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Physical Fitness in School Going Adolescents

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ABSTRACT

Background: Physical fitness is the ability to carry out daily tasks with vigour and alertness, without undue fatigue and with ample energy to enjoy leisure- time pursuits and meet unforeseen emergencies It comprises two types of components: Health and Skill related Physical Fitness components. The physical fitness tests used in this study comprises both the components. In this study it was seen that Physical Fitness in school going adolescents was poor.
Purpose of the Study: World Health Organization made a prediction; one of every three Indians will be a coronary or a diabetic patient by 2030 and the population at the risk is the presently school going children. Accordingly, there is a need to form a scientific fitness regimen which initially requires assessment which should be specific to the child as each one will have different fitness levels because of different lifestyles, habits and environment they live in.
Results: The boys are fit than the girls and showcased statistically significant difference in Right Angle Push Ups and Curl Ups tests whereas girls had more flexibility than boys and was statistically highly significant. In Shuttle Run test the results were similar in both genders.
Main findings: 1-mile walk/run only one-fourth population could not complete rest of them refused to participate.
Conclusion: Boys were fit than the girls except flexibility, speed and agility components.
Potential Implications: An exercise regimen can be formed according to the fitness of the child.

Keywords: Physical fitness, School going adolescents, 13-15 years Age group.

INTRODUCTION

Physical fitness is an important measure of the fitness of children and also anticipates health later in adulthood and it is an area of interest in a public domain.

There were studies stating that there increased amount of adiposity and screen time which results into poor Physical Activity whereas regular exercises and activity improves Academic performance. [1] In contrast to the traditional practice tests which assessed the latent dimensions of physical fitness, the new scientific evidence suggest that the physical fitness should be measured specifically component per se including both health and skill related components.

Considering that sports performance which completely depends on the motor skills which is related to physical activity, hence its assessment is important within various sports clubs, school Physical Education department, Department of Sport physiotherapy and Sports Medicine or Scientific Research. [2] There are existing evidences which suggests the same and physical fitness is a good measurement of health in adulthood. [2] In many developed countries they have included this group of tests in their educational curriculum. This certainly does not diminish the need to

assess motor skills in children and adolescents. [3]

The major reasons that attribute to childhood obesity especially during adolescence are due to increased sedentary behaviour, lifestyle modifications, poor physical activity, lack of knowledge and awareness of physical fitness amongst parents. [3]

In order to improve physical fitness and reduce the future consequences a physical fitness programme should be made which may in turn increase awareness of physical fitness. [3] It is essential to carry out this study especially in peri urban areas which are not yet discovered.

The main aim of this study is to assess physical fitness of 13-15 years of age group as this age group is not assessed in earlier studies.

Objectives:

- To evaluate health-related and skill related fitness levels of school going adolescents between the ages of 13 and 15.
- To compare the fitness levels of girls and boys of the same age group.

MATERIAL AND METHODS

Design of the study: Observational type of study

Type of materials involved: pen, paper, mats, stop watch, playground, measuring tape and wooden blocks.

Sample size: 240 calculated by WINPEPI Software.

Permission was taken from the principal of SKNCOPT.

The Ethical Committee's approval was taken.

Permission from the school principal was taken.

Parents were explained about the procedure and their consent was taken.

Subjects were selected according to the inclusion criteria.

CHILDREN'S PAR Q questionnaire was filled by the parents of participants.

intervals and further tests were performed.

Prior to the tests, warm up was done and cool down post assessment was also performed.

The tests were used from President's Challenge physical fitness battery. [3,4]

The children were scored accordingly and values were interpreted.

Then the values were compared with girls and boys within the same age group.

The tests performed are as follows:

1. V Sit and reach- lower limb flexibility.
2. Curl Ups- abdominal strength and endurance.
3. Right Angle Push Ups- upper limb strength and endurance.
4. Shuttle run- speed and agility.
5. 1-mile walk/ run- cardiorespiratory endurance. [4]

RESULT

240 students were recruited and were divided according to the age group 13,14 and 15 years old. Their mean ± SD were derived on Microsoft Excel and results were calculated using unpaired t- Test.

