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AEROBIC ENDURANCE OF INDIAN AND IRANIAN STUDENTS- A CROSS SECTIONAL STUDY

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ABSTRACT

This paper aims to compare the motor development of Indian and Iranian boy's students between the age of 13 and 18 years in run-walk test case. The focus is on the relationship between age and motor behavior which makes the study of motor development unique from other viewpoints. Motor development includes age related changes in both posture and movement, the two basic ingredient of motor behavior. The results portrayed by means of statistical tests and standard method of sampling.
Keywords: *Motor fitness, motor behavior, students' age, cross-sectional study.*

1. INTRODUCTION

In the past one-decade physical education has found its right place in the school curriculum. To a large extent it has found its academic recognition at par with other subjects. Having found its place in the school curriculum, the teacher of physical education is confronted with numerous problems relating to classroom instruction in physical education. One specific problem that relates to instruction is the extent to which the school student may be provided combine instruction irrespective of their age. Another problem is catering to the individual needs. Even though providing the individualized instruction in physical education may be a far off dream, yet the teacher had to ensure that each group has only acceptable variation in abilities in order to provide effective instruction and avoid damages. The teaching policies signs and teachers, there for, should be well familiar with the development trends and generalized pattern of development at different stages. This may help to adjust to programmers to the needs of the group as a whole. Thus, the present investigation may be great significance in understanding the patterns of development in motor ability. This may help to draw out effective learning environment and to provide scope for individual attention to extent possible. The result of the study may also help to understand the classification criterion in a better way. The result of the study helps to understand the role of diet patterns, topography, genetic factor and the effect of educational system on school going children, in affecting the development pattern of children.

Haley (1972) conducted a study of motor fitness. The sample included children studying in grades one through six. Thirty boys were randomly selected from each grade. Their ages ranged from five years nine months to 12 years two months. Barbante (1976) made a study on Brazilian boys and girls. The purpose of this investigation was to determine the statues of physical fitness of selected Brazilian boys and girls. Schmidt (1982) after reviewing numerous studies pointed out which by the time an individual researches the age of 18 he experiences large improvement in his

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motor behavior. The manner in which motor proficiency improves as children grow old has been reviewed extensively by Cratty (1979). Chanchiclung (1985) conducted an assessment of physical fitness of lower secondary school boys of Thailand. The samples for the study were 13500 lower secondary school boys selected through randomized clustered sampling. The modified Fleishman physical fitness test battery which consists of item for flexibility, quickness, strength, muscular endurance, matching, balance and cardiovascular endurance was administrated to the subjects. Singh (1986) prepared physical fitness norms for high school boys of panjab state. Data were collected on 5000 subjects selected randomly from various schools in the state. The test battery managed comprised of eight items. Brar (1987) conducted in effects of short interval and long interval running with two recovery types on aerobic and anaerobic capacities and running performance of high school boys, the subject were 100 untrained students of grades nine and ten in Shivalik public school. Kaur (1989). Conducted a study on the physical fitness of high school girls of the panjab belonging in the age group of 12 to 15, the purpose of the study was to prepare norms for the girls of panjab belonging to this age group. Chauhan (1989) compared the motor fitness performance of sports and non-sports school girls (1315) years' old living at the high altitude of 2960ms at Shimla and 487ms at Chandigarh. Kaur (1990) conducted across-sectional study of motor abilities of panjab and Chandigarh girls in the age group of 7 to 11 years, the investigator studied the developmental changes in motor abilities which take place during the mentioned period.

Singh (1993) conducted a study on the relationship of varying levels of motor fitness to Socio-Economic statues and structural variations among school students in the age group of 14 to 16 years. Sinha (1996) conducted a study of anthropometric and motor quality profiles of 8-14 years' boys of eastern and north east region of India. Sharma (1997) conducted a study on construction and standardization of motor fitness test battery for elementary school children in Delhi (U.T), the objectives of study were as follow: to find out how motor fitness variables, such as speed, strength, balance, flexibility and endurance, develop among boys and girls in the age group of eight to eleven years. Kumar (1998) showed on a normative study of fitness status in male students (13-16) years of age belonging to the schools of HP, followed by development of norms for future uses. Kaur (1999) conducted as assessment of motor fitness of rural and urban senior secondary school girls of Punjab state. Angchok (1999) conducting a study to establish norms for the high and higher secondary male student of ladakh, among the age group 13 to 17. Devi (2000) conducted a study to compare the physical fitness and psychological trait of tribal and non-tribal high school students of high altitude areas between the age group of 14 and 17 years. Brar (2004) conducted a study on motor development of school children of union territory of Chandigarh a cross sectional analysis 12 to 14 years.

This study was conducted keeping in view the following objectives. Study the level and pattern of the development of motor abilities of Indian male student of 13-18 years' age. Compare the level and pattern of development of motor abilities of Indian male student with Iranian male student.

