

## 1.2.2: Measuring health and fitness

### Cardiovascular endurance

**Multistage fitness test:** Mark out a 20 m course. Run back and forth in time with the beeps. Keep running until exhaustion prevents completion of two or three runs.

**12-minute run:** Place markers at regular interval around a 400 m track. Participants run or walk for 12 minutes and record the total distance.

### Muscular strength

**Hand grip test:** Grip the dynamometer with dominant hand. Apply max force while arm is straight out. Take test three times and record best result.

**One repetition maximum (1 rep max):** Use free weights or multi-gym equipment. Gradually add extra weight until you reach the max weight you can lift just once. Allow two/three minutes between each lift for recovery.

### Reaction time: method of measuring

Hold a 30 cm ruler above the open hand so the zero mark is between thumb and index finger. Tester drops the ruler with no warning. Participant must catch the ruler in the waiting hand. The result is the distance from the zero mark to where the top of the thumb holds the ruler.

### Muscular endurance

**60 second sit-up test:** Perform as many sit-ups as possible in 60 secs. Arms must be crossed across chest with knees bent. Feet can be anchored. Elbows must touch thighs to count.

**60 second press-up test:**  
Perform as many press-ups as possible in 60 secs. Elbows must move from the locked, straight position to 90 degrees of flexion.

### Agility: Illinois agility test

Mark out the course accurately as required. Participant starts in a face-down, prone position at the start line. Record the time taken to complete the course.

### Power

**Vertical jump test:** Stand sideways near a wall and measure height with the inside arm upstretched. Jump and put a mark on the wall with the inside hand at the highest point. The score is the distance between the standing height and the jumping height.

**Standing broad jump:** Stand behind the line. Bend knees and jump (two-footed) as far forward as possible. Measure from the line to heel marks. Count best distance from three jumps.

### Flexibility: sit and reach test

Sit with your legs straight out in front of you. Stretch forward and reach as far as you can with your fingertips while keeping your legs straight. Complete the test three times and record the best result.

### Balance: stork stand

Place hands on hips and one foot on the inside of the knee of the opposite leg. Raise heel and hold balance for as long as possible. The result is the time the participant holds the balance.

### Co-ordination: alternate hand throw test

Stand two metres from a wall with a smooth surface. Throw the tennis ball with one hand and catch it with the other hand. Repeat the action as many times as possible in 30 seconds. The result is the number of successful catches within the time.

### Speed: 30/50 m sprint

Mark out a 30 m or 50 m course on an even surface. With a running start, run the course as quickly as possible. The result is the time the participant takes to run the 30 m or 50 m course.

Fitness tests must demonstrate **validity** and **reliability**. This means that they must test the desired component and must be correctly administered.

