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A study of agility on secondary school boys

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Abstract

One of the most important factors influencing movement is agility. Agile person coordinates quickly and accurately the big muscles of the body in a particular activity. Agility is the ability to change direction rapidly and accurately. It depends essentially on strength, speed of reaction and movement and big muscle co-ordination. The purpose of the study was to compare the agility among different group of secondary school boys and to find out the relationship between the performances in 4 X 10 m. Shuttle Run and Zigzag Run. 72 male students were selected at random from different classes of Jadupur Anchal High School, Malda, West Bengal for this study. Twelve students were selected at random from each class. The age of the subjects were ranging between 10-16 years. Shuttle Run and Zig-Zag Run tests were administered for this study. Mean, Standard Deviation (SD), Analysis of variance (ANOVA), Coefficient of correlation (r) were used as required statistical tools for this study. 0.05 and 0.01 levels of significance were used for this study. The study conclude: 1. There was significant difference of agility exists among different classes subjects. 2. Agility of the subjects was increased with increase of age. 3. Subjects of Class X were more agile than subjects of other class. 4. There was a high positive correlation between Shuttle Run and Zigzag Run of V, VI, VIII and IX class group.

Keywords: Agility, fitness, secondary school

1. Introduction

One of the most important factors influencing movement is agility. Agile person coordinates quickly and accurately the big muscles of the body in a particular activity. Agility may be defined as the ability to change direction rapidly and accurately. It depends essentially on strength, speed of reaction and movement and big muscle co-ordination ^[1]. Agility helps to improve performance in many activities. Because of such importance, improvement of agility has been emphasized in training of all games and sports. McCloy and Young (1954) have reported two types of agility, one involving running and one not. Agility that does not involve running, has been called dynamic flexibility ^[2]. Agility is an important ability in many sports activities, as exemplified in a fast game of badminton by two experienced players or by trampolines executing a triple twisting back summersault. It is possible for physical education teacher to determine which students in the class are more agile and which ones need work in agility in order to better perform the particular activity. In our daily busy life, agility is the most influencing factor for movement.

1.1 Agility tests are utilized in physical education classes. Such as

1. For predicting potential in different sports activities.
2. For determining achievements and grades.
3. As a factor in general motor ability tests.
4. To evaluate results obtaining from activities and methods of instruction.

Measurement of agility is an important task of physical educators and coaches. The measurement needs the objectives and accuracy. Modern principle of test and measurement indicates that any parameter should be measured through a standardized test. There are certain characteristics that must be fulfilled for a test to be standardizing one.

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¹ See list of reference

² See list of reference

There are validity, reliability, objectivity and norms. Like all other physical fitness components agility is measured by the 4 X 10 m. Shuttle Run and Zigzag Run. Both of these tests are having the required characteristics for being the standard test. Agility was almost entirely dependent upon one's hereditary factors. Measurement and research revealed that it could be improved through practice, training and instruction. Seils¹, in testing primary grade children, found a moderately high positive correlation between growth and agility performance in boys and girls. Espenschade^[3], noted that both boys and girls increasing agility performance up to 14 years of age, after which girls seem to decline while boys rapidly gain in performance. Solley^[4] found no significant evidence to support the claim that boys who are big for their age or small for their age may be expected to perform better or worse on agility items. Mohr and Haverstick^[5] found significant association between volleying skill in volleyball and agility. Hoskins, Lehsten and Johnson¹ found agility important to basketball performance.

1.2 Purpose of the study: The purpose of the study was to compare the agility among different group of secondary school boys and to find out the relationship between the performances in 4 X 10 m. Shuttle Run and Zigzag Run.

1.2 Statement of the problem: The researcher undertook the study entitled "A study of agility on secondary school boys".

2. Methodology

2.1 Selection of the subject: 72 male students were selected at random from different classes of Jadupur Anchal High School, Malda, West Bengal for this study. Twelve students were selected at random from each class. The age of the subjects were ranging between 10-16 years.

2.2 Design of the study: 12 subjects from class (V - X) were selected at random. The agility of the subjects were assessed by 4 X 10 m. Shuttle Run and Zigzag Run. The time elapsed in performing Shuttle Run and Zigzag Run were considered as agility score of the subjects. The performance in Shuttle Run and Zigzag Run of the subjects of different classes will be analyzed for finding out the relationship among the two test items.

2.3 Administration of test: The different techniques adopted for acquiring the relevant data were 4 X 10 m. Shuttle Run and Zigzag Run.

2.4 Procedure for analysis of the data: The collected data were subsequently presented in tabular form in chapter-III for the purpose of analysis of the results. Mean, Standard Deviation (SD), Analysis of variance (ANOVA), Coefficient of correlation (r) were used as required statistical tools for this study. 0.05 and 0.01 levels of significance were used for this study.

3. Results and Discussion

Table 1 represents the mean and S.D. of Shuttle Run of different class (V-X) groups were 11.76 sec and ± 0.65 , 12.15 sec. and ± 0.94 , 10.90 sec. and ± 0.60 ; 10.74 sec. and ± 0.53 ,

10.73 sec. and ± 0.58 , 10.36 sec. and ± 0.52 respectively.

