

ISSUE ★ BRIEF

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OBESITY

★ AT A GLANCE ★

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★ OVERVIEW OF OBESITY ★

During the past 20 years, obesity among adults has risen significantly worldwide. In the United States, the latest data from the National Center for Health Statistics show that 30 percent of adults age 20 and older — more than 60 million people — are obese. And that increase is not limited to adults. The percentage of young people who are overweight has more than tripled since 1980. Among children and teens ages 6 to 19, 16 percent (more than nine million young people) are considered overweight.

The problem is not limited to the United States, however. In Europe, the prevalence of obesity is estimated at 50 million people and in Japan it is estimated at 15 million.

What is Obesity?

Obesity is a label for a range of weight that is greater than what generally is considered healthy for a given height. The term also identifies ranges of weight that have been shown to increase the likelihood of certain diseases and other health problems.

For adults, obesity ranges are determined by using weight and height to calculate a number called the body mass index (BMI). BMI is used because, for most people, it correlates with their amount of body fat.

- An adult who has a BMI of 30 or higher is considered obese.

For children and teens, BMI ranges above a normal weight have different labels (“at risk of overweight” and “overweight”). Additionally, BMI ranges for children and teens are defined so they take into account normal differences in body fat between boys and girls and differences in body fat at various ages.

Furthermore, obese individuals have an abnormally high proportion of body fat. Weight largely is determined by the balance (or imbalance) between caloric intake from food and energy used in everyday activities. So someone who consumes more calories than he or she uses will gain weight. The body stores calories that it doesn’t need for energy as fat. Fat is important for storing energy and insulating the body, among other functions. While the human body can handle carrying some extra fat, beyond a certain point, body fat can begin to interfere with health. Eating too many calories and not getting enough physical activity are the main causes of obesity, although many factors can contribute to obesity.

The Obesity Epidemic and its Trends

The prevalence of obesity is increasing worldwide at an alarming rate in both developing and developed countries. Environmental and behavioral changes brought about by economic development, modernization and urbanization have been linked to the rise in global obesity. Obesity is increasing in children and adults, and health consequences are becoming fully apparent.

Developed countries have high obesity rates, as food deprivation is unusual and physical activity levels have decreased greatly. Lower income households are reported to feature diets composed of foods that tend to be high in calories and fat — contributors to obesity — because vegetables, fruits and whole grain cereals are more expensive.

In contrast, developing countries have lower obesity rates. People who live in these areas are limited in their ability to obtain enough food, have little access to public transportation and often engage in moderate to heavy manual labor.

The effect of economic development on obesity rates is apparent in developing countries. Economic development leads to a shift in BMI in these countries. As the proportion of undernutrition decreases, the proportion of the overweight population increases. In the initial stages of economic transition, the proportion of people with high BMIs increase in wealthier sections of society, while undernutrition remains a concern among the less wealthy. At the midpoint of the transition, overweight and underweight can co-exist in the population, presenting a double burden of disease. Toward the later stages of the transition, the prevalence of high BMI increases among the poor population.

Modernization (the growth of industry and technology) was introduced more than 50 years ago in the Western world. Modernization has led to an abundance of food (particularly high-calorie foods) and a decrease in overall physical activity, contributing to increased rates of obesity. Urbanization (population growth in large cities) is associated with changes in diet such as more reliance on nontraditional foods and a more sedentary lifestyle. All of this contributes to rising obesity rates.

Another trend impacting obesity has been the number of women entering the job market. This increase of female entrants has grown with economic development and contributed to an increased dependence on convenience foods and the use of labor saving devices such as microwaves. Globally, women generally have higher rates of obesity than men.

Domestically, there are many factors contributing to the rise in obesity. From 1971 to 2000 in the United States, a statistically significant increase in average daily energy intake occurred — from 2,450 to 2,618 kilocalories (kcal) for men and from 1,542 to 1,877 kcal for women. Largely due to technology, food costs (in terms of both money and time) have been declining steadily, with the largest declines for energy-dense foods, such as fast and prepackaged foods.

Nonleisure-time physical activity also has been declining, and a shift away from manual labor has been ongoing since the Industrial Revolution. Declines in physical activity occur at work and at home, making “accidental exercise” almost nonexistent.

