



Full Length Research Article

COMPARATIVE STUDY OF MOTOR DEVELOPMENT AMONG INDIAN AND IRANIAN STUDENTS A-CROSS SECTIONAL STUDY

***Majid Hashemi**

Department of Physical Education, Varamin Pishva Branch, Islamic Azad University, Varamin, Iran

ARTICLE INFO

Article History:

Received 11th December, 2013
Received in revised form
09th January, 2014
Accepted 16th February, 2014
Published online 25th March, 2014

Key words:

Motor Development,
Posture, Movement,
Students' age, Speed

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 speed 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.

Copyright © 2014 Majid Hashemi. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

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.

Definitions of operational terms motor development

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 components 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. This method does not permit measurement of age-related change, and has attracted controversy in recent years. Basically the cross-sectional method yield 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 representative sample of the population for each age group test. (David L & Gallahue, 1995) p10

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 components of speed, agility, strength, flexibility, power and endurance. 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

***Corresponding author: Majid Hashemi**

Department of Physical Education, Varamin Pishva Branch,
Islamic Azad University, Varamin, Iran

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 help 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 Conard Welch (1974). Cross-sectionally 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. Morrow (1979) conducted study on Korean secondary student of physical fitness. The aim of his study was to compare 1979 KSPFT and KPSFT results and to see if change in occurring Analysis of the data supports. Frederick (1979) made a study to determine motor ability differences along five age groups composed of black and white boys and girls in the performance of 20 years run vertical jump, standing jump, and balance on the right side foot, equilibrium on the left foot, kicking for a distance, pitching for accuracy and kicking for accuracy. 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. DaljitKaur (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. MeeraChauhan (1989). Compared the motor fitness performance of sports and non-sports school girls (13-15) years' old living at the high altitude of 2960ms at Shimla and 487ms at Chandigarh, SukhpalKaur (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.

Collection of data

The data for selected variables on the randomly selected subjects was collected over a period of eleven month (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 each 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 items, the t test is applied. The level of significant was set at .05. The table 1 showed a significant F values of 21.407 for Indian and 31.375 for Iranian student respectively, which indicated that six age groups different significantly in speed. Because the F was found to be significant, to establish which paired age group differed the results of post hoc scheffe's test have been present in tables 2-7.

Table 1. The analysis of variance of Indian and Iranian male students in speed

Source of variation	DF	SS		MS		F
		Indian	Iranian	Indian	Iranian	
Between groups	5	79.111	114.006	15.822	22.801	21.407*31.375*
Within groups	1194	882.486	867.706	.739	.727	
Total	1199	961.597	981.712			

*significant at .05 level of confidence.

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

Groups	MD		P value	
	Indian	Iranian	Indian	Iranian
13 vs. 14	.261	.703*	1.00	.000
13 vs. 15	.420*	.683*	.000	.000
13 vs. 16	.644*	.964*	.000	.000
13 vs. 17	.721*	.862*	.000	.000
13 vs. 18	.663*	.634*	.000	.000

*significant at .05 level of confidence.

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

Groups	MD		P value	
	Indian	Iranian	Indian	Iranian
14 vs. 13	.261	.703*	1.00	.000
14 vs. 15	.158	.020	.664	1.00
14 vs. 16	.382*	.261	.001	.095
14 vs. 17	.460*	.159	.000	.624
14 vs. 18	.401*	.069	.001	.985

*Significant at .05 level of confidence.

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

Groups	MD		P value	
	Indian	Iranian	Indian	Iranian
15 vs. 13	.420*	.683*	.000	.000
15 vs. 14	.158	.020	.644	1.00
15 vs. 16	.225	.282	.235	.054
15 vs. 17	.302*	.180	.031	.489
15 vs. 18	.244	.049	.155	.997

*significant at .05 level of confidence

Table 5. Comparison of the paired test means for respective categories of Indian and Iranian male student in speed

Groups	MD		P Value	
	Indian	Iranian	Indian	Iranian
16 vs. 13	.644*	.964*	.000	.000
16 vs. 14	.382*	.261	.001	.095
16 vs. 15	.225	.282	.235	.054
16 vs. 17	.087	.102	.976	.921
16 vs. 18	.019	.331*	1.00	.010

*significant at .05 level of confidence.

