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RESEARCH ARTICLE

MOTOR ABILITY OF INDIAN AND IRANIAN IN FLEXIBILITY TEST- ACROSS SECTIONAL STUDY

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ABSTRACT

This paper aims to compare the motor development of Indian and Iranian boy′s student between the age of 13 and 18 years in flexibility 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. For the purpose of this study the term was understood to mean motor ability through the performance in selected motor fitness component that underlie gross motor skills. The results portrayed by means of statistical tests and standard method of sampling.

INTRODUCTION

This study was conducted keeping in view the following objectives. Study the level and pattern of the development of motor abilities of Indian and Iranian 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. Definitions of operational terms Motor development is the process of change in motor behavior that is related to the age of the individual. The focus on the relationship between age and motor behavior makes the study of motor development unique from other viewpoints motor development include age related changes in both posture and movement, the two basic ingredient of motor behavior. Development processes occur throughout the human life span (Jan Stephen tecklin, 1998). For the purpose of this study the term was understood to mean motor ability through the performance in selected motor fitness component that underlie gross motor skills.

Cross-Sectional Study

The cross–sectional study is a method of study that permits the researcher to collect data on different groups of people at varying age levels at the same point in time. The major purpose of the cross-sectional study was to measure of age-related difference in behavior.

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This method does not permit measurement of age-related change, and has attracted controversy in recent years. Basically the cross-sectional method yields only average difference in groups across real time and not individual change developmental time. The basic assumption behind the cross-sectional study had been that random selection of subjects provides as represented sample of the population for each age group test. (David and Gallahue, 1995)

Delimitations

Motor development is an all-inclusive which is the area of interest for child psychologists, social psychologists and sport psychologists alike. Thus the term motor development is much wider in scope and meaning. For the purpose of this study the term motor development was contained to the concept of motor fitness development as measured through recognized motor fitness component of flexibility. The study was also delimited to high school student of 13-18 years. The study was further delimited to Indian students in Chandigarh and Iranian student in Tehran. The study was further more delimited to male students.

Limitation

Even though, no motivational techniques were employed, but every effort was made by the researcher to encourage the subjects to do their best. In spite of that researcher could not possibly control the performance differences in effort made by the subject to do their best. Such variation in effort and home

environment, daily routine and diet might distort actual scores collected through and ultimately the final analysis. Variations obtained in score due to this factor were duly recognized as the limitation of the study.

Significance of the study

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.

Literature

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. Jerry Cunard Welch (1974). Cross-sectional analyzed the development of agility to select one or more test items which could assess the agility of boys and girls aged 5 through 17. 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 motor behavior. The manner in which motor proficiency improves as children grow old has been reviewed extensively by Cratty (1979). Haiphot 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. Reet Mahindersingh (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. I.e. Rachhpal Singh 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. Daljit 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. Meera 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, Sukhpal 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. Amarpreet 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. Shilendra Kumar Sinha (1996) conducted a study of anthropometric and motor quality profiles of 8-14 years' boys of eastern and north east region of India. Kamal Kant 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. Dinesh kumar (1998) showed on a normative study of fitness status in male students (13-16) years of age belonging to the schools of Himachal Pradesh, followed by development of norms for future uses. JasbireKaur (1999) Conducted as assessment of motor fitness of rural and urban senior secondary school girls of Punjab state. Sonam 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. Sujata 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. MandeepBrar (2004) conducted a study on motor development of school children of union territory of Chandigarh a cross sectional analysis 12 to 14 years.

MATERIALS AND METHODS

In this chapter selection of subjects, design of the study, selection of variables, reliability of data, tools used, reliability of instrument, criterion measure, collection of data, administration of selected test items for collection of data, and techniques for data analysis are described.

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 Second phase selection of subjects had been conducted on 2160 students of 13-18 years of age, 1080 studying in Government Schools in Chandigarh (India) and 1080 in region nine of Tehran (Iran).

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.

