

*Washington State Training & Registry System (STARS)*

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**Study Guide & Workbook for:  
STARS 10 Hour Course  
Fitness For Kids**

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## Information

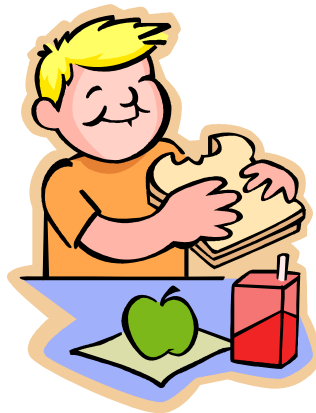
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- Remember: “**No News is Good News**” as you will only be notified if your work is incorrect or incomplete. Continue on at your own pace until you have finished. You will be notified by e-mail when all assignments have been turned in.

## Fitness for Children

Obesity in kids is now epidemic in the United States. The number of children who are overweight has doubled in the last two to three decades; currently one child in five is overweight. The increase is in both children and adolescents, and in all age, race and gender groups.

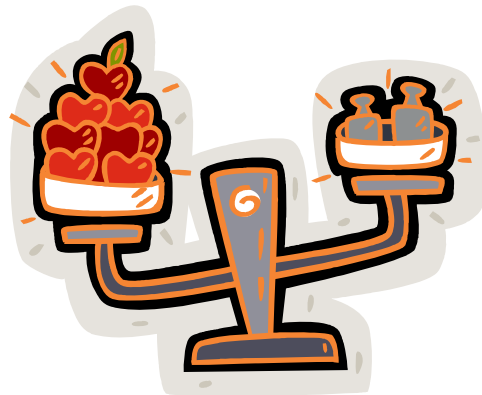
Obese children now have diseases like type 2 diabetes, that used to only occur in adults. And overweight kids tend to become overweight adults, continuing to put them at greater risk for heart disease, high blood pressure and stroke. But perhaps more devastating to an overweight child than the health problems is the social discrimination. Children who are teased a lot can develop low self-esteem and depression.

We do not need to look far these days to hear another story about the **epidemic of obesity** in this country. Newspaper headlines, magazine covers, news programs and even movies, are now documenting the fact that our country is getting fatter. It is, therefore, no coincidence that the prevalence of obesity is also on the rise in our children. In fact, obesity is considered to be one of the **most dangerous health problems facing children today**. Here we will focus on the causes, effects and some preventative measures to help combat this disease.



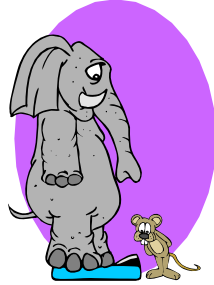
## Health Factors

- Obese children and adolescents have shown an alarming increase in the incidence of type 2 diabetes, also known as adult-onset diabetes.
- Many obese children have high cholesterol and blood pressure levels, which are risk factors for heart disease.
- One of the most severe problems for obese children is sleep apnea (interrupted breathing while sleeping). In some cases this can lead to problems with learning and memory.
- Obese children have a high incidence of orthopedic problems, liver disease, and asthma.
- Overweight adolescents have a 70 percent chance of becoming overweight or obese adults



**Body mass index (BMI)**, is a person's weight in kilograms divided by the square of a person's height in meters, or kilograms  $\div$  (height in meters)<sup>2</sup>. BMI is the measurement used to define obesity. In adults, we define that a BMI between 25 and 29 is overweight and that a BMI 30 or higher is obese. In children, the normal range for BMI changes with age and gender. The Centers for Disease Control (CDC) defines a child whose BMI is between the 85th and 95th percentile for age (meaning that 85-95% of his or her peers have equal or lower BMI) as being "at risk" for obesity. A child who has a BMI at or above the 95th percentile for age is considered obese. The BMI growth charts are readily available from the American Academy of Pediatrics.

Currently in the United States, thirty percent of children ages 6-19 years have a BMI at or greater than the 95th percentile. This is double the number that existed 20 years ago. The numbers are even higher in many minority groups, such as African-American, Hispanic and Native Americans. In order to help stem the tide of morbidity and mortality seen in obese adults in our country, we need to start focusing on changing the habits of our youth.



## **Background Information**

Research over the past few years has tried to focus on genetic causes of obesity. There has been no discovery of a "fat gene." Like many other diseases, there are many causes of obesity including both genetic and environmental influences. We know that obesity "runs in families," and this is most likely due to the passing down of eating and exercise patterns from parent to child. A child who has one obese parent is three times more likely to be obese as an adult. A child with two obese parents is ten times more likely to be obese later in life.

