In gathering the information for this newsletter every month, I naturally think about adults because they are who I interact with on a daily basis. However, someone recently brought to my attention that some of the adults who work here have children also and these parents could benefit from getting information about how to better care for their children. As a result, I will use this issue of Health and Safety News to address issues relevant to children. More specifically, the information included pertains to nutrition, exercise, and obesity.

The information included in this newsletter is taken from the CDC’s (Centers for Disease Control and Prevention) website: [http://www.cdc.gov/](http://www.cdc.gov/). For more information, please visit the web address listed and if there is a topic underlined and highlighted in blue that you would like to know more about, right click on the link.

**Nutrition, Physical Activity, and Obesity**

When it comes to weight loss, there's no lack of fad diets promising fast results. But such diets limit your nutritional intake, can be unhealthy, and tend to fail in the long run.

The key to achieving and maintaining a healthy weight isn't about short-term dietary changes. It's about a lifestyle that includes healthy eating, regular physical activity, and balancing the number of calories you consume with the number of calories your body uses.

Staying in control of your weight contributes to good health now and as you age.

**Tips for Parents – Ideas to Help Children Maintain a Healthy Weight**

You've probably read about it in newspapers and seen it on the news: in the United States, the number of obese children and teens has continued to rise over the past two decades. You may wonder: Why are doctors and scientists troubled by this trend? And as parents or
other concerned adults, you may also ask: What steps can we take to help prevent obesity in our children? This newsletter provides answers to some of the questions you may have and provides you with resources to help you keep your family healthy.

Why is childhood obesity considered a health problem?

Doctors and scientists are concerned about the rise of obesity in children and youth because obesity may lead to the following health problems:

- Heart disease, caused by:
  - high cholesterol and/or
  - high blood pressure
- Type 2 diabetes
- Asthma
- Sleep apnea
- Social discrimination

Childhood obesity is associated with various health-related consequences. Obese children and adolescents may experience immediate health consequences and may be at risk for weight-related health problems in adulthood.

Psychosocial Risks

Some consequences of children and adolescents being overweight are psychosocial. Obese children and adolescents are targets of early and systematic social discrimination. The psychological stress of social stigmatization can cause low self-esteem which, in turn, can hinder academic and social functioning, and persist into adulthood.

Cardiovascular Disease Risks

Obese children and teens have been found to have risk factors for cardiovascular disease (CVD), including high cholesterol levels, high blood pressure, and abnormal glucose tolerance. In a population-based sample of 5- to 17-year-olds, almost 60% of overweight children had at least one CVD risk factor while 25 percent of overweight children had two or more CVD risk factors.
Additional Health Risks

Less common health conditions associated with increased weight include asthma, hepatic steatosis, sleep apnea, and type II diabetes.

- Asthma is a disease of the lungs in which the airways become blocked or narrowed, causing breathing difficulty. Studies have identified an association between children being overweight and asthma.\(^4,5\)
- Hepatic steatosis is the fatty degeneration of the liver caused by a high concentration of liver enzymes. Weight reduction causes liver enzymes to normalize.\(^2\)
- Sleep apnea is a less common complication of being overweight for children and adolescents. Sleep apnea is a sleep-associated breathing disorder defined as the cessation of breathing during sleep that lasts for at least 10 seconds. Sleep apnea is characterized by loud snoring and labored breathing. During sleep apnea, oxygen levels in the blood can fall dramatically. One study estimated that sleep apnea occurs in about 7% of overweight children.\(^6\)
- Type II diabetes is increasingly being reported among children and adolescents who are overweight.\(^7\) While diabetes and glucose intolerance, a precursor of diabetes, are common health effects of adult obesity, only in recent years has type II diabetes begun to emerge as a health-related problem among children and adolescents. Onset of diabetes in children and adolescents can result in advanced complications such as CVD and kidney failure.\(^8\)

In addition, studies have shown that obese children and teens are more likely to become obese as adults.\(^9,10\)

What can I do as a parent or guardian to help prevent childhood overweight and obesity?

To help your child maintain a healthy weight, balance the calories he/she consumes from foods and beverages with the calories your child uses through physical activity and normal growth.

