

# Obesity

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Worldwide, obesity is now a major public health problem. The statistics are alarming. Since 1980, the prevalence of obesity has more than doubled (World Health Organization, 2015c). More than 1.9 billion adults are overweight and 600 million are obese. In the United States, the most recent estimates show that 35 percent of adults are obese and another 34 percent are overweight (Ogden et al., 2014). In other words, less than a third of the population is at a normal or healthy weight. Obesity brings with it increased risk for many health problems. These include high cholesterol, hypertension, heart disease, arthritis, diabetes, and cancer.

Obesity is defined on the basis of a statistic called the body mass index (BMI). This is a measure of a person's weight relative to height. Generally speaking, people with a BMI below 18.5 are considered underweight; 18.5 to 24.9 is considered normal; 25.0 to 29.9 is overweight; and obesity is defined as having a BMI above 30. Having a BMI above 40 or being more than 100 pounds overweight is called morbid obesity.

# Weight Stigma

People who are obese are often judged harshly by others. They are routinely ridiculed, discriminated against, and stigmatized (Carr & Friedman, 2005). A powerful source of this is the media, which perpetuates weight-based stereotypes and often depicts people who are overweight or obese in a very negative light. Compared to thin television characters, those who are overweight or obese are more likely to be shown when eating, are less likely to be depicted as being involved in romantic relationships, and are more likely to be the target of derisive comments. Audiences also laugh more when negative comments are directed toward overweight characters, especially female ones.

# Obesity and the DSM

From a diagnostic perspective, obesity is not an eating disorder, and it is not included in DSM-5. However, Volkow and O'Brien (2007) suggest that some forms of obesity are driven by an excessive motivational desire for food. They liken such symptoms as the compulsive consumption of food and the inability to restrain eating despite the wish to do so to symptoms of substance abuse and drug dependence. This parallels the view, offered by some, that obesity is a "food addiction" (Cota et al., 2006). It has also been suggested that obesity and addiction may both concern problems in key brain regions involved in motivation, reward, and inhibitory control. Of course, the idea that obesity is a brain disorder is very controversial.

# Causal Factors

## The role of genes

Are you the kind of person who can eat high-calorie foods without significant weight gain? Or does it seem as though you need only to look at a piece of chocolate cake to gain a few pounds? In all probability our genetic makeup plays an important role in determining how predisposed we are to becoming obese in the modern environment of increased food availability. Some of the genes that may, in our ancestral past, have been advantageous and helped us survive in times of famine may predispose those who carry them to readily gain weight when food is plentiful. Interestingly, population groups that were most susceptible to starvation throughout history (e.g., Pima Indians, Pacific Islanders) are those that are most inclined to become obese when they have a sedentary lifestyle and a Western diet.

# Hormones Involved in Appetite and Weight Regulation

In the course of a year, the average person will consume 1 million calories or more and yet keep a reasonably stable weight.

One key element of homeostatic system is a hormone called leptin. Leptin (the name comes from the Greek word leptos, meaning “thin”) is produced by fat cells. It provides a key metabolic signal that informs the central nervous system about the state of the body’s fat reserves. When body fat levels decrease, leptin production decreases and food intake is stimulated. One 9-year-old girl in England weighed 200 pounds. She could hardly walk because of her extreme weight. When it was discovered that she was lacking leptin, she was treated with injections of the hormone, and her weight consequently returned to normal.

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Why do we get hungry at regular times during the day even if we do not even see or smell food? The reason may lie in a hormone called **ghrelin**. Ghrelin (the name comes from a Hindu word meaning “growth”) is a hormone that is produced by the stomach. It is a powerful appetite stimulator. Under normal circumstances, ghrelin levels rise before a meal and fall after we have eaten. When ghrelin is injected into human volunteers, it makes them very hungry. This suggests that ghrelin is a key contributor to the appetite control system.

The food cravings experienced by people with Prader–Willi syndrome can be so extreme that food has to be kept locked away so that they cannot binge.

# Sociocultural Influences

The examples of Prader–Willi syndrome and mutations of the leptin gene tell us that genes alone can sometimes explain why people differ in their weight and eating patterns. However, in most cases environmental factors also play an important role. Some of us, by virtue of our genetic makeup and personality, are likely to experience more weight-related problems from living in a culture that provides ready access to high-fat, high-sugar (junk) foods, encourages overconsumption, and makes it easy to avoid exercise.

Consider your own lifestyle issues. How often do you eat fast food? Are you more likely to take the stairs or the elevator? Even when we have good intentions, we sometimes make poor food choices or get too little exercise. A major culprit is time pressure. Because we are so chronically short of time, we drive rather than walk. We put food into our mouths far too quickly, outpacing our natural feelings of fullness. This leads us to keep eating. Finally, as the pace of life gets faster, we have less time to prepare food. So we eat out more often or buy more prepackaged or fast food. Which of these behaviors do you recognize in yourself?



