

The Scientific Definition of Obesity and its Dangers

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Prevalence

Guideline recommendations used in this article have been adapted from

- An estimated 97 million adults in the United States, 55% of the population, are overweight or obese (body mass index [BMI] >25)^{1, 2}
- The NHANES study of 1988-1994 indicated that 27% of females and 21% of males are obese (BMI >30)³
- The prevalence of obesity increased from 12% in 1991 to 18% in 1998. Increases were seen in both sexes and all socioeconomic classes, with the greatest increase seen in 18- to 29-year-olds and in those who have achieved higher education⁴
- Obesity rates are underestimated because overweight people tend to underestimate their weight and overestimate their height⁵

Etiology

- Obesity is a chronic condition that develops as a result of an interaction between a person's genetic makeup and their environment. How and why obesity occurs are not well understood; however, social, behavioral, cultural, psychological, metabolic, and genetic factors are involved¹
- Among possible hormones involved, leptin, discovered in 1994, has received the most attention. Leptin appears to regulate adipose proliferation and modulate eating behavior.⁶ A 1999 study showed that subcutaneous therapy with recombinant leptin produced weight loss in both obese and lean subjects⁷
- Heritability studies indicate that genetic factors may be responsible for up to 70% of the variation in people's weight⁶
- Weight gain is dependent on a person's energy intake being greater than energy expenditure. One pound (0.45 kg) is equal to 3,500 calories. Therefore, a person consuming 500 calories more than he or she expends daily will gain 1 lb a week
- A person's body weight tends to range within 10% of a set value. Weight alterations in either direction cause changes in energy expenditure that favor a return to the set-point.⁸ This mechanism helps explain the terrible problem of recidivism following attempted weight loss

Complications

- Relative risk⁹ (p78) greater than 3, Type 2 diabetes mellitus, gallbladder disease, hypertension, hyperlipidemia, and sleep apnea
 - Relative risk 2 to 3
Coronary artery disease, knee osteoarthritis, and gout
 - Relative risk 1 to 2
Breast, endometrial, or colon cancer; low back pain
- The relationship between obesity and comorbidities is stronger among individuals younger than 55 years.¹⁰ After age 74, there is no longer an association between

increased BMI and mortality¹¹

- Hypertension is the most common obesity-related disease. Hypertension and weight class are strongly associated in persons younger than 55 years (see below for definitions of weight class)¹²
 - About 80% of people with type 2 diabetes are obese
 - Hypercholesterolemia is prevalent in obese persons, but its incidence does not increase with increasing weight class. The incidence of diabetes, osteoarthritis, and gallbladder disease increases as weight increases
 - The prevalence of cardiovascular disease is significantly elevated for obesity class 1 in males and for all three obesity classes in females
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- Diet and exercise have been shown to be ineffective over the long term. More than 90% of people who attempt to lose weight gain it all back
 - Even in clinical trials that demonstrate substantial weight loss, the lost weight tends to be regained once supervision concludes
 - On the positive side, sustained weight loss has been shown to improve blood pressure and lipid and glucose levels
 - A reasonable goal is to lose 10% of body weight over a 6-month period
 - Patients with BMIs in the range of 27 to 35 should be encouraged to lose 0.5 to 1 lb a week at a daily calorie deficit of 300 to 500
 - Patients with BMIs above 35 should lose 1 to 2 lb a week at a daily calorie deficit of 500 to 1,000
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- A [diet that is low in grains and sugar](#) is needed to lose weight
 - A healthy diet contains about 25% fat, 20% protein, and 55% carbohydrates
 - Total caloric intake is determined by calculating basal energy expenditure and activity, then subtracting 500 calories to result in a weight loss of 1 lb a week
 - This usually means a diet of 1,000 to 1,200 kilocalories (kcal) per day for women and 1,200 to 1,500 kcal per day for men
 - Patients should be educated by a registered dietitian to eat a diet individualized to their needs
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- Physical activity is a necessary component of every weight loss plan. Exercise contributes to weight loss and maintenance, may decrease abdominal fat, and increases cardiorespiratory fitness
- Initial exercise goal: moderate activity for 30 to 45 minutes 3 to 5 days a week
- Long-term exercise goal: at least 30 minutes of moderate to intense exercise per day¹
- Behavior therapy: advice for patients
- Eat three meals a day at about the same time each day sitting at a table
- Focus on the meal. Eat slowly. Avoid distractions such as television or magazines
- Cook small amounts; use small plates
- Avoid second helpings. Clean plates directly into the garbage

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