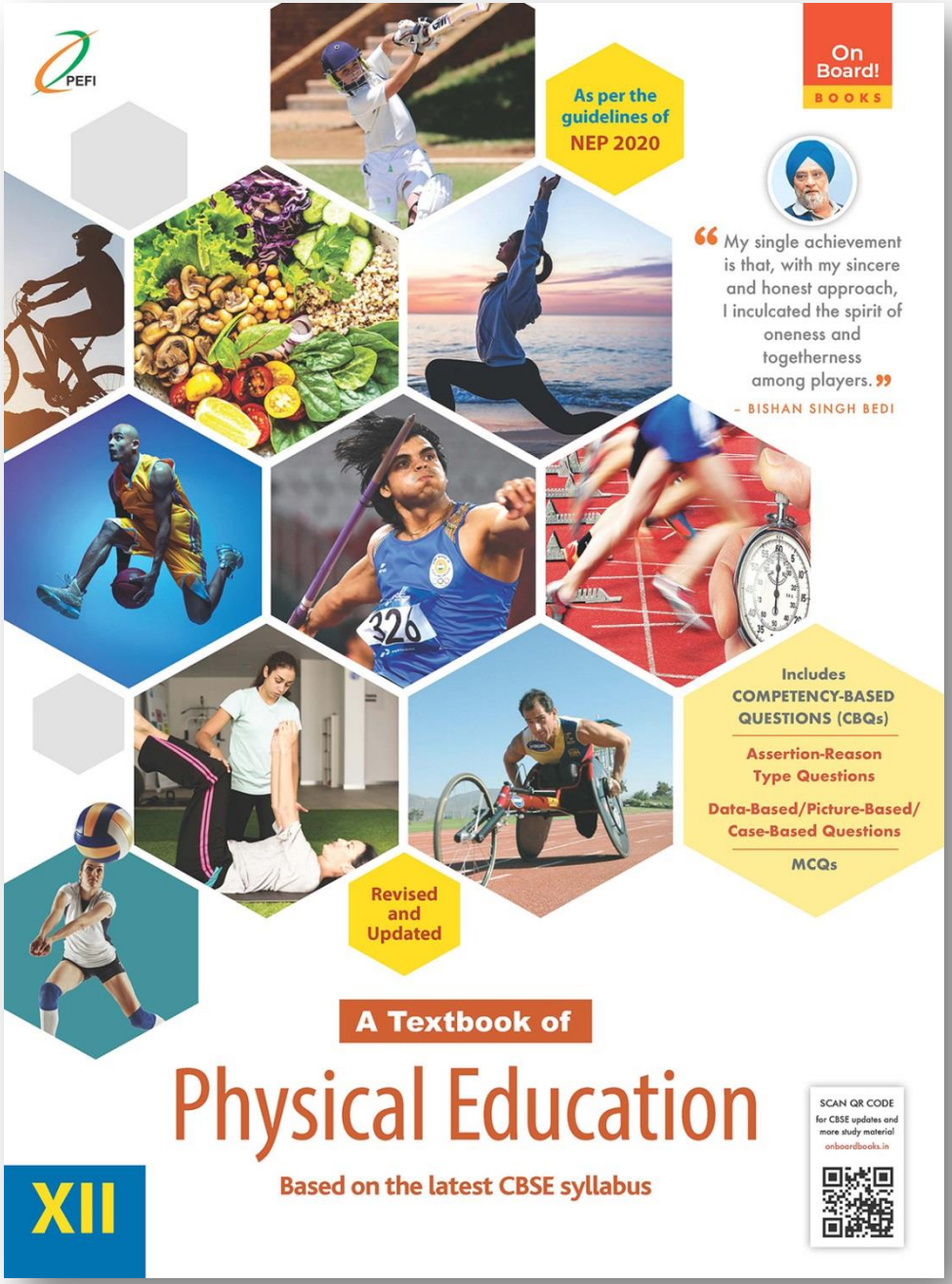
A TEXTBOOK OF PHYSICAL EDUCATION CLASS 12

Chapter 6

TEST AND MEASUREMENT IN SPORTS



FITNESS TEST

FITNESS TEST – SAI KHELO INDIA FITNESS TEST IN SCHOOL

The SAI Khelo India battery of Fitness Assessment Tests has been developed and finalised by the Expert Committee of Physical Fitness Assessment. These battery of tests are as follows:

Age Group 5–8 Years (Classes 1–3)

1. Body Composition (BMI)
2. Balance (Flamingo Balance)
3. Coordination (Plate Tapping)

Plate Tapping Test

Measurement of Height and weight for BMI test

Flamingo Balance Test

Age Group 9–18 Years (Classes 4–12)

