

# Understanding Adult Obesity



National Institute of Diabetes and Digestive and Kidney Diseases

NATIONAL INSTITUTES OF HEALTH

**WIN** *Weight-control Information Network*

Today, more than 65 percent of adults in the United States are overweight or obese. Obesity puts people at increased risk for chronic diseases such as heart disease, type 2 diabetes, high blood pressure, stroke, and some forms of cancer.

The large number of people with obesity and the serious health risks that come with it make understanding its causes and treatment crucial. This fact sheet provides basic information about obesity: What is it? How is it measured? What causes it? What are the health risks? What can you do about it?

## What is obesity?

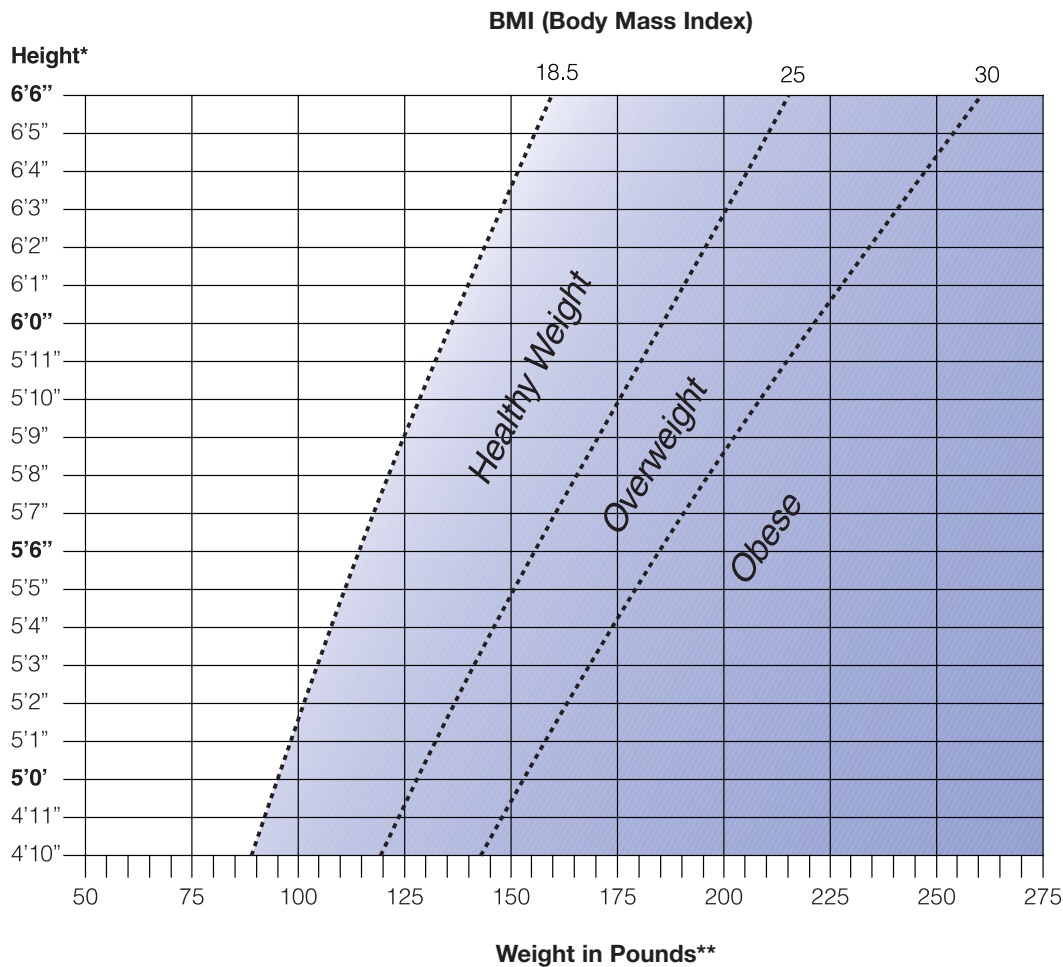
“Obesity” specifically refers to an excessive amount of body fat. “Overweight” refers to an excessive amount of body weight that includes muscle, bone, fat, and water. As a rule, women have more body fat than men. Most health care professionals agree that men with more than 25 percent body fat and women with more than 30 percent body fat are obese. These numbers should not be confused with the body mass index (BMI), however, which is more commonly used by health care professionals to determine the effect of body weight on the risk for some diseases.

## How is obesity measured?

Measuring the exact amount of a person’s body fat is not easy. The most accurate measures are to weigh a person underwater or in a chamber that uses air displacement to measure body volume, or to use an X-ray test called Dual Energy X-ray Absorptiometry, also known as DEXA. These methods are not practical for the average person, and are done only in research centers with special equipment.

