



Introduction

The measurement of fitness is an integral part of training for most sports. In addition, it is often used to help and guide those who simply enjoy exercise as a means of keeping healthy. In 1988, the then National Coaching Foundation (now **sports coach UK**), in partnership with Loughborough University, introduced the Multistage Fitness Test as a simple means of monitoring aerobic fitness¹. The test has become recognised as one of the most popular and valid tests of aerobic fitness available and can be used to estimate a person's maximum oxygen uptake, or $\dot{V}O_2$ max (see Section 2).

Aerobic fitness is a vital component of most sports. Athletes actively involved in their sport, the coaches who train them and those who simply exercise to improve their health and general well-being, all have a keen interest in monitoring their progress.

The Multistage Fitness Test was designed with these people in mind. It provides on the spot, scientifically validated information, allowing sports people to monitor their aerobic fitness effectively. The equipment needed for the test is minimal, enabling thousands of people that do not have access to laboratory equipment used by sport scientists, to make a full assessment of their aerobic fitness.

The test, although easy to do, is based on established scientific research findings and produces reliable results. It can be used by all types of sports

1 Aerobic fitness refers to a person's ability to exercise at low/moderate intensity for a long duration utilising oxygen for metabolism.

people; from games players to athletes, and from international sports people to individuals using it to check their own fitness. The test is equally suitable for large numbers of people and individuals. Repeated use of the test allows all sports people to assess progress in their aerobic fitness.

The concept of a progressive shuttle run test for the prediction of maximum oxygen uptake was introduced by research from the University of Montreal in Canada. Their findings and a description of the test were first published by Leger and Lambert (1982)¹. Following the publication by Leger and Lambert, the test was adopted by the Council for Europe as part of its range of cardiorespiratory and motor fitness tests for assessing the physical development of schoolchildren. These tests are published in the Eurofit Handbook (1983).



What is Maximum Oxygen Uptake?

During most forms of exercise, the body depends on oxygen to help provide the energy it requires. Oxygen is extracted from the air by the lungs and is transported via the blood to the working muscles. As exercise intensity increases, there is a corresponding increase in the body's demand for oxygen. Exercise which is largely dependent on the provision of oxygen for energy is known as aerobic exercise. This is the steady, endurance type exercise which provides the basis for many individual and team sports. However, everyone comes to a point when the intensity of the exercise increases to such an extent that the supply of oxygen can no longer satisfy

1 Leger, LA and Lambert, J (1982) A maximal multistage 20m shuttle run test to predict $\dot{V}O_2$ max. European Journal of Applied Physiology, 49, pp 1-5