Understanding the Risks and Causes of Obesity

By Cyrus Khambatta, PhD
December 03 2020

In today's world, an increasing number of people are overweight or obese. According to the Centers for Disease Control, in 2017 more than 42 percent of adults in the United States were classified as obese. Obesity is associated with early death and chronic health issues.

What Is Obesity?

Obesity is defined by a body mass index (BMI) of greater than 30. BMI is a simple metric that calculates your weight-to-height ratio (kg/m2). Though BMI has its limitations (it doesn't measure body fat or consider weight distribution), it offers a frame of reference for estimating whether you are underweight, normal weight, overweight, obese, or severely obese, using the following scale.

- **Underweight:** Your BMI is less than 18.5
- **Normal weight:** Your BMI is between 18.5 and 25
- **Overweight:** Your BMI is between 25 and 30
- **Class 1 Obesity:** Your BMI is between 30 and 35
- **Class 2 Obesity:** Your BMI is between 35 and 40
- **Class 3 "Severe" Obesity:** Your BMI is greater than 40

To calculate your BMI, simply enter your height and weight into this free online BMI calculator.

Morbid Obesity

Morbid obesity is defined as being 100 pounds or more above your ideal body weight, having a BMI greater than 35 with at least one serious obesity-related condition, or having a BMI greater than 40. Those with a BMI greater than 40 are also referred to as living with extreme obesity.

Childhood Obesity

A growing number of children worldwide are overweight or obese, which not only increases the risk for being obese as an adult but also increases the risk of developing type 2 diabetes, cancer, and coronary heart disease. (See more on the health risks of obesity below.)

Researchers have identified many risk factors evident in the first 1,000 days of a child's life that are strongly associated with childhood obesity. These risk factors include:

- Being born to a mother who is overweight, obese, or living with gestational diabetes
- Being exposed to tobacco smoke in utero
- High birth weight
- Accelerated weight gain as an infant
- Poor sleep as an infant
- The introduction of solid food before the age of 4 months
- Repeated exposure of the infant to antibiotics

Children impacted by these risk factors will not necessarily become obese, and they can influence their body weight and body composition throughout life by eating healthful diets. And a notable aside: The majority of obesity-related deaths occur in adults who were a healthy weight in childhood.

Understanding the Risks and Causes of Obesity

By Cyrus Khambatta, PhD
December 03 2020

Health Risks Associated with Obesity

One of the main concerns about obesity is that it doesn't always travel alone: People who are obese are at a significantly higer risk for many chronic diseases. Because most data regarding obesity and disease risk comes from observational studies, it's not possible to definitively conclude if obesity itself increases risk for certain diseases, if obese individuals are more likely to have other risk factors, or if there is some other explanation for the association.

Diabetes

Obesity is the No. 1 risk factor for type 2 diabetes, and 80 percent of people who have type 2 diabetes are obese. A 2011 review found that compared to women with normal BMIs, obese women were 28 times more likely to develop diabetes. Being obese increases the presence of biochemical substances that cause insulin resistance. In overweight and obese patients with type 2 diabetes, weight loss has been shown to reduce the need for glucose-lowering medications.

Heart Disease

Research indicates that obesity is a major contributor to cardiovascular diseases, which are the leading cause of death worldwide. There are several ways in which obesity contributes to diseases of the heart and cardiovascular system. Obesity can lead to elevated blood pressure, as obese people need a higher volume of blood to supply oxygen throughout the body. Obesity is also strongly linked with increased levels of LDL ("bad") cholesterol and decreased levels of HDL ("good") cholesterol.

Additionally, obesity may significantly increases risk of heart failure: A 2016 study out of Johns Hopkins found that compared to people with healthy BMIs, morbidly obese individuals were more than twice as likely to experience heart failure, even after adjusting for high blood pressure and blood glucose and cholesterol levels. Researchers believe that this may be due to the expanded blood volume and increased workload on the heart, and/or due to the impact obesity has on the structure of the heart.

Cancer

People who are obese are at higher risk for many types of cancer, including endometrial, colorectal, and gastroesophageal cancers. A 2018 study published in JAMA estimates that at least 25 percent of all cases of esophageal, liver and gallbladder, and endometrial cancers could be attributed to excess body weight. One way in which obesity could increase cancer risk is by causing chronic low-level inflammation, which damages DNA over time. Another possible mechanism is that fat tissue produces estrogen, which, in high amounts, may increase the risk of certain types of cancer.

Arthritis

Carrying excess weight puts additional stress on joints (particular the knees and hips), leading to greater rates of osteoarthritis. A 2015 review from the Centers for Disease Control found that roughly 1 in 3 people who are obese have been diagnosed with arthritis. In patients with rheumatoid arthritis, obesity can exacerbate symptoms, as fat tissue releases high levels of cytokine proteins, which cause inflammation.

