



“बेटी बचाओ, बेटी पढ़ाओ”

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	Teaching Methodology of Food Nutrition and Dietetics
Program	: M.Sc. N & D I Sem
Course	: Nutritional Biochemistry
Session	: Body Composition

Academic Day starts with –

- Greeting with saying 'Namaste' by joining Hands together following by 2-3 Minutes Happy session, Celebrating birthday of any student of respective class and National Anthem.

Lecture Starts with- Topic to be discussed today- Carbohydrates

Lesson deliverance

(Tables, Charts, Diagrams & Live Example)-

BODY COMPOSITION

Body composition is the number of components included in our body. The body's relative amounts of fat and lean body tissue (or fat-free mass – FFM)

Components of FFM include:

- Muscle
- Bone
- Water
- Organ tissues

COMPONENTS OF BODY FAT

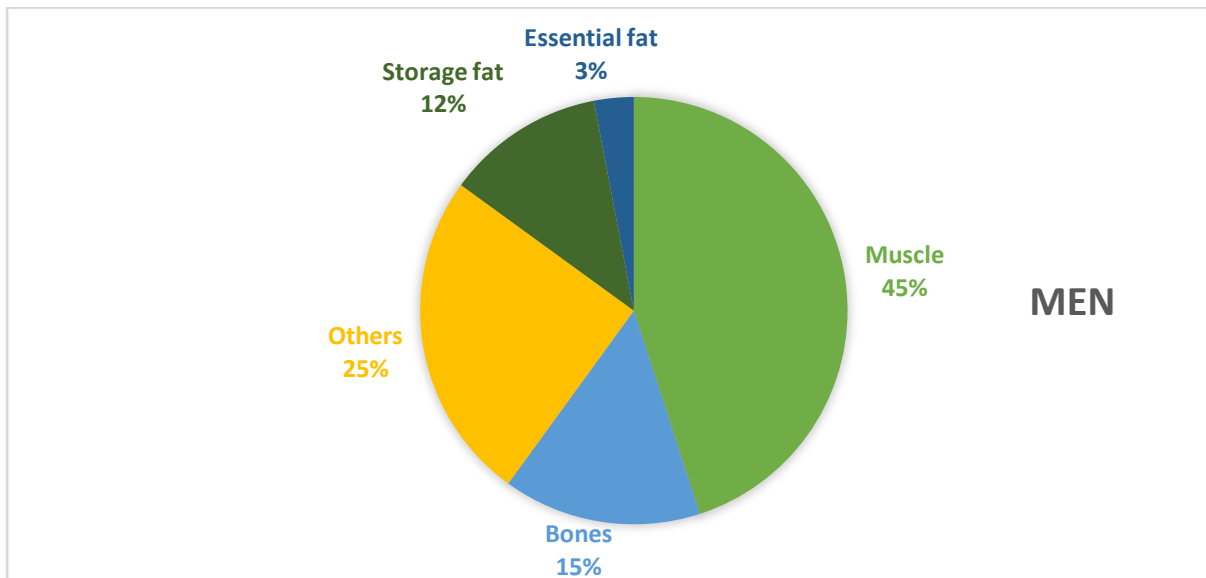
Total Body Fat = Essential Fat + Storage Fat

