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Relationship between reaction time and speed of movement among different age group of teen age school going children

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Abstract

Reaction time denotes the elapsed time between the presentation of a stimulus and the subsequent behavioural response. "Reaction time is the period from the stimulus to beginning of the over response". In other words "time from the stimulus to the beginning of movement". Reaction time is the elapses from the occurrence of the stimulus of the to act to the beginning of the muscle movement.

Method: The study was from the Patha Bhavana of Visva-Bharati University. A total 40 students were selected from different teen age group as subject. 40 subjects were divided into two group each group i.e. one group was 13-15 years and other group was 16-18 years. Again this group has further divided into two groups, one groups is Boys and another groups is Girls.

Criterion measure: Reaction time measured by Nelson Foot Reaction Time and Speed of movement measured by Nelson Hand Reaction Time, those subjects were measured in seconds with the help of Stick drop test.

Statistics: Mean, Standard Deviation and Correlation Coefficient were used. Level of Significance was set at 0.05.

Result: The mean, Standard deviation and correlation coefficient of Reaction time and Speed of movement of 13-15 years Boys 0.190 ± 0.005 , 0.193 ± 0.007 and r value 0.2622. And Girls 0.202 ± 0.005 , 0.202 ± 0.008 and r value 0.812 seconds respectively. While mean, Standard deviation and correlation coefficient of Reaction time and Speed of movement of 16-18 years Boys 0.189 ± 0.005 , 0.188 ± 0.006 and r value 0.977. And Girls 0.205 ± 0.005 , 0.204 ± 0.003 and r value 0.604 seconds respectively.

Keywords: Reaction time, speed of movement, teen age, school, children

Introduction

Man is born with certain fundamental movements. Sports activities are combination and modification of all those movements. In this connection the word performance is important. It should be thought that the development of fitness is of prime importance for the development of the performance. The components of fitness are speed, strength, endurance, flexibility, agility, balance, reaction etc. Good reaction time is always required for successful competition of the event.

Sports form an important of life. The Play of role in bringing about Physical, mental and social growth of the nature. The past few decades have witness man of innovation in this area. Sports are becoming increasingly sophisticated technical going popularity as separate profession with expansion of educational facilities in the country.

"Reaction time is the period from the stimulus to beginning of the over response". In other words "time from the stimulus to the beginning of movement". Reaction time is the elapses from the occurrence of the stimulus of the to act to the beginning of the muscle movement.

Movement is the basis of life. By the way of evaluation unquestionably human have been providing an innate system or reflex and an almost instinctive basis survival activities movements referred to as general motor abilities are walking, running, jumping, throwing and claiming etc. Movement in daily life and sports involves beauty and grace and cause a pleasant feeling when performed. These attract the spectators and the movement gains some athletic value.

While Reaction time was initially through out to be a rather and easily measured phenomenon, it has been shown to be influenced by a number of variables. Strictly speaking an individual cannot be described having a single reaction time without specify the conditions under which he is being tested.

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Analysis of speed of movement and Reaction time when combined together is even more complex. It has been fairly well established that semi individuals react slowly but are able to run move very rapidly once they get started.

Purpose of the Study

1. To find out the Reaction time of teen age (13-19 years) school going children.
2. To find out the speed of movement of teen age (13-19 years) school going children.
3. To compare the Reaction time and speed of movement of teen age (13-19 years) school going children.

Methodology

Subject: The subject for this study was from the Patha Bhavana of Visva-Bharati University. A total 40 students were selected from different teen age group as subject. 40 subjects were divided into two group each group i.e. one group was 13-15 years and other group was 16-18 years. Again this group has further divided into two groups, one group is Boys and another groups is Girls.

Criterion of Measures: The criterion measures chosen are:

1. Reaction time was measures by using the Nelson Reaction time test. The score was recorded the sum of the middle ten (10) score out of twenty (20) trails.
2. Speed of movement was measures by using the Nelson Speed of movement test. The score was recorded the sum of the middle ten (10) score out of twenty (20) trails.

Statistical Procedure: For statistical analysis, the mean, standard deviation and correlation coefficient were estimated. Product moment method was used for computation of coefficient of correlation.

Results and Discussion

The statistical analysis of the data has been presented in this chapter.

