

## Chapter - 9

### Measurement and Evaluation

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#### I. Long Answer Questions

##### 1. List and explain the tests related to muscular strength.

**Ans.** As mentioned in the last chapter, muscle strength refers to a person's ability to overcome or combat resistance by muscles or a group of muscles. This depends primarily on a few factors, such as a muscle cross-section, a slow and rapid twitch fibre ratio of a muscle, muscle coordination, ATP and CP storage, which play a major role in energy supply for the active muscle or group of muscles. Their use is not only very significant but also important. Psychic influences or the current state of mind, such as frustration, aggression, motivation, emotional state, etc., have both a positive and a negative muscle strength correlation.

##### 2. List and explain the tests related to muscular endurance.

**Ans.** Muscular stamina is the body's capacity to conduct muscle activity for a certain time or is the length up to which your muscle power can be applied. The length and duration of the activities contribute to muscle endurance. The functions of muscle endurance are carried out by slow-twitch fibres in the muscles. The word endurance is also often used instead of stamina.

##### 3. Write down the procedure of Abdominal Curl-up test.

**Ans.** The sportsman warms up 10 minutes

The helper sets 20 beats per minute for the metronome (BPM)

The sportsman lies at the mat, his knees are bent, his feet flat on the floor and his hands are on the thighs

The helper helps the leaders of the athlete with her hands

The assistant commands "GO" and the sportsman coils up the thighs to the fingertips and then returns to the start position with the 20 BPM metronome. The assistant is called "GO"

The sportsman must do as many curls as possible before the metronome is not held in time

The assistant must count and record the number of curls used to measure the success of the athlete

#### **4. Explain the waist-hip ratio in detail.**

**Ans.** The Waist-to-Hip (WHR) ratio allows one to figure out how fat is distributed to assist with the assessment of an individual's overall health. If you carry more weight around the centre than the hip, you may be more likely to develop some health problems. This is the ratio of the waist's circumference and the hip's circumference. The measurement by dividing the waist with the hip measurement of a person  $W \div H$  is determined. For instance, if the person is 76cm waist and 97cm hip measured, then the person's ratio is 0.78.

#### **5. Explain the three somato types in detail.**

**Ans.** William Herbert Sheldon, the American psychologist in 1940, established a hypothesis that three body types or somato types exist—Endomorphous, Mesomorphic, and Ectomorphic. The names are based on three layers of embryo germs: the endoderm, which grows into the digestive tract, the mesoderm, and the ectoderm, which become muscle, heart and blood vessels (forms the skin and nervous system). Each form of somato has its own distinct physical properties and is also expected to have distinct personalities. When developing individual training routines, the specific physical properties of any body type are still commonly used as an important factor.

## **II. Short Answer Questions**

### **1. What is test?**

**Ans.** Flexibility testing Test Sitting and Reaching: Sitting and Reaching test helps to assess the endurance of the lower back muscles and the muscle group. A sit and reach box and mat are essential for this test.

### **2. What is measurement?**

**Ans.** Bodyweight measurement It can be carried out using a measuring machine.

Procedure: The individual must be on the weighing machine. It is necessary to remember the system readings. The individual should wear minimum clothes when taking the weight. In kilogrammes, weight readings should be registered.

Highness measurement You may use an anthropometer or stadiometer to do it.

Procedure: The subject is asked to stand directly on the wall and look ahead, the back and head touching the wall. At the highest point of the subject's head, the bar of the anthropometric rod should be reached (vertex point). The lecture should be recorded in centimetres.

Calculator:  $\text{Weight in Kg}/(\text{Height in meters})^2$

### **3. What is evaluation?**

**Ans.** It is the mechanism by which the data collected are interpreted to quantify and assess the professional value or value. After the exam, everybody would like to know how the measurements are input or performance, which can be collected by assessment. The evaluation may be formative or summative method assessment used across three stages - schooling, goals, learning and behavioural improvement. These steps are taken sequentially.

### **4. What is flexibility?**

**Ans.** Flexibility The versatility is the range of motion around the different joints as described in the previous chapter. Flexibility is our joint and muscle's capacity to travel more widely. Good flexibility contributes to less muscular stress in the movement.

Flexibility testing Test Sit & Reach: Sit and reach tests are used to assess the lower muscles and the hamstring muscle group's flexibility. A sit and reach box and mat are essential for this test.

### **5. Write down two characteristics of each somato type.**

**Ans.** Endomorphic: An endomorphic person usually has short arms and legs and a large quantity of weight. Their mass hampers their ability to participate in sports that require high endurance and high speed and perform aerobic exercises such as running on a sustainable weight. Sports with pure strength are ideal for an endomorph like weight lifting. If training ends, they can easily gain weight and lose condition fast.

Mesomorph: A mesomorphic person stands out in games/sports related to strength, agility and speed. They are easy to be a good candidate for a top sportsman with their medium structure and height along with their propensity to gain muscle and power. They can maintain low levels of body fat and easily lose weight and gain weight.

## **III. Fill in the Blanks**

1. \_\_\_\_\_ is calculated by dividing weight by the square of height.

**Ans.** The topic is asked to stand directly against the wall and to face forward with the back and head touching the wall. At the highest point of the subject's head should the bar of the anthropometric rod be reached (vertex point). Reading in centimetres should be registered.

BMI Formula Calculator:  $\text{Weight in Kg} / (\text{Height in meters})^2$

**2. \_\_\_\_\_ is a tool.**

**Ans.** Measurement of Body Weight

**3. Measurement can be \_\_\_\_\_ or \_\_\_\_\_ both.**

**Ans.** Measurement can be quantitative or qualitative both.

**4. Two types of flexibility are \_\_\_\_\_ flexibility and \_\_\_\_\_ flexibility.**

**Ans.** Two types of flexibility are dynamic flexibility and stretching flexibility.

#### **IV. State whether True or False**

**1. BMI stands for body measurement index**

**Ans.** False.

**2. Flexibility is range of motion around the various joints.**

**Ans.** True.

**3. Anthropometer or stadiometer is used for measuring weight.**

**Ans.** False.

**4. The objective of squat thrust is to identify and assess muscular strength and endurance of the lower body.**

**Ans.** True.

**5. The objective of abdominal curl-up test is to identify and assess the muscular strength and endurance of back muscles.**

**Ans.** False.

**6. The objective of push-up test is to identify and assess muscular strength and endurance of the upper body**

**Ans.** False.