

Teenage Obesity: Causes and Effects, and Implications for the Family

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Because no prescription is more valuable than knowledge.

~C. Everett Koop, MD

INTRODUCTION

As a high school Health Science Technology teacher at a very large inner city school, I teach Hispanic and African American children. They are considered at-risk for childhood obesity and its related complications. I have chosen to integrate the topic of teenage obesity into my curriculum not only because of its relevance to the students but also because it affects my extended family directly. My brother-in-law developed kidney failure at the age of 32 and has been on dialysis for 14 years. He was overweight as a child, but was not diagnosed with type 2 diabetes until his early 20s. The late diagnosis of diabetes could have been the result of a lack of medical care while growing up. The symptoms of type 2 diabetes are “excessive thirst, frequent urination, blurred vision, or fatigue” (“Healthy Weight Benefits”).

A study was conducted by the Texas Public Health Department on the prevalence of overweight children in over 15,000 Texas public school students. The sample consists of African American, Hispanic, and white fourth, eighth, and eleventh graders. The results showed that Hispanics had more overweight children in all grades followed by the African-Americans (Hoelscher, slides 53, 54, 55). These are the predominant ethnicities at my school. This unit will be taught over four weeks to my 9th grade Introduction to Health Science Technology students and the 10th grade Health Science Technology I students.

There is a need for students to learn the causes and effects of being overweight and how they can prevent or control it. The learning objectives will cover their writing skills, identifying cause and effect, judging and evaluating sources of research material, and summarization.

I intend for this unit to teach the students how to balance what they eat with sufficient physical activity, as well as to draw their attention to the health-related consequences of overweight. My upper-class students will be asked to do more research on diseases affecting the overweight including pictures from each disease’s website given in Discoveryschool.com. Discoveryschool.com is a web site for parents, teachers, and students on an array of educational material.

DEFINITION OF OBESITY

Obesity is defined as having a very high amount of body fat relative to lean body mass (Hoelscher, slide 4). It is considered a chronic disease that health care providers should monitor with frequent visits. The terms overweight and obesity will be used interchangeably, even though the Centers for Disease Control and Prevention (CDC) prefer overweight when referring to children and adolescents. This curriculum unit will give the student an in-depth look at teenage obesity, the mental and physical ramifications, and the health consequences. “When a child is in

the 95th percentile, meaning that he is heavier than 95% of children the same age, weight and sex of the body mass index (BMI), the child is diagnosed as overweight” (Peck). Being in the 95th percentile, the chances are greater that he will become an obese adult (Segounis). Body mass index is measured as body weight in kilograms divided by the square of height in meters (kg/m²). BMI is the standard obesity assessment used in adults and adolescents. If the BMI is greater than or equal to the 95th percentile for age and sex, the adolescent should have a detailed medical assessment (Barlow).

PROBABILITY OF BECOMING OVERWEIGHT

Many people think that overweight is hereditary since it tends to run in families, but it is mostly a combination of overeating and lack of exercise. Heredity plays a role in a person’s ability to gain weight, but the environment we live in with over 215,000 fast food restaurants is influential (Akers 11). Obesity from childhood to adulthood depends on the child’s age when he becomes obese. An obese child at the age of six years old has a 50 percent chance of becoming an obese adult (Moran). Studies have shown that an obese child between 10 and 13 has an 80 percent chance of becoming an obese adult (“Obesity in Children and Teens”). In addition, medical costs and loss of productivity attributed to obesity alone amounted to an estimated \$100 billion and over 300,000 deaths each year (“Obesity in Children and Teens”). The best treatment for teen obesity is a change of lifestyle.

GROWTH PHASE

The teen years are the second fastest growth stage, with infancy being the first (Streit). Consequently, they can have difficulty managing their weight. They need to consume enough calories to grow and stay active, but taking in too many without burning them off can lead to excess body fat (Streit).

Hormonal or genetic disorders can cause the child or teen to become obese, but these cases are very rare. Prader-Willi syndrome is characterized by an insatiable appetite, obesity and mental retardation. Cohen syndrome causes truncal obesity and mental retardation. Cushing’s syndrome is another abnormality with cessation of linear growth and weight gain. Children with these and other endogenous disorders are short from failure to grow. So if the child is growing normally, these disorders can be ruled out (Moran).