2. METHODS AND MATERIALS

2.1 Selection of Subjects

The selection of subjects was completed in two phase 1 – a pilot study had been conducted on 240 student of 13-18 years of age studying in government schools from classes seven to twelve, 120 from Chandigarh (India) and 120 from region nine of Tehran (Iran) 20 students from each age, Abbreviations GSSS, GHSSS, GMSSS and JNVS means: government senior secondary school, government high school senior secondary, government model senior secondary school and

Jawahar Navodaya Samiti respectively. In phase 2- selection of subjects had been conducted on 2160 students of 13-18 years of age, 1200 studying in Government Schools in Chandigarh (India) and 1200 in region nine of Tehran (Iran).

2.2 Collection of data

The data for selected variables on the randomly selected subjects was collected over a period of eleven months (12/01/09 to 02/12/09). The subjects were made available by school authorities during the physical education classes and other times when the students were available from their regular academic routine. So the data was collected over different times of the day for different variables.

2.3 Statistical Technique Employed

To establish the reliability of the data person product moment correlation method was used. In order to analyze development patterns in motor fitness, analysis of variance was carried out for motor fitness item to determine significance of variance, if any, from age to age, separately for Indian and Iranian students. Whenever F values were found significant, the post-hoc Schaeffer's test was employed to determine the significance of difference between the paired means. For analyzing difference between Indian and Iranian at each age in motor fitness test item, the t test is applied. The level of significant was set at .05.

3. RESULTS AND DISCUSSION

Table 1: The analysis of variance of Indian and Iranian male students in 600-yards run-walk test

Source of variation	DF	SS		MS		F	
		Indian	Iranian	Indian	Iranian	Indian	Iranian
Between groups	5	4.416	9.517	.883	1.903	8.306*	8.306*
Within groups	1194	307.962	273.632	.258	.229		
Total	1199	312.378	283.150				

*Significant at .05 Level of Confidence.

The analysis of variance showed significant F value of 8.306 and 8.306 for Indian and Iranian male students respectively, which indicated that six age groups differed significantly in run-walk. Because the F was found to be significant, to establish which paired age groups differed, the results of post hoc Schaffer's test have been presented in table 2-7.

Table 2: Comparison of the paired mean test means for respective categories of Indian and Iranian male students in 600-yards run-walk test

Groups	MD		*p* value	
	Indian	Iran	Indian	Iran
13 vs. 14	.109	.001	.461	1.000
13 vs. 15	.050	.001	.964	1.000
13 vs. 16	.133	.066	.235	.860
13 vs. 17	.157	.043	.091	.977
13 vs. 18	.173*	.207*	.042	.002

*Significant at .05 level of confidence.

It was evident from the Table 2 that in Indian male students paired mean differences of 13 and 18 years was found significant. This indicated that 18 years of age was better than 13 years of age in performance. But in paired mean differences of 13 and 14 years, 13 and 15 years, 13 and 16 years and 13 and 17 years of age were not found significant differences. These indicated that in run and walk performance 13 year was not better than 14, 15, 16 and 17 year male students. In Iranian male students the mean differences of 13 and 18 years was found to be significant. This indicated that in run and walk performance 13 year male students was better than 18 year male students. But no significant difference was found through age groups of 13 and 14 years, 13 and 15, 13 and 16 years and 13 and 17 years of age male students. This indicated that 13 year was not better than 15 years of age and 14, 16 and 17 year male students were not better than 13 year male students.

Table 3: Comparison of the paired mean test means for respective categories of Indian and Iranian male students in 600-yards run-walk test

Groups	MD		*p* value	
	Indian	Iran	Indian	Iran
14 vs. 13	.109	.001	.461	1.000
14 vs. 15	.059	.002	.928	1.000
14 vs. 16	.023	.066	.999	.885
14 vs. 17	.047	.042	.973	.979
14vs. 18	.063	.208*	.906	.002

*Significant at .05 level of confidence.

From the table3 it was evident that in Indian male students paired mean differences of 14 and 13, 14 and 15 years, 14 and 16 years, 14 and 17 and 14 and 18 years was not found significant, indicated that 13 and 15 year were not better than 14 years and 14 years was not better than 16, 17 and 18 years of age. In Iranian male students the paired mean difference of 14 and 18 years was found significant. This indicated that in run and walk 14 years was better than 18 years of age. But no significant difference was found among 14 and 13 years, 14 and 16 years and 14 and 17 year male students. This indicated that in walk and run performance 13 and 15 year male students were not better than 14 years, and 14 years was not better than 16 and 17 year male students.