There are simpler methods to estimate body fat. One is to measure the thickness of the layer of fat just under the skin in several parts of the body. Another involves sending a harmless amount of electricity through a person’s body. Results from these methods, however, can be inaccurate if done by an inexperienced person or on someone with extreme obesity.

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Find your weight on the bottom of the graph. Go straight up from that point until you come to the line that matches your height. Then look to find your weight group.

\* Without Shoes  
\*\* Without Clothes

**SOURCES**

- George Bray, M.D., Pennington Biomedical Research Center.
- National Heart, Lung, and Blood Institute's *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report.*

Because measuring a person's body fat is difficult, health care professionals often rely on other means to diagnose obesity. Weight-for-height tables, used for decades, have a range of acceptable weights for a person of a given height. One problem with these tables is that there are many versions, all with different weight ranges. Another problem is that they do not distinguish between excess fat and muscle. According to the tables, a very muscular person may be classified obese when he or she is not. The BMI is less likely to misidentify a person's appropriate weight-for-height range.

**Body Mass Index**

The BMI is a tool used to assess overweight and obesity and monitor changes in body weight. Like the weight-for-height tables, BMI has its limitations because it does not measure body fat or muscle directly. It is calculated by dividing a person's weight in pounds by height in inches squared and multiplied by 703.

Two people can have the same BMI but different body fat percentages. A bodybuilder with a large muscle mass and low percentage of body fat may have the same BMI as a person who has more body fat. However, a BMI of 30 or higher usually indicates excess body fat.

The BMI table above provides a useful guideline to check your BMI. First, find your weight on the bottom of the graph. Go straight up from that point until you come to the line that matches your height. A BMI of 25 to 29.9 indicates a person is overweight. A person with a BMI of 30 or higher is considered obese. Please review your findings with your health care provider if your BMI is outside of the normal range.

**Body Fat Distribution**

Health care professionals are concerned not only with how much fat a person has, but also where the fat is located on the body. Women typically collect fat in their hips and buttocks, giving them a "pear" shape. Men usually build up fat

around their bellies, giving them more of an “apple” shape. Of course, some men are pear-shaped and some women become apple-shaped, especially after menopause.

Excess abdominal fat is an important, independent risk factor for disease. Research has shown that waist circumference is directly associated with abdominal fat and can be used in the assessment of the risks associated with obesity or overweight. If you carry fat mainly around your waist, you are more likely to develop obesity-related health problems.

**Women with a waist measurement of more than 35 inches and men with a waist measurement of more than 40 inches may have more health risks than people with lower waist measurements because of their body fat distribution.**

## What causes obesity?

Obesity occurs when a person consumes more calories from food than he or she burns. Our bodies need calories to sustain life and be physically active, but to maintain weight we need to balance the energy we eat with the energy we use. When a person eats more calories than he or she burns, the energy balance is tipped toward weight gain and obesity. This imbalance between calories-in and calories-out may differ from one person to another. Genetic, environmental, and other factors may all play a part.

### Genetic Factors

Obesity tends to run in families, suggesting a genetic cause. However, families also share diet and lifestyle habits that may contribute to obesity. Separating genetic from other influences on obesity is often difficult. Even so, science does show a link between obesity and heredity.

### Environmental and Social Factors

Environment strongly influences obesity. Consider that most people in the United States alive today were also alive in 1980, when obesity rates were lower. Since this time, our genetic make-up has not changed, but our environment has.

Environment includes lifestyle behaviors such as what a person eats and his or her level of physical activity. Too often Americans eat out, consume large meals and high-fat foods, and put taste and convenience ahead of nutrition. Also, most people in the United States do not get enough physical activity.

Environment also includes the world around us—our access to places to walk and healthy foods, for example. Today, more people drive long distances to work instead of walking, live in neighborhoods without sidewalks, tend to eat out or get “take out” instead of cooking, or have vending machines with high-calorie, high-fat snacks at their workplace. Our environment often does not support healthy habits.

In addition, social factors including poverty and a lower level of education have been linked to obesity. One reason for this may be that high-calorie processed foods cost less and are easier to find and prepare than healthier foods, such as fresh vegetables and fruits. Other reasons may include inadequate access to safe recreation places or the cost of gym memberships, limiting opportunities for physical activity. However, the link between low socio-economic status and obesity has not been conclusively established, and recent research shows that obesity is also increasing among high-income groups.

Although you cannot change your genetic makeup, you can work on changing your eating habits, levels of physical activity, and other environmental factors. Try these ideas:

- Learn to choose sensible portions of nutritious meals that are lower in fat.
- Learn to recognize and control environmental cues (like inviting smells or a package of cookies on the counter) that make you want to eat when you are not hungry.
- Engage in at least 30 minutes of moderate-intensity physical activity (like brisk walking) on most, preferably all, days of the week.
- Take a walk instead of watching television.
- Eat meals and snacks at a table, not in front of the TV.
- Keep records of your food intake and physical activity.

