural community and an urban community present challenges in delivering these interventions. In this rural community the distance students live from school averages 10-30 miles (P.M. Bergeron, personal communication September, 2006). In Arizona 24 percent of low income children ages 2-5 are overweight. In 2000 The U.S. Census Bureau reported Cochise County had 35% of the school aged children as living in poverty (U.S. Census Bureau, 2000). Some of the differences considered in this program are shown in Table 1.
TABLE 1: *Differences Between Rural and Urban Communities*

Urban Community

Many community resources available
Distance to schools and community resources usually close or easily accessible
More funds for additional equipment and more variety
Cultural norms present but more exposure to healthier lifestyle expectations

Rural Community of Cochise County

Community resources limited
Distance from school or other community resources is significant
Playground equipment often limited or out of date
Cultural norms contribute to higher fat content in food, acceptance of overweight as ok
Sample/Population

All children will be invited to participate, along with the adults the children live with. The total number of participants is often less than 20 students in a small rural school. In southern Arizona most children are bilingual with most parents having a basic understanding of English. All of the children fall within the age group of 5 and 12 years old. The ethnicity is varied with participants falling within the Hispanic, Caucasian, and mixed heritage. (P.M. Bergeron, personal communication February 12, 2007). Criteria for participation include school aged children and the adults they live with who live in the rural community of Cochise County.

Interventions

Interventions include components for the children, the teacher and the parents. This program has two settings for implementation of the interventions, within the classroom and within the home. Table 2 indicates specific areas covered and material provided for the participants, teachers and parents regarding activity.
## TABLE 2: Educational Material and Intervention Content for Activity

<table>
<thead>
<tr>
<th>Activity</th>
<th>Students</th>
<th>Activity Booklet to be completed at home</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Challenge logs for weeks 1 and 4 to keep track of number of minutes spent watching television.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Activities within booklet</td>
<td></td>
</tr>
<tr>
<td></td>
<td>In class education from teacher.</td>
<td></td>
</tr>
<tr>
<td>Parents</td>
<td>Information booklet explaining active vs. quiet activities, strategies to change unhealthy behavior and role model techniques.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Follow up phone call to evaluate understanding of materials</td>
<td></td>
</tr>
<tr>
<td>Teachers</td>
<td>Information explaining active vs. quiet activity, tips on keeping children active and what areas of education can be taught to help children make healthier choices.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phone number provided to ask additional questions about program.</td>
<td></td>
</tr>
</tbody>
</table>
Table 3 indicates specific areas covered and material provided for the participants, teachers and parents regarding diet.
<table>
<thead>
<tr>
<th></th>
<th>Educational Material and Intervention Content for Diet</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diet</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Students</strong></td>
<td>Stoplight Diet Booklet to be completed at home.</td>
</tr>
<tr>
<td></td>
<td>Challenge log for weeks 1 and 4 to keep track of number of red foods eaten and track whether decreased intake of red foods.</td>
</tr>
<tr>
<td></td>
<td>In class activity</td>
</tr>
<tr>
<td></td>
<td>Activities within booklet</td>
</tr>
<tr>
<td><strong>Parents</strong></td>
<td>Information booklet explaining Stoplight Diet, ideas for changing dietary habits and tips on how to provide healthier snacks.</td>
</tr>
<tr>
<td></td>
<td>Follow up phone call to evaluate understanding of materials.</td>
</tr>
<tr>
<td><strong>Teachers</strong></td>
<td>In class activity board with explanation on how to instruct students and complete activity.</td>
</tr>
<tr>
<td></td>
<td>Phone number provided to ask additional questions about program.</td>
</tr>
</tbody>
</table>
**Procedures**

The proposed pilot study is designed to evaluate the feasibility of implementation of the planned interventions adapted for a rural health setting for achievement and maintenance of a healthy weight in rural school aged children. This intervention is a 4 week program with home assignments and classroom activities and education. The interventions are designed to educate the children, their parents and the teachers in the rural schools. Confirmation that the parents received their information booklet and reviewed the materials contained within the booklets sent home for the children will be obtained through a signature sheet. By signing this sheet the parents are confirming they have reviewed the materials and agree to assist their child in completing the activities and challenges.

**Distribution of Materials**

Distribution of materials to children will take place within the classroom setting. An activity booklet and a Stoplight Diet booklet will be reviewed briefly by the teacher and sent home with the students for completion. A log of number of minutes spent watching television for weeks 1 and 4 is used to measure whether the children learned the material contained within the activity booklet and made a healthy behavior choice change from weeks 1 to 4 by decreasing the number of minutes spent in this sedentary activity. A log for weeks 1 and 4 is included in the Stoplight Diet to measure how many *red* foods the children ate in weeks 1 and 4 and look at if the children chose to decrease the number of *red* foods eaten between the beginning of the program and the end of the program. The challenges included within the booklet indicate whether or not the children retained
information regarding healthy vs. unhealthy foods while also measuring whether or not the children chose to modify behavior by eating fewer red foods at the end of the program vs. the beginning. The activities are designed to enhance understanding and offer a variety of learning tools through fun activities.

Distribution of materials to parents will be sent home with the children. The booklet will contain information on healthy vs. unhealthy dietary choices, tips and strategies for changing dietary habits and choices within the home setting and how to be a role model for healthy behavior choices. The booklet will also contain education on the difference between active vs. quiet activities, how lack of physical exercise affects children and how parents can become role models by participating in and encouraging their children to be more physically active. Parents will be called at the end of week one to evaluate their understanding of materials and answer questions.

