

2. Obesity

Objectives

- (1) To understand the information on obesity.
- (2) To understand the ill effects of excess body fat.
- (3) To be aware of obesity measurement techniques.
- (4) To be informed about possible diseases caused by obesity.
- (5) To know about obesity prevention and remedy.

Every individual is keen on a life that is healthy and free from disease.

The World Health Organization has appropriately defined health as *“Health is not merely the absence of disease or disability but. it is a state of complete physical, mental and social well-being”*

Illness or aggravation of a disorder affects the physical, mental or social aspect of the individual. Obesity is considered as disease as per guidelines and principles of health organization because it invites many other diseases.

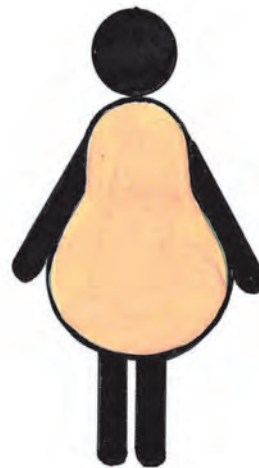
Obesity is the abnormal or excessive accumulation of fat in the body. Obesity is a growing global issue and in India it is increasing very largely day by day. Previously, obesity was found to be higher in adults. However, in recent times, the prevalence of obesity has been increasing in all age groups. Although the World Health Organization has

declared obesity to be a disease and a disability, it seems that even most educated people still fail to realize it. Though the prevalence of obesity in rural areas are found to be low due to their active lifestyle, the overuse of modern equipment's is causing the people in rural areas to become inactive and hence they are also at risk of obesity.

Common Types Of Obesity

Apple Shape, Pear Shape :

Obese people have excess fat content in the body. The fat is stored more prominently in certain parts of the body. In India, obese people have a tendency to store this excess fat around their stomach and waist. In both men and women the fat is stored in different parts of the body and obesity in the individual can be identified based on it.



Pear Shape



Apple Shape

Techniques of Measuring Obesity:

There are different techniques developed to measure obesity. In this Body Mass Index (BMI), Waist to Hip Ratio (WHR), Skin-fold thickness, Fat percentage and other such measurements are used. Body mass index is the most prevalent out of these.

The World Health Organization has laid the criteria to categorise individuals as obese using BMI (Body Mass Index) and WHR (Waist to Hip ratio). BMI is the measurement of a person's weight with respect to the height. It is expected that as height increases weight also increases but it should be in proportion.

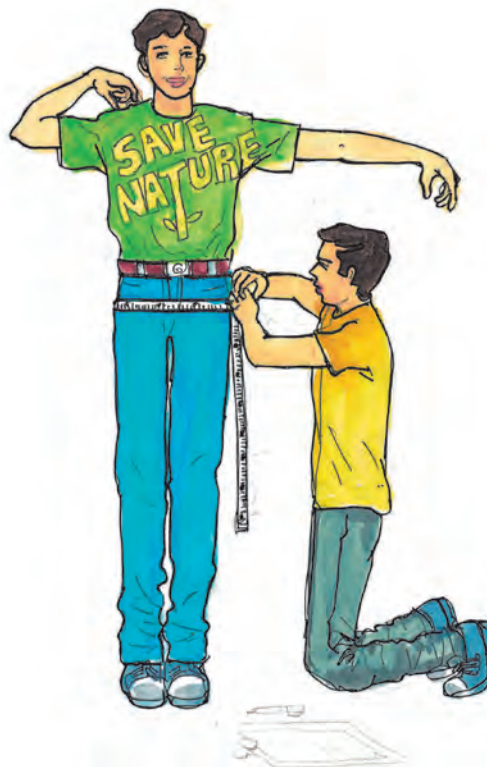
A) Waist to Hip Ratio :

$$\text{W.H.R.} = \frac{\text{Waist circumference (cm)}}{\text{Hip circumference (cm)}}$$

In men, this ratio should not be more than 1 and in women it should not be more than 0.85. You can find your WHR from the above mathematical formula.



Measuring Hip



Measuring waist

2. Body Mass Index : Obesity means 30% excess weight than height. We must understand what is body mass index to assess whether our weight is appropriate or not. It is not possible to differentiate amount of muscles or amount of fat from BMI and this could be called as limitations. For example many a times an athlete has excellent fitness but because of his body structure he may have high BMI, still he can not be called obese. That is why BMI is general measure. The weight is measured in kilograms and the height in meters. The weight is divided by the square of the height, to get the BMI.

$$\text{BMI} = \frac{\text{Weight (Kg)}}{\text{Height (M)}^2}$$



Measuring Weight



Measuring Height

The World Health Organization have made the following criteria available to interpret BMI.

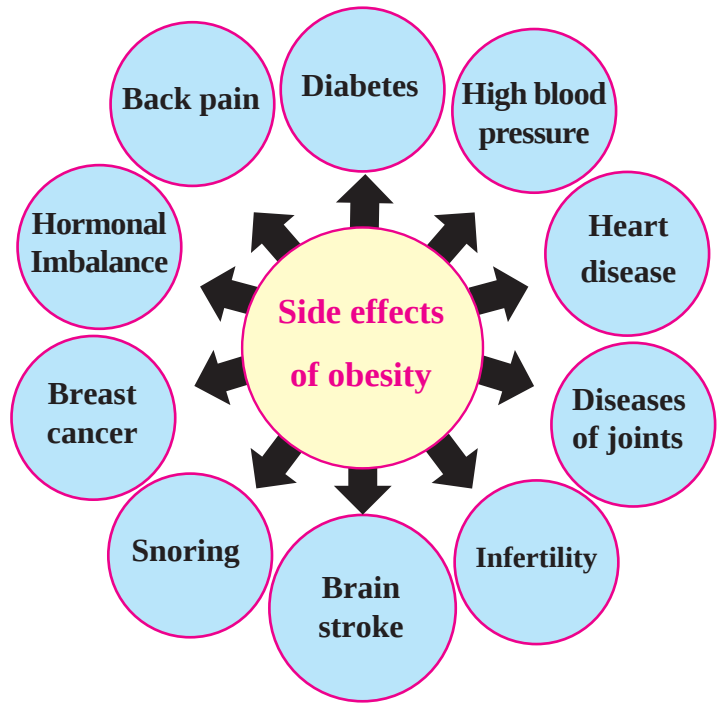
BMI	Classification
Less than 18.5	Underweight
18.5-24.9	Normal weight
25.0-29.9	Overweight
30.0-34.9	Class I obesity
35.0-39.9	Class II obesity
More than 40.0	Class III obesity