## Other Causes of Obesity

Some illnesses may lead to or are associated with weight gain or obesity. These include:

- Hypothyroidism, a condition in which the thyroid gland fails to produce enough thyroid hormone. It often results in lowered metabolic rate and loss of vigor.
- Cushing's syndrome, a hormonal disorder caused by prolonged exposure of the body's tissues to high levels of the hormone cortisol. Symptoms vary, but most people have upper body obesity, rounded face, increased fat around the neck, and thinning arms and legs.
- Polycystic ovary syndrome, a condition characterized by high levels of androgens (male hormone), irregular or missed menstrual cycles, and in some cases, multiple small cysts in the ovaries. Cysts are fluid-filled sacs.

A doctor can tell whether there are underlying medical conditions that are causing weight gain or making weight loss difficult.

Lack of sleep may also contribute to obesity. Recent studies suggest that people with sleep problems may gain weight over time. On the other hand, obesity may contribute to sleep problems due to medical conditions such as sleep apnea, where a person briefly stops breathing at multiple times during the night. (Visit [www.win.niddk.nih.gov/publications/health\\_risks.htm#sleep](http://www.win.niddk.nih.gov/publications/health_risks.htm#sleep) for more information on the relationship between sleep apnea and obesity.) You may wish to talk with your health care provider if you have difficulty sleeping.

Certain drugs such as steroids, some antidepressants, and some medications for psychiatric conditions or seizure disorders may cause weight gain. These drugs may slow the rate at which the body burns calories, stimulate appetite, or cause the body to hold on to extra water. Be sure your doctor knows all the medications you are taking (including over-the-counter medications and dietary supplements). He or she may recommend a different medication that has less effect on weight gain.

## What are the consequences of obesity?

### Health Risks

Obesity is more than a cosmetic problem. Many serious medical conditions have been linked to obesity, including type 2 diabetes, heart disease, high blood pressure, and stroke. Obesity is also linked to higher rates of certain types of cancer. Men who are obese are more likely than nonobese men to develop cancer of the colon, rectum, or prostate. Women who are obese are more likely than nonobese women to develop cancer of the gallbladder, uterus, cervix, or ovaries. Esophageal cancer has also been associated with obesity.

Other diseases and health problems linked to obesity include:

- Gallbladder disease and gallstones.
- Fatty liver disease (also called nonalcoholic steatohepatitis or NASH).
- Gastroesophageal reflux, or what is sometimes called GERD. This problem occurs when the lower esophageal sphincter does not close properly and stomach contents leak back—or reflux—into the esophagus.
- Osteoarthritis, a disease in which the joints deteriorate. This is possibly the result of excess weight on the joints.
- Gout, another disease affecting the joints.
- Pulmonary (breathing) problems, including sleep apnea, which causes a person to stop breathing for a short time during sleep.
- Reproductive problems in women, including menstrual irregularities and infertility.

Health care professionals generally agree that the more obese a person is, the more likely he or she is to develop health problems.

### Psychological and Social Effects

Emotional suffering may be one of the most painful parts of obesity. American society emphasizes physical appearance and often equates attractiveness with slimness, especially for women. Such messages may make overweight people feel unattractive.

Many people think that individuals with obesity are gluttonous, lazy, or both. This is not true. As a result, people who are obese often face prejudice or



discrimination in the job market, at school, and in social situations. Feelings of rejection, shame, or depression may occur.

## Who should lose weight?

**Health care professionals generally agree that people who have a BMI of 30 or greater can improve their health through weight loss.** This is especially true for people with a BMI of 40 or greater, who are considered extremely obese.

Preventing additional weight gain is recommended if you have a BMI between 25 and 29.9, unless you have other risk factors for obesity-related diseases. Obesity experts recommend you try to lose weight if you have two or more of the following:

- **Family history of certain chronic diseases.** If you have close relatives who have had heart disease or diabetes, you are more likely to develop these problems if you are obese.
- **Preexisting medical conditions.** High blood pressure, high LDL cholesterol levels, low HDL cholesterol levels, high triglycerides, and high blood glucose are all warning signs of some obesity-associated diseases.
- **Large waist circumference.** Men who have waist circumferences greater than 40 inches, and women who have waist circumferences greater than 35 inches, are at higher risk of diabetes, dyslipidemia (abnormal amounts of fat in the blood), high blood pressure, and heart disease.

Fortunately, a weight loss of 5 to 10 percent of your initial body weight can do much to improve health by lowering blood pressure and other risk factors for obesity-related diseases. In addition, research shows that a 5- to 7-percent weight loss brought about by moderate diet and exercise can delay or possibly prevent type 2 diabetes in people at high risk for the disease. In a recent study, participants who were overweight and had pre-diabetes—a condition in which a person's blood glucose level is higher than normal, but not high enough to be classified as diabetes—were able to delay or prevent the onset of type 2 diabetes by adopting a low-fat, low-calorie diet and exercising for 30 minutes a day, 5 days a week. For more information about pre-diabetes and diabetes, visit [www.diabetes.niddk.nih.gov](http://www.diabetes.niddk.nih.gov).

