

COMPARISON OF FLEXIBILITY AMONG SCHOOL GOING CHILDREN AT DEIFFERENT AGE GROUP

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Abstract

Objective: Given recent concern regarding its validity the aim of the present study was to compare the flexibility among children of different age groups. **Design & Method :** The subject were 200 in number (n=200) from the four selected age group i.e. 9-10 yrs, 11-12 yrs, 13-14 yrs, and 15-16 yrs and were selected from Kendriya Vidyalaya no.1 Gwalior. Each group consists of 50 male subjects. Flexibility measured of back & leg, shoulder and trunk & back test were recorded and data were analyzed by one way analysis of variance (ANOVA). L.S.D test was used to asses significant different between the mean different groups wherever the F-ratio was found significant. **Results:** Data were analyzed by using analysis of variance (ANOVA). After analysis the data following result were drawn. 1. There was significant difference among the children of 9-10 & 11-12 age group, 9-10 & 13-14 age group and 9-10 & 15-16 age groups in back and leg flexibility. 2. insignificant difference in back and leg flexibility were obtained in 11-12 & 13-14 age groups, 11-12 & 15-16 age groups and 13-14 & 15-16 age groups. 3. significant difference were obtained in shoulder flexibility among 9-10 & 11-12 age group, 9-10 & 13-14 age group, 11-12 & 15-16 age groups. 4. No difference was obtained between 9-10 & 15-16 age groups and 11-12 & 13-14 groups in shoulder flexibility. 5. Significant difference was found in trunk and neck flexibility among children of between age groups of 9-10 & 11-12, 9-10 & 13-14 and 9-10 & 15-16 years. 6. Insignificant difference was found in trunk & neck flexibility in age groups of 11-12 & 13-14, 13-14 & 15-16 years.

Keywords: Trunk, Neck, Shoulder, Flexomeasure & Yard Stick

increasingly obvious though, not generally appreciated that achievement & maintenance of high levels of physical fitness produce significant efforts on the working of the human body. The total development of body & mind is possible only if the individual is totally fit. The total fitness refers to the individual's capacity to live effectively in his environment. Flexibility is one of the important components of physical fitness. Flexibility of a joint is specific in two ways – first; it depends upon the use of a particular joint or body part. Secondly, when we say that flexibility is joint specific. It means a high degree of flexibility in one joint does not necessarily indicate a good degree of flexibility in other joints of the same individual. Flexibility is an essential part of life even to a common man. It is possible with a high degree of flexibility that even a common man can avert a possible injury resulting from a fall while performing his daily chores. Emphasis on the improvement of flexibility should be given in the childhood & adolescent years. It is generally seen that flexibility declines with increasing age. Flexibility is to a significant extent age and sex dependent. Children are more flexible than the adults. With increase in age the flexibility also decreases. Women are normally more flexible than men. This is perhaps due to sex differences in joint structure and also due to lower muscle mass thus reducing the role of muscle stretch ability. It is well known that individuals have different degrees of flexibility. Differences also exist in different areas of the body, within the individual, for example, flexibility of the shoulder and back and leg flexibility. Differences among & within individual is also affected by the use of a particular area of the body.

Introduction

Recent innovations in past few years have provided amenities that have changed the life style of human beings. Now individual perform task without exerting physically which has resulted in reduced physical fitness. Reduced physical fitness is taking a toll in the lives of human beings as is revealed by greater incidence of low back pain, Spondylitis etc. All this modern day problems are due to lack of strength and flexibility. In the recent years more and more attention has been paid to the nature of "physical fitness" not only in terms of general health, but particularly of the special physical requirements for competitive sports & certain highly specialized & demanding occupations. As a result of current work, particularly in the field of physical education, it is becoming

Materials and Method

Participants: The study based on randomly selected male students falling within the age groups of 9-10, 11-12, 13-14 and 15-16 of Kendriya Vidyalaya No. 1, Gwalior. The data were collected under natural environmental conditions in their school hours. 200 male students of Kendriya Vidyalaya No.1 Gwalior who were falling within the age group of 9-10 years, 11.12 years, 13-14 years, & 15-16 years were selected for the subject of the study. All subject readily agreed to participant in the study, though no special technique were used to motivate and encourage the subject to put their best. **Instrumentation:** To measure the flexibility characteristic of an individual scholar used the following test of flexibility like sit and reach test for hip and back flexion, trunk and neck extension test for trunk and neck, shoulder lift test for absolute flexibility of

shoulder. All the data are measure in centimeter (CM). Data analysis: A one way ANOVA was used to compare the flexibility status of these groups. The hypothesis was tested at .05 level of significance.

Reiterating the objective of the study, we have to point out to investigate the flexibility difference among four age groups. Thus ANOVA used to found out the significant difference among the four age groups. Where the difference was significant, post hoc L.S.D test was used to analysis the mean difference.