Distribution of materials to teachers will include a visit to the school to explain the content of the program and how to implement the school portion of the program and support the home activities through education and teaching. Education on the classroom activity and the goals will be explained. Required components for the activity will be provided to the teachers. The estimated time needed to implement the educational component of this part of the program is two, 30 minute in class sessions.

Approval for Implementation

Approval from school administrators and/or school board will take place prior to implementation of this program and will include full content of the program for review.
All materials will be given to the school board or administrators as requested or required for approval. This is designed to:

1. Ensure the safety of the students during the program.
2. Obtain approval for use of the materials and interventions within the program.
3. Obtain permission to send materials home to the students and parents.
4. Obtain permission for implementation of the school based activities and content to be taught by the teacher during the program.
5. If actual implementation of this program were to take place, the Human Subjects Committee Approval would be obtained. As this is a feasibility study, this step will not be completed at this stage of the program.
CHAPTER FOUR

Introduction

This chapter explains how the program will be evaluated: school and home. The measures used for success of the program would be indicated if the children were able to reduce (from week 1 to week 4) their consumption of red foods by 15% and their time spent in the sedentary activity of watching television by 1 hour. The in class activity measure used for success of the program is a decrease in the consumption of red foods from week 2 to week 3 with the goal set by the class and teacher.

Evaluation Dietary Log

In the week following week 4 of the program the Stoplight Diet booklets will be collected for all participants by the teacher. These booklets will either be mailed to the evaluator or the evaluator will pick up the materials. Measurement will include review of the challenge log of red foods eaten in week 1 and quantitatively compared to the challenge log of red foods in week 4. A decrease in number of red foods eaten from week 1 to week 4 by 15% indicates child learned some or all of content within booklet and made healthy nutritional behavior choices by completion of the program.

Evaluation Activity Log

In the week following week 4 of the program the Activity booklet will be collected for all participants by the teacher. These booklets will either be mailed to the evaluator or the evaluator will pick up the materials. Measurement will include review of the challenge log of number of minutes spent watching television in week 1 and be quantitatively compared to the challenge log of number of minutes spent watching
television in week 4. A decrease in number of minutes spent watching television from week 1 to week 4 by 1 hour indicates child learned some or all of content within booklet and made healthy activity behavior choices by completion of the program.

*Evaluation In-Class Activity*

This information will be collected at the same time the information on the logs for weeks 1 and 4 will be collected for the home activities. This information will either be mailed to the evaluator or the evaluator will pick up the results of this intervention. Measurement of the number of red foods eaten during lunch will be quantitatively compared to see if the children decreased the number of red foods they ate from week 2 and week 3. A decrease in the number of red foods eaten (goal set by class and teacher) will show the children learned an adequate amount of material and chose to apply a healthy behavior change indicating a short term behavior choice modification.

Information contained in the parent’s booklets is not information that can be specifically collected for measurement. This material was supplied for educational purposes in order to provide support and an increased understanding of the materials contained within the children’s booklets. The material within the parent’s booklet was intended to assist the parents in helping their children make healthy behavioral and food choices by providing support and acting as role models. This program is not designed to measure long term effects of parent’s learning of the materials.
APPENDIX A

ACTIVITY BOOK FOR KIDS
ACTIVITY BOOK

CLIP ART FROM MICROSOFT

FOR KIDS
Table of Contents

Parent Signature Page .................................................................1

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Section Three
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Section Four
    Challenge Week 1 T.V. Log .......................................................5

Section Five
    Challenge Week 4 T.V. Log .......................................................6
My name is ____________________________

Take this booklet home and show your parents what fun activities and challenges are inside.

Ask your parents to sign this page. Return this page to your teacher by the end of the week.

Ask your parents if they will help you complete the booklet.

Your parents can see what types of activities are healthy for you!

Parents:

Please read through the booklet with your child and help him or her understand the difference between a physical activity and a quiet activity.

Please sign below that you read through the booklet and have your child return it to his or her teacher.

Thank you.

____________________________________
Parent’s signature
Section 1

It’s important to get exercise everyday.

Kids your age need at least 60 minutes of **physical** exercise every day to stay healthy.

Exercise helps you stay healthy in a lot of ways:

- Gives you more energy
- so you’re not tired.
- Makes your bones stronger
- Helps you think clearly
- Keeps you fit and in shape!
Section 2

There are two different kinds of activity.

In one kind of activity you don’t really move around too much
This is called quiet activity

A second kind of activity does make you move around a lot
This is called physical activity

<table>
<thead>
<tr>
<th>Quiet Activity</th>
<th>Physical Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watching television</td>
<td>Running</td>
</tr>
<tr>
<td>Playing video games</td>
<td>Jumping</td>
</tr>
<tr>
<td>Playing on the computer</td>
<td>Playing on the swing set</td>
</tr>
<tr>
<td>Watching a movie</td>
<td>Swimming</td>
</tr>
<tr>
<td>Reading a book</td>
<td>Playing with your dog</td>
</tr>
<tr>
<td>Taking a nap</td>
<td>Hiking</td>
</tr>
</tbody>
</table>

REMEMBER!
It is important to get 60 minutes of physical activity every day to stay healthy and fit!
Section 3

How can I get this much exercise every day?

It's easy!
There are a lot of ways to exercise without knowing you are doing it.

Take the stairs instead of the escalator
Dance to your favorite music
Help mom sweep the floor
Fly a kite in the park
Take out the garbage
Ride your bike
Play ball
Section 4

One of the best ways you can increase your physical activity is:

Watch T.V. Less!