Remember that the goal for overweight and obese children and teens is to reduce the rate of weight gain while allowing normal growth and development. Children and teens should NOT be placed on a weight reduction diet without the consultation of a health care provider.

Balancing Calories: Help Kids Develop Healthy Eating Habits

One part of balancing calories is to eat foods that provide adequate nutrition and an appropriate number of calories. You can help children learn to be aware of what they eat by developing healthy eating habits, looking for ways to make favorite dishes healthier, and reducing calorie-rich temptations.

Encourage healthy eating habits.

There's no great secret to healthy eating. To help your children and family develop healthy eating habits:

- Provide plenty of vegetables, fruits, and whole-grain products.
- Include low-fat or non-fat milk or dairy products.
- Choose lean meats, poultry, fish, lentils, and beans for protein.
• Serve reasonably-sized portions.
• Encourage your family to drink lots of water.
• Limit sugar-sweetened beverages.
• Limit consumption of sugar and saturated fat.

Remember that small changes every day can lead to a recipe for success!

Look for ways to make favorite dishes healthier.
The recipes that you may prepare regularly, and that your family enjoys, with just a few changes can be healthier and just as satisfying. For new ideas about how to add more fruits and vegetables to your daily diet check out the recipe database from the FruitsandVeggiesMatter.gov. This database enables you to find tasty fruit and vegetable recipes that fit your needs.

Remove calorie-rich temptations!
Although everything can be enjoyed in moderation, reducing the calorie-rich temptations of high-fat and high-sugar, or salty snacks can also help your children develop healthy eating habits. Instead only allow your children to eat them sometimes, so that they truly will be treats! Here are examples of easy-to-prepare, low-fat and low-sugar treats that are 100 calories or less:

• A medium-size apple
• A medium-size banana
• 1 cup blueberries
• 1 cup grapes
• 1 cup carrots, broccoli, or bell peppers with 2 tbsp. hummus
Balancing Calories: Help Kids Stay Active

Another part of balancing calories is to engage in an appropriate amount of physical activity and avoid too much sedentary time. In addition to being fun for children and teens, regular physical activity has many health benefits, including:

- Strengthening bones
- Decreasing blood pressure
- Reducing stress and anxiety
- Increasing self-esteem
- Helping with weight management

Help kids stay active.
Children and teens should participate in at least 60 minutes of moderate intensity physical activity most days of the week, preferably daily.\(^1\) Remember that children imitate adults. Start adding physical activity to your own daily routine and encourage your child to join you.

Some examples of moderate intensity physical activity include:

- Brisk walking
- Playing tag
- Jumping rope
- Playing soccer
- Swimming
- Dancing

Reduce sedentary time.
In addition to encouraging physical activity, help children avoid too much sedentary time. Although quiet time for reading and homework is fine, limit the time your children watch television, play video games, or surf the web to no more than 2 hours per day. Additionally, the American Academy of Pediatrics (AAP) does not recommend television viewing for children age 2 or younger.\(^1\) Instead, encourage your children to find fun activities to do with family members or on their own that simply involve more activity.
Nutrition

Good nutrition is vital to good health, disease prevention, and essential for healthy growth and development of children and adolescents.

Healthy eating is associated with reduced risk for many diseases, including the three leading causes of death: heart disease, cancer, and stroke. Healthy eating in childhood and adolescence is important for proper growth and development and can prevent health problems such as obesity, dental caries, and iron deficiency anemia. Most young people are not following the recommendations set forth in the Dietary Guidelines for Americans: of U.S. youth aged 6-19, 67% exceed dietary guidelines recommendations for fat intake, 72% exceed recommendations for saturated fat intake. In 2009, only 22.3% of high school students reported eating fruits and vegetables five or more times daily (when fried potatoes and potato chips are excluded) during the past 7 days.

Nutrition and the Health of Young People

Benefits of Healthy Eating

- Healthy eating contributes to overall healthy growth and development, including healthy bones, skin, and energy levels; and a lowered risk of dental caries, eating disorders, constipation, malnutrition, and iron deficiency anemia.