Various techniques for measuring fat content :

It is important to be aware of the fat percentage in the body weight of an individual. There are various scientific methods available to measure fat content.

1. Skin fold callipers can be used to measure fat in three to seven areas of the body. It is a simple and inexpensive method. Accuracy while measuring the skin fold is improper .
2. By Measuring the circumference of certain body parts is another simple method to estimate body fat.

3. Dual energy X-ray absorptiometry (Dexa) scan can measure fat content accurately.
4. Hydrostatic weighing in this density is measured by weighing under water. This method is accurate but not easily available.
5. Bioelectrical Impedance this is one of the fast and easy method, now a days there are many machines based on this principles are available.
E.g. Fat Monitors.



Bad Effects of Obesity :

Many incurable diseases occur due to Obesity. Fat people get diseases like diabetes, blood pressure, heart disease, joints diseases, brain stroke, infertility, breast cancer, hormonal imbalance, back pain and snoring and many such diseases at early stage. Many times due to these reasons there is possibility that obese people die prematurely.

Causes of Obesity :

Obesity is not a sudden occurrence. Heredity, sedentary lifestyle, laziness, lack of movements, untimely eating, inappropriate eating habits, intake of excessive cold drinks, not following sleeping and wake up time, family environment, inappropriate mind-set and today's very important reason is screen time. (Screen time is the time spent using mobile, watching T.V, playing video games, laptop and computer etc.) are all factors that causing obesity. The most important factor is lifestyle. In fact it is found that obesity is due to laziness and inactivity.



Improper diet and obesity

- Weight gain as we age is a natural tendency. However, having less and appropriate weight while ageing is ideal.
- Gaining body weight is always easy, but weight loss can be excruciating and difficult.
- Developing a pot belly is risky but can be easily avoided. It leads to an adverse effect on both the physical fitness.
- Excessive intake of foods such as potatoes, sugar, oils, vegetable ghee, sweets, etc. leads to obesity.

- Every individual should track their weight and ensure not to get overweight.

Understand the causes of obesity and check if it applies to someone you know.

- Modern and sedentary lifestyle
- Laziness
- Very little movement
- Getting work done by servants or others
- Eat more and work less
- Untimely eating
- Inappropriate eating habits

- Intake of excessive cold drinks
- Irregular sleeping and wake up time.
- Mental Imbalance
- Heredity

Prevention and Treatment of obesity :

Obesity can be controlled and reduced with appropriate diet and regular exercise. With regards to obesity, prevention is better than cure. Means to avoid obesity one should be aware and adopt a healthy lifestyle accordingly. For this purpose from the school going age itself, health education is needed and an active lifestyle should be inculcated.

To avoid obesity

Do it	Don't do it
Do your own house work.	Avoid the overuse of mobile.
Use a bicycle instead of using a motor bike every time.	Minimize playing video games.
Eat appropriate diet.	Avoid over eating fried foods.
Eat more leafy vegetables.	Avoid junk food like burgers, pizza, etc.
Manage meal time.	Avoid consuming food made from maida.
Keep stomach a little empty.	Avoid eating late at night.
Get more active with emergence of a pot belly.	Avoid untimely eating due to pressure from friends, parents and siblings.
Be consistent in your daily routine.	Avoid irregularity in daily activities.
Sleep early in the night and wake up early in the morning.	Avoid sleeping late and getting up late.
Engage in physical activities during leisure time.	Avoid misuse of leisure time.
Participate in swimming, cycling, trekking groups, etc.	Avoid adopting bad habits.
Go for picnic on holidays.	Avoid misuse of holiday periods.
Challenge your own physical abilities.	Avoid Over confidence
Check body weight regularly.	Avoid untimely food habits

So, are we obese or not ? Let us find the answer to this question today and keep our routine work active.

Exercise

Q.1 Fill in the blanks.

1. Obesity is the excessive of -----
---- in the body.
2. -----organization has
declared obesity as an disease
and a disability.
3. In India, obese people have a
tendency to store fat around
their -----and -----.
4. To calculate BMI weight is
measured in ----- and height is
measured in ----- and weight is
divided by square of height.

5. Sanket has a BMI of 29.9, so it
will be classified as -----
type of obesity.

Q.2 Answer in brief.

1. Explain the definition of health
given by the World Health
Organization.
2. Write any six reasons of obesity.
3. Explain the hazards of obesity.
4. Explain how obesity can be
controlled.

Supplementary Studies :

Complete any one of the following activity.

- (1) Measure the weight and height of ten individuals known to you, and calculate their BMI, and decide the category which they can be placed as per the criterion.
- (2) Find and compare different methods to measure fat.
- (3) Make a list of appropriate and inappropriate food items.
- (4) Complete the following diagram.