Yep! That’s right. If you spend less time watching television you will have more time to

Be physically active!

Try this *challenge* for the next week:

Write down how much time you spend watching TV.

Use the chart below...

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV:</td>
<td>TV:</td>
<td>TV:</td>
<td>TV:</td>
<td>TV:</td>
<td>TV:</td>
<td>TV:</td>
</tr>
</tbody>
</table>

**TOTAL NUMBER OF MINUTES:**

Write the number of minutes you spend watching TV for each day.

Example: If you watch 35 minutes of TV on Monday, you put 35 in the box under Monday. Do this for every day of the week.

Add up the minutes at the end of the week to get your total.

This shows you how much time you can spend in a week in one quiet activity.

Circle the *physical* activities below:
Section 5

Try this *challenge* for the next week:

Write down how many minutes you spend watching TV.

**Use the chart below...**

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV:</td>
<td>TV:</td>
<td>TV:</td>
<td>TV:</td>
<td>TV:</td>
<td>TV:</td>
<td>TV:</td>
</tr>
</tbody>
</table>

TOTAL NUMBER OF MINUTES THIS WEEK: ______

TOTAL NUMBER OF MINUTES FROM WEEK 1: ______

Did you watch TV less time in week *** than you did in week 1?

Did you spend your time doing fun physical activities instead?

List 5 physical activities you did this week instead of watching TV:

1. __________________________________

2. __________________________________

3. __________________________________

4. __________________________________

5. __________________________________
THE

STOPLIGHT DIET
My name is ________________________________

Take this booklet home and show your parents what fun activities and challenges are inside.

Ask your parents to sign this page. Return this page to your teacher by the end of the week.

Ask your parents if they will help you complete the booklet.

Your parents can see what types of foods are healthy for you!

Parents:

Please read through the booklet with your child.

Help him or her understand the difference between Red, Yellow and Green foods.

Please sign below that you read through the booklet and have your child return it to his or her teacher.

Thank you.

______________________________

Parent’s signature
Introduction

EATING HEALTHY AND STAYING FIT

When you eat healthy your body stays fit and has enough energy to get you through the day. You can do this by choosing to eat foods that are good for you. These foods give you energy, help you grow, and keep your skin and organs healthy.

You might already know some foods that are good for you

**Challenge:**

Underline the foods you think are healthy and help you grow:

![Vegetables](image1.png)  ![Fruit](image2.png)  ![Eggs](image3.png)  ![Nuts](image4.png)  ![Cereal](image5.png)

It is important to get balanced meals with the foods you eat. Your body needs nutrients like carbohydrates, protein and fat. If you eat too many foods that are not healthy, you can gain weight and get out of shape.

You might already know some foods that you should eat small amounts of:

**Challenge:**

Circle the foods you think are not too healthy for you:

![Soft Serve](image6.png)  ![Soda](image7.png)  ![Ice Cream](image8.png)  ![Pasta](image9.png)  ![Chocolate](image10.png)
Section 1

THE STOPLIGHT DIET

The STOPLIGHT DIET is an easy way to follow a healthy diet.

The colors of a stoplight can be used to pick and choose healthy snacks, understand which foods to eat less of, and get the vitamins and nutrients you need to stay healthy.

RED = STOP!
These are foods you should eat in small amounts.

YELLOW = CAUTION!
These foods are ok to eat but not too many.

GREEN = GO!
These foods are very good for you.
The STOPLIGHT DIET divides foods into three categories:

**STOP**

**RED FOODS** – REMEMBER TO BEFORE YOU EAT IT. JUST HAVE A SMALL AMOUNT AND DON’T EAT THESE RED FOODS TOO OFTEN.

**YELLOW FOODS** – REMEMBER TO EAT WITH THESE YELLOW FOODS ARE OK TO EAT BUT CAN BE HIGH IN FAT OR CALORIES IF YOU EAT TOO MUCH.

**GREEN FOODS** – REMEMBER THEY ARE HEALTHY! THESE GREEN FOODS SHOULD BE MOST OF WHAT YOU EAT DURING MEALTIME OR WHEN YOU WANT A SNACK.

<table>
<thead>
<tr>
<th>RED</th>
<th>YELLOW</th>
<th>GREEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>CANDY</td>
<td>WHOLE WHEAT BREAD</td>
<td>VEGETABLES</td>
</tr>
<tr>
<td>ICE CREAM</td>
<td>WHOLE MILK</td>
<td>BEANS</td>
</tr>
<tr>
<td>CAKE AND PIE</td>
<td>MACARONI AND CHEESE</td>
<td>POPCORN (NO BUTTER)</td>
</tr>
<tr>
<td>TWINKIES</td>
<td>WHITE RICE</td>
<td>FRESH FRUIT</td>
</tr>
<tr>
<td>DESSERTS</td>
<td>CHEESE PIZZA</td>
<td>SALAD</td>
</tr>
<tr>
<td>LITTLE DEBBIE SNACKS</td>
<td>BURRITO W/ CHEESE &amp; SOUR CREAM</td>
<td>CEREAL (NOT SWEET KIND)</td>
</tr>
<tr>
<td>CHOCOLATE MILK</td>
<td>CHEESEBURGER</td>
<td>PRETZELS</td>
</tr>
<tr>
<td>POTATO CHIPS</td>
<td>TORTILLA CHIPS</td>
<td>LOW FAT YOGURT</td>
</tr>
<tr>
<td>FRENCH FRIES</td>
<td>CHEESE</td>
<td>FISH</td>
</tr>
<tr>
<td>SODA POP</td>
<td>MUFFINS</td>
<td>ALMOST ALL SOUPS</td>
</tr>
</tbody>
</table>
Section Two

Pre-Challenge

Week 1

Take this *Challenge*:

For one week, keep track of how many red foods you eat. For each day, every time you eat a red food put a red check mark in a box. At the end of the week add the number of marks to see how many red foods you ate.