Diet and Disease

- Early indicators of atherosclerosis, the most common cause of heart disease, begin as early as childhood and adolescence. Atherosclerosis is related to high blood cholesterol levels, which are associated with poor dietary habits.

- Osteoporosis, a disease where bones become fragile and can break easily, is associated with inadequate intake of calcium.

- Type II diabetes, formerly known as adult onset diabetes, has become increasingly prevalent among children and adolescents as rates of overweight and obesity rise. A CDC study estimated that one in three American children born in 2000 will develop diabetes in their lifetime.

References


• Overweight and obesity, influenced by poor diet and inactivity, are significantly associated with an increased risk of diabetes, high blood pressure, high cholesterol, asthma, joint problems, and poor health status.6

**Obesity Among Youth**

• The prevalence of being overweight among children aged 6-11 years has more than doubled in the past 20 years and among adolescents aged 12-19 has more than tripled.7,8

• Overweight children and adolescents are more likely to become overweight or obese adults;9 one study showed that children who became obese by age 8 were more severely obese as adults.10

**Eating Behaviors of Young People**

• Less than 40% of children and adolescents in the United States meet the U.S. dietary guidelines for saturated fat.11

• In 2009, only 22.3% of high school students reported eating fruits and vegetables five or more times daily (when fried potatoes and potato chips are excluded) during the past 7 days.12

• Only 39% of children ages 2-17 meet the USDA’s dietary recommendation for fiber (found primarily in dried beans and peas, fruits, vegetables, and whole grains).13

• Eighty-five percent of adolescent females do not consume enough calcium.3 During the last 25 years, consumption of milk, the largest source of calcium, has decreased 36% among adolescent females.14 Additionally, from 1978 to 1998, average daily soft drink consumption almost doubled among adolescent females, increasing from 6 ounces to 11 ounces, and almost tripled among adolescent males, from 7 ounces to 19 ounces.11,15

• A large number of high school students use unhealthy methods to lose or maintain weight. A nationwide survey found that during the 30 days before the survey, 10.6% of students went without eating for 24 hours or more; 4.0% had vomited or taken laxatives in order to lose weight; and 5.0% had taken diet pills, powders, or liquids without a doctor's advice.12

**Diet and Academic Performance**

• Research suggests that not having breakfast can affect children's intellectual performance.16

• The percentage of young people who eat breakfast decreases with age; while 92% of children ages 6-11 eat breakfast, only 77% of adolescents ages 12-19 eat breakfast.11

• Hunger and food insufficiency in children are associated with poor behavioral and academic functioning.17,18
Physical Activity

How much physical activity do children need?

Children and adolescents should do 60 minutes (1 hour) or more of physical activity each day.

This may sound like a lot, but don’t worry! Your child may already be meeting the Physical Activity Guidelines for Americans. And, you’ll soon discover all the easy and enjoyable ways to help your child meet the recommendations. Encourage your child to participate in activities that are age-appropriate, enjoyable, and offer variety! Just make sure your child or adolescent is doing three types of physical activity:

References

1. **Aerobic Activity**
Aerobic activity should make up most of your child's 60 or more minutes of physical activity each day. This can include either moderate-intensity aerobic activity, such as brisk walking, or vigorous-intensity activity, such as running. Be sure to include vigorous-intensity aerobic activity on at least 3 days per week.

2. **Muscle Strengthening**
Include muscle strengthening activities, such as gymnastics or push-ups, at least 3 days per week as part of your child's 60 or more minutes.

3. **Bone Strengthening**
Include bone strengthening activities, such as jumping rope or running, at least 3 days per week as part of your child's 60 or more minutes.
How do I know if my child's aerobic activity is moderate- or vigorous-intensity?

Here are two ways to think about moderate- and vigorous-intensity:

1. As a rule of thumb, on a scale of 0 to 10, where sitting is a 0 and the highest level of activity is a 10, moderate-intensity activity is a 5 or 6. When your son does moderate-intensity activity, his heart will beat faster than normal and he will breathe harder than normal. Vigorous-intensity activity is a level 7 or 8. When your son does vigorous-intensity activity, his heart will beat much faster than normal and he will breathe much harder than normal.

