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## A study on relationship between flexibility and different sports

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### Abstract

**Introduction:** Quality of life is enhanced by improving and maintaining a good range of motion in the joints. In the field of games and sports, top level performance depends upon the flexibility of various joints. Considering the role of flexibility measures on human activities the investigators intended to measure the flexibility of different joints of state level gymnasts, footballers and yogic practitioners.

**Purpose:** Thus the purpose of the present study was to compare the flexibility measures among state level gymnasts, footballers and yogic practitioners.

**Methodology:** Total sixty (N=60) male state level performers i.e. twenty ( $n_1=20$ ) gymnasts (Gr. G); twenty ( $n_2=20$ ) footballers (Gr. F) and twenty ( $n_3=20$ ) yogic practitioners (Gr. Y) were randomly selected as subjects for the present study. The age of the subjects were ranged from 17 to 19 years. Flexibility measured in different joints was taken from the subjects in three times in consecutive three days and average of the score was taken as flexibility score.

**Statistics:** In the present study for the sake of analysis of data; mean and standard deviation of different flexibility measures of various joints were calculated and one way ANOVA was used to compare the mean. To find out the superiority of the groups critical ratio was also employed. The level of significance was set at  $p < 0.05$  level of confidence. For statistical calculations Excel Spread Sheet of windows version 7 was used.

**Results:** The result of the present study showed that the significant difference was observed among Gr. G, Gr. F and Gr. Y in wrist flexion, wrist extension, shoulder flexion, spine flexion, trunk flexion, knee flexion, ankle dorsi flexion at 0.05 level of confidence. Critical difference was also showed that Gr. Y was superior to Gr. G and Gr. F in comparing the wrist extension, shoulder flexion, spine flexion, trunk flexion, knee flexion and ankle dorsi flexion of state level performers and Gr. G was superior to Gr. F in comparing the wrist flexion, wrist extension, spine flexion, trunk flexion, knee flexion and ankle dorsi flexion of state level performers and whereas Gr. Y and Gr. G were not superior in comparing the wrist flexion of state level performers. The result of the present study also showed that the significant difference was not found in comparing the elbow flexion and ankle planter flexion among state level performers.

**Conclusion:** In most of the cases of flexibility measures, yogic practitioners were superior to gymnasts and footballers and investigator also observed that few of the cases in flexibility measures where gymnasts were superior to footballers. On the other hand, footballers were least flexibility than others two groups.

**Keywords:** Gymnastics, football, yogasanas and flexibility

### Introduction

Flexibility refers to the absolute range of movement of joints or series of joints, and stretch ability in the length of the muscles that crosses the joints. Flexibility can be defined as the amount of movement of a joint through its normal plane of motion. But we can differentiate between static and dynamic flexibility. The static is defined as the range of motion available to a joint or series of joints. The dynamic flexibility refers to the ease of movement within the obtainable range of motion. (Gleim, GW and Mc Hugh, MP. 1997) [16]. Flexibility varies between individuals to individuals, particularly in terms of differences in muscle length of multi-joint muscles. Flexibility in some joints can be increased to a certain degree by exercise particularly stretching exercise that maintains or improve flexibility. Quality of life is enhanced by improving and maintaining a good range of motion in the joints.

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Overall flexibility should be developed with specific joint range of motion needs in mind as the individual joints vary from one to another. Loss of flexibility can be a predisposing factor for physical issues such as pain syndromes or balance disorders. Gender, age, and genetics have important role for range of motion. Exercise including stretching often improves flexibility. Many factors are taken into account when establishing personal flexibility: joint structure, ligaments, tendons, muscles, skin, tissue injury, fat (or adipose) tissue, body temperature, activity level, age and gender all influence an individual's range of motion about a joint. Individual body flexibility level is measured and calculated by performing a sit and reach test, where the result is defined as personal flexibility score. In the field of sports and games, physical fitness is the most important factor. A sportsman performs his task or skill according to their physical fitness. Flexibility is a part and parcel of physical fitness. Every kind of sports and games depend on flexibility.

The most popular form of yoga in our country is called hatha yoga, performed sequentially by using a series of physical exercises. Gymnastics are the father of all activities. It involves vigorous physical movement. Yoga and gymnastics both develop individual fitness and make the mind calm and control the emotion. Yogasanas and Gymnastics develop various component of physical fitness such as strength, flexibility, co-ordination, balance, body composition and grace. Flexibility is a part and parcel of physical fitness. Actually yogasanas and gymnastics make a man complete fit - physically as well as mentally. Cureton (1941) [14] stated that gymnastics makes human body 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. Jenson and Fisher (1979) [17] 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. Ghorate (1973) conducted a study on 27 males and 12 females of summer camp certificate course in yoga. His purpose was to observe the effect of yogic training on physical fitness. Physical fitness test was administered before and after the three weeks of yogic training. It was concluded that the training definitely improved general fitness of the male and female individuals with special emphasis on the fitness factor of flexibility, trunk strength and equilibrium.