<p>| | | | | |</p>
<table>
<thead>
<tr>
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<td>Monday</td>
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The total number of red check marks for this week is: __________
Section 3

How can you get more of the green foods in your diet?

It’s Easy!

THINK GREEN

Here are 10 fun things you can do to start eating healthier and have more energy.

1. Help mom make the grocery shopping list. Put at least 3 green foods on it that you can eat for snacks each week.

2. Eat a healthy breakfast every day

3. Snack smart! Choose snacks like mini carrots, sliced apples or pretzels instead of cookies, cupcakes or potato chips.

4. Drink plenty of water or choose fruit juice instead of soda pop.

5. Try a new green food every week

6. Eat more whole grains like brown rice instead of white rice

7. Eat more fresh vegetables. Feel how they crunch, taste how sweet an apple or pear tastes.

8. Make your own trail mix for snacks!
   Mix pretzel sticks, nuts, raisins and dried apples together for a crunchy, yummy and easy treat. Put ½ cup in sealable plastic baggies and grab one when you want a healthy snack.

9. Balance your food choices. Don’t eat too much of any one thing. It’s ok to have red foods once in awhile, but just small amounts. Give yourself a treat at the end of the week if you’ve eaten healthy that week.

10. Have Fun! Think of new fun ways you can enjoy green foods. See how many colors you can put into one vegetable dish for dinner or add at least three colors to a salad for dinner.

   Your family will be amazed at how creative you are.

Can you think of two more ways you can eat healthier? In the blank, write in a green food that you can eat instead of the red food listed.

1. I like cookies but I can eat ______________ instead and get more nutrients & energy.

2. Soda pop tastes sweet but so does ______________ and it’s healthier for me.
## Section 4

### Decode the Stoplight Diet

Name each picture, and then transfer the numbers to reveal the secret message at the bottom of the page.

<table>
<thead>
<tr>
<th>1</th>
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**Secret Message:**

I like cookies but I can eat them instead and get more nutrients & energy instead of the red food items.

In green foods you can eat more fruits and have more energy.

Come to the green thinking list. For at least 3 green veggies or 1 that you can eat for snacks each week.

So now you can have green lunch instead of soda pop.

Green energy from the earth. Can you think of not many vegetables you can eat in the black, write in a green food that you can eat instead of the red food items.
Section Five

Week Four

Now let’s see if you can use what you’ve learned from this booklet to become healthier and have more energy.

Take this Challenge:

For one week, keep track of how many red foods you eat. For each day, every time you eat a red food put a red check mark in a box. At the end of the week add the number of marks to see how many red foods you ate.

<table>
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<th>Monday</th>
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<td>Sunday</td>
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The total number of red check marks for this week is: 16

The total number of red foods I ate during the first week is 20

The goal is to eat more green and yellow foods and less red foods.

Did I decrease the number of red foods from week 1? 20 - 16 = 4 fewer red foods eaten.

Yes! Congratulations, you are on your way to staying fit, keeping your bones healthy and your muscles strong.

No. That’s ok, try again next week. See if you can decrease the number of red foods you eat by 3 check marks. I know you can do it!
APPENDIX B

TEACHER INSTRUCTION AND INFORMATION BOOKLET
TEACHER INSTRUCTION AND INFORMATION BOOKLET

Sedentary and Physical Activity
Stoplight Diet
Red Food Group Activity
Table of Contents

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Section Two
   Sedentary vs. Non-Sedentary Activity .........................................................2

Section Three
   Stoplight Diet ....................................................................................................3

Section Four
   In Class Activity ................................................................................................4
Section One

As a teacher you have the opportunity to help school-aged children learn about healthy activities and food choices. This program is designed to educate school aged children on two things, 1) the difference between sedentary (quiet) and non-sedentary (active) behaviors, and 2) healthy dietary choices with use of the Stoplight Diet.

This program contains two booklets with at home activities and challenges for the children to complete as well as an in-class activity designed to help the class as a whole try to improve their dietary choices. The first at home booklet contains a daily activity log for weeks 1 and 4 of the program where the children keep track of the number of minutes they spend watching television. The second booklet contains a daily activity log for weeks 1 and 4 of the program where the children keep track of the number of foods from the red food group they consume.

This program also contains a booklet sent home to parents to help educate them on the importance of these factors and how they can contribute to their child’s overall health.

The following two sections contain information about the two topics listed above.

Activity
&
The Stoplight Diet.

Physical Activity

Sedentary Activity

Healthy Snacks

Red ‘STOP’ Food Group
Section Two

Activity

A sedentary activity includes things that require little if any energy expenditure. A non-sedentary or physical activity includes things that require an output of energy.

It is important that school aged children get an average of 60 minutes of physical activity daily and balance sedentary and non-sedentary activities. Educating children on the difference between these types of activities helps them understand what choices they have when making decisions on how to spend their time.

Examples of each are given below.