Moreover, the costs of being inactive have decreased. Due to technology, people can accomplish the same activities, such as channel surfing, with less effort. At the same time, the benefits of being inactive, such as enjoying the Internet, computer games and cable television, have increased. One in four individuals get no exercise at all, and even when considering those who exercise regularly, it is important to note that 30 minutes per day on a treadmill followed by eight hours at the computer falls short of the surgeon general’s “10,000 steps a day” recommendation (the equivalent of walking five miles).

Many other potential factors have been suggested for the increase, including:

- Prevalence of fast food
- Supersizing (marginal cost pricing)
- Increase in real wages/income
- Women in the workplace
- Reductions in smoking rates
- Advertising
- Drug side effects
- Unsafe neighborhoods

Contributing Factors

On an individual level, several factors can increase a person’s risk of becoming obese, including:

Diet

Regular consumption of high-calorie foods, such as fast food, contributes to weight gain. High-fat foods are dense in calories. Excessive consumption of soft drinks, candy and desserts also promotes weight gain. Foods and beverages such as these are high in sugar and calories.

Inactivity

Inactive people are more likely to gain weight because they don’t burn calories through physical activities.

Psychological factors

Some people overeat to cope with problems or to deal with emotions, such as stress or boredom.

Genetics

If one or both parents are obese, a person’s chances of being overweight are greater. An individual’s genes can affect the amount of body fat stored and where that fat is distributed. However, genetic makeup doesn’t guarantee that someone will be obese.

Age

As people get older, they tend to become less active. In addition, the amount of muscle in the body tends to decrease with age. This lower muscle mass leads to a decrease in metabolism. These changes also reduce calorie needs. If individuals don’t decrease their caloric intake as they age, they likely will gain weight.

Cigarette smoking

Smokers tend to gain weight after quitting. This weight gain might be partially due to nicotine’s ability to raise the rate at which the body burns calories (metabolic rate). When smokers stop, they burn fewer calories. Smoking also affects taste; quitting smoking makes food taste and smell better. Former smokers often gain weight because they eat more after they quit. However, cigarette smoking is still considered a greater threat to health than extra weight.

Pregnancy

During pregnancy, a woman's weight increases. Some women find this weight difficult to lose after the baby is born. This weight gain can contribute to the development of obesity in women.

Medications

Corticosteroids and tricyclic antidepressants, in particular, can lead to weight gain, as can some high blood pressure and antipsychotic medications.

Medical problems

Uncommonly, obesity can be traced to a medical cause, such as low thyroid function, excess production of hormones by the adrenal glands (Cushing's syndrome) or other hormonal imbalances, such as polycystic ovary syndrome. A low metabolic rate rarely is a cause of obesity. A medical problem, such as arthritis, also can lead to decreased activity, which can result in weight gain.

Alcohol

Drinking alcohol adds calories to a diet, as just one regular beer contains approximately 150 calories. Without cutting back somewhere else, adding just one beer daily could cause a weight gain of more than one pound a month. Additionally, excessive drinking can stimulate the appetite and make someone less likely to control portion sizes.

★ EFFECTS OF OBESITY ★

Health Implications

When people are overweight or obese, they are more likely to develop health problems such as hypertension, dyslipidemia (high total cholesterol or high levels of triglycerides, for example), type 2 diabetes, coronary heart disease, stroke, gallbladder disease, osteoarthritis, sleep apnea and respiratory problems and some cancers (endometrial, breast and colon). In the United States, obesity is responsible for about 40,000 deaths per year.

What's more, the more overweight a person is, the more likely that person is to have health problems. Among people who are obese, weight loss can help reduce the chances of developing these health problems. Studies show that if a person is obese, reducing body weight by just 5 to 10 percent can improve one's health.

Economic Impact

According to the Surgeon General's *Call to Action to Prevent and Decrease Overweight and Obesity*, the cost of obesity in the United States in 2000 was more than \$117 billion (\$61 billion in direct costs and \$56 billion in indirect costs). Approximately half that cost was paid by Medicaid and Medicare.