Table 1: Descriptive statistics of Foot Reaction time and Speed of Movement of group A (13-15 years) Boys:

Performance related Physical fitness	Levels	N	Mean	Standard deviation
Foot Reaction time	(13-15 years)	10	0.190	0.005
Speed of movement	(13-15 years)	10	0.193	0.007

Fourth and Fifth column of Table no-1 clearly indicates the mean and standard deviation of performance related variables (Foot Reaction time and Speed of movement) of the group A (13-15 years) school going children.

The observed mean and standard deviation of Foot Reaction time boys 0.190 + 0.005 and mean and standard deviation Speed of movement boys were 0.193+0.007.

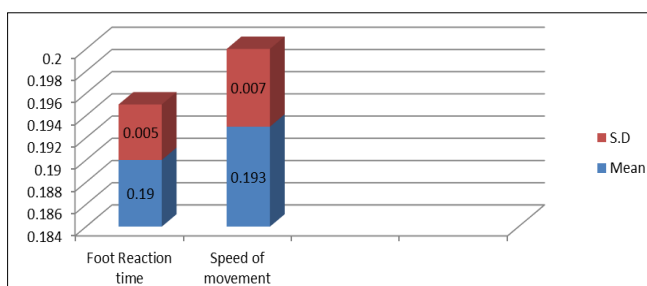


Fig 1: Graphical representation of Foot Reaction time and Speed of movement of group A (13-15 years) Boys.

Table 2: Descriptive statistics of Foot Reaction time and Speed of Movement of group A (13-15 years) Girls:

Performance related Physical fitness	Levels	N	Mean	Standard deviation
Foot Reaction time	(13-15 years)	10	0.202	0.005
Speed of movement	(13-15 years)	10	0.206	0.008

Fourth and Fifth column of Table no-2 clearly indicates the mean and standard deviation of performance related variables (Foot Reaction time and Speed of movement) of the group A (13-15 years) school going children.

The observed mean and standard deviation of Foot Reaction time boys 0.202 + 0.005 and mean and standard deviation Speed of movement boys were 0.206+0.008.

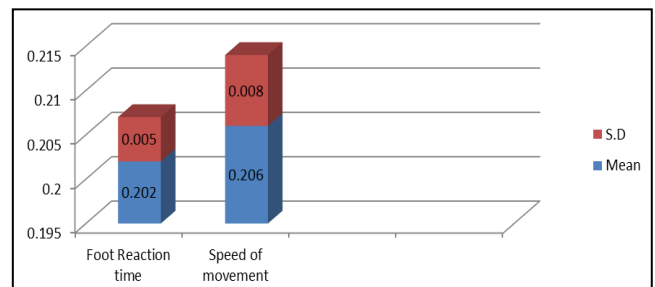


Fig 2: Graphical representation of Foot Reaction time and Speed of movement of group A (13-15 years) Girls.

Table 3: Descriptive statistics of Foot Reaction time and Speed of Movement of group A (16-18 years) Girls:

Performance related Physical fitness	Levels	N	Mean	Standard deviation
Foot Reaction time	(16-18 years)	10	0.189	0.005
Speed of movement	(16-18 years)	10	0.188	0.006

Fourth and Fifth column of Table no-3 clearly indicates the mean and standard deviation of performance related variables (Foot Reaction time and Speed of movement) of the group A (16-18 years) school going children.

The observed mean and standard deviation of Foot Reaction time boys 0.189 + 0.005 and mean and standard deviation Speed of movement boys were 0.188+0.006.

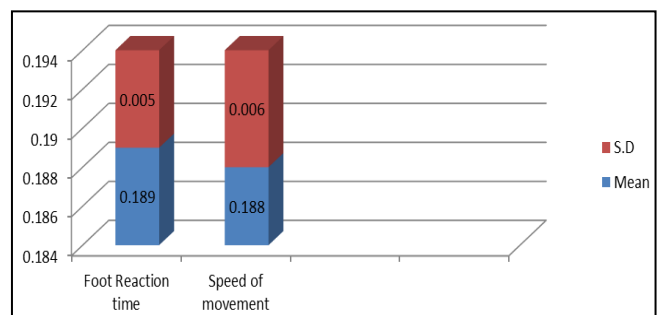


Fig 3: Graphical representation of Foot Reaction time and Speed of movement of group B (16-18 years) Boys.