What has changed in our society in the past few decades to cause such a rise in obesity? First, families spend less time eating meals together. This absence of family meals correlates to lower fruit and vegetable consumption as well as an increased tendency to eat fried food and drink carbonated beverages. Children are often left to fend for themselves at home and look for something that is easy to prepare, inexpensive, and makes them feel full.

Secondly, Americans have become more sedentary. Many physical education programs have been cut in our schools. Parents are now more likely to drive their children to school, either because of safety concerns or because of long distances between school and home. Children spend more time watching TV, surfing the Internet, and playing videogames. Increased television viewing not only decreases a child's activity level, but also makes the child more susceptible to advertisers. Research has shown that increased television viewing correlates to decreased fruit and vegetable consumption and higher rates of fast food and fried food intake.

Lastly, school nutrition programs have also been failing. Many schools have vending machines filled with candy bars, desserts, fried foods, and soda. The schools themselves usually serve high-calorie, high-fat meals with no healthy alternatives. Even though many state legislatures and communities are trying to limit the influence that large corporations have in the schools, the schools often depend on the revenue from these snack shops and vending machines.

As the rates of obesity continue to rise, children are now suffering from diseases that were once thought to only plague adults. High cholesterol, high blood pressure, arthritis, fatty deposits in the liver, and type 2 diabetes are all common findings in overweight children. Type 2 diabetes was formerly known as adult onset diabetes in order to distinguish it from type 1 diabetes, or juvenile onset diabetes. Whereas type 1 diabetes is thought to be an autoimmune disorder that requires daily insulin injections as treatment, type 2 diabetes can be controlled by diet and oral medications during its early stages. Sleep apnea, a disordered breathing pattern which causes decreased oxygen delivery to the brain, can impair a child's ability to concentrate and stay active during the day.

In addition to these diseases, the extra adipose tissue found in overweight prepubescent youths affects their hormonal balance. Girls can develop early onset of their menstrual cycles. Since a girl usually stops growing approximately two years after the onset of her menstrual period, overweight girls may not achieve their full growth potential. Boys can develop breast tissue and can either have early onset or delays in puberty.

Overweight children not only suffer from physical ailments, but also must endure the emotional stress of their condition. These children undergo social stigmatization by other children and parents who think that obese youth are lazy, unclean, and of lower intelligence. Bullying by other children is very common, which often leads to even more problems with self-esteem and depression. Young adolescents with eating disorders often start developing their restrictive eating patterns in order to avoid these strong negative images associated with being overweight.

Whereas doctors know how to treat the complications of obesity in adults with a variety of medications, the decision is more difficult in children. We lack knowledge about the short-term and long-term side effects of these medications when used in children. Many physicians, therefore, choose to

advocate weight loss, which can often reverse these medical problems in children. However, just as with their parents, weight loss is often difficult to achieve.

In order to lose weight, a person must take in fewer calories than he or she uses during the day. Therefore, the key to weight loss is decreasing caloric intake while increasing energy expenditure. Families must change together, since we know children are learning many of their habits in the home. Below are some basic steps to start a healthy, moderate diet plan.



**First, initiate an exercise routine, but start off slow.** The final goal should be 30 minutes of continuous cardiovascular activity at least 4 times per week. However, this goal may seem daunting, so starting with 15 minutes, and gradually increasing by 5 minutes per week may be an easier task to achieve. Exercise can be walking in the neighborhood or around a track, riding bicycles, hiking, swimming, or using machines at a local gym or YMCA. If all members of the family are included in the routine it is more likely everyone will stay motivated and achieve their goals.



**Second, watch portion sizes.** Many children ask for second and third helpings of their favorite foods, which lead to overeating. Children are influenced by how their food fills up their plate. If they are given a small plate completely covered by food, they are less likely to ask for more than if they were given a larger plate with the same amount of food.



**Third, begin to plan ahead for grocery shopping.** Do not buy juice or soda, which provide children with unnecessary calories. Switch from 2% or whole milk to fat free or 1% milk. Limit the amount of chips, cookies and baked goods in the house, so that children will have to turn to more healthy alternatives when they are hungry. Monitor the caloric and fat content of frozen foods. During the week when the family is most busy, parents turn to making frozen dinners for the family. However, many of these easy to prepare meals are equivalent to a meal from a fast-food restaurant.



**Fourth, monitor time spent in front of the television and computer.** The American Academy of Pediatrics recommends that children and adolescents should not spend more than 2 hours per day watching TV, playing videogames or working on the computer. Children will then find more active and creative ways to spend their time.