The following curriculum outlines activities to address the many factors affecting obesity. These factors include: eating habits and nutrition, fats, physical activity, health consequences, economics and cultural aspects of obesity, perception and self-esteem, prevention of obesity and social interactions of overweight teenagers.

FACTORS AFFECTING OBESITY IN CHILDREN AND TEENAGERS

Our contemporary lifestyle has changed with more fast food consumption, increased television watching, computer games and chatting, lots of varieties at the grocery store, adolescent girls skipping meals, more soda consumption and increased portion sizes. There are many communities with no sidewalks and one third of children ride to school even if they live within a mile (Dietz). There are non-behavioral risk factors, which include sex, race/ethnicity, socioeconomic status and one or both parents being overweight (Fowler-Brown).

The class will investigate several causes and the effects of adolescent overweight. To introduce the unit, the students will be given an anticipation guide. This is a reading activity where the student reads five or six statements and indicates in the “pre-reading” section if they agree or disagree with the statements. They can work in groups of four to answer the pre-reading statements, which should peak their interest in this unit. Each student will read an article by the American Academy of Child & Adolescent Psychiatry on “Obesity in Children and Teens.” They

will be asked to document the paragraph and page number from where they found the answers to each statement. The groups will then go back to the anticipation guide and check agree or disagree under the heading “post-reading.” After that is done, we’ll have an open discussion on the statements, one at a time, to find out if their thoughts changed after they read the article. When a group is called upon to answer, the group must first tell us what page and paragraph the answer is on so that the class can follow along when they read. More advanced classes will be required to write a one-page essay on any personal experience they have had on obesity. These experiences may include family members or friends that have confronted obesity-related issues. These essays will then be orally shared with the rest of the class.

A short lecture at this time will bring in other articles on adolescent overweight. The United States Department of Health & Human Services says, “Overweight in children and adolescents is generally caused by lack of physical activity, unhealthy eating patterns, or a combination of the two, with genetics and lifestyle both playing important roles in determining a child’s weight” (“The Surgeon General’s Call to Action”). The reasons for teenage overweight are complicated, but include behavioral factors such as eating habits.

EATING HABITS AND NUTRITION

A major behavioral factor affecting teen overweight is eating more calories than the body is able to burn off. Poor eating habits like snacking on junk foods, eating high fat foods, consuming too much fast food, and eating large portion sizes contribute to the high caloric intake. Drinking too many sugared sodas can also cause excessive weight gain.

In fact, The University of Michigan School of Public Health (UMHS) and the public schools of Ann Arbor have joined to educate students on better eating and lifestyle choices (“A Lesson in Heart Health”). The vending machines now have healthier snacks and beverages, and the cafeterias offer “heart healthier” foods. This change was brought about because about a third of new diabetic cases are children between the ages of 10 and 20 (“A Lesson in Heart Health”).

Another study on children’s eating healthier is being conducted in six schools in a suburb of Orlando. The research center founder is the author of *The South Beach Diet*, Dr. Arthur Agatston. Again, this research was brought about because of the government data on childhood obesity (Schneider A9). The children had a partial well-child examination done which included their weight, height, pulse, and blood pressure at the start of the school year and will have the same taken at the end of the school year. The school menu includes whole wheat bread, low-fat cheese, grilled chicken instead of breaded, sweet potatoes instead of white potatoes, and fruit for dessert. There is a control school used in this research with normal school lunches (Schneider A9).

“Teens have to learn to eat healthy for good nutrition and to feel good, not to lose weight,” says Linda Somers, RD (Cooke). Diets are considered temporary and are not recommended for teenagers. Teens should not deny themselves food by skipping meals, but should eat sensibly through eating foods from all the food groups (LeBow 56). Adolescents eat too little of the foods in the vegetable and fruit part of the Mypyramid guide and too much from the fat portion. Some excellent eating suggestions for children and teens by the Surgeon General include the goals of eating at least five servings of fruits and vegetables daily, discouraging eating meals or snacks while watching TV, eating a healthy breakfast, having plenty of low fat milk, fruits and vegetables around for snacking, and avoiding the use food as a reward or punishment (“The Surgeon General’s Call To Action”).