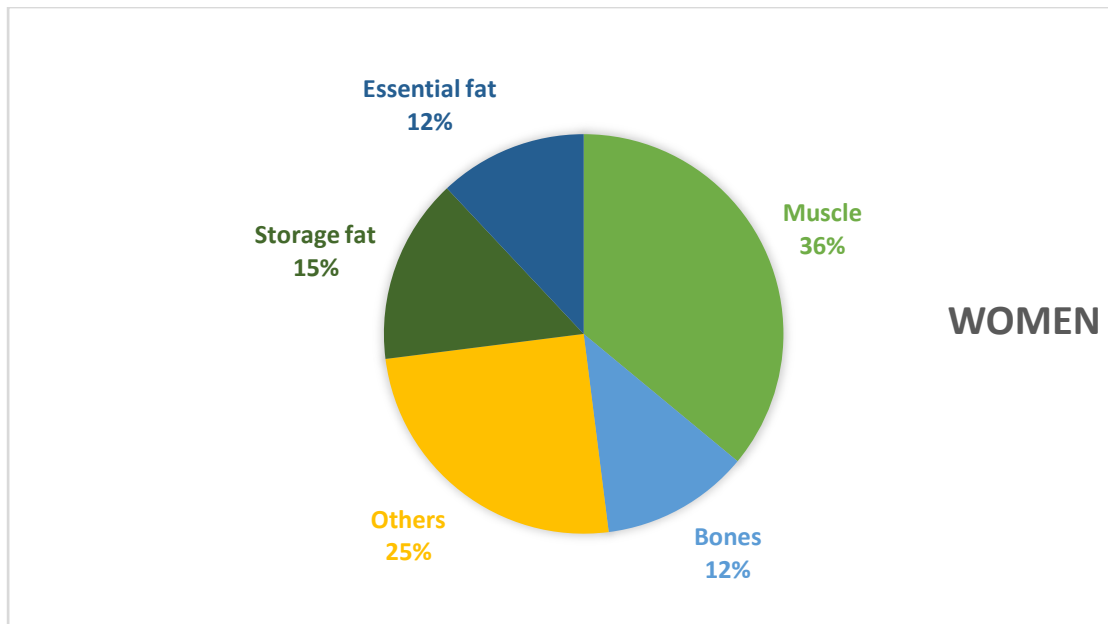
ESSENTIAL FAT

Accounts for:

- 3-5% total body weight in males
- 8-12% total body weight in females

BODY COMPOSITION BREAKDOWN BY GENDER





SIGNIFICANCE OF BODY COMPOSITION

1. To help assess health risks and determine needed behavior changes for optimal health.
2. To help athletes determine the best body composition for performance in their respective sport.
3. Behavioral changes.
4. Better performance.

METHODS OF ASSESSING BODY COMPOSITION

- Height, Weight, BMI
- Waist-to-hip ratio (and body girth measurements)
- Skinfold measurements
- Hydrostatic (underwater) weighing
- Air displacement plethysmography
- Bioelectrical impedance analysis (BIA)
- Dual-energy X-ray absorptiometry (DEXA)

ASSESSMENT METHODS: HEIGHT

Best measured using a stadiometer Ensure the subject : • Removes shoes • Stands straight up with heels together • Holds a deep breath during the measurement

ASSESSMENT METHODS: WEIGHT/MASS

Best measured on a calibrated scale at a set time of day Ensure the subject: • Removes shoes • Wears minimal clothing (if nude weight isn't possible)

ASSESSMENT METHODS: BODY MASS INDEX (BMI)

Based on the concept that a person's weight should be proportional to height • Used to estimate the degree of obesity in large populations • Does not take into account % of fat or FFM (not a very useful measure for athletic populations)
$$\text{BMI} = \text{BM (kg)} \div \text{Height (m}^2\text{)}$$

ASSESSMENT METHODS: WAIST-TO-HIP RATIO

Provides evaluation of body fat distribution: Waist circumference • Should be measured at the narrowest point below the ribs. Hip circumference • Should be measured at the widest point.

ASSESSMENT METHODS: SKINFOLD

Highly correlated with other methods of measuring % BF (including DEXA and hydrostatic weighing) • Multiple sites are measured and % BF is calculated using the sum of the sites (3-site, 4-site, and 7-site methods are used) • Measurements should be taken on the right side of the body.

- **Online Reference-**

https://www.gssiweb.org/gssiu_content/pdf/FINAL%20Body%20Composition%20Concepts,%20Assessment,%20Classifications%20and%20Application%20for%20Athletes_6.3.21.pdf

- **Competitive questions from today topic (2 questions Minimum)-**
 - What is Body Composition?
 - What is the body composition of male?

- **Suggestions to secure good marks to answer in exam-**
 - Give answer with complete labeled diagrams.
 - Explain answer with key point answers

- **Questions to check the understanding level of students-**
 - What are the methods of assessing body composition?
 - Explain 3 methods.

- **Next Topic-**
- **Academic Day ends with-**
National song ‘Vande Mataram’

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