**Finally, use local resources to help keep the family motivated and on track.** The pediatrician or family practitioner should evaluate an overweight child at least every 3 months for weight and blood pressure checks. Depending on the age and weight of the child, the goal will sometimes be to maintain weight as the child grows in height, rather than to start losing weight. Screening blood tests for high cholesterol and diabetes should be performed on a regular basis, as well as checking in with how the child is dealing emotionally with the change in lifestyle.

Prevention will be the key to slow the current rise in childhood obesity. Physicians, parents, teachers, and coaches, must demonstrate healthy choices in both exercise and eating patterns. Explain to children how to make decisions that will promote a lifestyle of moderation, rather than one of too much restriction or overindulgence. Help the schools integrate physical education into the standard curriculum. Many parents volunteer their time to teach physical education so that the schools don't incur the cost of hiring a coach. Assist the schools in finding other sources of revenue so that they don't have to rely on the sale of junk food and soda for income. Urge local and state governments to continue to fund after-school programs and recreation areas so that children of all socioeconomic backgrounds have a safe place to play.



## **Tips for Parents**

- Be supportive. Children know if they are overweight and don't need to be reminded or singled out. They need acceptance, encouragement and love
- Set guidelines for the amount of time your children can spend watching television or playing video games.
- Plan family activities that involve exercise. Instead of watching TV, go hiking or biking, wash the car, or walk around a mall. Offer choices and let your children decide
- Be sensitive. Find activities your children will enjoy that aren't difficult or could cause embarrassment.
- Eat meals together as a family and eat at the table, not in front of a television. Eat slowly and enjoy the food.
- Don't use food as a reward or punishment. Children should not be placed on restrictive diets, unless done so by a doctor (for medical reasons). Children need food for growth, development and energy
- Involve your children in meal planning and grocery shopping. This helps them learn and gives them a role in the decision making.
- Keep healthy snacks on hand. Good options include fresh, frozen, or canned fruits and vegetables; low-fat cheese, yogurt or ice cream; frozen fruit juice bars; and cookies such as fig bars, graham crackers, gingersnaps or vanilla wafers.
- Focus on small, gradual changes in eating and activity patterns. This helps form habits that can last a lifetime.



## Exercise Tips

Exercise keeps children's bodies and minds healthy. But being prepared with physical conditioning makes it safer and more enjoyable. Remember the following tips to keep them from developing sports injuries:

- Make sure your children have a thorough physical exam before entering a fitness program.
- Determine their appropriate levels of participation in sports and other physical activities.
- Make sure that they wear appropriate shoes, clothing, and protective gear.
- Have them drink plenty of fluids -- mainly water, avoiding drinks high in caffeine -- before, during, and after exercise.
- Adjust their activities to suit the temperature and humidity where they will train or play (ideally, moderate temperature with low humidity).
- Make sure they warm up and cool down.
- Instruct them to breathe properly during exercises, exhaling on exertion rather than holding their breath.
- Encourage them to gradually increase the intensity, duration, or frequency of exercise.
- Make sure they take a few days off to rest their muscles if they are sore as a result of training or play. If the soreness does not go away or lessen over several days, seek the advice of a physician or therapist.
- Re-evaluate the amount or level at which they are participating, and consider reducing the level if they are continually experiencing soreness and fatigue.
- Have them immediately stop exercising or playing if they feel or appear to be dizzy, light-headed, nauseous, or in pain.

## A Must Read Article:

### Epidemic Increase in Overweight Children; Report Urges Action

#### Obesity Is a Major Health Risk

**Article date:** 2002/01/10

Over the last 20 years, the problem of overweight and obesity in children has increased to the point of being the most common health problem facing US children, according to a report in the *Journal of the American Medical Association* (Vol. 286, No. 22:2845-2848).

The report said that obesity is especially a problem for African-American and Hispanic children, and boys in general.

The day after the article was published, US Surgeon General David Satcher, MD, held a press conference to note that 300,000 Americans a year die from obesity-related illnesses, which may soon overtake tobacco as the leading preventable cause of death in this country.

While the problem is a national one, solutions begin at home, said lead author Richard S. Strauss, MD, associate professor of pediatrics at University of Medicine and Dentistry of New Jersey-Robert Wood Johnson Medical School in New Brunswick, N.J.

"Parents should limit TV and video games to less than one to two hours per day, as well as juice and soda to less than seven to 12 ounces per day," Strauss said. "The family dinner table needs to be brought back. Meals should be planned and eaten as a family at the dinner table, and not on the run or in front of the television."

