

Research Paper :

Construction of norms for strength and cardio-vascular tests of school children

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ABSTRACT

The purpose of the study was to construct the norms for strength and cardio-vascular tests of school children. 2000 male students studying in classes 9th to 12th in various Senior Secondary Schools from 10 districts of Uttar Pradesh were selected to serve as subjects. The study was confined to the norms of arm strength, back strength, leg strength and abdominal strength (for strength variable) and Cooper's 12 minute run/walk and Gallagher and Brouha step test (for cardio-vascular efficiency test). Arm Strength was scored according to the Roger's formula (Pull-ups + Push-ups) (W/10+H-60). Abdominal strength was measured by sit-ups, Back and leg strength were measured with the help of Dynamometer and for the measurement of cardio-vascular efficiency Gallagher and Brouha step test and 12 minute run/walk Cooper test were applied. For the purpose of the study the 'Difficulty Rating Scale' (statistical technique) was applied to construct the norms.

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Developing an individual's physical fitness is one of the major objectives of the process of physical education (Barrow and Mc Gee, 1979; Johnson and Nelson, 1988). Physical fitness is one of the potential characteristics of every human being, physically fit citizens are the major asset for a strong nation and hence physical fitness of the youth should be a national concern. Children's physical fitness is of interest to educate us as it improves health and prevent disease. The promotion of strength and cardio-respiratory fitness through increased physical activity has become a national priority. The field of physical education has been identified as an important vehicle for achieving these objectives in children (Hastad and Lacy, 1994). For the purpose of this study strength is considered as the ability of a muscle or a group of muscles to exert force against resistance and cardio-vascular efficiency is considered as the ability of the cardio-respiratory system to sustain a work for prolonged period of time.

Main objective of this study is to construct norms for strength and cardio-vascular tests of school children. The study has been confined to the norms of arm strength, back strength, leg strength and abdominal strength (for strength variable) and Cooper's 12 minute run/walk and Gallagher and Brouha step test (for cardio-vascular

efficiency test).

METHODOLOGY

2000 male students studying in classes 9th to 12th in various Senior Secondary Schools from 10 districts of Uttar Pradesh were selected randomly to serve as subjects. The selected schools and subjects pertaining to the same has been presented in Table 1.

For selecting the subjects, the names of all the subjects were taken from the records of their respective schools. All the schools principals were requested through a common circular to render their help to the research scholar. Prior to the administration of tests, a meeting of all the subjects was held and requirement of the testing procedure was explained to them so there was no ambiguity in their minds regarding the efforts required of them. Demonstration of all seven tests items included in the present study was given. The rules and patterns of scoring governing each test items were also fully explained. All the test items were administered in the school hours from 11:00 AM to 4:00 PM. On the first day of the test, all the subjects were assembled and each test item was demonstrated and its requirements and purpose was explained. The height and weight were measured without wearing shoes. The subjects were given sufficient