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Lecture Title

Common Test in Fitness

Script

Welcome to this lecture of fitness testing. Friend's regular physical activity is one of the most important things you can do for your health.

In previous lectures we have discussed about fitness, its importance, why it is required and types of fitness.

Actually Fitness includes cardiovascular functioning, which is improved by aerobic activities that get your heart and lungs working faster. It also includes muscle strength, flexibility, and balance.It can control your weight, increase chances of life to live longer, improve mental health, improve ability to do daily activities and prevent fails, and strengthen bones and muscles. In this technological age fitness is required for every human being. In this lecture we will be talking about the fitness testing, how test is performed and why it is required.

Fitness Testing

Fitness testing is a way of gaining information about the health related and skill related components of an athlete's fitness. Testing can take place in a number of environments, with laboratory testing being the most accurate; however there is still a large range of tests that can be carried out, away from a lab, which provide a lot of useful information.

Reasons for Fitness Testing

- To highlight the strengths and weakness of an athlete enabling a training program to be devised which addresses the findings
- To evaluate a training program, to see if it is helping the athlete in achieving set goals
- To measure fitness levels following injury, illness or following the off season
- To assist in setting goals
- To determine health status (in the non-sporting population)
- Talent identification
- To aid motivation

Test Order

According to the NSCA-(National Strength and conditioning Association) a battery of physical fitness test should occur in the following order:

1. Non-fatiguing tests (height/weight measurements, skin folds, vertical and broad jumps)
2. Agility tests (T-test, Illinois test)
3. Maximal strength & power tests (1-RM, 3-RM)
4. Sprint tests (40yard sprint, sprint fatigue test)
5. Muscular endurance tests (12min run, shuttle test)

Principles of Fitness Testing

In order for fitness testing to be accurate and worthwhile, a number of principles must be followed:

- **Specificity:** Fitness tests must assess an individual's fitness for the activity or sport in question. For example, there is little point in using a running endurance test to assess an athlete's improvement in cycling endurance.
- **Validity:** Fitness tests must measure the component of fitness that they are supposed to. For example, is your sit and reach test measuring solely the flexibility of the hamstrings or are there other factors involved?
- **Objectivity:** Sometimes also known as interested reliability. A test that is objective will produce the same results for the same individual, regardless of the tester, or technician administering the test
- **Reliability:** A reliable test produces the same results if repeated. For example, an assessor trained in skin-fold measurements will produce the same result, when the same area is re-tested shortly after.

Physical activity also keeps you in shape so you can enjoy leisure activities and safely perform work and home chores. It offers great mental and social benefits as well. The Lancet released a series of studies that attribute positive outcomes to physical activity, including "a sense of purpose and value, a better quality of life, improved sleep, and reduced stress, as well as stronger relationships and social connectedness."

On the other hand, lack of physical activity is associated with increased risks of:

- Anxiety, stress, and feelings of depression
- Developing many preventable conditions, such as high blood pressure, coronary heart diseases, diabetes, osteoporosis, colon cancer, and obesity
- Dying prematurely

The authors of the *Lancet* studies even suggest that the sedentary lifestyle so common in our culture is more deadly than smoking. They also believe that 6-10% of the world's non-communicable diseases (such as heart disease, diabetes, and certain kinds of cancer) are caused by physical inactivity.

Factors Which May Affect Fitness Tests

Fitness tests are subject to a large number of internal and external variables which may affect the outcome of the test. When performing a repeat test, it is important to try to limit as many variables as possible by ensuring the conditions/circumstances are exactly the same as during the previous test.

- Time of the day
- Weather conditions
- Environment (surface/noise/presence of other people)
- A different assessor
- Accuracy of measurements
- Test protocol not followed exactly as before
- Time since the athletes last meal
- Athletes emotions
- Athletes state of hydration
- Athletes health (recent colds/illness)
- Medication the athlete may be taking

5 Most Popular Physical Fitness Tests

To best determine whether you're at the peak of your physical health, you can use different types of physical fitness tests. Different tests check for various aspects of physical well-being. There are tests that focus on gauging your strength, stamina, flexibility, and more. Tests can focus on

one particular physical trait, a combination of two or several, and even your overall physical fitness.

If you're interested in finding out how you fare against standard measures, here are 5 of the most popular and commonly used physical fitness tests.

1. The Bruce Test

Designed to evaluate cardiovascular performance, the Bruce Test was designed as a clinical treadmill stress test. The purpose was to diagnose patients with suspected heart diseases, and the results would point to possible coronary problems. Today, this physical fitness test is also used to measure VO2 Max, or maximum oxygen intake, among athletes. You begin on the treadmill at a manageable pace and incline. At certain intervals, both incline and treadmill speed increases until your threshold is reached.

2. Illinois Agility

Also called the Illinois Agility Run, this physical fitness test was designed to determine agility. The running course is composed of cones lined up, and a set running track that crisscrosses around the cones. This determines your capability to quickly turn in other directions while running at a high speed.

3. Harvard Step Test

Also a test for cardiovascular function, this test can easily be administered at home. All you need is a 12-inch high bench or box to stand on, and a stopwatch. For three minutes, simply step up and down the platform at a steady pace. Then time how long it takes for your heart rate to normalize. The shorter the interval, the better your cardiovascular condition is. This physical fitness test is also known as the Cardiac Stress Test or Cardiovascular Endurance Test.

4. Beep Tests

This test is also commonly known as the Bleep Test or Shuttle Run. Some also refer to it as the Pacer Test or 20-meter Shuttle Run Test. To start this test, cones are placed 20 meters apart from each other. You then run to and from each cone according to recorded beeps or bleeps. A specialized Bleep Test CD may be required for this. The intervals between bleeps get shorter, thus requiring you to run faster. This physical fitness test is generally used to measure VO2 Max. It's also an indication of your endurance and aerobic energy.