2. Another way to judge intensity is to think about the activity your child is doing and compare it to the average child. What amount of intensity would the average child use? For example, when your daughter walks to school with friends each morning, she's probably doing moderate-intensity aerobic activity. But while she is at school, when she runs, or chases others by playing tag during recess, she's probably doing vigorous-intensity activity.

What do you mean by "age-appropriate" activities?

Some physical activity is better-suited for children than adolescents. For example, children do not usually need formal muscle-strengthening programs, such as lifting weights. Younger children usually strengthen their muscles when they do gymnastics, play on a jungle gym or climb trees. As children grow older and become adolescents, they may start structured weight programs. For example, they may do these types of programs along with their football or basketball team practice.

Obesity

American society has become 'obesogenic,' characterized by environments that promote increased food intake, nonhealthful foods, and physical inactivity. Policy and environmental change initiatives that make healthy choices in nutrition and physical activity available, affordable, and easy will likely prove most effective in combating obesity.

The Division of Nutrition, Physical Activity, and Obesity (DNPAO) is working to reduce obesity and obesity-related conditions through state programs, technical assistance and training, leadership,
surveillance and research, intervention development and evaluation, translation of practice-based evidence and research findings, and partnership development.

Definitions for Children and Teens

For children and teens, BMI ranges above a normal weight have different labels (overweight and obese). Additionally, BMI ranges for children and teens are defined so that they take into account normal differences in body fat between boys and girls and differences in body fat at various ages. For more information about BMI for children and teens (also called BMI-for-age), visit BMI for Children and Teens.

Defining Childhood Overweight and Obesity

Body mass index (BMI) is a practical measure used to determine overweight and obesity. BMI is a measure of weight in relation to height that is used to determine weight status. BMI can be calculated using either English or metric units. BMI is the most widely accepted method used to screen for overweight and obesity in children and adolescents because it is relatively easy to obtain the height and weight measurements needed to calculate BMI, measurements are non-invasive and BMI correlates with body fatness. While BMI is an accepted screening tool for the initial assessment of body fatness in children and adolescents, it is not a diagnostic measure because BMI is not a direct measure of body fatness.

Use of BMI to Screen for Overweight and Obesity in Children

For children and adolescents (aged 2–19 years), the BMI value is plotted on the CDC growth charts to determine the corresponding BMI-for-age percentile.

- Overweight is defined as a BMI at or above the 85th percentile and lower than the 95th percentile.
- Obesity is defined as a BMI at or above the 95th percentile for children of the same age and sex.

These definitions are based on the 2000 CDC Growth Charts for the United States and expert committee. A child's weight status is determined based on an age- and sex-specific percentile for BMI rather than by the BMI categories used for adults. Classifications of overweight and obesity for children and adolescents are age- and sex-specific because children's body composition varies as they age and varies between boys and girls.
Childhood Overweight and Obesity

Obesity is a serious health concern for children and adolescents. Results from the 2007-2008 National Health and Nutrition Examination Survey (NHANES), using measured heights and weights, indicate that an estimated 17 percent of children and adolescents ages 2-19 years are obese. Between 1976-1980 and 1999-2000, the prevalence of obesity increased. Between 1999-2000 and 2007-2008 there was no significant trend in obesity prevalence.

Among pre-school age children 2-5 years of age, obesity increased from 5 to 10.4% between 1976-1980 and 2007-2008 and from 6.5 to 19.6% among 6-11 year olds. Among adolescents aged 12-19, obesity increased from 5 to 18.1% during the same period.1,46

Obese children and adolescents are at risk for health problems during their youth and as adults. For example, during their youth, obese children and adolescents are more likely to have risk factors associated with cardiovascular disease (such as high blood pressure, high cholesterol, and Type 2 diabetes) than are other children and adolescents.2

Obese children and adolescents are more likely to become obese as adults.3,4 For example, one study found that approximately 80% of children who were overweight at aged 10–15 years were obese adults at age 25 years.5 Another study found that 25% of obese adults were overweight as children.6 The latter study also found that if overweight begins before 8 years of age, obesity in adulthood is likely to be more severe.