More than \$30 billion is spent each year in the United States on weight loss treatments and diet products. An estimated \$68 billion is spent on clinical complications directly related to obesity. In addition, an estimated 5.7 percent of annual U.S. health care costs and lost productivity are caused by obesity. These costs now rival those for smoking.

U.S. taxpayers spend about \$180 per year on obesity-related medical costs for public-sector health plans, providing a motivation for government to work on reducing these costs.

★ RELATED ISSUES

*Initiatives to Fight*

Obesity has reached nationwide epidemic proportions. Both the prevention and treatment of overweight and obesity and their associated health problems are important public health goals. Health problems resulting from obesity could reverse many of the health gains achieved in the United States in recent decades, according to the Surgeon General's *Call to Action*.

The report outlines strategies that communities can use in helping to address the problems, including:

- Promoting the recognition of obesity as a major public health problem.
- Assisting Americans in balancing healthful eating with regular physical activity to achieve and maintain a healthy or healthier body weight.
- Identifying effective and culturally appropriate interventions to prevent and treat overweight and obesity.
- Encouraging environmental changes that help prevent overweight and obesity.
- Developing and enhancing public-private partnerships to help implement this vision.

Many other organizations, both public and private, have implemented national and local campaigns to fight obesity.

Fighting Obesity

While governments and other organizations can support the fight against obesity, individuals ultimately must bear the responsibility for losing weight. The good news is that losing even modest amounts of weight can significantly improve an individual's health. In many cases, losing weight can be accomplished by committing to eating a healthier diet, exercising and changing behaviors. There are many tools available for the fight against obesity, such as the following:

Dietary changes

Consuming fewer calories is an important factor for successful weight loss. The number of calories needed to maintain an individual's weight each day depends on several factors, including age and activity level. Other fundamentals of health eating include eating moderate amounts of nutrient-rich, low-fat and low-calorie foods.

Group weight-loss programs

Commercial group programs offer support to those losing weight through eating plans and reinforcement from other individuals on the same path. Overeaters Anonymous and Weight Watchers are two such programs.

Individual weight-loss programs

These programs help individuals know what to eat to lose weight. While these plans can be expensive, the companies prepare everything for their weight-loss clients. Examples include Jenny Craig and NutriSystem.

Increased physical activity

Another tool to lose weight is to increase physical activity. Adding physical activity can be as simple as a few minutes of walking or stair climbing in addition to more structured exercise.

Behavior change

Successful weight loss requires lifestyle changes. But there is more to this change than choosing different foods and increasing daily activity. It also involves a change in the approach to eating and activity, which means changing how one thinks, feels and acts.

Medications

Prescription antiobesity drugs are available for people with a BMI of 30 or higher or for those with a BMI of 27 or greater who have health problems that likely would improve with weight loss. The two main prescription weight-loss medications are sibutramine (Meridia) and orlistat (Xenical). Meridia alters brain chemistry, making patients feel full faster. Xenical inhibits the absorption of fat in the intestines. Those taking these antiobesity medications likely will need to take it indefinitely. When drug treatment is stopped, much or all of the excess weight generally returns. There still is a need for effective drugs without safety and tolerability issues.

Surgery for weight loss

Obese individuals who have tried unsuccessfully to lose weight through traditional means might be good candidates for weight-loss surgery. The most common operations fall into one of two categories: stomach surgery and stomach surgery plus intestinal bypass surgery. Stomach surgery uses a band or staples to create a small pouch at the top of the stomach, where food enters from the esophagus. After the operation, individuals can eat only small portions of food at a time without feeling nausea or discomfort. Stomach surgery plus intestinal bypass also creates a small pouch but adds a bypass around part of the small intestine, where most calories are absorbed.

When appropriate, weight-loss surgery can result in dramatic improvements in weight and health. In the first year or two, most people lose up to 50 percent of their excess weight. Generally, those who follow dietary and exercise recommendations keep most of that weight off long-term. However, weight-loss surgery does have side effects. A hernia or weakness, for example, can develop at the site of the individual's incision.

