

Understanding Obesity

What is obesity?

Obesity is a disease in which there is accumulation of excess body fat. It develops as a result of interaction between one's genetic composition and the environment. Why some people become obese is not very well understood. This seems to be a result of multiple factors including social, cultural, behavioral, metabolic and genetic.

What causes obesity?

The food we consume gets converted into calories, which are used for bodily functions and are expended in activity. The excess calories are stored in the body as fat. Rarely there may be hormonal causes responsible for causing obesity. But commonly there are only two reasons why a person becomes obese: a) eating more food than the body needs to function and b) lack of activity or exercise that burns enough calories and prevents them from being converted to fat. This often becomes a vicious cycle. As a person becomes obese he / she finds it difficult to exercise enough and this leads to further accumulation of fat.

How is the degree of obesity measured?

Two criteria are used for determining the degree of a person's weight problem:

- a) Body mass index or BMI: is a measure of a person's weight relative to his / her height. The formula used for this is

$$\text{BMI} = \frac{\text{Weight (kilograms)}}{[\text{Height (meter)}]^2}$$

The values in the following table are the WHO criteria for defining overweight and obesity.

BMI	Category
18.5 – 24.9	Normal weight
25 – 29.9	Overweight
30 – 34.9	Obesity (Class I)
35 – 39.9	Obesity (Class II)
>40	Obesity (Class III or morbid)

Asians have a higher risk for diabetes and heart disease at BMI lower than the criteria set put for the Westerners. Therefore, it has been suggested that in all Asians the above values should be modified as below.

BMI	Category
18.5 – 22.9	Normal weight
23 – 24.9	Overweight
25 – 29.9	Obesity (Class I)
30 – 32.9	Obesity (Class II)
33 – 37.5	Obesity (Class III or morbid)

What are the ill effects of obesity?

Obesity causes adverse effects on the functioning of almost every system in the body.

- **High blood pressure** - Additional fat tissue in the body needs oxygen and nutrients. The blood vessels have to circulate more blood to the fat tissue and the

heart needs to pump harder to achieve this. This causes more pressure on the walls of the arteries thus increasing the blood pressure.

- **Diabetes:** Obesity causes type 2 diabetes, which usually begins in adulthood. Obesity increases resistance to the actions of hormone insulin that regulates blood sugar.
- **Heart disease:** Obese people are at a ten times higher risk of atherosclerosis or hardening of the arteries. There is a built up fatty deposits in the arteries that supply the heart (coronary arteries) causing narrowing of the arteries and reduced blood flow to the heart. This increases the risk of chest pain (angina) or a heart attack.
- **Joint problems:** The extra weight causes stress on the joints like knees and hips. In obese patients joint replacement surgery may not be advisable because the artificial joint has a higher risk of wearing out.
- **Sleep apnea and respiratory problems:** Obese people suffer from sleep apnea, a condition in which they stop breathing for brief periods during the night. This interrupts the sleep throughout the night, makes them snore and causes excessive sleepiness during the day. Sleep apnea is also associated with high blood pressure. Respiratory problems associated with obesity occur when added weight of the chest wall squeezes the lungs.
- **Cancer:** Obese women are at a higher risk of developing a variety of cancers including breast, colon, gallbladder and uterus. Obese men have a higher risk of developing colon and prostate cancers.
- **Metabolic syndrome:** Metabolic syndrome consists of abdominal obesity, elevated blood cholesterol, elevated blood pressure, insulin resistance, increased levels of certain blood components that indicate inflammation and increase in blood levels of certain clotting factors. People with metabolic syndrome are at a significant risk of developing a heart attack.
- **Psychosocial effects:** Overweight and obese persons are often blamed for their condition and may be considered to be lazy or weak-willed. It is common for overweight or obese people to have jobs with lower incomes. They may also find it difficult to have romantic relationships or find a partner.