The United States Department of Agriculture came out with their new Mypyramid Guide in April 2005. The new guide gives you more details as to the kinds of foods in each group to eat. Some examples are to eat whole grains instead of refined grains and spinach and broccoli instead

of iceberg lettuce. The suggested caloric intake for 13-18 years is between 2200 to 2400 calories. The colors on the pyramid represent the food groups and the color's shapes represent the portion size. (For more details on the guide you can go to Kever A1.)

Fats

All fats are not created equally. The good fats, like monounsaturated fats found in nuts, can actually help protect the body against type 2 diabetes (Guttersen). The bad fats, like saturated and trans fat (partially hydrogenated), can unfavorably affect glucose metabolism (Guttersen). Dr. Michael Freemark recommends family nutritional counseling as well as a reduced fat diet (Freemark). Dr. Freemark says adolescents should reduce the total and saturated fat intake of foods like French fries, pizza, chips and crackers. Dr. Carol Helerstein notes, "Carbs are not bad guys" ("Baby Fat"). The processed and refined carbohydrates are the culprits that are putting calories on the adolescents (Guttersen). Processed carbs are foods like the chips and crackers mentioned above and the good carbs are fruits, vegetables, and whole grain breads and pastas ("Baby Fat").

Body fat can be measured with height, weight, subscapular skin fold measurement, triceps skinfold measurement and waist to hip ratio. The waist to hip ratio cannot be standardized in children and teens because of the changes in the body during development. The subscapular skin fold test is done using a skin caliper that measures selected sites of the body such as the triceps, scapular and hips. When measuring the triceps, the child is in an upright position with the arms to the side. The trained personnel then select a site midway between the elbow and the shoulder to measure. When measuring the subscapular, commonly called the shoulder blade, the caliper is placed below and medially to the scapular (*Childhood Obesity: Causes and Prevention*).

Not all children or teens who are overweight have a health risk. Body fat that is visceral is considered a health risk. Visceral or intra-abdominal fat is located deep within the abdominal cavity and is the fat around the abdomen that you can't pinch. A computerized axial tomography (CAT) scan or magnetic resonance imaging (MRI) is used to detect this intra-abdominal fat. The way type 2 diabetes works is that this visceral fat metabolism is active and drains directly into the liver. Once it goes to the liver, it can be turned into sugar. Whereas, fat found on the skeletal muscles is used by the muscles. Some factors that cause visceral fat can be changed like diet and physical activity, whereas some factors cannot be changed like the ethnicity and the sex.

PHYSICAL ACTIVITY

Lack of physical activity is another behavior factor that contributes to adolescent obesity. By the time teenagers get to high school, their physical activities have declined to the point that 30 percent of females and 50 percent of males participate in vigorous activities ("Center for Nutrition Policy and Promotion"). It is recommended that children and adolescents get at least 60 minutes of moderate physical activity almost daily ("The Surgeon General's Call to Action"). The new food pyramid has stairs on one side that represent the importance of daily exercise. The guide recommends 60 minutes of exercise to prevent weight gain and 60 to 90 minutes daily to lose weight (Kever A1).

In 1999, only 65 percent of teenagers performed the recommended amount of physical activity ("Leading Health Indicators"). Watching television is considered a behavior that not only promotes inactivity in teens, but also influences them to eat the foods advertised. If there is an overweight adult in the household with a sedentary lifestyle and overeating, there is a 50 percent chance that the children will also be obese. With both parents being overweight, there is an 80 percent chance of being obese ("Obesity in Children and Teens"). The sedentary lifestyle of the adults in the family is often mirrored by the children and adolescents.

A study based on a nationwide sample of children and adolescents reported that each additional hour of TV viewing per week increased the risk for obesity by 2 percent. This shows there is a strong relationship between the occurrence of juvenile obesity and the amount of watching television (Bar-Or).