<table>
<thead>
<tr>
<th>Sedentary Activity</th>
<th>Non-sedentary Activity</th>
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<tbody>
<tr>
<td>Watching television</td>
<td>Running, Jumping, Skipping</td>
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<tr>
<td>Playing video games</td>
<td>Playing ball, hopscotch</td>
</tr>
<tr>
<td>Watching movies</td>
<td>Playing on swing-set</td>
</tr>
<tr>
<td>Surfing the Internet</td>
<td>Playing a game of tag</td>
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<tr>
<td>Reading a book</td>
<td>Walking up stairs</td>
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</tbody>
</table>

Review this information with your students. Help them think of sedentary and non-sedentary activities. Make a list of each on the board and see how many different activities the students can come up with. Then, see how many of the physical activities they can actually do while at school during recess.

A balance of energy intake and energy expenditure allows children to grow up at a healthy weight and decreases the co-morbidities that go along with being overweight or obese. This is accomplished by balancing diet as well as activity. Choosing a healthy diet allows for proper vitamin, nutrient and caloric intake while limiting high fat, high sugar and high calorie foods. Choosing physical activities most of the time and limiting sedentary activities allows for proper energy expenditure and a balance between the two.

Caloric Balance + Energy Balance = Healthy Weight and Healthy Children
Section Three

The Stoplight Diet

Instruct your students to complete section two (pre challenge) of their booklet at the end of week 1 and complete section five of their booklet at the end of week 4.

The Stoplight Diet was developed by a child psychologist L.H. Epstein. This diet is used as the dietary intervention in this program because of its ease of understanding and familiarity of the meanings ‘Stop, Caution and Go’. These are common meanings children understand and can apply when making dietary choices.

Red food group or ‘Stop’ relates to foods that are high in sugar or fat content and contain little nutrient value. These are foods that kids should ‘stop’ and evaluate consumption before eating. These foods are described to the children as foods that should be eaten in small portions and limited quantities. Ie; chips, soda, ice-cream, milkshakes & fries, candy apples, pastries, etc.

Yellow food group or ‘Caution’ relates to foods that contain nutrients and vitamins but can be high in calories or carbohydrates. These are foods that kids should include in their daily diets but eaten in moderate amounts and not as a primary caloric source. Ie; cheese, pasta, rice, bagels & breads, salt, muffins, pizza, whole milk, cheeseburger, etc.

Green food group or ‘Go’ relates to foods that contain high nutrient and vitamins, are mostly low in calories and contain little or no fats. These are foods kids should include in their daily diets and snacks and can be eaten freely in normal portions. This is the food group kids should be encouraged to bring to school for daytime snacks and eaten as after school snacks. Ie; fish, apples, vegetables, lean chicken, bananas, fruits, etc.
Section Four

In Class Activity

Hang up the chart in the classroom. The chart is printed on synthetic paper, which will wipe off clean. Have dry-erase markers readily available near the chart (the kind that write on and wipe off so that you can reuse the chart next year!). You can even Velcro the markers to the chart.

Set a classroom goal. The goal is to decrease the number of foods from the red food group the classroom as a whole consumes from week 2 to week 3. You can set a goal such as “We will decrease the number of red foods we eat by 10 from week 2 to week 3.”

After lunch each day, have the students come up to the chart and make an X in the numbered boxes, putting an X for each food from the red food group they consumed either that morning, for lunch or for daytime snacks. A taste is all that is necessary. Be sure to have students who bring lunch from home participate as well as those students purchasing school lunch.

At the end of week 2, add up the number of X’s to get the number of foods from the red food group your students ate for that week. Then, repeat the game for week 3. Add up the number of foods from the red food group your students ate for that week. Subtract the number of X’s in week 3 from the number of X’s in week 2. This will show how many less foods from the red food group the students ate from one week to the next. If they did not decrease the consumption of red foods, review the material for this (section three) and encourage your students to choose healthier food choices by bringing healthier snacks or skipping dessert at lunchtime.

You can offer incentives such as an extra 10 minutes of free time or a pizza party if the students are able to reach their goal.

You can repeat this game for as many weeks as you like. You can compare by weeks to see if the students are making healthy food choices from the beginning of the semester to the end.

For fun, allow the students to keep the wrappings from the red food group they consume and see if the ‘box’ looks emptier from week to week.

Another fun idea you can do is have the children keep track of the number of foods they eat from each category of the Stoplight Diet, Red, Yellow and Green.

First: Get three jars, like mayonnaise jars or you can even use planting pots. You will also need colored marbles or something that represents three different food groups.

Second: Have the students put a red marble in the jar marked “Red food group” for each food they consume from that group. Repeat this using yellow marbles for the Yellow food group and green marbles for the Green food group.

It will be fun for your students to see if they have more marbles in the yellow and green food group jars than the red food group jar by the end of the week or month, however long you decide to play the game.
APPENDIX C

UNDERSTANDING YOUR CHILD’S HEALTH
UNDERSTANDING YOUR CHILD’S HEALTH

and

THE LINK BETWEEN EATING, EXERCISE AND OVERWEIGHT OR OBESITY.

THE BALANCE BETWEEN DIET AND PHYSICAL EXERCISE = GOOD HEALTH FOR YOUR CHILD.
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Family Activities ..................................... page 4
Alternatives to Watching Television ............... page 5
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How Much T.V.? ..................................... page 7

Section Two

Changing Poor Dietary Habits ..................... page 8

Section 3

Body Mass Index (BMI) ............................. page 9
Introduction

This booklet explains different ways you can be an active part of your child’s overall health. It reviews reasons children are becoming increasingly overweight, gives ideas on how to change poor habits and offers strategies on how you can help your child live a healthier life.