"Finally, frequent snacking and eating is often a sign of boredom," Strauss said.

He quoted Hilde Bruche, MD, a renowned child psychiatrist and expert on eating disorders.

"[Bruche] summed everything up best 25 years ago: 'If a child is fed when he is hungry, played with when he needs attention, and encouraged to be active when he is restless, he is not likely to grow up inhibited and passive or overstuffed and helpless, unable to control his eating because every discomfort is misinterpreted as a need to eat.' "

#### Overweight Increases Risk for Several Cancers

What does weight have to do with cancer? A lot, said Colleen Doyle, MS, RD, director of nutrition and physical activity for the American Cancer Society. Overweight and obesity are associated with [increased risk](#) for cancers of the breast (among postmenopausal women), colon, endometrium, esophagus, gall bladder, pancreas, and kidney.



"Because childhood behaviors frequently track into adulthood, it's critical that we work to instill good habits in children — not only by trying to teach children, but by working to change the environments in which kids spend their time," Doyle said.

"For one thing, decision-makers in school districts, state legislatures, and at the federal level need to understand the urgency of this issue," Doyle said. "Overweight and obese kids today mean higher healthcare costs and disease rates in the future."

### **Many Causes Lead to Overweight Kids**

"Childhood overweight reflects the convergence of many biological, economic, and social factors," wrote Strauss and co-author Harold A. Pollack, PhD, of the School of Public Health at the University of Michigan in Ann Arbor.

The authors urge strategies that take into account the culture that surrounds children.

"Overweight arises from multiple causes, some as intimate as the family dinner table, others as seductive as television, or the latest children's video game," they wrote.

The fact that kids find high-fat meals and snacks at school is both a powerful temptation and a signal that these foods are the accepted nutritional norm, according to the article.

"Like adolescent smoking, teen pregnancy, and youth violence, childhood overweight is prevalent because it arises from deeply rooted behaviors and from social practices that are hardly confined to children," the authors wrote. "Given the profound consequences of childhood inactivity, poor nutrition, and overweight throughout the lifespan, urgency is warranted in responding to this epidemic."

Among African-American children between the ages of four and 12, 21.5% were overweight by 1998, according to the report. Among Hispanics, 21.8% of children were overweight. Among non-Hispanic whites, 12.3% were overweight. In all groups, however, the percentage of overweight children had increased, and those who were overweight were heavier than in 1986.

The issue is alarming and the obstacles many, but there is a glimmer of hope for real change, said Doyle. For example, she said, some states, such as California, are working on legislation that influence school district policies toward more fit children.

"I think probably the biggest glimmer is that slowly but surely the issue of childhood overweight and obesity is getting national attention," Doyle said.

### **What Can Parents Do?**

Parents can push for change at the local level, Doyle said, especially at schools and other places where children spend a lot of time. Parents can ask for:

- More physical education — and make sure kids are really active during class
- Healthier school meals and less exposure to junk foods
- More sidewalks so kids can walk to school, and other safety improvements where children can be active.

### **Free Market Competes for Youngsters' Attention**

TV during any kids program and see evidence of this. And those marketing dollars are not promoting vegetables and fruits!"

Not only are kids sitting during a lot of their school days, but they're susceptible as a captive audience to marketing strategies such as free pizza from a popular chain if they read a certain number of books, Doyle said.

"Evidence suggests that for many children, the majority of fruits and vegetables consumed, and even the majority of foods consumed, are from school meal programs," Doyle said. This is especially true for lower-income children.

### **When Is a Child Overweight?**

To determine what weight is normal for children of a particular age and height, parents can consult the CDC's new pediatric [growth charts](#).

"Another way — eyeball them," Doyle said.

"Growing children have extremely high nutrient needs," Doyle said. "Limiting calories should not be the first defense in weight loss unless under the advice of and monitored by a physician and registered dietitian.

"Parents should take special care, however, to be sure healthy foods are available and accessible," Doyle said. "You not only have baby carrots in the house, but they are in the fridge in a place that kids can easily see and get to. Keep a bowl of washed apples and ready-to-eat bananas on the counter."

Although children under the age of two should not be fed lowfat diets, after that age you can start using reduced-fat dairy products and lean meats, Doyle said.

Limit how many cookies, chips, sodas, and other high calorie/low nutrient foods are in the house. Substitute healthier vegetables, fruits, and whole grains. That helps control calorie intake but still meets high nutrient needs, Doyle said.

"The other critical side of the equation is physical activity," Doyle said. "Physical activity is an important strategy for weight control — and fun — in children. "And one of the biggest indicators of whether children are active is whether their parents are."