Table 6. Comparison of the paired test means for respective categories of Indian and Iranian male student in speed

Groups	MD		P Value	
	Indian	Iranian	Indian	Iranian
17 vs. 13	.721*	.862*	.000	.000
17 vs. 14	.460*	.159	.000	.624
17 vs. 15	.302*	.180	.031	.489
17 vs. 16	.078	.102	.976	.921
17 vs. 18	.059	.229	.993	.207

*significant at .05 level of confidence.

Table 7. Comparison of the paired test means for respective categories of Indian and Iranian male student in speed

Groups	MD		P Value	
	Indian	Iranian	Indian	Iranian
18 vs. 13	.663*	.634*	.000	.000
18 vs. 14	.401*	.069	.001	.985
18 vs. 15	.244	.049	.155	.997
18 vs. 16	.019	.331*	1.00	.010
18 vs. 17	.059	.229	.993	.207

*significant at .05 level of confidence.

It is evident from the table that in Indian male students paired mean difference of 13 and 15 year, 13 and 16 year, 13 and 17 year, and 13 and 18 year are significant respectively. This indicated that in speed 15,16, 17 and 18 year male student were better than 13 year male students. No significant difference was found between the paired mean difference of 13 and 14 year in Indian male students. In Iranian male students the mean differences of 13 and group 14 and 13, pair 15 and 13, pair 16 and 13 and 17 and 13 and 18 year male student were found to be significant. This indicated that in speed 14,15,16,17 and 18 year male students were quicker than 13 year male students. From the table it is evident that in Indian male student paired mean difference of 14 and 16 year,

14 and 17 year, and 14 and 18 years were found to be significant respectively. This indicated that in speed 16, 17 and 18 year male student were better than 14 year male students. But in case of 14 and 13 year, 14 and 15 year were not found significant differences. This indicated that 13 year was not quicker than 14 year and 14 year was not better than 15 year male students. In Iranian male students the paired mean difference of 14 and 13 year, was significant this indicated that 14 year was better than 13 years of age. But in paired mean difference of 14 and 15, 14 and 16, 14 and 17 and 14 and 18 year was not found significant difference. This indicated that 14 year was not taller than 15, 16, 17 and 18 year male students. It was evident from the table that in Indian male students paired mean differences of 15 and 13 year, 15 and 17 year were found significant. This indicated that in speed performance 15 year was better than 13 year and 17 year was better than 15 years of age. But in cases of 15 and 14 year, 15 and 16 and 15 and 18 year were not found significant differences. This indicated that in speed performance 14 year was not better than 15 years and 15 year was not better than 16 and 18 years of age. In Iranian male students paired mean differences of 15 and 13 year was found significant. This revealed that in speed performance 15 year male students were better than 13 years. But in cases of 15 and 14 year, 15 and 16 years 15 and 17 and 15 and 18 years of age were not found significant differences. This indicated that in speed performance 15 year was not quick than 14, 16, 17 and 18 year male students.

