Unit I – Problem 1 – Physiology Lab: Assessment of Obesity

- **Assessment of obesity is done through:**
  - **Standard weight chart:**
    - ✓ Shows the correlation between weight and height to determine obesity.
    - ✓ Ideal Body Weight (IBW):
      - ❖ *Weight/ height considerations by:*
        - ➢ Sex, frame size and age.
        - ➢ Based on monogram.
    - ✓ *Relative Body Weight (RBW):*
      - ❖ *RBW (%) or (%) IBW* = $\frac{Actual\ \ body\ \ weig\,ht\ (lbs)}{Desirable\ \ \ weig\,ht\ (lbs)}\ x\ 100$
        - ➢ 10-20% > IBW: overweight.
        - ➢ 20% > IBW: obese.
        - ➢ 10% < IBW: underweight.
  - **Body Mass Index (BMI):**
    - ✓ A stadiometer and weighing machine are used to measure height and weight.
    - ✓ BMI = $\frac{Weig\,ht\ (kg)}{Heig\,ht\ (m)^2}$
    - ✓ Results:

WHO classification	BMI
Underweight	< 18.5
Normal range	18.5 - 24.9
Overweight	25 – 29.9
Obese	≥ 30
• **Class-I obesity**	30 – 34.9
• **Class-II obesity**	35 – 39.9
• **Class-III obesity**	≥ 40

  - **Skin fold measurement:**
    - ✓ It can predict total body fat from different sites of the body.
    - ✓ Calipers are used to measure subscapular fat (e.g. for trunkal body mass) and triceps fat (e.g.for extremities).
    - ✓ Advantages: easy to use and inexpensive.
  - **Waist-hip ratio:**
    - ✓ Central obesity (also known as android obesity) is represented by fat accumulation around the abdomen (apple-shaped). It is associated with increased risk for cardiovascular disease and other complications of obesity. It is more common in males.
    - ✓ Lower body fat (gynoid obesity) is represented by fat accumulation around the hips (pear-shaped). It is not associated with increased risk for disease. It is more common in females.
    - ✓ Waist and hip circumference measurement:
      - ❖ *Waist circumference*: is measured to the nearest 0.1 cm at the level of the umbilicus perpendicular to the axis of the body.
      - ❖ *Hip circumference*: is measured to the nearest 0.1 cm at the greatest protrusion of the gluteal muscles, 4 cm below the anterior superior iliac spinses.
      - ❖ *Normal values:*
        - ➢ Males: < 0.1
        - ➢ Females: < 0.8
  - **Total body fat and percentage body fat:**
    - ✓ Using bioimpedance device (body fat analyzer). It estimates total body water crudely, as a component of lean body mass. Therefore, estimation of fat mass by this technique is relatively weak!