HEALTH CONSEQUENCES OF OVERWEIGHT

Overweight has become such an important health issue today because it affects “one out of every 5 children” (Akers 44). What I find astonishing is that adult diseases are now being seen in teenagers who are overweight. Health problems like endocrine disorders can also cause a teen to be overweight. The endocrine system includes the pancreas, pituitary gland, and parathyroid gland. Psychological problems including family problems and emotions also are factors in obesity. The most common endocrine disorder is type 2 diabetes. “Diseases like type 2 diabetes, high blood pressure, clogged arteries, breathing problems, joint and bone problems” are now being seen in obese teens says Dr. Heather Dean (“Healthy Weight Benefits”). An article in *Pediatric News* (Feb. 2002) said that type 2 diabetes, normally occurring in overweight adults, is increasingly occurring in overweight children and teenagers (“Healthy Weight Benefits”). Then, when they are young adults, complications like kidney failure, blindness, loss of limbs or early death can occur (“Healthy Weight Benefits”). The symptoms of type 2 diabetes are “excessive thirst, frequent urination, blurred vision, or fatigue” (“Healthy Weight Benefits”). Health professionals test for type 2 diabetes by drawing a fasting blood sample for sugar level.

Overweight children have higher blood pressure, heart rate, and cardiac output than non-obese children. Another disease seen in overweight teens is sleep apnea, which is a condition in which you stop breathing for a period of time while sleeping (Davies). Having hypertension increases the risk of stroke, which can paralyze or even cause death. Two studies done by Michael Goran, professor of preventive medicine at the University of Southern California, suggest that tests for diabetes and abnormal cholesterol levels be done on all obese children (Manning). His studies were done on Hispanic youths from 8 to 13 years who had overweight relatives and family history of diabetes. The first study had 150 children of which 28 percent had a precursor to diabetes. The second study had 126 children of which 90 percent had at least one medical sign for diabetes. Some of these signs were abdominal obesity (central obesity), high blood pressure, low levels of good cholesterol and high triglycerides (Manning).

The location of the body fat makes a person more susceptible to obesity-related diseases. If the fat accumulates in the abdominal area rather than the hips and thighs, it enters the bloodstream faster. This fat releases fatty acids into the liver causing the cholesterol levels to rise putting a person at risk for diabetes and heart diseases (Akers 44, 45).

Overweight children and teens are also at higher risk for orthopedic problems. The extra weight can cause bowed legs and symptoms of weight stress in the lower joints of the extremities. They are more at risk for dermatological disorders, especially if they have deep skin folds. The obese child is prone to heat rash and a condition called *Acanthosis Nigricans*. *Acanthosis Nigricans* is usually found in the neck area and is characterized by light-brown to black markings. The majority of the overweight with *Acanthosis Nigricans* have a high insulin level. The excess insulin comes out into the skin. It can indicate the presents of type 2 diabetes (Moran). *Acanthosis Nigricans* can occur in people who are not overweight. This usually signals a congenital or glandular disorder.

OVERWEIGHT BELIEFS

In the late 1800s, being overweight was fashionable and a sign of affluence. Americans had this belief because there wasn't enough food for everyone. Modern techniques for growing, preserving, and transporting food were not available. Even the medical profession encouraged

people to be overweight. Plumpness in women was considered sexy, beautiful, feminine, and “voluptuous” (Akers 14). Back then, an actress by the name of Lillian Russell was considered the ideal woman and photographed frequently even though she weighed about 250 pounds! When the national economy became more industrial and less agricultural, people stopped looking at obesity as a sign of success. Food became more plentiful and by the 1920s being slender was popular. Medical professionals changed their view on overweight being healthy (Akers 17).

Our current culture has most of us believing that overweight people are lazy, stupid, and slow. These are stigmas that damage the self-esteem of the overweight. There are studies that show even young normal weight children express negative attitudes toward the obese peer.