Obesity Research

Research conducted during the last four decades has made progress in identifying causes of and treatments for obesity. This research has provided a greater understanding of obesity as a chronic disease caused by a complex interaction of genetic, metabolic, behavioral, psychological and environmental (social and cultural) factors. Despite the advances in research, however, children, adolescents and adults continue to become overweight and obese in record high numbers. Due to the complexity of obesity, more research is needed in a variety of areas particularly in the area of prevention so the spread of this epidemic can be controlled.

Public research funding for obesity is very low, given that it is considered a major public health crisis. The National Institutes of Health (NIH) has a budget of more than \$29 billion and is the largest public sponsor of medical research. However, the NIH spends less than 1 percent of its budget on the disease. Obesity-related medical conditions such as diabetes and cardiovascular disease receive much more funding than the causative condition itself.

★ *ETHICAL AND SOCIAL CONSIDERATIONS* ★*Social Stigma and Discrimination*

Because many people and cultures equate beauty and success with slimness and unfairly label obese people as lazy, gluttonous, dirty, stupid or even evil, a majority of obese people report experiencing emotional suffering. Feelings of shame and depression are common among obese people, and most obese people have experienced negative thoughts about their body image. Advocacy groups support the view of obesity as a chronic condition, not as a moral failing or personal choice.

In modern Western culture, the obese body shape widely is regarded as unattractive. Obese children, teenagers and adults face a heavy social stigma. Obese children frequently are the targets of bullies and often are shunned by their peers. And obesity in adulthood can lead to a slower rate of career advancement.

Obese bodies rarely are represented positively in mainstream media. Various stereotypes of obese people have found their way into expressions of popular culture. Gluttony and obesity commonly are depicted together in works of fiction. In cartoons, obesity often is used for comedic effect, with fat cartoon characters having to squeeze through narrow spaces and frequently getting stuck or even exploding. These depictions add to and maintain commonly perceived stereotypes, in turn harming the self-esteem of obese people. Obesity is associated with a reduced quality of life, diminished self-esteem and depression.

And even worse than the social stigma they experience, many obese individuals experience discrimination. Evidence of discrimination is found at virtually every stage of the employment cycle, including selection, placement, compensation, promotion, discipline and discharge for obese people. In addition, the bias extends to assessments of obese individuals in their various work-related roles, both as subordinates and co-workers. In fact, research studies have found that:

- Overweight people were subject to discrimination in employment decisions based on body weight.
- Overweight people frequently were stereotyped as emotionally impaired, socially handicapped and possessing negative personality traits.
- Wages of mildly obese white women were 5.9 percent lower than standard weight counterparts and wages of morbidly obese white women were 24.1 percent lower, according to two studies. In contrast to females, men only experienced wage penalties at the very highest weight levels.
- Obesity also is associated with discrimination in securing housing, higher education, companionship and health care.

Despite these findings, no legal protection is afforded to the obese. The Civil Rights Act of 1964 established basic federal law on employment discrimination. However, it does not identify weight as a protected characteristic and as a result does not provide direct protection for obese individuals who have been discriminated against by their employer due to their weight.

★ EDUCATIONAL ACTIVITY



Thinking Critically

The following educational activity is intended for high school students studying obesity.

1. Ask students to keep a log of the foods they consume over a one-week period. Students should record breakfast, lunch, dinner and any snacks eaten.
2. Give each student a copy of the *MyPyramid* worksheet (http://teamnutrition.usda.gov/resources/mpk_worksheet.pdf). Students will need one copy of the worksheet for each day.
3. After students have filled out a week's worth of worksheets, ask students to work individually and to answer the following questions:
 - From what food groups did you eat most often during the week?
 - How does this relate to the goal next to that category on the *MyPyramid* worksheet?
 - From what areas, if any, do you need to consume more?
 - From what areas, if any, do you need to consume less?
 - On how many days did you meet the physical activity goal?

★ ADDITIONAL RESOURCES

*A Glossary of Terms*

Balanced diet: The overall dietary pattern of foods consumed that provide all the essential nutrients in the appropriate amounts to support life processes, such as growth in children, without promoting excess weight gain.

Body mass index (BMI): An indirect measure of body fat calculated as the ratio of a person's body weight in kilograms to the square of a person's height in meters. $BMI = \text{weight (kg)}/\text{height (m}^2\text{)}$ or $[\text{weight (lbs)}/(\text{height in inches})^2] \times 703$. In children and youth, BMI is based on growth charts for age and gender, and is referred to as *BMI-for-age*, which is used to assess underweight, overweight and risk for overweight.

