

The Effects of Gymnastic Activities on Selected Flexibility Measures of School Boys



Physical Education

KEYWORDS : Gymnastics, Flexibility

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ABSTRACT

Purpose of the present study is to find out the effects of gymnastic activities on flexibility measures of school boys. Methodology: Hundred (100) school boys of District Howrah, West Bengal State were selected at randomly as subjects for the present study. The age limit of the subjects was 10-12 years. All the subjects were divided into two equal groups such as Gr. G and Gr. C. Gr. G was experimental group and Gr. C served as control group. Initially all the flexibility measures such as wrist flexion, wrist extension, elbow flexion, knee flexion, ankle dorsi flexion, ankle planter flexion spine flexion and trunk flexion of different parts of the body were taken and thereafter specific gymnastic activities were given to Gr. G for one year and finally the subjects were retested on criterion measures. The data were analyzed by paired t-test to find out the effects of the treatment. Results: The results of the present study showed that all the flexibility measures such as wrist flexion, wrist extension, elbow flexion, knee flexion, ankle dorsi flexion, ankle planter flexion, spine flexion and trunk flexion were improved significantly at .05 level of confidence among the subjects of Gr. G after one year treatment.

INTRODUCTION:

The term 'Gymnastics' derived from Greek word meaning 'to exercise naked'. Gymnastics develop various component of physical fitness such as strength, flexibility, agility, co-ordination, balance and grace. Flexibility is a part and parcel of physical fitness. Flexibility may be defined as a joint's ability to move freely or normal range of motion. Actually Gymnastics make a man complete- physically as well as mentally. A gymnast also learns art of living. Purpose of the present study is to find out the effects of gymnastic activities on flexibility of school boys. Cureton (1941) stated that gymnastics much more flexible than other sports especially in trunk flexion and extension. Flexibility exercises are more conducive to build endurance in movements like swimming, running, aerobic dancing and tumbling than short static and weight lifting type of exercise. Jensen and Fisher (1979) stated that a high degree of total body flexibility is desirable and unusual amount of flexibility in certain body movement is necessary for maintenance of correct body form in gymnastics.

METHODOLOGY:

Hundred (N=100) school boys of District Howrah, West Bengal State were selected at randomly as subjects for the present study. The age limit of the subjects was 10-12 years. All the subjects were divided into two equal groups such as Gr. G and Gr. C. Gr. G was experimental group and Gr. C served as control group.

Initially all the flexibility measures of different parts of the body such as wrist flexion, wrist extension, elbow flexion, knee flexion, ankle dorsi flexion, ankle planter flexion, spine flexion and trunk flexion were employed to all the subjects of both groups and thereafter specific gymnastic activities were given to Gr. G for one year and finally the subjects were retested on criterion measures. The data were analyzed by t-ratio to find out the effects of the treatment.

Treatment consists of following gymnastic activities:

Rolling- forward and backward, cart wheel, front turn and back turn, split sitting, handstand, handspring, round-off, back flip, front and back salt.

Prior to gymnastic activities all the subjects of Gr. G performed warm up exercise for 15 minutes. Gymnastics activities were assigned according to degree of difficulty in four phases. Duration and repetition and degree of difficulty were increased gradually at four phases during the treatment season. The concept of the treatment programme was framed on the basis of Rhythmic and Educational Gymnastics. <http://www.mnps.org/page:11294.aspx>

RESULTS AND DISCUSSIONS:

All the flexibility measures and body composition were analyzed by paired t-test and level of significance was set up at .05 level of confidence.

TABLE-1

Group means increase in flexibility measures among Gr. G and Gr. C after one year treatment