Table 4: Comparison of the paired mean test means for respective categories of Indian and Iranian male students in 600-yards run-walk test

Groups	MD		*p* value	
	Indian	Iran	Indian	Iran
15 vs. 13	.050	.001	.964	1.000
15 vs. 14	.059	.002	.928	1.000
15 vs. 16	.082	.067	.756	.851
15 vs. 17	.107	.044	.494	.975
15 vs. 18	.123	.206*	.324	.002

It was evident from the table4 that in Indian male students, paired mean difference of 15 and 13 years, 15 and 14, 15 and 16, 15 and 17 and 15 and 18 years was not found significant. This indicated that 15 years of age was not 14, 16, 17 and 18 years and 13 years was not better than 15 years of age in aerobic endurance performance. In Iranian male students paired mean differences of 15 and 18 years were found significant. These revealed that in run and walk performance 15 year male students were better than 18 years of age. But in paired mean differences of 15 and 13 years, 15 and 14 years 15 and 16 years and 15 and 17 years of age were not found significant

differences. This indicated that in run and walk performance 13, 14 year male students were not better than 15 years and 15 years not better than 116 and 17 year male students.

Table 5: Comparison of the paired mean test means for respective categories of Indian and Iranian male students in 600-yards run-walk test

Groups	MD		*p* value	
	Indian	Iran	Indian	Iran
16 vs. 13	.133	.066	.235	.860
16 vs. 14	.023	.066	.999	.865
16 vs. 15	.082	.067	.756	.851
16 vs. 17	.024	.024	.999	.999
16 vs. 18	.040	.274*	.987	.000

*Significant at .05 level of confidence.

It was evident from the Table 5 that in Indian male students in paired mean differences of 16 and 13 years, 16 and 14 years, 16 and 15 years, 16 and 17 years and 16 and 18 year students were not found significant. This indicated that in run-walk performance 13, 14 and 15 years were not better than 16 years of age and 16 years was not better than 17 and 18 year male students. In Iranian male students paired mean differences of 16 and 18 years was found significant. This revealed that in run and walk performance 16 year was better than 18 year male students. But in cases of 16 and 13 years, 16 and 14 years, 16 and 15 years and 16 and 17 years was not found significant difference. This indicated that in run and walk performance 13, 14, 15 and 17 years were not better than 16 year male students.

Table 6: Comparison of the paired mean test means for respective categories of Indian and Iranian male students in 600-yards run-walk test

Groups	MD		*p* value	
	Indian	Iran	Indian	Iran
17 vs. 13	.157	.043	.091	.997
17 vs. 14	.047	.042	.973	.979
17 vs. 15	.107	.044	.999	.999
17 vs. 16	.024	.024	.999	.000
17 vs. 18	.016	.250*	1.000	.000

It was evident from the table 6 that in Indian male students paired mean differences of 17 and 13 years, 17 and 14 years, 17 and 15 years, 17 and 16 years and 17 and 18 years were not found significant differences. These showed that 13, 14, 15 and 16 years of age were not better than 17 years and 18 years was not better than 17 year male students in run and walk performance. In Iranian male students paired mean differences of 17 and 18 years was found significant. This indicated that 17 year was better than 18 years in run and walk performance. But in paired mean differences of 17 and 13 years, 17 and 14 years, 17 and 15 years, 17 and 16 years were not found significant. This indicated that in run-walk performance 13, 14 and 15 years of age were not better than 17 years and 17 years was not better than 16 year male students.

Table 7: Comparison of the paired mean test means for respective categories of Indian and Iranian male students in 600-yards run-walk test

Groups	MD		*p* value	
	Indian	Iran	Indian	Iran
18 vs. 13	.173*	.207*	.042	.002
18 vs. 14	.063	.208*	.906	.002
18 vs. 15	.123	.206*	.324	.002
18 vs. 16	.040	.274*	.987	.000
18 vs. 17	.016	.250*	1.000	.000

*Significant at .05 level of confidence.

It was evident from the Table 7 that in Indian male students paired mean differences of 18 and 13 years was found significant. This indicated that in run and walk performance 18 year was better than 13 years of age. But in paired mean differences of 18 and 14 years, 18 and 15 years, 18 and 16 years and 18 and 17 years of age were not found significant differences. This indicated that in run and walk performance 14, 15, 16, and 17 years were not better than 18 year male students. In Iranian male students paired mean differences of 18 and 13 years, 18 and 14 years, 18 and 15 years, 18 and 16 years and 18 and 17 years of age were significant. These indicated that 13, 14, 15, 16, and 17 year students of age were better than 18 year male students in run and walk performance.

4. CONCLUSION

This paper aims to compare the motor development of Indian and Iranian boy's student between the age of 13 and 18 years in run and walk performance. The focus on the relationship between age and motor behavior makes the study of motor development unique from other viewpoints. The results and tests showed that six age groups are different significantly in strength. Also the run and walk tests indicated that in Indian students 14, 15, 16, 17 and 18-year male student were better than 13 year male students. In Iranian male students the mean differences of 13 and group 18 -year male students were found to be significant. This indicated that in aerobic endurance 13 year male students were better than 18 year male students. In final results it derives that in Indian male student's significant differences of run-walk were found in 13 and 18 years. According to mean scores 18 years of age was better than other age groups. In Iranian male student's significant differences in run-walk were found in cases of 13 and 18, 14 and 18, 15 and 18, 16 and 18 and 17 and 18 years. According to mean scores 16 years of age was better than other age groups.

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