ECONOMIC AND CULTURAL ASPECTS OF OVERWEIGHT

The prevalence of overweight U.S. children increased from 11 percent in children from 6 to 18 years of age from 1988 thru 1994, to a whopping 16 percent for the period from 1999-2002 for the same age group (“Teen Birth Rate Hits Record Low”). The director of the (CDC) National Center for Health Statistics report said that Hispanic American boys had the highest risk of being overweight at 27 percent with African American girls being second at 23 percent. The estimated numbers of children from ages 6 to 19 that are overweight in the U.S., according to CDC, is almost 9 million (Connelly).

According to Kelly Streit, Hispanics, African Americans, and American Indian children, especially their girls, have higher incidences of being overweight. The prevalence is higher if they are weighed in the winter, rather than the summer and live in the Northeast and Midwest (Gidding). These overweight teens will often become overweight adults. The proportion of adolescents from poor households who are overweight or obese is twice that of adolescents from middle and high-income households (“Leading Health Indicators”). Our school qualifies for Title I funds because of the number of kids from poor households, and, as I mentioned earlier, we have a large number of overweight children.

The most common reason for this socioeconomic disparity is that healthier food choices are more expensive in the United States. It is very cheap to eat foods full of fat and sugar. Many poor families cannot afford to purchase large quantities of good food at the grocery store. The students will be asked to look in grocery store advertisements and separate healthy food choices from non-healthy choices and include their prices. More advanced students will be given a budget and asked to investigate ways to eat healthy with a fixed amount of money.

PERCEPTION AND SELF-ESTEEM RELATED TO BEING OVERWEIGHT

Teens that are overweight often isolate themselves and are ashamed to participate in outside activities that can lead to low self-esteem (Streit). In a study administered by the US Department of Labor, low self-esteem is more evident in obese white and Hispanic girls, in the 13 to 14 age group, than non-overweight white and Hispanic girls. The overweight girls had a higher level of loneliness, sadness, and nervousness. Data collected in a 1989 survey indicated that 37 percent of white and Hispanic girls considered themselves too fat when only 25 percent of black girls considered themselves too fat. The study also found that children with low self-esteem were more likely to engage in risky behavior like smoking and drinking alcohol (Strauss).

A website that has an activity relating to low self-esteem as well as other activities is www.Discoveryschool.com. It contains a culture and obesity lesson plan for grades 9-12 with the objectives, materials needed, classroom activity sheets, and the procedure for implementation in the classroom. The site gives some background information on obesity including the definitions of genetic diseases that can cause obesity.

One of the activity sheets has pictures of three different size women. Some of the questions on the activity sheet ask which woman is the most attractive, least attractive, the smartest, least intelligent, the healthiest and the least healthy. The students just check woman A, B, or C for each question. A tally sheet is included to compile all answers to the survey and the results will be tallied within each classroom. Then an opinion survey accompanying the survey about weight and body image will be given to the students. Some of the questions on it are:

1. Describe what life would be like for someone who is seriously overweight and has trouble losing weight. How might other students or family members treat that person? What difficulties and prejudices might an overweight person have to overcome in school or when looking for a job?
2. What is your body image? Are you comfortable with your weight? How are you affected by images of ultra thin models in the media? (Discovery School).

SOCIAL INTERACTION OF OVERWEIGHT TEENAGERS

Excess body weight in children can lead to being liked less by their peers or being subjected to several forms of aggressive behavior. Aggressive behavior includes direct and indirect behavior actions intended to harm. Direct aggressive behavior is the physical bullying such as kicking or pushing and the indirect aggressive refers to relational bullying intended to damage the victim's social relationships (Eisenberg). The results of a Canadian survey done on 5745 overweight and obese youths between 11-16 years revealed the prevalence of victims, 11.6%, increased with increasing BMI. In the 15-16 age groups, the prevalence of being the bully, 8.8%, was more likely than their normal weight peers (Janssen). The overweight 15-16 teenagers bullied their peers on race, ethnicity or religion.

Children look at physical appearance for their social interaction because our culture highlights beauty. This explains why social problems among overweight teenagers are high. Girls are victims of the relational aggression such as rumors or withdrawing friendship. Overweight girls are victims of this form of bullying which can further isolate them (Janssen).