1. Body Composition (BMI)
2. Speed (50 Metre Speed test)
3. Cardiovascular Endurance (600 Metre Run/ Walk)
4. Flexibility (Sit and Reach Test)
5. Strength
a. Abdominal (Partial Curl up)
b. Muscular Endurance (Push Ups for Boys, Modified Push Ups for Girls)

50 Metre Speed Test or
Standing Start or Dash Test

Sit and Reach Test

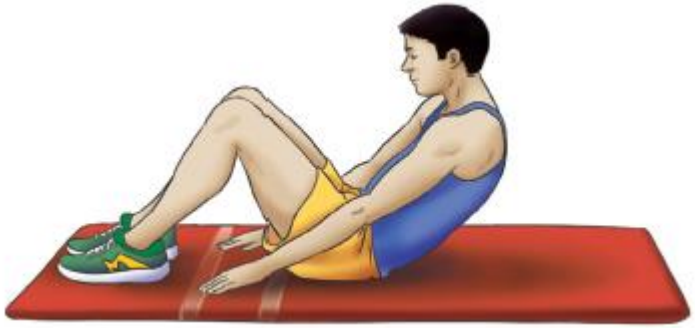


Figure 6.8 Partial curl up

Figure 6.9 Push Ups (Boys)

Figure 6.10
Modified Push Ups (Girls)

COMPUTING BASAL METABOLIC RATE (BMR)

Basal Metabolic Rate (BMR) helps to calculate the daily energy expenditure of an individual to perform basic level of activity. Using BMR, an individual can find out the minimum number of calorie requirement for her/his body needs in order to function for 24 hours. The unit of BMR is calculated in kilo calories (Kcal). Stadiometer, weighing machine, pen and paper are required to calculate height and weight as done in BMI.

To calculate BMR, the Harris–Benedict formula or Mifflin-St Jeor formula is used. The Harris– Benedict equation was revised by Mifflin and St Jeor in 1990:

Men: BMR = (10 × weight in kg) + (6.25 × height in cm) – (5 × age in years) + 5

Women: BMR = (10 × weight in kg) + (6.25 × height in cm) – (5 × age in years) – 161

RIKLI AND JONES – SENIOR CITIZEN FITNESS TEST

In 2001, Roberta E Rikli and C Jessie Jones invented a method called Senior Fitness Test, also known as Fullerton Functional Fitness Test, in the Lifespan Wellness Clinic in California State University in Fullerton.

Chair Stand Test for Lower Body Strength

Purpose: To test the strength of the lower body, especially the legs.

Equipment Required: A chair without arms and a straight back with seat of at least 44 cm and a stopwatch.

Procedure: Refer to book page 112

Scoring: The total number of completed chair stands during 30 seconds is called score.

Refer to Table 6.2 for recommended ranges for This test based on different age groups.

Figure 6.11 Chair stand test for lower body strength

Arm Curl Test for Upper Body Strength

Purpose: To test the strength of the upper body.

Equipment Required: Five pound weight for women and 8 pound weight for men, a stopwatch and a straight-back chair with no arms are required for this test.

Procedure: Refer to book page 113
Scoring: The total number of arm curls performed in 30 seconds of duration is called a score.

Refer to Table 6.3 for recommended ranges for this test based on different age group.

Figure 6.12 Arm curl test

Chair Sit and Reach Test for Lower Body Flexibility

Purpose: To test the flexibility of the lower body Especially for hamstring flexibility.

Equipment Required: A chair with a straight back, approximately 44 cm high and a ruler.

Procedure: Refer to book page 116
Scoring: If the participant reaches past this ‘0’, she/he receives a positive score of as many inches as they reach past it, measured to the nearest half-inch. If she/he cannot reach it, she/ he receives a negative score of as many inches as they are short of the ‘0’, measured to the nearest half-inch.

Figure 6.13 Chair sit and reach test

Refer to Table 6.4 for recommended ranges for this test based on different age group.

Back Scratch Test for Upper Body Flexibility

Purpose: To test the flexibility of the upper body (shoulder). Upper body flexibility is important as it helps in reaching, changing a light bulb, combing, throwing, putting on overhead garments and so on.

Equipment Required: A ruler.

Procedure: Refer to book page 115.

Scoring: The best score out of the two tests is recorded to the nearest centimetre or half inch.

Refer to Table 6.5 for recommended ranges for this test based on different age groups.

Figure 6.14 Back scratch test

Eight Foot Up and Go Test for Agility

Purpose: This test measures the speed and balance while moving.