TABLE-1
ANALYSIS OF VARIANCE OF THE MEAN DIFFERENCE AGE GROUP IN DIFFERENT FLEXIBILITY TESTS

Test	Sources of Variance	SS	MSS	F ratio
Sit and Reach Test	Among	246.408	82.136	6.724*
	Within	2394.098	12.215	
Shoulder Lift Test	Among	793.135	264.378	8.398*
	Within	6177.220	31.516	
Trunk & Neck Ext.	Among	247.975	82.658	4.268*
	Within	3796.020	19.367	

*Significant F (0.05) (3,196) = 2.650

Above table reveals that there was significant difference in all the flexibility variables, as calculated F value of these different flexibility tests were much higher than tabulated value, therefore the research hypothesis among children of different age group was accepted. To further find out which group is having greater flexibility, the Least Significant Difference (L.S.D) Test was applied. This is presented in Table 2, 3, and 4.

TABLE -2
PAIRED MEAN DIFFERENCE IN BACK & LEG FLEXIBILITY AMONG CHILDREN OF DIFFERENT AGE GROUP

9-10	11-12	13-14	15-16	MD	CD
8.55	10.16			1.61*	1.37
8.55		11.48		2.39*	
8.55			10.96	2.14*	
	10.16	11.48		1.37	
	10.16		10.96	0.80	
		11.48	10.96	0.52	

*significant, C.D (0.05) = 1.37

The above table reveals that there were significant difference of back and leg flexibility between the paired mean of groups 9-10 years and 11-12 years, 9-10 years and 13-14 years & 9-10 years and 15-16 years. But no significant differences were found among the age groups of 11-12 years and 13-14 years, 11-12 years and 15-16 years & 13-14 years and 15-16 years.

TABLE -3
PAIRED MEAN DIFFERENCE IN SHOULDER FLEXIBILITY AMONG CHILDREN OF DIFFERENT AGE GROUP

9-10	11-12	13-14	15-16	MD	CD
30.22	34.20			3.98	2.20
30.22		34.96		4.74	
30.22			31.16	0.94	
	34.20	34.96		0.76	
	34.20		31.46	3.04	
		34.96	31.46	3.80	

*significant, C.D (0.05) = 2.20

The above table reveals that there were significant difference of shoulder flexibility between the paired mean of groups 9-10 years and 11-12 years students, 9-10 years and 13-14 years & 11-12 years and 15-16 years & 13-14 years and 15-16 years students but no significant difference were found among the age groups of 9-10 years and 15-16 years, 11-12 years & 13-14 years.

TABLE -4
PAIRED MEAN DIFFERENCE IN TRUNK AND NECK FLEXIBILITY AMONG CHILDREN OF DIFFERENT AGE GROUP

AGE GROUP				MD	CD
9-10	11-12	13-14	15-16		
11.60	13.96			2.36	1.73
11.60		14.04		2.44	
11.60			14.42	2.82	
	13.96	14.04		0.08	
	13.96		14.42	0.46	
		14.04	14.42	0.38	

*Significant, C.D (0.05) = 1.73

The above table reveals that there were significant difference of trunk and neck flexibility between the paired mean of groups 9-10 years and 11-12 years students, 9-10 years and 13-14 years & 9-10 years and 15-16 years students but no significant difference were found among the age groups of 11-12 years and 13-14 years, 11-12 years and 15-16 years, and 13-14 years and 15-16 years.

Discussion of Findings

Significant differences were obtained in all three flexibility tests, namely Sit and Reach Test, Shoulder Lift Test and Trunk and Neck Extension Test among the different age group. Significant differences in back and leg flexibility between 9-10 years and 11-12 years, 9-10 years and 13-14 years and 9-10 years and 15-16 years may be due to the habitual movement pattern. Generally, literature revealed that children in the early year have greater flexibility but in case of present study the back and leg flexibility score was lesser than that of 11-12 years, 13-14 years and 15-16 years groups. This is contrary to the popular belief and need further investigation. It has also been observed that back and leg flexibility of 15-16 years group is lower than that of 13-14 year group; which may be because of engagement in activity programmed. Normally it is seen that in class 10th the children devoted more time for study and very little participation in activity programmed is undertaken. Hence lower flexibility was notice in 15-16 groups in comparison to the age group of 13-14 years groups. Significant differences were obtained in shoulder flexibility among 9-10 years and 11-12 years groups, 9-10 years and 13-14 years, 11-12 years and 15-16 years; and 13-14 years and 15-16 years groups. All these differences may be due to lack of participation in physical activity programmed as 15-16 years groups has less shoulder flexibility than 13-14 years groups. The present finding may also be due to the muscle boundness i.e. younger generation gets influenced through movies as well as from other factors to indulging body building activity undertaken

without proper guidance. Due to development of muscles especially in shoulder region, flexibility might have been reduced. The least value of shoulder flexibility of 9-10 years age groups may be because of the body size. It has been seen that body size of children is on the increase because of sedentary life style as well as consumption of rich diet coupled with junk food. As a result of greater percentage of fat, flexibility has the least value of 9- 10 years age groups. Significant differences in trunk and neck flexibility were noticed in 9-10 years and 11-12 years, 9-10 years and 13-14 years; and 9-10 years and 15-16 years age groups. All the findings are contrary to the findings of the popular beliefs and are a sign of concern which needs further research by employing large number of students as well as different school.

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