Trends in Childhood Obesity


Results from the 2007–2008 NHANES, using measured heights and weights, indicate that an estimated 16.9% of children and adolescents aged 2–19 years are obese. Between 1976–1980 and 1999–2000, the prevalence of obesity increased. Between 1999–2000 and 2007–2008, there was no significant trend in obesity prevalence for any age group. Among preschool children aged 2–5, obesity increased from 5.0% to 10.4% between 1976–1980 and 2007–2008 and from 6.5% to 19.6% among those aged 6–11. Among adolescents aged 12–19, obesity increased from 5.0% to 18.1% during the same period.


One of 7 low-income, preschool-aged children is obese, but the obesity epidemic may be stabilizing. The prevalence of obesity in low-income two to four year-olds increased from
12.4 percent in 1998 to 14.5 percent in 2003 but rose to only 14.6 percent in 2008.

**Prevalence of High Body Mass Index in US Children and Adolescents, 2007-2008**
Cynthia L. Ogden; Margaret D. Carroll; Lester R. Curtin; Molly M. Lamb; Katherine M. Flegal
*JAMA*. 2010;303(3):242-249
The prevalence of high weight for length or high body mass index (BMI) among children and teens in the U.S. (i.e., at or above the 95th percentile), ranges from approximately 10 percent for infants and toddlers, to approximately 18 percent for adolescents and teenagers, although these rates appear to have remained relatively stable over the past 10 years, except for an increase for 6- to 19-year-old boys who are at the very heaviest weight levels, according to a CDC study appearing in the January 20 issue of *JAMA*.

**Contributing Factors**

At the individual level, childhood obesity is the result of an imbalance between the calories a child consumes as food and beverages and the calories a child uses to support normal growth and development, metabolism, and physical activity. In other words, obesity results when a child consumes more calories than the child uses. The imbalance between calories consumed and calories used can result from the influences and interactions of a number of factors, including genetic, behavioral, and environmental factors. It is the interactions among these factors – rather than any single factor – that is thought to cause obesity.

**Genetic Factors**

Studies indicate that certain genetic characteristics may increase an individual's susceptibility to excess body weight. However, this genetic susceptibility may need to exist in conjunction with contributing environmental and behavioral factors (such as a high-calorie food supply and minimal physical activity) to have a significant effect on weight. Genetic factors alone can play a role in specific cases of obesity. For example, obesity is a clinical feature for rare genetic disorders such as Prader-Willi syndrome (a congenital (present from birth) disease that involves obesity, decreased muscle tone, decreased mental capacity, and sex glands that produce little or no hormones). However, the rapid rise in the rates of overweight and obesity in the general population in recent years cannot be attributed solely to genetic factors. The genetic characteristics of the human population have not changed in the last three decades, but the prevalence of obesity has tripled among school-aged children during that time.
Behavioral Factors

Because the factors that contribute to childhood obesity interact with each other, it is not possible to specify one behavior as the "cause" of obesity. However, certain behaviors can be identified as potentially contributing to an energy imbalance and, consequently, to obesity.

- **Energy intake**: Evidence is limited on specific foods or dietary patterns that contribute to excessive energy intake in children and teens. However, large portion sizes for food and beverages, eating meals away from home, frequent snacking on energy-dense foods and consuming beverages with added sugar are often hypothesized as contributing to excess energy intake of children and teens. In the area of consuming sugar-sweetened drinks, evidence is growing to suggest an association with weight gain in children and adolescents. Consuming sugar-sweetened drinks may be associated with obesity because these drinks are high in calories. Children may not compensate at meals for the calories they have consumed in sugar-sweetened drinks, although this may vary by age. Also, liquid forms of energy may be less satiating than solid forms and lead to higher caloric intake.

- **Physical activity**: Participating in physical activity is important for children and teens as it may have beneficial effects not only on body weight, but also on blood pressure and bone strength. Physically active children are also more likely to remain physically active throughout adolescence and possibly into adulthood. Children may be spending less time engaged in physical activity during school. Daily participation in school physical education among adolescents dropped 14 percentage points over the last 13 years — from 42% in 1991 to 28% in 2003. In addition, less than one-third (28%) of high school students meet currently recommended levels of physical activity.