It was evident from the table that in Indian male student paired mean difference of 16 and 13 year and 16 and 14 year male students were found to be significant. This indicated that in speed performance 16 years were better than 13 and 14 years of age. But no significant difference was found for 16 and 15 year, 16 and 17 year and 16 and 18 year. This indicated that in speed performance 16 years of age was not better than 17 and 18 year, and 15 year were not better than 16 years of age. In Iranian male student paired mean difference of 16 and 13 year, 16 and 18 year were found significant. This revealed that 16 year was better than 13 and 18 years. But in case of 16 and 14 year, 16 and 15 year and 16 and 17 year was not found significant difference. This indicated that 14, 15 and 17 years were not quick than 16 years of age. It was evident from the table that in Indian male student paired mean difference of 17 and 13 year, 17 and 14 year, 17 and 15 year were found to be significant. This indicated that in speed performance 17 year was better than 13, 14 and 15 year .but in paired mean difference of 17 and 16 year and 17 and 18 year not found significant. These showed that 16 and 18 year were not better than 17 years in performance. In Iranian male student paired mean difference of 17 and 13 year was found significant. This revealed that in speed performance 17 year was better than 13 years of age. But in cases of 17 and 14 year, 17 and 15 year, 17 and 16 year and 17 and 18 years of age was not found significant. This indicated that in speed performance 14, 15, 16 and 18 years were not better than 17 year male students. It was evident from the table that in Indian male student paired mean difference of 18 and 13 year, 18 and 14 year were found to be significant. This indicated that in speed performance 18 year was better than 13 and 14 years of age. But in paired mean difference of 18 and 15 year, 18 and 16 year and 18 and 17 year of age were not found significant difference. This indicated that in speed 18 year was not better than 17 year, and

15 and 16 years were not better than 18 year male student. In Iranian male student paired mean difference of 18 and 13 year and 18 and 16 year of age were found significant, these indicated that 18 year were better than 13 year male students and 16 year was better than 18 year male student in speed. But in cases of no significant differences were found in cases of 18 and 14 year, 18 and 15 year and 18 and 17 year. These indicated that 18 year male students were not quicker than 14, 15 and 17 year male student. Motor development is the process of change in motor behavior that is related to the age of the individual. The main significant focus on the relationship between age and motor behavior makes the study of motor development unique from other viewpoints. Motor development includes age-related vagaries in both posture and movement, the two main component 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 components that underlie gross motor skills.

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 speed 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 speed. Also the tests indicated that in speed 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 14 and 13, pair 15 and 13, pair 16 and 13 and 17 and 13 and 18 year male student were found to be significant. This indicated that in speed 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 speed 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 agility and etc. proposed to study by the authors.

REFERENCES

- Amarpreet Singh 1993" :Relationship of varying levels of motor fitness to socio-economic statues and structural variation among school students in the age group of 14-16 years.
- Daljit Kaur 1989: "assessment of physical fitness of high school girls of Panjab".
- David L. Gallahue, John C. Ozmun 1995: "understanding motor development" (USA WCB Brown & Bench Marck): P10
- Dinesh kumar 1998: "a normative study of physical fitness of lower secondary school boys (12-14 years of age) of Thailand"
- Haiphot Chanchi lung 1985:"Assessment of motor physical fitness of lower secondary school boys (12-14 years of age) of Thailand"
- Jan Stephen tecklin, 1998: "pediatric physical therapy third edition:" (Philadelphia: Lippincott_Raven,) p70

- JasbireKaur 1999: "Assessment of motor fitness of rural and urban senior secondary school girls of Panjab state".
- MeeraChauhan 1989: "construction and standardization of motor fitness test battery for elementary school children in Delhi (u.t)
- Rachhpal Singh Brar 1987: "Effect of short interval and long interval running with two recovery types on aerobic and anaerobic capacities and running performances of high school boys".
- ReetMahindersingh 1986: "physical fitness norms of Panjab state high school boys".
- Shilendra Kumar Sinha 1996: "A study of anthropometric and motor quality profiles of 8-14 years boys of eastern and north east region of India" kalyani university -SAI, Calcutta.
- SonamAngchok 1999: "physical fitness norms for high and higher secondary student of Ladakh"
- Sujata Devi 2000: A comparative study of physical fitness and psychological traits of Tribal and non-Tribal high school students of high altitude area".
- SukhpalKaur 1990: "A cross-sectional study of motor abilities of girls in the age group of 7 to 11 years".
