

Comparison of Health Related Physical Fitness Variables And Psychomotor Ability between Rural and Urban School Going Children

Saha¹, G.C. & Haldar², S.

¹Assistant Professor and AFC 'C' licensed Coach, Post Graduate Govt. Institute for Physical Education, Banipur, 743233, West Bengal State University, West Bengal, India, e-mail: callmegopal@gmail.com

²Research scholar, Dept.of Phy. Edu, University of kalyani, Dist- Nadia, West Bengal, India, email: shantanu.halder93@gmail.com

Abstract

The purpose of the study was to compare the Health related physical fitness variables and psychomotor ability between rural and urban school going children. One thousand students age ranging from 17 to 30 years were selected as subjects for the study of which five hundred were Tribal and the remaining five hundred were Non-tribal School going from different schools of North 24 Parganas District, West Bengal. The subjects were tested in their respective school ground for continuously five days. The criterion measures included under Health related physical fitness directly related to improvement of health are 1) Sit and Reach test to measure lower back flexibility and was, 2) Body Fat Monitor, an electronic device manufactured by Omron model no. HBF 306 to measure Body fat percentage, 3) Aerobic /cardiovascular function was measured by the 1.5 mile run test, 4) Abdominal muscular strength and endurance was used measured by Partial Curl Ups and 5) Upper body muscular strength and endurance was measured by Right Angle Push-Ups. To measure the Psychomotor ability, reaction ability was considered and was measured by Nelson Hand Reaction Test. For the purpose of Comparison of Health related physical fitness variables and Psychomotor ability between Rural And Urban School going children, Student's 't' ratio statistical technique was used (SPSS Version 18) to analyse the data. The level of significance was set at $p < 0.05$ level. The results showed significant differences between Rural and Urban school going children in all the Health related Physical fitness components as well as in Reaction ability under psychomotor ability and rural school going children was found better than urban school going children.

Key words: Health related physical fitness, reaction ability, Rural, Urban

Introduction

The sedentary lifestyle presents a major public health challenge that must be met in order to prevent obesity and thus enhance health and well-being (Bize *et al*, 2007). For substantial health benefits, current guidelines for adults recommend at least 2.5 hours of moderate-intensity or 1.25 hours of vigorous-intensity aerobic physical activity per week. Further, moderate- or high-intensity muscle strengthening activities for all major muscle groups two or more days a week

provide additional health benefits (<http://www.health.gov/PAguidelines>, 2009).

Over the past four decades, there has been an increase in the prevalence of overweight and physical fitness deterioration in adult across all genders, ages and racial/ethnic groups (Ichinohe *et al*, 2004). The negative effects of degraded physical fitness on both the individual and society are serious and multi-dimensional. It can precipitate many risk factors to health including coronary heart disease, certain forms of cancer,

diabetes, hypertension, stroke, gall bladder diseases, osteoarthritis, respiratory problems, gout and its associated increases in all cause mortality (Cataldo, 1999).

Further Psychomotor Ability deals with physical and motor development. It is the main goal of physical educators. In the psychomotor domain opportunities are presented to develop balance, eye-hand coordination, agility, flexibility, strength, reaction ability and other components of the domain. Reaction time is the interval between the onset of a signal (stimulus) and the initiation of a movement response (Magill, 1998). Development of the psychomotor domain can be important for the individual's health and well-being, as well as for that of the community. Fitness activities in the school setting have important individual, societal, and economic implications.

The reaction times of high performance sprinters have been reported to be shorter than those of low performance sprinters. Reaction time can be improved to a certain extent by warm-up and exercise. Exercise induces arousal that supports alertness to external environmental stimuli in highly trained athletes (Mouelhi et al, 2006).

Majority of the Indian population live in rural areas, mainly depending on agriculture for their livelihood, and carry out more physical activities when compared to the urban population who are accustomed to sedentary life style. Healthy body is necessary for increasing the working capacity and maintaining health related physical fitness of an individual to perform his daily tasks vigorously and alertly, with left over energy to enjoy leisure time activities. It also helps to withstand stress and carry

on, in circumstances where a physically unfit person could not continue.

In India various tribal communities are in different stages of development, but they are still backward in comparison to those who are so-called civilized people or belong to urban communities. These tribal's are aborigines of our country. They have been studied from a number of angles. The active life with a lot of physical activities to earn their daily bread and butter is contributory to their physical development. The genetical potentiality in performing vigorous physical activities can be useful to excel in certain sports and games.

Therefore it is worthwhile to compare the health related physical fitness variables and psychomotor ability of rural and urban school going children who may be selected at an early age and might be systematically nurtured for full manifestation of sports potentialities through scientific sports training for enhancing performance and upliftment of overall fitness and therefore the present study was undertaken.