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 scheffe`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. The analysis of variance showed significant F value of 52.725 and 8.009 for Indian and Iranian male students respectively, which indicated that six age groups differed significantly in, sit and reach test. Because the F was found to be significant, to establish which paired age groups differed the results of post hoc scheffe's test have been presented in Table 2-7. It was evident from the table2in Indian male students among the all age groups were not found significant differences, this indicated that 13 year was not better than 14 years and 15, 16, 17 and 18 year male students were not better than 13 years of age. In Iranian male students the mean differences of 13 and 15 years and 13 and 16 years were found to be significant. This indicated that in sit and reach performance 15 and 16 year male students were better than 13 year male students. But no significant differences were found through age groups of 13 and 14 years, 13 and 17 and 13 and 18 year male students. This indicated that 13 year was not better than 14, 17 and 18 year male students. From the table3it was evident that in Indian male students paired mean difference of 14 and 17 years was significant. This indicated that in sit and reach 14 year was better than 17 year of age.

Table 1. The analysis of variance of Indian and Iranian male students in sit and reach test

Source of variation	DF	SS		MS		F	
		Indian	Iranian	Indian	Iranian	Indian	Iranian
Between groups	5	1323.937	2887.172	264.787	577.434	52.725*	8.009*
Within groups	1194	62953.980	86083.528	52.725	72.097		
Total	1199	64277.917	88970.697				

*Significant at .05 Level of Confidence.

Table 2. Comparison of the paired mean test means for respective categories of Indian and Iranian male students in sit and reach test

GROUPS	MD		P value	
	Indian	Iran	Indian	Iran
13 vs. 14	.145	.380	1.000	.999
13 vs. 15	1.900	4.060*	.233	.000
13 vs. 16	2.135	3.756*	.125	.002
13 vs. 17	2.410	2.750	.052	.063
13 vs. 18	2.080	1.840	.146	.455

*Significant at .05 level of confidence.

It was evident from the table that in Indian male students paired mean differences

Table 3. Comparison of the paired mean test means for respective categories of Indian and Iranian male students in sit and reach test

GROUPS	MD		P value	
	Indian	Iran	Indian	Iran
14 vs. 13	.145	.380	1.000	.999
14 vs. 15	2.045	3.680*	.161	.002
14 vs. 16	2.280	3.376*	.080	.008
14 vs. 17	2.555*	2.370	.031	.169
14vs. 18	2.225	1.460	.095	.707

*Significant at .05 level of confidence.

Table 4. Comparison of the paired mean test means for respective categories of Indian and Iranian male students in sit and reach test

GROUPS	MD		P value	
	Indian	Iran	Indian	Iran
15 vs. 13	1.900	4.060*	.233	.000
15 vs. 14	2.045	3.680*	.161	.002
15 vs. 16	.235	.304	1.000	1.000
15 vs. 17	.510	1.310	.992	.794
15 vs. 18	.180	2.220	1.000	.234

*Significant at .05 level of confidence.

But in cases of 14 and 13 years, 14 and 15 years, 14 and 16 years and 14 and 18 years was not found significant. This indicated that 13, 15, 16 and 18 years were not better than 14 years of age. In Iranian male students the paired mean differences of 14 and 15 years and 14 and 16 years were found significant. This indicated that the 15 and 16-year Iranian male students had better performance than 14 years of age. But no significant differences were found among 14 and 13 years and 14 and 17 years and 14 and 18 years.

This revealed that in sit and reach performance 16 year was better than 13 and 14 years of age. But in cases of 16 and 15 years, 16 and 17 years and 16 and 18 years were not found significant differences. This indicated that in sit and reach performance 17 and 18 years were not better than 16 years and 16 years was not better than 15 years of age in Iranian male students. It was evident from the table 6 that in Indian male students paired mean difference of 17 and 14 years was found to be significant.

Table 5. Comparison of the paired mean test means for respective categories of Indian and Iranian male students in sit and reach test

GROUPS	MD		P value	
	Indian	Iran	Indian	Iran
16 vs. 13	2.135	3.756*	.125	.002
16 vs. 14	2.280	3.376*	.080	.008
16 vs. 15	.235	.304	1.000	1.000
16 vs. 17	.275	1.006	1.000	.924
16 vs. 18	.055	1.916	1.000	.405

*Significant at .05 level of confidence.