OVERWEIGHT PREVENTION

Americans spend over 33 billion annually on ineffective weight loss products and plans trying to change their bodies (Akers 12). They are inundated with fad diets, diet pills or other products promising weight loss when prevention is the key. "The Surgeon General's Call to Action to Prevent Obesity" provides strategies that include increasing research on the behavioral and biological causes of obesity, changing the perception of obesity so that health becomes the chief concern, not personal appearance, reducing time spent watching television and other sedentary behaviors, educating all expectant parents about the benefits of breast feeding, and educating health care providers and students in health professions on the prevention and treatment of overweight (3).

"Healthy People 2010" objective is to reduce the prevalence of childhood and adolescent overweight by 50 percent (Fowler-Brown). This objective is being reached by intervening in programs based in schools and communities. One strategy is to encourage communities across the country to apply pressure on restaurants and food manufacturers to reduce portions and reduce the fat content. They also want the communities to encourage schools to limit the amount of junk food and adopt a "New P.E." This New P.E. will place less importance on competitive sports and emphasize a health club approach to personal fitness (Fowler-Brown).

TREATMENT OF OVERWEIGHT ADOLESCENTS

A weight management program is not advised if the adolescent or the parent isn't ready. Such a program may result in an unsuccessful outcome or damage the adolescent's self-esteem.

If he or she is ready, long-term gradual changes will be more successful. For example, make two or three specific changes in diet or activity and after these are mastered, suggest a few more (Barlow).

To successfully manage obese adolescents, the diet history, culturally determined food preferences, presence of behavior disorders, behavior disorders, and family dysfunctions have to be addressed. Counseling should be recommended to the adolescent and her family that's sensitive to the culture. The counseling should address a balanced diet, increased physical activity, and decreased television watching time.

PARENTAL GUIDANCE

Parental guidance seems to play an important part in preventing obesity. There should be a reduction in the number of meals prepared outside the home. Anne Collins, who has designed a weight loss program, advises parents to make their own healthy snacks. One suggestion was for the fast food lover of burgers and fries. Make the burgers at home using lean meat on whole wheat buns with plenty of salad and bake sliced potatoes for chips (Collins). Water can be substituted for the high calorie sugary drinks like soda pop, fruit drinks, fruit juices and sugared ice tea. If the overweight child has difficulty substituting water for his favorite drink, try reducing the amount consumed. Adolescents usually don't drink milk as much as younger children, but skim milk has less saturated fat than whole milk. Also, food should not be used to bribe, reward, or soothe a child.

The parents and other family members should provide a supportive environment for the overweight child. Their eating behavior, food preference and the variety of food in the home should compliment that of the child. This way he won't feel singled out or alone in his journey to a healthier person. When eating out at fast food restaurants or the movie theater, no one should order the "super-sized" meals or soda.

Another suggestion given by Anne Collins was to encourage your child to be more physically active. Studies have established a connection between obesity and the amount of time watching television. Televisions are used to entertain, baby sit, and provide a substitute for human companionship. About 95% of commercials seen by children are for either "fast foods, soft drinks, sugar coated cereals and candy" (Collins).

CONCLUSION

At the end of the four-week period, I hope to have introduced overweight as a major health concern. I do not wish to alarm students or encourage them to discriminate against overweight individuals, but to encourage them to lead healthier lifestyles. If they develop good habits now, they will follow them into a healthy adulthood. In addition, the students will then be able to inform their parents and family members on healthier eating habits and the consequences of overweight. This will hopefully, in turn, promote family and cultural change for this generation and generations to come, and ultimately reverse the frightening overweight statistics facing today's youth.

The activities associated with this unit include an "Anticipation Guide" to introduce the unit; an essay on personal experience with overweight; a definition of what overweight means to them; a food log journal; the creation of a table of calorie, sugar, and fat content of each meal; a web site activity at MyPyramid.gov; calculating BMI; a physical activity log; a television commercial assignment; a reflection on how this unit affected their eating and physical activity; a group research on facts about type 2 diabetes; and research on how hormonal or genetic disorders may cause overweight.