Table 1- 13 years old, n=40 in both groups

Tests	Gender	Mean ±SD	t- value	p- value
V sit And Reach	Girls	1.34±2.17	1.739	0.0086
	Boys	0.5±2.15		
Right Angle Push ups	Girls	12.652±5.5	6.604	<0.001
	Boys	24.5±9.65		
Curl Ups	Girls	23±4.6	4.317	<0.001
	Boys	28.17±5.7		
Shuttle Run	Girls	11.42±1.10	1.559	0.123
	Boys	10.9±1.8		

- In *Table 1* flexibility of hamstrings was more among the girls than the boys and the difference was statistically highly significant.
- The strength and endurance of the upper limb was more among the boys than the girls and the difference was statistically highly significant.
- Doing curl ups the boys were more fit than the girls and the difference was statistically highly significant.
- In this age group there was no statistically significant difference in the speed and agility of boys and girls

Table 2- 14 years old, n=40 in both groups

Tests	Gender	mean ± SD	t-value	p-value
V sit And Reach	Girls	1.25±2.08	1.753	0.083
	Boys	0.45±2		
Right Angle Push ups	Girls	14±4.4	6.539	<0.001
	Boys	26±10.74		
Curl Ups	Girls	22.3±7.5	6.487	<0.001
	Boys	33.2±7.53		
Shuttle Run	Girls	11.19±0.98	3.109	0.003
	Boys	10.37±1.35		

- In *Table 2* flexibility of hamstring was more among the girls than the boys and the difference was statistically highly significant.
- The strength and endurance of upper limb was more among the boys than the girls and the difference was statistically highly significant.
- Doing curl ups the boys were more fit than the girls and the difference was statistically highly significant.

The boys exhibited a low speed and agility as compared to girls and the difference was statistically significant.

Table 3- 15 years Old, n= 40 in both groups.

Tests	Gender	mean ± SD	t-value	p-value
V Sit and Reach	Girls	1.5±1.8	2.432	0.017
	Boys	0.38±2.29		
Right Angle Push Ups	Girls	13.12±5.7	8.117	<0.001
	Boys	26±8.26		
Curl Ups	Girls	20.3±5	4.36	<0.001
	Boys	26.25±7		
Shuttle Run	Girls	11.9±0.97	3.381	<0.001
	Boys	11.12±1.09		

- In *Table 3* flexibility of hamstring was more among the girls than the boys and the difference was statistically highly significant.
- The strength and endurance of upper limb among the boys was more in boys than the girls and the difference was statistically highly significant.
- Doing curl ups the boys were more fit than the girls and the difference was statistically highly significant.
- The boys exhibited lower speed and agility than the girls and the difference was statistically highly significant.

DISCUSSION

There are reported studies suggesting that childhood obesity and decreasing levels of fitness are on an alarming rise in India. [5]

In one of the previous studies performed among the rural primary children of South Africa it is found boys demonstrated significantly better performance in more activities such as explosive strength, muscular endurance and cardiorespiratory fitness than girls and in this study the girls have better flexibility than the boys which matches the previous study. [6]

In this study the girls had better flexibility than boys in all the three age groups the reason can be the cyclic fluctuations of female sex hormones. [7]

The speed and agility result in both the genders are quite similar which in previous study, the boys performed better than girls. [6]

In a study it was stated, agility also depends on the perception and decision-making skills of the child which indeed correlates with cognition and is considered to be a key component for performance speed as well as agility. [8]

The muscle strength and endurance are seen more in boys than girls due to High levels of Anabolic Hormones in male counterparts. [9]

The last test, the 1-mile walk/run more than one fourth student population couldn't complete.

Few children participated but couldn't complete due to low cardiorespiratory endurance which also supports a previous study that mentions relation of motor skill competence and physical fitness levels.

In that study it is explained the children having low motor skill competence have low physical fitness and are prone to obesity and other diseases in later life due to physical inactivity. [10]

There is evidence which suggests that students who voluntarily participate in physical activities are fit than the students who avoid participating in sports. [11]

When the mean and SD were compared with the reference values of the President's Challenge Youth Fitness battery, the Indian school students have low fitness level. [4]

CONCLUSION

The physical fitness in boys is more than the girls except three components, flexibility, speed and agility. Boys showcased more participation in sports than the girls and are more physically active. Both the genders have low cardiorespiratory endurance.

Limitations of the Study:

Data was insufficient for 1 mil walk/run test due to less participation in the test.

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