On the other hand, the mean and S.D. of Zigzag Run of different class (V-X) group were 23.20 sec. and ± 0.54 , 23.78 sec. and ± 0.64 , 22.46 sec. and ± 0.43 , 22.43 sec. and ± 0.29 , 22.41 sec. and ± 0.40 and 22.31 sec. and ± 0.25 respectively.

Table 1: Mean and S.D of shuttle run and zigzag run of various class

Class	Tests	Mean	S.D.
V	Shuttle Run	11.76	± 0.65
	Zigzag Run	23.20	± 0.54
VI	Shuttle Run	12.15	± 0.94
	Zigzag Run	23.78	± 0.64
VII	Shuttle Run	10.90	± 0.60
	Zigzag Run	22.46	± 0.43
VIII	Shuttle Run	10.74	± 0.53
	Zigzag Run	22.34	± 0.29
IX	Shuttle Run	10.73	± 0.58
	Zigzag Run	22.41	± 0.40
X	Shuttle Run	10.36	± 0.52
	Zigzag Run	22.31	± 0.25

Table II represents the F – ratio of various age groups (V-X). F-Value of shuttle Run for (V-X) class group was 2.85. To be significant at 0.05 level of confidence the value should be greater than 2.37 (at 5, 60 DF). F-Value compared was not significant at .01 level of confidence but it was significant at 0.05 level of confidence. So, to find out the superiority among the various age group critical difference was computed.

The researcher also analysis the critical difference at 0.05 level for shuttle run among various age group. There was no significant difference exist between group x and ix and there exists significant difference between group x and VI.

Table 2: ANOVA of Shuttle Run for V-X class group

Sources of variation	DF	Sum of square (SS)	Mean square Variance (MSV)	F-Ratio
Between group mean	5	28.5	5.7	2.85
Within group mean	66	132	2	

Table 3: ANOVA of Zigzag Run for V-X class group

Sources of variation	DF	Sum of square (SS)	Mean square variance (MSV)	F-ratio
Between group mean	5	6164.88	1232.98	5501.92
Within group mean	66	14.79	0.2241	

Table III represents the F-ratio of various age groups (V-X). F-value of Zigzag Run for V-X class groups was 5501.92. To be significant at 0.05 and 0.01 level of confidence the value should be greater than 2.37 and 3.34 (at 5, 60 DF) respectively. F-Value was significant at both level of confidence. So, to find out the superiority among the various age group the critical difference was computed.

The researcher also analysis critical difference at .05 level for Zigzag Run among various age groups. There was no significant difference exists between group X and VIII. There exists significant difference between group X and IX and there also was significant difference exists between class group X and VI.

Table 4: Correlation between Shuttle Run and Zigzag Run for V to X class group

Class	Tests	Correlation (r) Value
V	Shuttle Run	0.63
	Zigzag Run	
VI	Shuttle Run	0.82
	Zigzag Run	
VII	Shuttle Run	0.35
	Zigzag Run	
VIII	Shuttle Run	0.64
	Zigzag Run	
IX	Shuttle Run	0.51
	Zigzag Run	
X	Shuttle Run	0.25
	Zigzag Run	

Table IV represents the co-efficient of correlation between Shuttle Run and Zigzag Run for V to X class group. The 'r' value between Shuttle Run and Zigzag run of class V is 0.63, class VI is 0.82, class VII is 0.35, class VIII is 0.64, class IX is 0.51, and class X is 0.25 respectively. To be significant at 0.5 level and .1 level of confidence the 'r' value should be greater than .404 and .515 (At 22 DF) respectively. Here 'r' value of class group V, VI, VIII and IX were significant and class group VII and X were not significant.

Discussion

From Table I we can say that performance of Shuttle Run for class V & VI were poor than other class groups. On the other hand the mean value of Zigzag Run indicating the same result. F-Value of Shuttle Run of various age groups was significant at .05 level of confidence. So, critical difference was calculated among various age groups. Here critical difference of group X and group VI was significant and group X was superior to other groups. F-Value of Zigzag Run of various age groups was significant at .05 level and .01 level of confidence. So, critical difference was calculated among various class groups. Here only class group X and VIII were not significant. But critical difference of other groups such as class X v/s class IX, class X v/s class VII, class X v/s class V and class X v/s class VI were significant. Here we have compared lower mean score of Zigzag Run i.e. 22.31 and higher mean score i.e. 23.78 and the difference was 1.47. This was the highest difference among various groups. So, class X group was superior to other groups. The 'r' value of class V, VI, VII and IX were significant at both level of confidence (.05 and .01). So, they were highly positive correlated. So, Shuttle Run or Zigzag Run may be considered as a test for agility for any age groups.

Conclusion

From the above observations and findings of study following conclusions may be drawn: 1. There was significant difference of agility exists among different classes subjects. 2. Agility of the subjects was increased with increase of age. 3. Subjects of class X were more agile than subjects of other class. 4. There was a high positive correlation between Shuttle Run and Zigzag Run of V, VI, VIII and IX class group.

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