LESSON PLANS

Activities Overview

The student will define overweight and what it means to them. They will also research and compare diseases associated with overweight: Prader-Willi, Cushing's, Growth Hormone Deficiency, and Hypothyroidism. The student will research careers associated with treating the obese. They will work in groups of four to prepare a power point presentation of these careers. The student will plan and prepare effective oral presentations when presenting the power point. The student will determine the nutritional needs of various age groups. The student will also create a sample daily menu using the MyPyramid Guide. The student will be able to use measurement functions for client assessment.

Lesson One

Objectives

English: write in a variety of forms using effective word choice, structure, and sentence forms with emphasis on organizing logical arguments with clearly related definitions and evidence.

HST I: demonstrate use of precise language to clearly communicate ideas

Materials

Handouts of anticipation guide "APPENDIX B" (1 for every 4 students) and copies of Obesity in Children and Teens article

I will introduce the unit of obesity with an "anticipation guide." This tool is a teacher-generated questionnaire to spark the student's interest in the unit. The students will be given one anticipation guide per group of four with pre-reading questions on obesity. After all groups have finished answering the pre-reading questions, each student will silently read a copy of the article "Obesity in Children and Teens." The groups will then go back to the anticipation guide and answer the questions under post reading and document the paragraph and page number that substantiate their answers. A class discussion will ensue after every question. I will write "Obesity Cause and Effect" on the blackboard and from their discussions write what they believe to be the cause and effect. They will be asked to write these causes and effects down and to add to them as the unit proceeds.

For homework, the students will be asked to define obesity, then write a one-page essay on a personal experience with obesity. The obesity related issues can be their own, a family member, or a friend.

Evaluation

The students will be evaluated on the content, grammar and neatness of the essay assignment.

Lesson Two

Objectives

English: represent information in a variety of ways such as graphics, conceptual maps, and learning logs.

HST I: evaluate positive and negative effects of various relationships on physical and emotional health such as peer, family, and friends.

Materials

LCD projector, laptop computer, labels from various food items, handouts of the food log "APPENDIX A"

Volunteers will be asked to share their essays with the class. A small amount of time will be allocated for questions and or discussion about them. At this time, I will present a power point lecture based on what the United States Department of Health and Human Resources, and the article by Gutttersen say about adolescent obesity related to eating habits.

As a teacher observing what students buy for lunch, I see bad eating habits every day. We will review several nutritional labels, so the students will understand what to look for when making food choices. We will also examine several fast food menus, so they can make healthy choices even when eating out.

The students will then be given the first day of a food log handout for them to immediately fill out everything they have eaten so far. An example of a “Sample Food Log” is provided as APPENDIX A. I will explain the importance of recording the portion size. Explanation of how to read and interpret portion size will be given. They will be taught to look at labels of everything from chips to milk. The students will have to recreate the food log on their own paper for the remainder of the six days.

For homework, the students will be asked to keep a food log of everything they eat or drink for a week. More advanced classes will be asked to create a table of the calorie, sugar, and fat contents of each of their recorded meals. This information is also located on the labels. The students will be evaluated on whether they included portions, ounces for drinks and home prepared or fast food.

Evaluation

The table created will be evaluated on how well it depicts the information. A rubric will be given to them for constructing their table.

Lesson Three

Objectives

Math: convert units between systems of measurement

HST I: demonstrate the ability to chart and graph

Materials

LCD projector, laptop computer, computer lab, scale, tape measurers, physical activity log (APPENDIX D), and Television Commercial, Assignment (APPENDIX C)

Volunteers will be asked to share their food logs since the last class day. I will ask class which log was the healthiest and why. This will be the time to discuss the Mypyramid Guide and the meaning and significance of carbohydrates, fats, and proteins in their diet.

At this time, I will project the web site Mypyramid.gov and go to “My pyramid plan.” There, I can enter the age of a student, gender, and the amount of normal daily activity routine from less than 30 minutes to more than 60 minutes. Once you click submit, there will be a detailed screen with the number of calories suggested daily, amount of foods you should eat in every food group, how to vary your veggies weekly, and lots of additional information to click and view. The students will then go to one of five student computers in my room to get their personal information. After they get their personal information, a scale and some tape measurers will be provided to calculate their BMI.