5. Vertical Jump

This is another test that you can do at home with very minimal requirements. This is used to determine leg muscle strength. It is sometimes called the Vertical Leap or the Sargent Jump - named after American physical education pioneer, Dudley Sargent. To perform the test, you attempt to reach the highest point on a wall by jumping.

Types of Fitness Test

Fitness tests can be devised to test all aspects of fitness, providing the test follows fitness testing principles. The following are examples of simple fitess tests which can easily be reproduced away from a lab and measure strength, power, anaerobic endurance, local muscular endurance, aerobic endurance, flexibility, balance, reaction time and body composition.

Strength

One Rep Max: The heaviest weight you can lift for a single repetition, on a given exercise. Often abbreviated to 1RM. Ten rep max can also be used. Ensure you are fully warmed up prior to attempting to lift your estimated 1RM. If you feel you could have lifted more, do not attempt to do so on the same day as your muscles will be fatigued and so reduce the reliability of the test.

Speed

30m Sprint: Acceleration must be eliminated and so a flying start of 20m is recommended. Record the time between metres 20 and 50.

Power

Vertical Jump Test: Standing sideways on to a wall with the arms raised above you, mark the highest point you can reach. Still standing sideways, jump as high as you can, marking the point you can reach. Your score is the difference between your standing and jumping score. This test measures the power in your leg muscles.

Standing Long Jump: Start behind a starting line, jump from two feet and land on two feet as far as possible. You may use your arms to aid you.

Local Muscular Endurance:

Press-up Test: Perform as many press-ups as you can without rest. This test measures the endurance of your upper body muscles.

Sit-up Test: As above, repeated as many sit-ups as possible without rest. Make-sure you define before-hand what counts as a sit-up! This process of fatiguing a muscle (or muscle group) to measure its endurance can be repeated with any body part.

Anaerobic Endurance:

RAST Test: (Running-based Anaerobic Sprint Test) Following a 10 minute warm-up, 6 x 35m sprints are performed, with 10 seconds inbetween for rest and turn-around. Each sprint time is recorded. Following tests are expected to produce faster times for each of the sprints.

Cunningham and Faulkner Test: Following a warm-up, set the treadmill at 8 miles/hr and a 20% gradient. The athlete must start standing either side of the belt and begin the test by getting on the belt at full speed. The test is stopped when tha athlete cannot continue.

Aerobic Endurance:

Cooper Run: Following a 10 minute warm-up, run as far as you can in 12 minutes. Record the distance travelled to the closest 100m.

Multi-Stage Fitness Test (Bleep Test)**:** For this test you need a bleep test tape or cd which has recorded 'bleeps' at pre-determined intervals. The participants must run between 20m markers, in time with the tape. The bleeps get faster as the tape progresses and are divided into stages to help

monitor your progress at subsequent tests. The test finishes when you can no longer reach the end marker before the bleep.

Flexibility:

Sit & Reach Test: To assess the flexibility of the hamstrings. You will need either a special sit & reach table, or a bench and ruler/tape measure. Start with your feet flat against the table and your knees straight. Reach your arms as high as possible above your head and then lead forwards, to reach as far along the bench/table as possible. The furthest point your fingertips reach is your score. A specialist table has an overhang of 15cm and so if using a bench and ruler, a score of 10cm equals 25cm.

Calf Flexibility Test: Stand facing a wall and bend the knees to touch the wall whilst keeping the heels flat on the floor. Keep moving back to find the furthest distance away from the wall where you can still touch the wall with your knees. Measure the distance from the wall to the heel.

Balance:

Wobble Board: Using a wobble board or cushion, balance for as long as possible. Tests can be conducted on one leg, or both as long as subsequent tests are the same.

Stork Test: Stand on one leg with the free foot positioned just below the standing knee. Raise the heel of the standing foot and hold for as long as possible.

Reaction Time:

Ruler Drop: Using a metre ruler, get a friend to hold the ruler so that the 0cm line is level with and in between your open index finger and thumb. The friend drops the ruler and you must catch it as soon as possible, between your finger and thumb. The cm mark on the ruler closest to the top of the thumb is your score. The faster your reaction, the less of the ruler will pass through!

Body Composition:

Skin Fold Callipers: These can be used to determine the percentage of body fat an athlete has. It involves taking four (or sometimes 6) measurements from the biceps, triceps, suprailiac (just above the pelvis bone on the back) and subscapular (just below the shoulder blade). These 4 measurements can then be calculated to give an estimate of the total percentage body fat.

Bioelectrical Impedance Analysis: A far more accurate method of measuring body fat percentage. Two Electrodes are placed on a hand and the foot on the same side, whith the subject laying down. A safe electrical current is passed through the body. The speed of the current in moving from hand electrodes to the foot determines body fat percentage as fat is an insulator and slows down the movement of the current

Conclusion

Regular physical activity will help you do

- Decrease your risk of disease
- Feel better physically and mentally

- Look better
- Help avoid injuries
- Keep doing activities you enjoy throughout your life

Physical activity is essential to prevent and reduce risks of many diseases and improve physical and mental health. It can even help you live longer—research from the *American Journal of Preventative Medicine* indicates that regular exercise can add up to five years to your life.

Exercise is undoubtedly beneficial, it is not true that the more exercise you do or the harder you work the body, the better the results. Too much physical activity can lead to injury. It is essential to maintain a balance between working out the muscles without overdoing it. Know that your body gets stronger during rest and recovery.