# Family Influences

Family behavior patterns may also play a role in the development of excessive eating and obesity. In some families, a high-fat, high-calorie diet (or an overemphasis on food) may lead to obesity in many or all family members, including the family pet. In other families, eating (or overeating) becomes a habitual means of alleviating emotional distress or showing love (Musante et al., 1998). Children whose mothers smoked during pregnancy or whose mothers gained a lot of weight during the pregnancy are also at a higher risk of being overweight at age 3 (Gillman et al., 2008).

Family attitudes toward food are important because their consequences are likely to remain with us for a long time. Obesity is related to the number and size of fat (adipose) cells in the body (Heymsfield et al., 1995). People who are obese have markedly more adipose cells than people of normal weight (Peeke & Chrousos, 1995). When people with obesity lose weight, the size of the cells is reduced but not their number. Some evidence suggests that the total number of adipose cells stays the same from childhood onward.

# Stress and Comfort Food

Do you eat when you are stressed or unhappy? If you do, what kinds of food do you crave? Foods that are high in fat or carbohydrates are the foods that console most of us when we are feeling troubled (Canetti et al., 2002). Workers who say that they are under a lot of stress report that they eat less healthy foods, and foods that are higher in fat, relative to their less stressed counterparts (Ng & Jeffery, 2003).

Might overeating function as a means of reducing feelings of distress or depression? Certainly many people with obesity experience psychological problems such as depression. |

# Pathways to Obesity

Understanding the causes of obesity is complex because it results from a combination of genetic, environmental, and sociocultural influences. An important step along the pathway to obesity, however, may be binge eating. In a prospective study of 231 adolescent girls, Stice and colleagues (2002) established that binge eating is a predictor of later obesity. This suggests that we should pay close attention to the causes of binge eating.

Relevant here is research suggesting that one pathway to binge eating may be through social pressure to conform to the thin ideal, as ironic as this may seem (Stice et al., 2002). Being heavy often leads to dieting, which may lead to binge eating when willpower wanes. Another pathway to binge eating may operate through depression and low self-esteem.

# Treatments of Obesity

- Lifestyle modifications
  - a low-calorie diet,
  - exercise, and
  - some form of behavioral intervention.

people who are overweight, even small amounts of weight loss may yield some health benefits. Using meal-replacement products (e.g., calorie-controlled shakes), continuing a relationship with a treatment provider, and maintaining a high level of physical activity all help improve efforts at long-term weight control.

But the harsh reality is that losing weight is difficult for most people. And for those who are obese, losing weight and maintaining the weight loss present a truly formidable challenge. As we mentioned earlier, our bodies try to defend a set-point weight. When we try to go below this, marked metabolic and hormonal changes occur. The body goes into “starvation mode” and hunger is increased, the metabolic rate slows, and we also feel less full after eating.

# Continues-----

- Medications

Several medications are approved by the FDA for use in conjunction with a reduced-calorie diet. Orlistat (Xenical) works by reducing the amount of fat in the diet that can be absorbed once it enters the gut. Other drugs such as lorcaserin (Belviq) work in different ways and target serotonin or other neurotransmitters. The newest medication to receive FDA approval is Contrave. This is a combination of naltrexone (used to treat drug and alcohol addiction) and bupropion (used to treat depression and to help smokers quit).

# Continues-----

- Bariatric Surgery

Bariatric or gastric bypass surgery is the most effective long-term treatment for people who are morbidly obese (Bult et al., 2008; Moldovan & David, 2011). Several different techniques can be used both to reduce the storage capacity of the stomach and, sometimes, to shorten the length of the intestine so that less food can be absorbed. Before the operation, the stomach might be able to hold about a quart of food and liquid. After the procedure, the stomach might be able to hold only the contents of a shot glass. Binge eating becomes virtually impossible. The operation takes only a few hours, but because it is performed on patients with obesity, recovery can be difficult.

# The importance of prevention

Reducing the prevalence of obesity is now a top priority. But if obesity is to be prevented, it must first be recognized. Astonishingly, in a recent study conducted in Finland, 57 percent of parents who had a 7-year-old child who was overweight or obese failed to recognize that their child was overweight (Vanhala et al., 2009). In this Finnish study, childhood obesity was predicted by having a parent with obesity, skipping breakfast, habitual overeating, and not being physically active. Because we know that childhood obesity predicts adult obesity, parental education is clearly very important.

# Continues-----

Three important things to cut back on our intake of calories are:

- Eat three fewer bites of food when you eat a meal. Three bites of hamburger, for example, equal 100 calories.
- Take the stairs, combine a meeting with a walk, or park a little farther from your destination. A mile of walking is only 2,000 to 2,500 extra steps, and we can add these in small increments throughout the day.
- Sleep more - Research is showing that babies who sleep fewer than 12 hours a day are more likely to be overweight at age 3 (Taveras et al., 2008). And adults who sleep only 5 to 6 hours a night gain more weight over time than those who sleep 7 to 8 hours a night.