Overweight and obesity have become a serious health concern for today’s children. Children who are overweight as children will often times remain so as an adult. It is important to teach children healthy habits while they are young so they can continue these habits as an adult.

There are different factors that are contributing to children becoming overweight or obese. Some of these are modifiable and can be changed to help your child and family lead healthier lives and be more physically fit.

Too much time spent in sedentary activities or activities that do not require a lot of energy are considered a major factor in why children are becoming increasingly overweight. Sedentary activities include playing video games, watching movies, playing on the computer and most of all, watching television.

Increasing physical activity is important for families to stay physically fit, mentally alert and allows them to live healthier lives.

Poor food choices and eating habits also contribute to children being overweight or obese. Parents can change the food choices available to children by decreasing the number of unhealthy snacks they purchase and ensuring the child gets balanced meals with high nutrient and low fat/sugar content.

Many adults experience adverse effects from being overweight as a child and some children begin to have health problems related to being overweight or obese while they are still young. The Fact Sheet on page 2 highlights important factors in staying healthy.
Fact Sheet

The American Academy of Pediatrics says:

- Children age 2 and under should not watch any television.
- Older children should keep television time, including movies and video games, to less than 2 hours a day.

Why reduce TV time?

Early childhood is an important time for children to learn and develop the skills they need to grow up healthy!

- Children age 2 and under should not watch any television. During a child's first 2 years critical brain development is occurring. TV can get in the way of exploring, learning, and spending time interacting with parents and others. This is an important time for young children to develop the skills they need to grow.

Children need a lot of physical activity every day to be healthy and happy!

- Children who are physically active are less likely to be overweight, are sick less often, do better in school, sleep better, and are less likely to feel sad, depressed, or stressed.
- Most children watch more than 20 to 30 hours of television every week, or about 3 to 4 hours a day! Time spent watching TV or using the computer is time they could be playing, riding a bike, or having fun with family or friends. Even quiet play like board games or reading is more active than watching TV.
- Being physically active outside of school is more important than ever. Only one in four children has a physical education class at school every day.
- The more time a child spends watching TV, the greater the chance he or she has of becoming overweight.
- Overweight children face many health problems, such as type 2 diabetes, high blood pressure, respiratory (breathing) problems, trouble sleeping, and depression.

Children often eat unhealthy food when watching TV!

- Children often snack on high calorie, high fat, and/or salty foods when watching TV.
- Children eat less healthy meals when eating in front of the TV.

Television advertising impacts children's food choices!

- The average child sees more than 40,000 commercials each year! Most ads targeted at children are for candy, cereal, and fast food.
- Food ads children see on TV can pressure them to choose unhealthy foods to eat. Even watching 10 to 30 seconds of food commercials can affect what a child wants to eat.
- Children who go grocery shopping with their families often ask for unhealthy foods they see in TV ads. The more TV they watch, the more likely they are to ask for these foods.
- Popular TV and movie characters encourage kids to buy and eat unhealthy foods.
- Children as young as 14 months of age will imitate what they see on TV.

Public Health
Seattle & King County

www.metrokc.gov/health/reduceTV

King County Overweight Prevention Initiative
Section One

Children learn and change poor habits through encouragement, not punishment. They enjoy having choices and feeling like they have control in what they can do. Research shows that children are more likely to make long term changes in habits if given positive feedback when they make a healthy choice vs. getting negative feedback when they make a poor choice.

Family involvement has shown to be an important factor when trying to promote healthy choices in children. Having the family involved during activities keeps the child from feeling singled out.

IDEAS FOR CHANGING POOR ACTIVITY HABITS

ENCOURAGE, PRAISE AND REWARD...

ENCOURAGE your child to choose a physical activity instead of a sedentary activity.

Do not restrict or punish your child for not choosing to participate in a physical activity.

Allow your child to choose which physical activities he or she wants to participate in.

Make sure physical activities are easy to access, for example:

- Move swing sets and play equipment closer to the house.
- Keep a bin of balls next to the back door so child has something to play with when they go outside.

PRAISE your child when he or she chooses a physical activity over a sedentary one.

Do not force your child to be more physically active.

ENCOURAGE the family to become involved in activities that are not sedentary.

Ensure your child feels safe when he or she goes outside to play.

REWARD your child for making healthy activity choices:

Take him or her to see a movie as a reward
Allow him or her to pick out a new toy that requires physical activity to play with. They will be thrilled that they have a new toy and not realize that it will help keep them active when playing.

One of the most important things you can do to help your child get more physical activity is to Turn off the TV.

OTHER THINGS YOU CAN DO...

Help your child understand the difference between a physical activity and a sedentary activity. Review the activity booklet sent home with your child. Help him or her complete the challenges and puzzles.

Note: In your child's booklet a sedentary activity is referred to as a "quiet" activity.
Family Activities
4 Simple Ideas!

1. Indoor Basketball

Who says you can’t play basketball indoors? You’ll need: a wastebasket, lots of paper (can be old paper or newspapers), and masking tape (optional). Use the masking tape to make lines on the floor which mark certain distances from the wastebasket. You can also use other paper or clothes to create a line. Scrunch up the paper for balls. Now it is time to start shooting baskets! Begin at the closest line (the easiest), and try to make a basket by throwing the paper ball into the wastebasket, Work farther back to more difficult lines as you get better at making baskets.

