# The Safe Practice of Fitness Testing

## Introduction

People partake in exercise for many different reasons, whether they're a professional sports person and it is their job to train everyday and kit fit or if they are an everyday Joe just wanting to lose the  pounds that Christmas turkey put on. Both sets of people do have something in common though, they both need to have goals and know exactly what those goals are. These goals can be determined by certain tests carried out by a coach, personal trainer or even the individual. The results from 'fitness tests' can be used to determine the current level of many aspects of fitness of the individual, such as flexibility, strength, power etc. The current level of fitness will give an idea of areas of improvement and areas of excellence. From this the personal goals can be formed.

## Health Screening

Before fitness tests are carried out it is extremely important for a health screening to be carried out. Health Screening is usually in the form of a Physical Activity Readiness Questionnaire (PAR-Q). These questionnaires are designed to aid the coach, instructor, trainer in getting some background knowledge on the lifestyle, health ability etc. of the individual. PAR -Q's are essential to determine factors that may prevent efficient fitness testing for example previous injuries or smoking habits.

After screening the tester can produce suitable fitness tests to suit the individual. The screening would have allowed the tester to individually design or adapt fitness test to determine the current level of fitness for their client.

Tests can vary dramatically between different groups of people, for example, members of the elite regional rugby squad would be expected to have reasonably high levels and would most likely have performed regular fitness test throughout their career. On the other end of the scale a group of young

children wishing to play basketball would not expect to go through the rigorous training regime of an NBA all star.

**Value of Fitness Testing**

Fitness testing is very important whatever level you are at. It can help determine why an individual did not get picked for the national side or it can help coaches plan sessions for young children so not to over work them.

For elite performers such as my regional rugby squad fitness testing can be the difference between lifting the world cup with England and being stuck playing in regional team they are already in.

By carrying out fitness tests, elite performers can determine which aspects of fitness must be improved to progress in their career.

Take a front row forward in my rugby squad for example. If during a scrum the team are being pushed off the ball every time it is obvious that strength is lacking the front row. Certain test such as the repetition maximum tests would be carried out and the results compared. A suitable training regime would then be developed, at a later date the same test would be carried out and again results compared and hopefully the performer would have improved.

Both player and coach can benefit from fitness tests. The results of tests may help coaches…

- Select the team
- Set goals
- Monitor player performance
- Enhance/adjust training sessions
- Compare results with other players
- Help identify overtraining

The results of tests may help the athletes…

- Find personal strengths and weaknesses
- Set goals
- Motivate themselves

- Monitor personal progression

Even for a group of children wishing to learn how to play a bit of basketball fitness testing is still important but it is very much less prominent. The coach will be looking for much different outcomes to the tests. Tests must be much less scientific and may be adapted to make them more fun for the children they still however can help them find their own personal strengths and weaknesses. The results can be used to h elp motivate and set goals for the children and improve overall levels of fitness. The tests must be appropriate for the clientele, it is no good carrying out a maximum lift test on children because the use of weight training is not advised in young childr en. The tests can be used as an educational process as well, children can be taught the different aspects of fitness and what is required to perform well in the chosen sport (Basketball).

**Validity, Reliability and Testing Protocol's**

When performing fitness test there are 3 very important aspects to consider. These are…

- Validity
- Reliability
- Testing Protocol's

If anyone of these aspects is missing then the results of the test may be ignored or considered worthless.

**Validity –** Validity is the meaningfulness of a set of data. Are the results measuring what is desired? Is there a point in getting a golfer to perform a bleep test? Are the results of the bleep test valid to the sport of golf? It is very easy to perform test on performers and make generalisations ba sed on the results, which can lack validity. For example the bench -press 1 rep max test, is often used to test strength. The bleep test only uses muscles in the upper body so is it valid to test the strength of say a sprinter who predominantly uses leg power? The validity of fitness test is very important to obtain and interpret suitable results.

**Reliability –** Reliability is a measure of how consistent and repeatable the tests are. If a coach performed a certain test on his players, would someone else who performed the same test on the same players obtain the same results? If the results were the same or similar the test can be considered reliable. Errors often cause unreliability in fitness test, human errors, errors in testing or errors in recording the da ta.

**Testing Protocol's –** Nearly all fitness tests used today come with a predetermined protocol. A protocol is a set of rules, if you like, on how the test should be carried out to obtain valid and reliable results. Testing protocols must be followed accurately or the results can but worthless for example, whilst carrying out a bleep test the tester strides out the approximate distance of the running area. This would not be following the correct protocol as most protocol's say 'accurately mark out distance '. The results from this test would then be considered void as the distance was probably incorrect.

It is now possible to develop a set of guidelines to aid coaches with the safe selection and administration of all fitness tests.

**Appropriate Testing?**

There is no point testing someone on an aspect of fitness if that aspect does not appear in a situation of his or her sport. Again you must ask yourself if the test is valid?

For a group of elite regional rugby players I feel that the following tests are appropriate to their needs.

- **1 repetition maximum test** – 1 repetition maximum test (1-RM) is a popular method of measuring isotonic muscle strength. It is a measure of the maximal force a subject can lift with one repetition. The athletes choose subsequent weig hts until they can only repeat one full and correct lift of that weight.

- **Multi Stage fitness test** - This test involves continuous running between two lines 20m apart in time to recorded beeps. For this reason the test if

also often called the 'beep' or 'b leep' test. The time between recorded beeps decrease each minute (level). Aerobic fitness is a very important component of fitness for rugby.

- **Body fat/composition test** – Is an estimation of body fat by skinfold thickness measurement. Measurement can use from 3 to 9 different standard anatomical sites around the body. The right side is usually only measured. The tester pinches the skin at the appropriate site to raise a double layer of skin and the underlying adipose tissue, but not the muscle. The callipers are then applied 1 cm below and at right angles to the pinch, and a reading taken 2 seconds later. The mean of two measurements should be taken. If the two measurements differ greatly, a third should then be done, then the median value taken. Excess bod y fat would affect the player's ability to move freely around the field, and the extra weight will increase fatigue during the game.

- **Sit and Reach test** - This test involves sitting on the floor with legs out straight-ahead. Feet (shoes off) are placed fl at against the box. The tester holds both knees flat against the floor. The athlete leans forward slowly as far as possible and holds the greatest stretch for two seconds. Make sure there is no jerky movements and that the fingertips remain level and the legs flat. Good hamstring flexibility is import for rugby players in running and for ball kicking skill.

- **30m-sprint test** – The time taken to run 30m is tested. Maximum speed and acceleration are very important in rugby.

Using the same tests as the elite r ugby players on the beginner basketball players would not be recommended. Here are some tests that I feel suitable for the basketball players.

- **Flexibility -** Flexibility is important in terms of being injury free and being able to move freely around the co urt. Flexibility tests of body areas that used in the game would be suitable.

- **Sargent Jump -** Vertical jump ability is very critical for basketball. The technique for the test may be changed to incorporate a step to be similar to the jumping technique used in the game.

- **Illinois Agility -** The ability to quickly change direction is very important for basketball.

- **30m-sprint test –** The time taken to run 30m is tested. Maximum speed and acceleration are very important in basketball

- **Chester Step Test –** The Chester step test is a variation on other step tests. It is done to music and gets increasingly harder. It is sub -maximal and more enjoyable than most.