Equipment Required: A chair with straight back and about 44 cm high, a stopwatch, cone marker, measuring tape and an area free of interruptions.

Procedure: Refer to book page 116.

Scoring: The best run time is recorded to the nearest tenth second.

Refer to Table 6.6 for recommended ranges for this test based on different age groups.

Figure 6.15 Eight foot up and go test

Six Minute Walk Test for Aerobic Endurance

Purpose: To measure aerobic fitness and endurance, which are important for long distance walking or running, climbing and so on.

Equipment Required: A measuring tape and a stopwatch.

Procedure: Refer to book page 117.

Scoring: Total distance covered within The stipulated time is recorded to the nearest metre.

Refer to Table 6.7 for recommended ranges for this test based on different age groups.

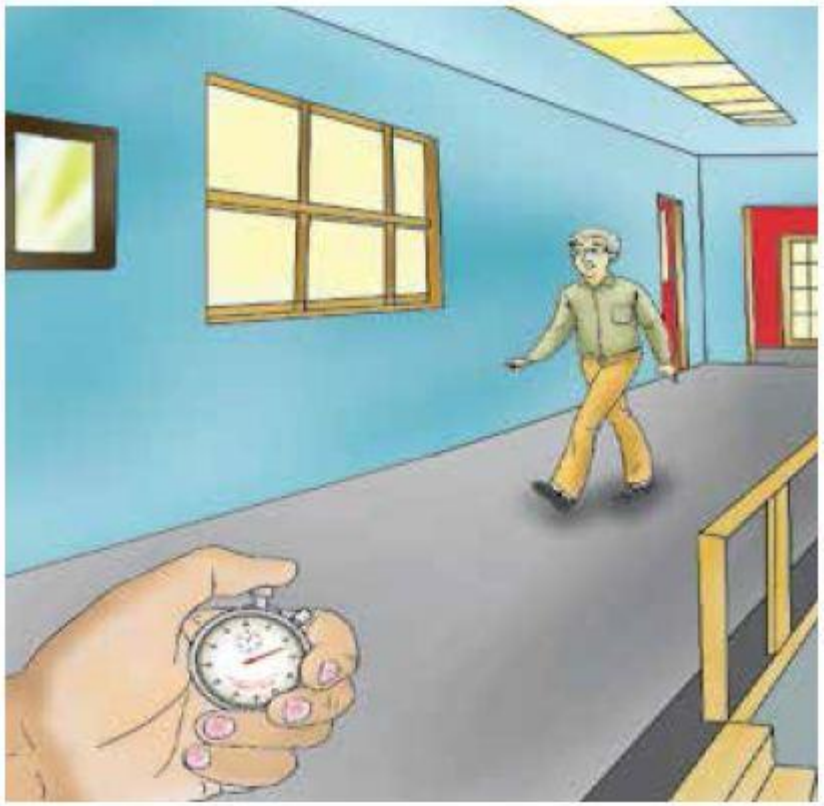


Figure 6.16 Six minute walk test

SUMMARY

1. Body Mass Index (BMI) is calculated from body weight and height. The higher score usually indicates higher levels of body fat.

2. Abilities of children in classes 1–3 which need to be measured and tracked are body composition (BMI), coordination (Plate Tapping) and balance (Flamingo Balance).

3. In the age group 9–18 years, it is important for students to have an overall fitness. The components to be considered in physical health and fitness profile are as follows.
(a) Body Composition (BMI)
(b) Speed (50 Metre Speed)
(c) Cardiovascular endurance (600 m Run/Walk)
(d) Flexibility (Sit and Reach)
(e) Strength (Abdominal Partial Curl Up, Push ups for Boys, Modified Push ups for Girls)

4. Basal Metabolic Rate (BMR) helps to calculate the daily energy expenditure of an individual to perform basic level of activity. Using BMR, an individual can find out the minimum number of calorie requirement for her/his body needs in order to function for 24 hours.

SUMMARY

5. To calculate BMR, the Harris–Benedict formula or Mifflin-St Jeor formula is used. The Harris– Benedict equation was revised by Mifflin and St Jeor in 1990:

Men: BMR = (10 × weight in kg) + (6.25 × height in cm) – (5 × age in years) + 5
Women: BMR = (10 × weight in kg) + (6.25 × height in cm) – (5 × age in years) – 161

6. Rikli and Jones came up with a battery of tests for testing fitness of senior citizens. It came to be known as the Fullerton Functional Fitness Test and it is an easy, inexpensive method of assessing the physical traits that senior citizens need in order to carry out their daily activities.