Calorie: A unit of measure for energy obtained from food and beverages.

Energy balance: A state where energy intake is equivalent to energy expenditure, resulting in no net weight gain or weight loss. Energy balance in children is used to indicate equality between energy intake and energy expenditure that supports normal growth without promoting excess weight gain.

Energy density: The amount of energy stored in a given food per unit volume or mass. Fat stores 9 kilocalories/gram, alcohol stores 7 kilocalories/gram, carbohydrate and protein each store 4 kilocalories/gram, fiber stores 1.5 to 2.5 kilocalories/gram and water has no energy.

Epidemic: A condition that is occurring more frequently and extensively among individuals in a community or population than is expected.

Healthy weight: In children and youth, a level of body fat where co-morbidities are not observed.

Nutrient density: The amount of nutrients that a food contains per unit volume or mass.

Obesity: An excess amount of subcutaneous body fat in proportion to lean body mass. Obesity in children and youth refers to the age and gender-specific BMI that are equal to or greater than the 95th percentile of the Centers for Disease Control and Prevention BMI charts. In most children, these values are known to indicate elevated body fat and to reflect the co-morbidities associated with excessive body fatness.

Obesogenic: Environmental factors that may promote obesity and encourage the expression of a genetic predisposition to gain weight.

Physical activity: Body movement produced by the contraction of skeletal muscles that result in energy expenditure above the basal level. Physical activity consists of athletic, recreational, housework, transport or occupational activities that require physical skills and utilize strength, power, endurance, speed, flexibility, range of motion or agility.

Physical inactivity: Not meeting the type, duration and frequency of recommended leisure time and occupational physical activities.

Prevention: With regard to obesity, *primary prevention* represents avoiding the occurrence of obesity in a population, *secondary prevention* represents early detection of obesity through screening with the purpose of limiting its occurrence and *tertiary prevention* involves preventing the sequelae of obesity in childhood and adulthood.

Sedentary: A way of living or a lifestyle that requires minimal physical activity and that encourages inactivity through limited choices, disincentives and structural and/or financial barriers.

Sequelae: Pathological conditions resulting from a prior disease, injury or attack.

Well-being: A view of health that takes into account a child's physical, social and emotional health.

Relevant Links

<http://www.cdc.gov/index.htm>

The Centers for Disease Control and Prevention is one of the 13 major operating components of the Department of Health and Human Services (DHHS). DHHS is the U.S. government's principal agency for protecting the health of all Americans and for providing essential human services, especially for people who are least able to help themselves. Search "obesity" to find a wealth of information on the topic, including a definition, trends, FAQs, economic and health consequences and additional resources.

<http://www.fda.gov>

The Food and Drug Administration (FDA) is responsible for protecting public health by assuring the safety, efficacy and security of human and veterinary drugs, biological products, medical devices, our nation's food supply, cosmetics and products that emit radiation. Search "obesity" to located detailed information on the FDA's plan to tackle obesity.

<http://www.hhs.gov>

The Department of Health and Human Services is the U.S. government's principal agency for protecting the health of all Americans and providing essential human services, especially for those who are least able to help themselves. The department includes more than 300 programs, covering a wide spectrum of activities. Click on *diseases and conditions*, then on the *MEDLINEplus* alphabetical listing to access information on obesity, including articles, press releases and Web resources.

<http://www.mayoclinic.com>

Mayo Clinic is a nonprofit medical practice dedicated to the diagnosis and treatment of virtually every type of complex illness. The Mayo Clinic's Web site contains several pages dedicated to the topic of obesity, including ones on its causes, risk factors, diagnosis and treatment.

<http://www.obesity.org>

The American Obesity Association (AOA) is the only obesity organization focused on changing public policy and perceptions about obesity. The mission of the AOA is to act as an agent of change, to move society to reconceptualize obesity as a disease and to fashion appropriate strategies to deal with the epidemic. Take a look at the AOA's fact sheets to learn about numerous subtopics related to the obesity epidemic.