



## A Systematic Review of Physical Fitness Assessment in Children and Adolescence

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### ABSTRACT

*Children's and teenagers' physical fitness is a crucial indication of health since it can forecast their health in later life. Body composition, cardiorespiratory fitness, musculoskeletal fitness, motor fitness, and flexibility are some of the different ways that physical fitness is measured because it has a multidimensional structure.*

**Keywords:** Motor activity, Physical activity, Exercise, Sports, Child, Adolescent, Review, Longitudinal studies.

### INTRODUCTION

Children's and teenagers' physical fitness is a crucial indication of health since it can forecast their health in later life. Body composition, cardiorespiratory fitness, musculoskeletal fitness, motor fitness, and flexibility are some of the different ways that physical fitness is measured because it has a multidimensional structure. The number of health-related physical fitness test batteries used globally is over fifteen. The objective of this study was to examine the most frequently used field-based test batteries for evaluating physical fitness and their capacity to capture the association between the various aspects of physical fitness and the wellbeing of kids and teenagers. Although it is possible to evaluate physical fitness adequately in a laboratory setting, it is still not practical to test the entire population in any one region due to the need for skilled experts, advanced equipment, high expenses, and time restraints. Field-based fitness assessments, on the other hand, can be used on a larger number of participants over time and are less expensive, easier to administer, and require little to no special equipment. The measurement and evaluation of children's and adolescents' physical fitness is frequently done using these test batteries.

In scientific literature, the components of fitness for health have been characterized in a variety of ways across time. There is general agreement that physical fitness for health has a multidimensional structure with multiple components, despite the fact that definitions vary. For example, certain European research evaluates the following factors: body composition, cardiorespiratory fitness, musculoskeletal fitness, and motor fitness (speed, agility and coordination).

#### **Body composition**

The most popular health-related statistic is body fat percentage (%BF), which is crucial for both good health and athletic performance in many sports. Body composition refers to the relative amounts of different types of body tissues (bone, fat, and muscle). These people have higher risks of obesity, cardiovascular illness, diabetes, etc. due to their excess body fat.

#### **Cardiorespiratory fitness**

The term "cardiorespiratory fitness" describes the body's capacity to deliver enough oxygen to the working muscles during prolonged physical activity. It is one of the most crucial elements of physical fitness for health and a clear indication of children's and adolescents' physiological health. The criterion for determining cardiorespiratory endurance is called maximal oxygen uptake, and it tells us how much oxygen the skeletal muscles use at their greatest rate when engaged in physical activity.

#### **Aspects of your body in general (strength, flexibility, balance, coordination, agility and speed)**

These physical characteristics may be found in the literature as individual elements and are occasionally grouped in diverse

ways. They primarily depict how the neurological and musculoskeletal systems have evolved. The ability to carry out tasks that call for a lot of muscular effort is referred to as muscular strength. Muscular strength can be found as a separate element of health-related fitness because there is very strong evidence that it is linked to the following: better posture and a lower risk of musculoskeletal injuries; better bone mass, which lowers the risk of osteoporosis; improved glucose uptake, which improves blood glucose control; and an increased metabolic rate when at rest, which provides better blood glucose control.

Flexibility, which can be found as a separate element of physical fitness for health purposes, is the capacity to move a joint through its full range of motion. The performance of activities necessary for daily living may be hampered by inadequate levels of flexibility in various joints. Flexibility and strength of muscles can occasionally be present in the same musculoskeletal component. The tests that are most frequently used to measure strength are the standing long jump test, the handgrip strength test, the flexed arm hang test, the curl-up or sit-up test, and the tests that are most commonly used to measure flexibility are the shoulder stretch and sit-and-reach tests. Balance, coordination, agility, and speed are four physical attributes that are frequently combined into one motor fitness component, which is referred to in the literature as skill-related or performance-related fitness. Physical fitness is a crucial component of children's and teenagers' health, hence recording and evaluating it must be given top importance in all schools. The evaluation of children's and adolescents' health-related physical fitness gives us important information that we can utilize to maintain and improve their health. Long-term changes in children's and teenagers' physical fitness provide pertinent information for creating effective public health initiatives.