2. Walking Scavenger Hunt

Want to make a fun game out of walking around the block with your kids? You don’t need anything except your imagination! Kids love scavenger hunts! As you leave the house for your family walk around the block, give your children a list of things to find. Each scavenger hunt can have different themes, such as “Color” where kids look for a green car, a blue flower, a red door, a black cat, and a white fence. Or try “Size” and look for a big cat and a small cat, a big car and a small car, and a big person and a little person. Have your children think of different themes and things to look for!

Family Activities
4 Simple Ideas!

3. Obstacle Course

This can be indoor or outdoor fun! You can use normal household items to make an obstacle course, such as chairs, pillows, stuffed animals and pots and pans. Set up an obstacle course around your house using any items you choose. Have rules for each item, such as “hop on one foot around the chair” or “walk backwards 5 steps with the pillow balanced on your head” or “play a song using a spoon and a pot.” Have your children think of different challenges they would do at each obstacle.

4. Make and Play With Play Dough

2 cups flour
1 cup salt
2 cups water
2 tablespoons oil
4 teaspoons cream of tartar

Can add drops of food coloring if colors are desired

Combine all ingredients in a large pot. Heat the ingredients on the stove top for 3 to 4 minutes at medium heat, stirring constantly. The ingredients will start to dry up, and form a ball. Remove from heat and knead the dough for a minute or so. To keep it from becoming dry, store the play dough in a zip-lock bag or container. If it starts to dry out, a little water can be added and kneaded into the play dough.
Alternatives to Watching Television
50 Ways to Live Outside the Box!

25 Outdoor Activities
1. Walk to the library and get a book
2. Have a picnic
3. Jump rope
4. Walk around the block with friends
5. Watch the sunset with your family
6. Play Frisbee
7. Fly a kite
8. Organize a scavenger hunt
9. Play basketball with a friend
10. Build an obstacle course
11. Play flag football
12. Do 50 jumping jacks
13. Skip

14. Go skateboarding
15. Play catch with friends
16. Play hopscotch
17. Blow bubbles
18. Draw pictures with sidewalk chalk
19. Play follow the leader
20. Play tag
21. Go to the park
22. Use sidewalk chalk to draw different shapes and JUMP!
23. Play Red Light Green Light
24. Play Simon Says
25. Play Duck Duck Goose

Some of these activities can be done inside, too. On rainy days try numbers 23 to 25 in an open space in your home!

King County Overweight Prevention Initiative

Alternatives to Watching Television
50 Ways to Live Outside the Box!

25 Indoor Activities
1. Act out a story
2. Build a fort out of pillows and blankets
3. Have a carpet picnic
4. Play a card game
5. Play a board game
6. Invent a new game and teach it to a friend
7. Play flashlight tag at night
8. Make shadow puppets on the wall
9. Play charades
10. Read a book
11. Dance to your favorite music
12. Color or paint pictures
13. Do Show and Tell with your friends or family
14. Work on a puzzle

15. Play dress-up
16. Have story-time. Either read a story aloud or make up your own story to tell
17. Sing songs
18. Do an art project
19. Cook dinner together
20. Make a fruit smoothie together
21. Play indoor basketball
22. Play Twister
23. Build an indoor obstacle course
24. Blow up a beach ball and keep bouncing it in the air as long as possible
25. Holiday coming up? Make cards or decorations for it. If not a holiday, make one up!
Strategies to Reduce Television Viewing in Your Home

Remember, the American Academy of Pediatrics says:
• Children age 2 and under should not watch any television.
• Older children should keep television time, including movies and video games, to less than 2 hours a day.

SET LIMITS
• Set TV limits for your children. Allow them 2 hours or less of quality television a day.
• At the beginning of the week, give them the TV Guide and together pick out the specific programs they want to watch that week -- no more than 2 hours of television, including movies and video games, each day.
• Make certain days of the week "TV-free" days. Try no TV on school nights or no TV on Tuesdays.
• Rather than let your children just "watch TV" ask them specifically what program they will be watching. When the TV show is over encourage them to do something else.
• Have your children complete their homework and chores before watching TV.
• Explain your rules in simple, concrete, and positive words. Instead of saying "You can't watch TV," try "Let's turn off the TV so we can..."
• You don't have to stop watching TV all at once. Try watching a little less each day.

JUST TURN THE TV OFF
• Turn TV off during meals. Meals are a great time for conversation.
• Instead of TV, listen to your favorite music or the radio.

WHAT IF YOUR KIDS SAY THEY ARE BORED?
• Don't worry if your children say "I'm bored!" For children, being bored often leads to creativity. It may take a little while, but they will find ways to entertain themselves!
• When your children say they are bored: Start an "Idea Box" full of different activities your family can do instead of watching TV. Have your children decorate the box, and whenever you think of a good idea write it on a slip of paper and place it in the box. Whenever your children say they are bored, send them running to the box for a new activity. Put both family activities and activities your children can do on their own.
• Make a box of "Fun Questions" and choose one for the entire family to answer at each mealtime. For example, "If I could be any animal, what animal would I be and why?"

PUT THE TV WHERE YOU HAVE CONTROL OVER IT
• DO NOT HAVE A TV IN YOUR CHILD'S BEDROOM. This is the most important thing you can do. Even if your child has a TV in the bedroom now, you can remove it! It is hard to monitor what TV or how much TV your child is watching. It keeps kids away from family activities and distracts them from homework, thinking, reading, and sleeping.
• Move the TV away from the family room. TV is less tempting when it is not in the main family room.