Table 4: Descriptive statistics of Foot Reaction time and Speed of Movement of group A (16-18 years) Girls:

Performance related Physical fitness	Levels	N	Mean	Standard deviation
Foot Reaction time	(16-18 years)	10	0.205	0.005
Speed of movement	(16-18 years)	10	0.204	0.003

Fourth and Fifth column of Table no-4 clearly indicates the mean and standard deviation of performance related variables (Foot Reaction time and Speed of movement) of the group A(16-18 years) school going children.

The observed mean and standard deviation of Foot Reaction time boys 0.205 + 0.005 and mean and standard deviation Speed of movement boys were 0.204 + 0.0083.

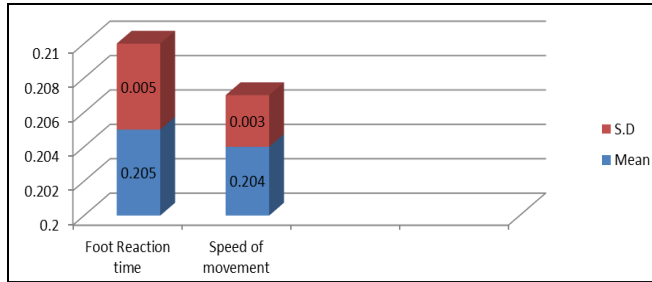


Fig 4: Graphical representation of Foot Reaction time and Speed of movement of group B (16-18 years) Girls.

Table 5: Correlation of coefficient of group A (13-15 years) Boys in relation to Foot Reaction time and Speed of movement.

Variables	Levels	N	“r” value	Type
Foot Reaction time	A (13-15 years)	10	0.2622	Non significance
Speed of movement	A (13-15 years)	10		

Tab r = 0.05, and r = 0.444

It appears from the table no- 5 the computed value of “r” = 0.2622 among different level of boys school going children. This r value is lesser than tabulated “r” at 0.05 levels. There for Null hypothesis among different level.

Table 6: Correlation of coefficient of group A (13-15 years) Girls in relation to Foot Reaction time and Speed of movement.

Variables	Levels	N	“r” value	Type
Foot Reaction time	A (13-15 years)	10	0.812	Non significance
Speed of movement	A (13-15 years)	10		

Tab r = 0.05, and r = 0.444

It appears from the table no- 6 the computed value of “r” = 0.812 among different level of Girls school going children. This r value is lesser than tabulated “r” at 0.05 levels. There for Null hypothesis among different level.

Table 7: Correlation of coefficient of group B (16-18 years) Boys in relation to Foot Reaction time and Speed of movement.

Variables	Levels	N	“r” value	Type
Foot Reaction time	A (16-18 years)	10	0.977	Non significance
Speed of movement	A (16-18 years)	10		

Tab r = 0.05, and r = 0.444

It appears from the table no- 7 the computed value of “r” = 0.977 among different level of Boys school going children. This r value is lesser than tabulated “r” at 0.05 levels. There for Accept hypothesis among different level.

Table 8: Correlation of coefficient of group A (16-18 years) Girls in relation to Foot Reaction time and Speed of movement.

Variables	Levels	N	“r” value	Type
Foot Reaction time	A (16-18 years)	10	0.604	Non significance
Speed of movement	A (16-18 years)	10		

Tab r = 0.05, and r = 0.444

It appears from the table no- 6 the computed value of “r” = 0.604 among different level of Girls school going children. This r value is lesser than tabulated “r” at 0.05 levels. There for Accept hypothesis among different level.

Conclusion

1. The study was significant positive correlation was found in between the Speed of movement and Foot Reaction time of the teen age Girls student at 13-15 years age group.
2. But there was no significant correlation was found in between the Speed of movement and Foot Reaction time of the teen age Boys student at 13-15 years age group.
3. There was significant positive correlation was found in between the Speed of movement and Foot Reaction time of the teen age Boys student at 16-18 years age group.
4. There was also significant positive correlation was found in between the Speed of movement and Foot Reaction time of the teen age Girls student at 13-15 years age group.

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