Variables	Test	Gr. G (N=50)			Gr. C (N=50)		
		Mean	SD	t	Mean	SD	t
Wrist flexion (Degree)	Pre-test	87.04	5.87	27.23	89.66	6.34	0.10
	Post-test	92.62	5.89		89.24	6.10	
Wrist extension (Degree)	Pre-test	52.62	6.60	18.8	52.16	7.17	0.03
	Post-test	57.38	6.92		51.6	6.59	
Elbow flexion (Degree)	Pre-test	144.74	3.94	22.64	145.34	4.39	0.84
	Post-test	149.58	5.01		144.38	4.58	
Knee flexion (Degree)	Pre-test	137.24	6.38	35.74	137.52	6.43	-0.24
	Post-test	146.02	5.71		136.78	7.01	
Ankle dorsi flexion (Degree)	Pre-test	25.18	3.29	29.84	25.50	3.14	0.92
	Post-test	28.78	3.68		24.58	2.99	
Ankle Planter flexion (Degree)	Pre-test	40.58	6.78	23.7	41.24	6.61	0.12
	Post-test	49.82	6.49		39.82	6.03	
Spine flexion (Inch)	Pre-test	13.5	2.12	25.98	13.24	1.93	-0.21
	Post-test	10.7	1.58		14.16	2.04	
Trunk flexion (Inch)	Pre-test	1.48	1.18	30.7	1.62	1.29	1.12
	Post-test	9.20	2.62		0.92	1.10	

Significant at .05 level of confidence

Table-1 represents the mean values of pre test and post test for wrist flexion, wrist extension, elbow flexion, knee flexion, ankle dorsi flexion, ankle planter flexion, spine flexion and trunk flexion of Gr. G and Gr. C. The t-values of Gr. G for all flexibility measures were 27.23, 18.8, 22.64, 35.74, 29.84, 23.7, 25.98 and 30.7 respectively. To be significant at .05 level of confidence the t-value should be greater than 2.01. In this case, so all the t-values of Gr. G were significant at .05 level of confidence for improving all flexibility measures. The t-values of Gr. C for all flexibilities measures were 0.10, 0.03, 0.84, -0.24, 0.92, 0.12, -0.21 and 1.12 respectively. The t values of Gr. C in relation to

improvement of all flexibility measures were not significant at .05 level of confidence.

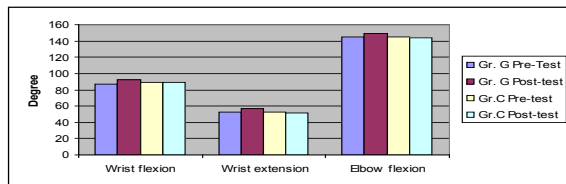


Fig. 1: A comparison of means of pre and post test data on wrist flexion, wrist extension and elbow flexion among Gr. G and Gr. C.

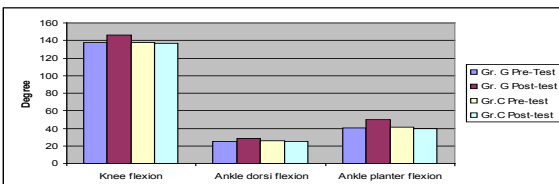


Fig. 2: A comparison of means of pre and post test data on knee flexion, ankle dorsiflexion and ankle plantar flexion among Gr. G and Gr. C.

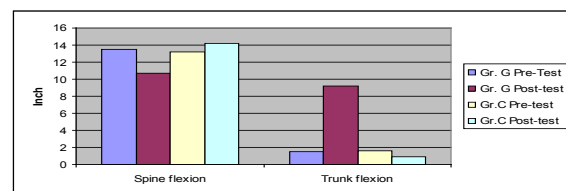


Fig. 3: A comparison of means of pre and post test data on spine flexion and trunk flexion among Gr. G and Gr. C.

Flexibility has been considered not only a component of physical fitness but has been considered as a quality of every individual for a better movement, motor coordination and creative-esthetic performance. In this study eight flexibility measures were tested. The result of the studies showed that gymnastics improved all flexibility measures such as wrist flexion, wrist extension, elbow flexion, knee flexion, ankle dorsiflexion, ankle plantar flexion, spine flexion and trunk flexion significantly at .05 level of confidence after one year treatment. These improvements have been presented graph (1-3).

In this study gymnastics were used as the way of treatment which involved static stretching, ballistic stretching and dynamic stretching. The result of the present study corroborates with the finding of Locken and Willoughby (1967), Jenson and Fisher (1979), Cureton(1941), Downic(1970), Baley (1977), Ghildial (1980) and partly with the study of Kim & Park (2006) and Bo-raezynski & Urinaz (2009).

CONCLUSION

Under the conditions of the present study the results seem to conclude the following:

1. All flexibility measures such as wrist flexion, wrist extension, elbow flexion, knee flexion, ankle dorsiflexion, ankle plantar flexion, spine flexion and trunk flexion were improved significantly due to one year treatment of gymnastic activities.

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