Materials and Methods

One thousand students age ranging from 17 to 30 years were selected as subjects for the study of which 500 hundred were Tribal and the remaining five hundred were Non-tribal School going from different schools of North 24 Parganas District, West Bengal. The subjects were tested in their respective school grounds for continuously five days. Health related fitness includes the five major components of fitness directly related to improvement of health.

Test component-1: The sit and reach test was used to measure lower back flexibility and was recorded in nearest centimeters.

Test component-2: Body Fat Monitor, an electronic device manufactured by Omron model no. HBF 306 was used to measure body fat percentage and was recorded in percentage.

Test component - 3: Aerobic /cardiovascular function was used measured by the 1.5 mile run test and was recorded to nearest minutes and seconds.

Test component-4: Abdominal muscular strength and endurance was measured by Partial Curl Ups and was recorded in numbers.

Test component-5: Upper body muscular strength and endurance was measured by Right Angle Push-Ups and was recorded in numbers.

To measure the Psychomotor Ability, reaction ability was considered and was measured by Nelson Hand Reaction Test and was recorded to nearest seconds.

The entire tests were demonstrated and explained to the subject by the researcher himself. After that, subjects were asked to give the test and the data were recorded. In the present study simple random experimental group design was used to compare Health related physical fitness variables and psychomotor ability between rural and urban schoolgoing children.

Statistical procedure

The gathered data were duly analyzed through statistical procedure. For the purpose of comparison of Health related physical fitness variables and psychomotor ability between rural and urban schoolgoing children, student’s ‘t’ ratio statistical technique was used (SPSS Version 18). The level of significance was set at $p < 0.05$ level.

Results & Discussion

Table 1 enlists the comparison of health related fitness and psychomotor ability measures between rural and urban school going children. Statistically significant differences are revealed in the health related fitness and psychomotor ability measures between rural and urban school going children. Rural schoolgoing children were found to possess greater health related physical fitness and quick reaction ability than their urban school going counterparts.

Table-1: Significance Of Difference Of Mean Of Health Related Physical Fitness Variables And Psychomotor Ability Of School Going Children

Groups	Mean	S.D.	Mean Diff.	S.E. DIFF	‘t’ ratio
One mile race (Rural)	9.165	0.792			
One mile race (Urban)	9.377	0.777	0.21	0.05	4.27*
Body Fat Percentage (Rural)	18.961	4.811	1.64	0.30	5.43*
Body Fat Percentage (Urban)	20.601	4.744			
Push Ups (Rural)	20.396	7.442	1.40	0.41	3.41*
Push Ups (Urban)	18.994	5.419			
Sit Ups (Rural)	23.730	5.397	1.51	0.31	4.82*
Sit Ups (Urban)	22.218	4.484			
Sit and Reach Test (Rural)	33.728	3.966	1.49	0.231	6.46*
Sit and Reach Test (Urban)	32.234	3.319			
Reaction Ability (Rural)	0.235	0.031	0.014	0.002	6.61*
Reaction Ability (Urban)	0.249	0.035			

* Significant at 0.05 level of significance.

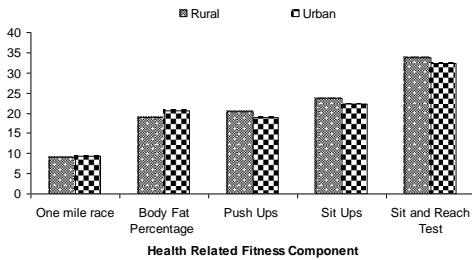


Figure 3: Comparison of Means of Health Related Physical Fitness Variables And Psychomotor Ability Of School Going Children

It is usually noticed that lifestyle of the Rural people is based on hard physical works than that of urban people which makes the tribals more hardy, speedy, agile, flexible and laborious and probably due to such reasons they assumed high functional ability in their daily life activities, which rather assists them to be more fit physically and mentally than that of the non-tribals. Moreover the tribal people mostly live in villages or small towns where because of their lower socio-economic status they usually engage themselves in hard working and laborious type of activities which also assists them to develop their health related physical fitness.

Regular practice of systematized physical activities in childhood and adolescence may strongly favor the development or maintenance of suitable levels of health related physical fitness, decreasing hence the risk of incidence of several chronic-degenerative dysfunctions in early ages. Reflexes are at their best in a person's teens and twenties. Exercise also relates to this, as reflexes can be maintained at older ages through regular exercise and constant alertness. The direct correlation between fine motor skills and

reaction time causes reaction time to worsen with age.

Some of the factors which have been found to influence reaction time are the sense organ involved, the intensity of the stimulus, the preparatory set, general muscular tension, motivation, practice, the response required, fatigue and one's general state of health (*Johnson and Nelson, 2007*). Reaction time and speed have been used in the evaluation of the motor skills of humans for a considerable time. Although reaction time is a measure of performance, researchers generally use it to evaluate motor skills (*Magill, 1998*).

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