SHOW YOUR CHILDREN HOW FUN LIVING OUTSIDE THE BOX IS!
• Instead of using the TV as a babysitter, try encouraging your kids to do other activities on their own. Think about how careful you are when you choose someone to baby-sit your children — watching too much TV can be dangerous for your kids.
• Try to watch TV with your children and talk with them about what you are watching. You are showing them that you care about them and about what they watch.
• Set an example for your kids. Let them see YOU turn off the TV. Then invite them to join you in some activity.
• Don't let TV take away time from what is important: time for family to talk with each other, play together, read together, or to think and imagine about the world.

King County Overweight Prevention Initiative
www.metrokc.gov/health/reduceTV
How Much TV?

1. Does your child have a TV in his or her own room?
   A) Yes  B) Sometimes  C) No

2. Does your child watch more than 1 to 2 hours of TV per day?
   A) Always  B) Sometimes  C) Never

3. Do you have the TV on during meals?
   A) Always  B) Sometimes  C) Never

4. Do you talk with your child about what he or she watches on TV?
   A) Never  B) Sometimes  C) Always

5. Do you set limits on the amount of TV your child watches?
   A) No  B) Sometimes  C) Yes

6. Is your family TV on for more than 2 hours a day?
   A) Yes  B) Sometimes  C) No

Add up the number of A, B, and Cs you chose.
- for each A give yourself 3 points
- for each B 2 points
- for each C 1 point

What is your total score?  
Total score

Flip card to see how well you did!

If your score is between 6 and 8
Congratulations! You are doing a great job of keeping your kids healthy by monitoring the type and amount of TV they watch. Check out the list of 50 Alternatives to TV for more ideas!

If your score is between 9 and 12
Good job. You are doing a good job of keeping your kids healthy by monitoring the type and amount of TV they watch. However, there is more you can do! Check out the Strategies for Reducing TV, and try some you think might work for your family.

If your score is 13 and above
Your kids might be watching too much TV, which can be unhealthy for them. Check out the Strategies for Reducing TV, and try some you think might work for your family. Try some of the 50 Alternatives to TV for fun and healthy ideas your kids can do.

The American Academy of Pediatrics says:
- Children age 2 and under should not watch any television.
- Older children should keep television time, including movies and video games, to less than 2 hours a day.

*Adapted from MediaWise
Section Two

There are many different things you can do as parents to help your child adopt healthy eating habits. The following are just some examples of strategies you can implement into your child’s as well as your family’s daily eating routine.

IDEAS FOR CHANGING POOR DIETARY HABITS

BE A ROLE MODEL...

*Do not eat in front of the television
*Serve a variety of foods from each food group
*Use small portions, you can always add food if your child is still hungry
*Bake, broil, grill or roast meats that the fat has been removed from
*Fix healthy and easy to eat snacks
*Replace high sugary drinks with water or low fat milk
*Have a variety of healthy foods and snacks and limit the number of ‘red’ foods purchased
*Stock your shelves with pre-portioned snack foods
*Consider designating one shelf for the kids to get snacks from
*Eat three well balanced meals a day
*Do not skip breakfast
*Drink plenty of water
*Encourage your child and family to participate in preparing healthy meals. The children will be excited to eat something they helped prepare and won’t think about missing out on eating something that is not healthy for them.
*Eat more raw vegetables and fruits
*Limit the amount of fast food your family eats

(www.kraftfoods.com/kf/ff/feature/products/KoolAidJammers10/kidsNutrition.htm)

OTHER THINGS YOU CAN DO...

Help your child understand the difference between a healthy food and an unhealthy food. Review the Stoplight Diet booklet sent home with your child. Help him or her complete the challenges and activities. Teach your child the difference between a red food, a yellow food and a green food.

Note: In your child’s booklet a red food group includes foods that contain high calorie, high fat or sugar and should be eaten very seldom, a yellow food group includes foods that are ok to eat but should be eaten sparingly and the green food group contains foods that should be eaten for most meals and carry a high nutrient, low calorie value.
Section 3

Children are becoming overweight and obese at an alarming rate. This has been shown to be directly related to the types of foods they eat, when and where they eat, and the amount of time they spend in front of the television.

The Body Mass Index (BMI) is a guide used to measure if your child is at an ideal body weight or overweight. It is used as a guideline and should be reviewed and discussed with the child’s pediatrician prior to placing your child on any structured weight loss plan.

\[
\text{BMI} = \frac{\text{Weight in pounds} \times 703}{\text{Height in inches}^2}
\]

Example:

\[
\text{BMI} = \frac{65 \text{ pounds} \times 703}{4 \text{ feet} \times 48 \text{ inches}} = 45695
\]

48 inches

\[
\times 48 \text{ inches} = 2304 \text{ (inches)}
\]

So: The BMI is \(45695 + 2304 = 19.8 \text{ BMI}\)

(www.naso.org)

Compare this number to the Center for Disease Control’s BMI chart to see if your child falls within a healthy weight for his height. (http://www.cdc.gov/growthcharts/).

If you are concerned that your child is overweight, talk to the pediatrician and together you can come up with a plan to help your child lose weight. It is important that children get the vitamins and nutrients they need to stay healthy and grow. The pediatrician can guide you in ways you can safely put your child on a diet. As a general rule, limiting the amount of high fat, high calorie, high sugary foods your child and family eats can cut down on the potential for weight gain and risk factors associated with overweight or obesity.
REFERENCES