## How is obesity treated?

The method of treatment depends on your level of obesity, overall health condition, and readiness to lose weight. Treatment may include a combination of diet, exercise, behavior modification, and sometimes weight-loss drugs. In some cases of extreme obesity, bariatric surgery may be recommended. (Visit [www.win.niddk.nih.gov/publications/gastric.htm](http://www.win.niddk.nih.gov/publications/gastric.htm) for more information on bariatric surgery.)

Remember, weight control is a life-long effort, and having realistic expectations about weight loss is an important consideration. Eating a healthful diet and getting at least 30 minutes of moderate-intensity physical activity on most, preferably all, days of the week have important health benefits. Sixty minutes of physical activity a day may be required to prevent gradual weight gain in adulthood. Previously overweight and obese individuals are encouraged to get 60 to 90 minutes of exercise a day to sustain weight loss.

Although most adults do not need to see their healthcare professional before starting a moderate-intensity physical activity program, men older than 40 years and women older than 50 years who plan a vigorous program or who have either chronic disease or risk factors for chronic illnesses should speak with their health care provider before starting a physical activity program.

For more information on health risks, treatment options, and binge eating, refer to these Weight-control Information Network (WIN) publications:

*Active at Any Size.* Available from WIN and online at [www.win.niddk.nih.gov/publications/active.htm](http://www.win.niddk.nih.gov/publications/active.htm). National Institutes of Health (NIH) Publication No. 04-4352. April 2004.

*Do You Know the Health Risks of Being Overweight?* Available from WIN and online at [www.win.niddk.nih.gov/publications/health\\_risks.htm](http://www.win.niddk.nih.gov/publications/health_risks.htm). NIH Publication No. 04-4098. November 2004.

*Healthy Eating and Physical Activity Across Your Lifespan: Better Health and You (Tips for Adults).* Available in English and Spanish. Available from WIN and online at

[www.win.niddk.nih.gov/publications/better\\_health.htm](http://www.win.niddk.nih.gov/publications/better_health.htm). NIH Publication No. 04-4992. June 2004.

*Just Enough for You: About Food Portions*. Available from WIN and online at [www.win.niddk.nih.gov/publications/just\\_enough.htm](http://www.win.niddk.nih.gov/publications/just_enough.htm). NIH Publication No. 03-5287. January 2003.

*Weight Loss for Life*. Available from WIN and online at [www.win.niddk.nih.gov/publications/for\\_life.htm](http://www.win.niddk.nih.gov/publications/for_life.htm). NIH Publication No. 04-3700. May 2004.

For more information on NASH, visit [www.digestive.niddk.nih.gov/ddiseases/pubs/nash/index.htm](http://www.digestive.niddk.nih.gov/ddiseases/pubs/nash/index.htm).

## Additional Reading

National Institute of Diabetes and Digestive and Kidney Diseases. *Strategic Plan for NIH Obesity Research*. U.S. Department of Health and Human Services (DHHS); NIH. NIH Publication No. 04-5493. 2004.

National Heart, Lung, and Blood Institute. *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults*. DHHS; NIH. NIH Publication No. 98-4083. 1998.

National Task Force on Prevention and Treatment of Obesity. Overweight, obesity, and health risk. *Archives of Internal Medicine*. 160(7):898-904. 2000.

Partnership for Healthy Weight Management. *Weight Loss: Finding a Weight Loss Program that Works for You*. Website: [www.consumer.gov/weightloss/brochures.htm](http://www.consumer.gov/weightloss/brochures.htm). 2000.

U.S. Department of Agriculture and DHHS. *Finding Your Way to a Healthier You: Based on the "Dietary Guidelines for Americans."* Phone: 1-888-878-3256. Website: [www.healthierus.gov/dietaryguidelines](http://www.healthierus.gov/dietaryguidelines). 2005.

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The Weight-control Information Network (WIN) is a national service of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) of the National Institutes of Health, which is the Federal Government's lead agency responsible for biomedical research on nutrition and obesity. Authorized by Congress (Public Law 103-43), WIN provides the general public, health professionals, the media, and Congress with up-to-date, science-based health information on weight control, obesity, physical activity, and related nutritional issues.

Publications produced by WIN are carefully reviewed by both NIDDK scientists and outside experts. This fact sheet was also reviewed by Steven N. Blair, P.E.D., President and Chief Executive Officer, Cooper Institute. A review was also conducted by Domenica M. Rubino, M.D., Assistant Medical Director, George Washington University Weight Management Program.

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