- **Sedentary behavior**: Children spend a considerable amount of time with media. One study found that time spent watching TV, videos, DVDs, and movies averaged slightly over 3 hours per day among children aged 8–18 years. Several studies have found a positive association between the time spent viewing television and increased prevalence of obesity in children. Media use, and specifically television viewing, may
  - displace time children spend in physical activities,
  - contribute to increased energy consumption through excessive snacking and eating meals in front of the TV,
  - influence children to make unhealthy food choices through exposure to food advertisements, and
  - lower children's metabolic rate.
Environmental Factors

Home, child care, school, and community environments can influence children's behaviors related to food intake and physical activity.15

- **Within the home**: Parent-child interactions and the home environment can affect the behaviors of children and youth related to calorie intake and physical activity. Parents are role models for their children who are likely to develop habits similar to their parents.15

- **Within child care**: Almost 80% of children aged 5 years and younger with working mothers are in child care for 40 hours a week on average.37 Child care providers are sharing responsibility with parents for children during important developmental years. Child care can be a setting in which healthy eating and physical activity habits are developed.

- **Within schools**: Because the majority of young people aged 5–17 years are enrolled in schools and because of the amount of time that children spend at school each day, schools provide an ideal setting for teaching children and teens to adopt healthy eating and physical activity behaviors. According to the Institute of Medicine (IOM), schools and school districts are, increasingly, implementing innovative programs that focus on improving the nutrition and increasing physical activity of students.15

- **Within the community**: The built environment within communities influences access to physical activity opportunities and access to affordable and healthy foods. For example, a lack of sidewalks, safe bike paths, and parks in neighborhoods can discourage children from walking or biking to school as well as from participating in physical activity.15 Additionally, lack of access to affordable, healthy food choices in neighborhood food markets can be a barrier to purchasing healthy foods.38

Consequences

Childhood obesity is associated with various health-related consequences. Obese children and adolescents may experience immediate health consequences and may be at risk for weight-related health problems in adulthood.

**Psychosocial Risks**

Some consequences of childhood and adolescent obesity are psychosocial. Obese children and adolescents are targets of early and systematic social discrimination.39 The psychological stress of social
stigmatization can cause low self-esteem which, in turn, can hinder academic and social functioning, and persist into adulthood.\textsuperscript{40}

**Cardiovascular Disease Risks**

Obese children and teens have been found to have risk factors for cardiovascular disease (CVD), including high cholesterol levels, high blood pressure, and abnormal glucose tolerance.\textsuperscript{39} In a population-based sample of 5–17 year olds, 70% of obese children had at least one CVD risk factor while 39% of obese children had two or more CVD risk factors.\textsuperscript{2}

**Additional Health Risks**

Less common health conditions associated with increased weight include asthma, hepatic steatosis, sleep apnea and type II diabetes.

- Asthma is a disease of the lungs in which the airways become blocked or narrowed causing breathing difficulty. Studies have identified an association between childhood obesity and asthma.\textsuperscript{41,42}
- Hepatic steatosis is the fatty degeneration of the liver caused by a high concentration of liver enzymes. Weight reduction causes liver enzymes to normalize.\textsuperscript{39}
- Sleep apnea is a less common complication of obesity for children and adolescents. Sleep apnea is a sleep-associated breathing disorder defined as the cessation of breathing during sleep that lasts for at least 10 seconds. Sleep apnea is characterized by loud snoring and labored breathing. During sleep apnea, oxygen levels in the blood can fall dramatically. One study estimated that sleep apnea occurs in about 7% of obese children.\textsuperscript{43}
- Type II diabetes is increasingly being reported among children and adolescents who are obese.\textsuperscript{44} While diabetes and glucose intolerance, a precursor of diabetes, are common health effects of adult obesity, only in recent years has type II diabetes begun to emerge as a health-related problem among children and adolescents.\textsuperscript{45} Onset of diabetes in children and adolescents can result in advanced complications such as CVD and kidney failure.\textsuperscript{45}

### References


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Learn all you can about your child’s health!