What Causes Obesity?

Obesity is a complex metabolic condition with no single cause. It's important to understand that multiple environmental, dietary, lifestyle, and genetic factors can influence one's risk for developing obesity both as a child and as an adult.

Genetics

Understanding the Risks and Causes of Obesity

By Cyrus Khambatta, PhD
December 03 2020

Researchers have identified various genetic and epigenetic (i.e., gene-environment interactions) causes of obesity. Since 2006, researchers have linked more than 50 genes to obesity, including genes that influence appetite and energy expenditure. While some rare forms of obesity are caused by monogenic (i.e., single gene) mutations, in most obese people, no single genetic cause can be identified. Instead, most obesity seems to be the result of interactions among many genes, along with environmental factors.

The Harvard School of Public Health notes that the genetic factors identified so far most likely make only a small contribution to obesity risk overall, and that many people who carry these genes do not become overweight.

It's worth noting that family members don't just share genes; they also share environments and daily habits. These shared lifestyle factors can also contribute to the onset of obesity.

Dietary Factors

Perhaps unsurprisingly, eating a high-fat diet containing too many calories has been strongly linked to obesity. A 2016 scientific review found that morbidly obese people eat more than 4,000 calories per day on average, get between 40 percent and 57 percent of their total calories from fat, and are often iron and calcium deficient.

Regularly consuming refined foods such as chips, crackers, cookies, sodas, pastries, and sugar-sweetened beverages can dramatically increase your risk for obesity and many chronic diseases. Numerous studies and reviews indicate negative effects from the consumption of artificial sweeteners and sugar-sweetened beverages such as soda or juice. These negative effects include weight gain, obesity, and type 2 diabetes. And in case you're wondering, diet soda is no better: Researchers found that one 12-ounce serving of diet soda per day correlated with a 36 percent greater chance of developing metabolic syndrome, and a 67 percent greater chance of developing type 2 diabetes, both of which are associated with abdominal obesity.

Do Carbs Cause Obesity?

All across the internet you'll read that carbohydrate-rich food is the cause of weight gain and type 2 diabetes, even though this concept has been debunked in the scientific literature hundreds of times. In our *New York Times* best-selling book *Mastering Diabetes*, we cover this concept exhaustively, thoroughly demonstrating that carbohydrate-rich food is not the cause of weight gain, obesity, high blood glucose, or high cholesterol, and that eating whole plant foods instead of animal products and highly processed foods is the single most powerful thing you can do to reduce your body weight, blood glucose, and A1c with precision.

Can Diet Alone Cure Obesity?

If you are overweight and have managed to lose weight by dieting only to regain it all back, you are not alone. A 2018 meta-analysis of 29 long-term weight-loss studies found that more than half of all weight lost was regained within two years, and more than 80 percent was regained by the five-year mark. It's common for dieters to gain back even more weight than they lost. More research is needed to understand why it's so difficult to maintain weight loss. It may be that as we gain extra pounds, the body registers a higher "set point" and will attempt to stay at that weight, through mechanisms such as a slowed metabolism or increased appetite.

While dietary changes may not resolve obesity for everyone, people who eat a plant-based diet tend to be leaner than those who don't. Rather than calorie-counting and portion control, Forks Over Knives recommends eating a diet of whole plant foods. Whole grains, vegetables, fruits, and legumes contain significant fiber and water, a combination known as bulk. Barbara Rolls, MD, one of the leading obesity experts, says that bulk is key to satiety. These whole plant foods are much lower in calorie density than animal products and highly processed foods, and are a phenomenal way to stay full without eating excess calories. Animal-based foods such as meat, cheese, fish, and eggs contain zero fiber, making it easy to exceed your calorie requirements without feeling full. Whole plant foods have also been shown to boost after-meal metabolism.

Understanding the Risks and Causes of Obesity

By Cyrus Khambatta, PhD
December 03 2020

Because this way of eating doesn't require calorie counting or portion control, some have found it more sustainable than weight-loss diets. Forks Over Knives has published a number of first-hand accounts from people who, after years of yo-yo dieting, have maintained weight loss after going whole-food, plant-based. Read more:

- How I Kicked Cheese and Sugar Addiction, Lost 150 Pounds on a Plant-Based Diet
- What Giving Up Meat, Dairy, and Processed Foods Did for My BMI, Blood Pressure, and Cholesterol
- I Cut My Weight in Half on a Plant-Based Diet
- I Went From Obese to the Best Shape of My Life on a Plant-Based Diet
- We've Lost a Combined 195 Pounds Since Going Plant-Based
- After Decades of Failed Diets, I Went Plant-Based and Lost 140 Pounds in 2 Years