

Original Research Article

Developmental Perspective of Endurance Ability among School- Going Boys and Girls: A Comparative Analysis

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ABSTRACT

The studies of development of different motor abilities in childhood and adolescence are one of the important areas in physical education. Present study concerned with the comparison of developmental pattern of endurance ability between 10-15 years school-going boys and girls. Total 272 school going boys and girls were selected randomly as subject for the present study. Among them 192 were boys and 80 were girls. Two independent group designs were used for the present study. Endurance was the criterion measure of the present study. 9 min run and walk was used to measure the endurance ability. Mean and SD were computed and t-test was conducted to find out statistical significance of the differences between means. Results revealed that, boys were always far ahead in endurance ability than the girls from 10 to 15 years of age span. Endurance increased as the age of the boys increased from 10 to 15 years continuously but the rate of development was different for different age group. Result also revealed that girls have highest endurance level at 11 years of age after that their endurance decreased as the age increased up to the 15 years. This unusual fact cannot be explained by physiology but that might be due to the psychological makeup of the girls usually they have during this age.

Key words: Developmental comparison, Endurance ability, School-going boys and girls.

INTRODUCTION

Motor ability is a general trait of individual which is related to performance of a wide variety of skill.^[1] The study of the development of different motor abilities in childhood and adolescence are one of the important areas in physical education and physical education professionals must be aware with the nature of development of different motor abilities, like endurance, running speed, flexibility, agility, balance, strength etc. Several studies have been conducted to understand the status and the developmental pattern of these abilities among children and adolescence worldwide.^[2-4] Present study was concerned with the development pattern of endurance of school

going boys and girls. Findings will be helpful for the physical education teachers and coaches to plan educational curriculum as well as sports training schedule for the athletes of this age group. The study was conducted to understand the development pattern of the endurance ability in respect to age among the school-going boys and girls.

MATERIALS AND METHODS

The subjects

A total of 272 school children were selected randomly from different schools of West Bengal. Among them 192 were boys and 80 were girls. The range of age of the school children were from 10 years to 15 years. The students were studying in class V

to IX in their respective school and attended daily classes regularly. The subjects were taken from the Govt. and Govt. aided schools only and most of them were from lower income group.

Criterion measured

Endurance ability was the criterion measure of the present study.

Tool and Test Used

Endurance was measured by 9 min. run & walk test. [5]

Design of the study

Two independent group designs were used for the present study. Mean and SD for endurance ability were computed for each year of age and t-test was done to find out statistical significance of the differences between means. All statistical calculations were done using standard statistical software (Excel 2007). Only 0.05 level of confidence was considered in this study to judge the significance.

RESULT AND FINDINGS

The Mean values and SD of endurance ability for each year of age have presented in Table-1. From Table-1 it appears that different year of age has different mean value for the endurance ability. The mean value was increased as the age grows for the endurance ability among boys throughout the age span of 10 to 15 years (Figure-1). Table-1 also revealed that at the age of 11 girls had maximum mean value of endurance ability then it declined as the age increased up to 15 years (Figure-1). Table-1 has also shown that boys had always higher mean value than the girls of the same age. The difference was increased as the age increased and highest difference was observed for 15 years. Computed t-value also indicated that the difference between means for each years of age for boys and girls were significant statistically.

Table: 1 Descriptive and inferential statistics for endurance ability between boys and girls

Age	10 years		11 years		12 years		13 years		14 years		15 years	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Mean	1658.97	1138.29	1667.88	1213.79	1682.56	1162.93	1691.19	1135.35	1763.84	1052	1850.19	979.57
SD	185.56	86.33	157.22	137.23	178.09	151.81	216.90	176.19	272.62	171.76	178.49	176.99
N	32	7	32	14	32	14	32	20	32	18	32	7
t-value	11.25*		9.87*		10.12*		10.11*		11.31*		11.85*	

* Significant at both 0.01 and 0.05 level.

DISCUSSION ON FINDINGS

The development pattern of endurance ability among boys has been presented in Figure-1 which indicated that the endurance ability of the boys increases as their age increased. A study conducted on urban boy of USA reported that the endurance capacity increases as the age of the boys increased. [6] Similar finding was reported by another study conducted on Hungarian boys. [7] Another study conducted on Panjabi boys and reported that the performance of the boys in endurance ability exhibits a general trend of improvement from age 8 to 18 years, with exception at the ages 9, 13 and 18 years. [8] It also reported that rapid improvement in endurance ability occurs from the age 9 to 12 years; thereafter improvement continues but with a slower rate. Improvement in this

parameter as the age increases was also reported in the survey work done by Kerala State Sports Council for the same aged boys of Kerala. [9] Study conducted on Manipuri boys has also reported similar increasing trend in this aerobic capacity. [10] The pick velocity of increase in this parameter has found in-between the age of 14 to 15 years which reveals that the growth spurt in this ability takes place at the age of 14 years for the present subjects.

The endurance ability for girls was found increased from the age 10 to 11 years but then it started to decrease as age increased. The decrease in endurance ability after some age was also reported by AAPHERD. [5] Actual causes behind this fact are not clear but researchers guess that this might be due to the mental makeup and luck of motivation of this particular age

group of girls. As the adolescent appears the changes in their body leads them to restrict physical movement at the ground in front of some spectators. Actually the girls' subjects did not put much more effect in this test to score better. They were very less interested to execute their best performance in this long duration strenuous type endurance test.

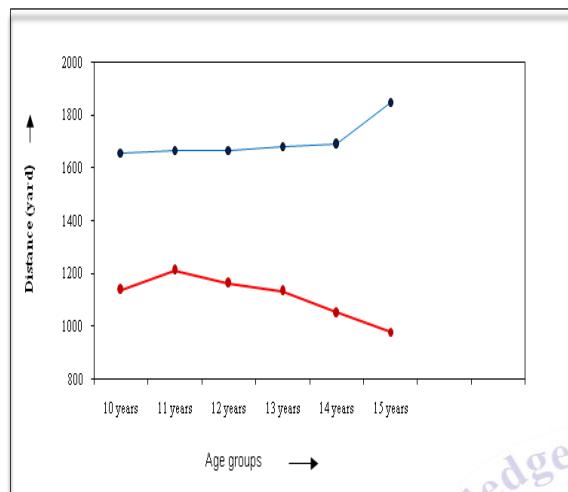


Figure-1: Pattern of development of endurance ability for the boys

Results revealed that as expected, the more maturing boys perform better in endurance motor ability than younger ones. The performance in this motor ability improved with age might be due to the increase in muscle mass and greater neuromuscular coordination achieved by older age. As the children grow in age, their neuromuscular and qualitative changes in muscle tissue enable them to coordinate and utilized these developments to the advantage of improving performance. Greater muscular and skeletal mass provide better mechanical efficiency as well as greater strength in performing most of the motor abilities. [10] Increase in length and frequency of strides as the children grew is one of the main reasons for the superiority in endurance ability with the increase in chronological age among the children. But in case of girls the adolescent period changes the mental makeup of the girls for which they did not execute their best effort in the test. As a result the endurance performance of the girl subjects was

decreased as the age increased from 11 years to 15 years.

CONCLUSIONS

The endurance ability of the school-going children increases as their age increased but the rates of development were not uniform.

The endurance increases slowly between the age of 10 to 12 years for the present boys, after then it takes spurt at the age of 14-15 years.

The endurance increases between the age of 10 to 11 years for the present girls and after then it declined as the age increased up to the 15 years.

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