

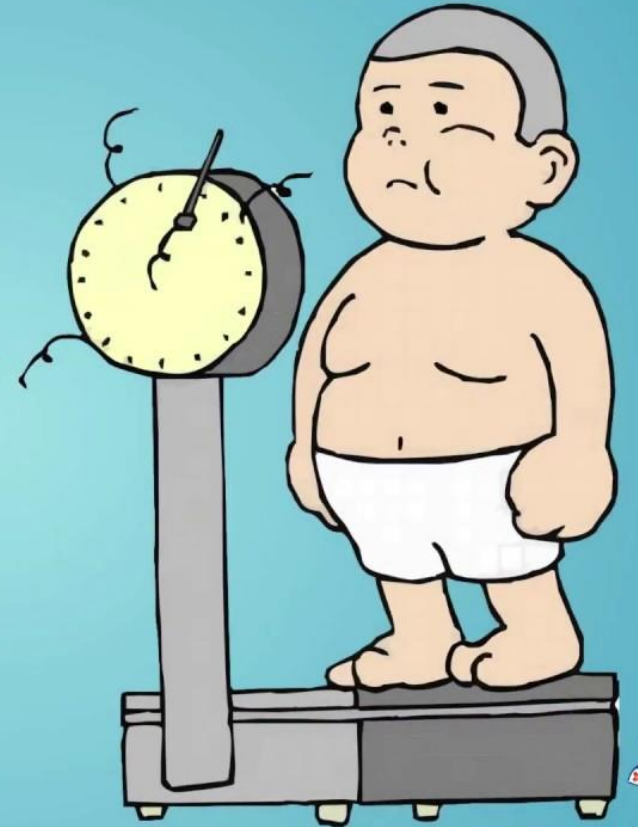
# Obesity

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# OBESITY



**HD**



# Definition

- Obesity is a condition in which **excessive fat is deposited in the body.**
- Under **normal condition**, human body consists of **essential fats in the cell membrane, bone marrow, heart, lungs, kidneys, liver, spleen,** intestine, skeletal muscles and central nervous system.
- Adult **males have 3% and females 12-15% essential fats.**
- The **major site of storage** for the **fat** is in the **subcutaneous layer** of the skin.
- **With increasing age the amount of stored fat increases,** but the essential fat remains constant.
- Adult males with 15-20% and adult females contain 20-25% storage fats.



# Causes

- Genetic
- Physiological factors - Age and sex
- Dietary habits
- Physical activity
- Psychological factor
- Social influence
- Hormonal influence
- Cultural influence
- Smoking, intake of drugs, etc.
- Lack of education/awareness

## Causes of Obesity



# Causes

## ➤ Genetic:

- Involvement of genes in weight gain increases the susceptibility to develop obesity.
- People with high LPL (Lipoprotein Lipase) activity are especially efficient to store fat. Obese people have more LPL activity in their fat cells than lean people.

## ➤ Physiological factor-Age and sex:

- **Men** are more likely to **deposition of fat** on **belly and chest region**, while **women** fat deposition area are **hips and thighs**.
- **Fat deposition in subcutaneous layer** in certain areas like breasts and other parts is required for reproductive capacity.

# Causes

## ➤ Dietary Factor:

- When the **intake of fatty substances is more**, the **excess fat is stored in adipose tissues**.
- **Overeating, irregular eating pattern**, nibbling heavy junk food in between meals **contributes to obesity**.
- Alcohol consumption gives empty calories resulting in extra fat to the body.

## ➤ Physical Activity:

- **Earlier mechanization man** was involved in a **lot of physical activities** resulting in a lot of **calories being used** up.
- **Modern mechanization** has **reduced many physical activities** of man **resulting in increased cases of obesity**.

# Causes

## ➤ Psychological Factors:

- **Psychological factors** are often responsible for obesity.
- **Depressed and lonely persons may tend to eat more.**
- Tension, anxiety, fear, humiliation are also found to associated with obesity.

## ➤ Endocrinal Factors::

- Conditions which are related to endocrine gland like hypothyroidism, Cushing's disease, PCOD (Poly Cystic Ovarian Disease), hypothalamic tumors cause weight gain.
- In females sex hormones play a very important role in weight gain.
- Weight gain in females is usually post pregnancy.

# Consequences

- Obesity is a health hazard and can lead to many diseases or disorders.
- Functioning of various vital organs like heart, liver and kidneys may be affected by the excess fat in the body.
- The weight bearing joints like the knees, hips and ankles are affected by the strain imposed due to excess fat.
- Obesity also increases the risk of chronic diseases like diabetes, high blood pressure and coronary heart disease.
- Such conditions of hypertension and chronic renal disease may lead to death of an individual.
- Obesity also leads to lowered fertility.

# Importance of Fibers in Food

- **Cellulose or vegetable** fibers are also known as dietary fibers (DF).
- They are **not digested by human enzymes** and are non-nutrient part of the food.
- They **help in the process of elimination of faecal matter** in the form of stools.
- These **fibers are polysaccharides** which are different from animal fibers.
- They are **also known as indigestible carbohydrates present in plant foods**.
- Dietary fibers **are classified into two categories** depending upon their water solubility viz., **Insoluble Dietary Fibers and Soluble Dietary Fibers**.

## FIBRE RICH FOODS



**BEETS**  
1 cup = 3.8g



**BANANA**  
1 medium = 3g



**EDAMAME BEANS**  
1 cup cooked = 8g



**LENTILS**  
1/2 cup cooked = 7.7g



**WHOLEGRAIN BREAD**  
2 slices = 4g



**CHIA SEEDS**  
1 tablespoon = 5.5g



**CHICKPEAS**  
1/2 cup cooked = 6.2g



**PEARS**  
1 Medium 5.5g



**WHOLEGRAIN PASTA**  
1 cup cooked = 6.3g

# Insoluble Dietary Fibers (IDF)

- Those which are insoluble in water are **non-fermentable made up of cellulose and lignin.**
- Such types of fibers affect the intestinal **functions by retaining the water in stools** so that the bulk waste material is produced in a very short time.
- Insoluble dietary fibers are those fibers which are not with thick consistency (viscous) and slowly fermentable.
- **Insoluble dietary fibers are effective in reducing constipation and diverticulosis,**
- **Examples of insoluble fibers are wheat bran, beans, cereals, skin of fruits and vegetables.**

# Soluble Dietary Fibers (SDF)

- Water soluble and fermentable fibers are natural gel forming fibers that are made of pectin, gums and mucosaccharides. E.g. beans, oat bran, barley, vegetables and fruits.
- Soluble fibers reduce the growth of bacteria in the intestine.
- They slow down the glucose absorption and lower the serum cholesterol.
- Dietary fibers have hypoglycemic and hypolipidemic effects.
- Soluble dietary fibers are effective in reducing the incidences of Coronary Heart Disease, obesity and Type -II diabetes.

# Soluble Dietary Fibers (SDF)

- Food such as **Methi** (Fenugreek) seeds with high level of **IDF** (48.6%) is very effective in reducing blood glucose and cholesterol levels.
- Some supplement which are used to reduce weight are with high SDF like **Psyllium**, gum karaya, gum acacia, etc.
- Total dietary fibers (TDF) provide the bulk in the diet so that energy intake level slows down which **helps in reducing body weight**.
- Dietary fibers are readily **available in fruits, vegetables and coats of grains**.

# Functions of Dietary Fibres

- Provides the faecal bulk,
- Stimulates the large intestine for easy movements.



*Thank  
You*