The students will be given a physical activity log in which they will complete a table for the one week of physical movement activities, such as dancing, sports, or walking and the number of minutes of activity (APPENDIX D). More advanced classes will research various activities and

create a table for the number of calories expended during each activity. They will also review their activity logs and make suggestions on how they may individually increase their activities.

For a homework assignment, the students will conduct their own experiments by watching one hour of cartoons Saturday morning or any other daytime children's program. They will document the number of commercials and the name of the products advertised (APPENDIX C). More advanced students will be asked to calculate the amount of time they watch television per week and suggest alternate activities which include more physical activity. They can demonstrate the alternative activities on a poster, movie clip, or whatever they want to use as a visual representation.

Evaluation

The students will be evaluated on the uniqueness of their project.

Lesson Four

Objectives

English: Organize ideas in writing; use technology for aspects of creating, revising, editing, and publishing.

HTI I: Accurately interpret, transcribe, and communicate using the medical Dictionary.

Materials

Computer lab, medical dictionary, CD or floppy disk

For the warm up, students will also be asked to write a paragraph on "How this unit has affected my eating and physical activity?" I will ask a few to share their essays before I explain the day's assignment.

The students will again be separated into groups and asked to find one fact about Type 2 diabetes and how it affects everyday life. Some facts they can research are: the increased risk of getting other diseases such as high blood pressure and coronary diseases; symptoms associated with type 2 diabetes, such as frequent thirst, tiredness and recurrent yeast infections; and ways to control it such as measuring your glucose level, losing weight and eating a healthy diet. They will have to illustrate that fact with a power point presentation. The groups will research in the computer lab where they can each have a computer. More advanced students will also be separated into groups, but will investigate different endocrine disorders caused by overweight.

Evaluation

A rubric will be given to the groups so they know what's expected of them. The rubric will include the mastery of the content, communication skills, some form of application of the material, how well the group worked together and the creativity of the power point.

APPENDIX A

Name: _____ **Date:** _____

A Journal: Food Log

Breakfast: _____

Mid Morning Snack: _____

Lunch: _____

Mid Afternoon Snack: _____

Dinner: _____

Bedtime Snack: _____

Other times eating: _____

APPENDIX B

Name: _____ Date: _____

ANTICIPATION GUIDE/PREDICTION GUIDE

Directions: Read each statement below carefully. Check either “Agree” or “Disagree” under PRE-READING to show what you think. After you read the article, check “Agree” or “Disagree” under POST-READING.

PRE-READING			POST-READING	
Agree	Disagree		Agree	Disagree
_____	_____	1. Teens that are overweight have the same self-esteem as average weight teens.	_____	_____
_____	_____	2. The estimated cost to society for obesity is one billion.	_____	_____
_____	_____	3. Obese adolescents will gain back lost pounds because they go back to their old habits of eating and exercising.	_____	_____
_____	_____	4. A child is not considered obese until the weight is at least 10 percent higher than what’s recommended.	_____	_____
_____	_____	5. Obesity in childhood and adolescence is not related to psychiatric medicines.	_____	_____
_____	_____	6. You manage obesity by controlling your portion sizes and increasing your physical activity.	_____	_____

APPENDIX C

Name: _____ Date: _____

Television Commercial Assignment

Directions: Please watch one hour of a daytime children's program. Record the product advertised during each commercial. At the bottom of this page, total the kinds of commercials shown and their frequency.

Name of TV Program: _____

Time of Program: _____

1st Commercial: _____

2nd Commercial: _____

3rd Commercial: _____

4th Commercial: _____

5th Commercial: _____

6th Commercial: _____

Place the total of each kind of commercials under its category.

Soft drinks

Candy

Fast Foods

Sugared Cereal

Other

APPENDIX D

Name: _____ Date: _____

PHYSICAL ACTIVITY LOG
(168 Hours in a Week)

ACTIVITY	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Walking							
P.E.							
Dancing							
Sports							
Yard Work							
Housework							
Jogging/Running							
Aerobics							
Other							

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