Table 6. comparison of the paired mean test means for respective categories of Indian and Iranian male students in sit and reach test

GROUPS	MD		P value	
	Indian	Iran	Indian	Iran
17 vs. 13	2.410	2.750	.052	.063
17 vs. 14	2.555*	2.370	.031	.169
17 vs. 15	.510	1.310	.992	.794
17 vs. 16	.275	1.006	1.000	.924
17 vs. 18	.330	.910	.999	.950

*Significant at .05 level of confidence.

Table 7. Comparison of the paired mean test means for respective categories of Indian and Iranian male students in sit and reach test

GROUPS	MD		P value	
	Indian	Iran	Indian	Iran
18 vs. 13	2.080	1.840	.146	.455
18 vs. 14	2.225	1.460	.095	.707
18 vs. 15	.180	2.220	1.000	.234
18 vs. 16	.055	1.916	1.000	.405
18 vs. 17	.330	.910	1.000	.950

*Significant at .05 level of confidence.

This indicated that 13 year was not better than 14 years and 14 years was not better than 17 and 18 years of age in Iranian male students. It was evident from the table4that in Indian male students were not found significant mean differences among 15 years and other counterparts, this indicated that 15 year was not better than 13 and 14 years and 16, 17 and 18 years were not better than 15 years of age. In Iranian male students paired mean differences of 15 and 13 years and 15 and 14 years were found significant. These revealed that in sit and reach performance 15 year male students were better than 13 and 14 years of age. But in cases of 15 and 16 years, 15 and 17 years and 15 and 18 years was not found significant difference. This indicated that in sit and reach performance 16, 17 and 18 year male students were not better than 15 year male students. It was evident from the table5that in Indian male students 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 differences, indicated that 16 year was not better than 13, 14, 15 and 18 years, and 17 years was not better than 16 years of age. In Iranian male students paired mean differences of 16 and 13 years and 16 and 14 years were found significant.

This indicated that in sit and reach performance 14 year was better than 17 years of age. But in paired mean differences of 17 and 13 years, 17 and 15 years, 17 and 16 years and 17 and 18 years respectively were not found significant differences. These indicated that 17 years of age was not better than 13, 15, 16 and 18 years of age. In Iranian male students paired mean differences of 17 and 13 years, 17 and 14 years, 17 and 15 years 17 and 16 year and 17 and 18 year male students were not found significant differences. This indicated that in sit and reach performance 13, 14 and 18 years of age were not better than 17 years and 17 years was not better than 15 and 16 years of age. It was evident from the table7that in Indian 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 not significant. This indicated that in sit and reach performance 18 year male students were not better than 13, 14 and 15 year male students and 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 was not found significant difference, these indicated that 18 years of age were not better than 15, 16, and 17 years and 13 and 14

years were not better than 18 year male students in performance.

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 sit and reach test 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 tests indicated that in sit and reach test 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 17 and 13 and 18, paired 14 and 17, 14 and 18 pair 15 and 17 and 15 and 18, in paired 16 and 17, 16 and 18-year male student were found to be significant. This indicated that in strength 14,15,16,17 and 18 year male students were better than 13 year male students. In final results it derives that Indian male student had significant difference of strength in case of 13 and 15 years, 14 and 16 years, 15 and 17 years, but no significant difference was found in case of 16 and 18 years, 17 years of age was better than other age groups, for the future study the other components like flexibility and etc. proposed to study by the authors. In Indian male student's significant differences were found among 14 and 17 years. According to mean scores 14 years of age was flexible than other age groups. Iranian male's variedin flexibility performance year to year but significant difference only observed in case of 14 vs. 15 years of age, therefore the hypothesis partially accepted, these results were supported with earlier study conducted by Dinesh Kumar (1998). In flexibility they did not differ significant. The development through these years might were due to general growth of body components that affect these changes. These findings were supported with earlier study conducted by Haywood (1993). In flexibility 15 year of age was significant in performance; it might cause from general development of physical growth and training.

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