From the above discussion it is clear that flexibility is one of the most important factors of physical fitness and an essential requirement of an individual to a certain degree for healthy and dynamic life leading. That is why the development of flexibility has become the sole of attention in movement science and research. Though it is a basic requirement of fitness but it varies from man to man or even for a man from time to time. Due to the prime necessity of this component of fitness for performance and healthy living; exercise scientist tries to optimize this component of fitness by using variety of techniques. Each has certain advantage and limitations as well. Different activities develop flexibility to its own way and this development varies from activity to activity as the quality of movement and nature of movement varies in different activities. In the present project the researchers intended to measure such an important component of fitness like flexibility of the performers of three different activities. The ultimate target was to differentiate the degree of flexibility of the players among three different activities. Thus

the purpose of the present study was to compare the flexibility measures among state level gymnasts, footballers and yogic practitioners.

**Methodology**

**Sample**

Total sixty (N=60) male state level performer i.e. twenty gymnasts (Gr. G); twenty footballers (Gr. F) and twenty yogic practitioners (Gr. Y) in west Bengal state were randomly selected as subjects for the present study. The age ranged of the subjects was from 17 to 19 years.

**Procedure**

All flexibility measures of different joints of the body such as wrist flexion, wrist extension, elbow flexion, shoulder flexion, spine flexion, trunk flexion, knee flexion, ankle dorsi flexion and ankle planter flexion were taken to all the subjects of all three groups and data were analysed by standard statistical procedures.

**Statistical Treatment**

After collecting the data of all flexibility measures were analysed by one way analysis of variance i.e. by F-ratio and level of significance was set at 0.05 level of confidence. In case of significant difference the exact location of the difference among the groups was identified by calculating critical ratio among the groups.

**Analysis and Discussion**

To find out whether there was any significant difference among mean values of wrist flexion among different groups, one way analysis of variance technique was employed. 'F'-ratio of wrist flexion for different groups has been presented in Table-1.

**Table 1:** 'F' ratio for Wrist Flexion of different groups

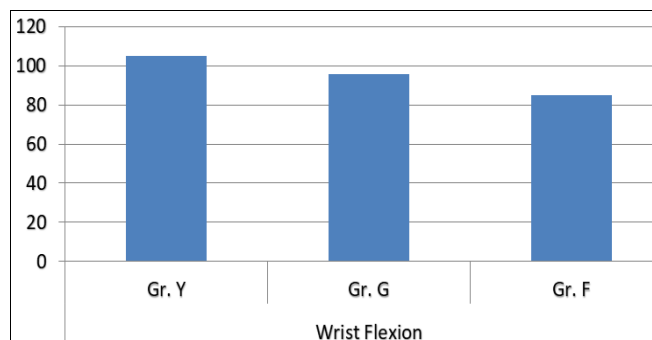
Variable	Source of variance	Sum of squares	Mean square variance	Degree of Freedom	'F' ratio
Wrist Flexion	Between Groups	3986.1	1993.1	(K- 1) = 2	14.14
	Within Groups	8031.5	140.9	(N-K) = 57	

\*significant at 0.05 level of confidence:  $F_{0.05}(2, 57) = 3.18$

It was understood from table values that the calculated 'F' was statistically significant at 0.05 level of confidence confirming the significant difference among means of groups – Y, G and F in wrist flexion. In order to find out the exact location of the differences among the means critical difference was used as a post-hoc test. Table-2 shows the results.

**Table 2:** Analysis of critical difference of groups- G, F, and Y in Wrist Flexion

Group Compared	Wrist Flexion		
	Mean (Degree)	Mean Difference	Critical Difference
Gr. Y & Gr. G	104.95	9.3	7.54
	95.65		
Gr. G & Gr. F	95.65	10.65	7.54
	85		
Gr. F & Gr. Y	85	19.95	7.54
	104.95		



**Fig 1:** Showed that the mean difference among Gr. Y, Gr. G and Gr. F in Wrist Flexion

From the findings of Table-2, it was observed that Gr. Y was superior to Gr. G and Gr. F in wrist flexion. Also Gr. G was to Gr. F in wrist flexion. The result indicate that wrist flexion of the footballers are comparatively less than gymnasts and yogic practitioners. In yogasanas and gymnastics is more involvement in wrist flexion than football.

**Table 3:** ‘F’ ratio for Wrist Extension of different groups

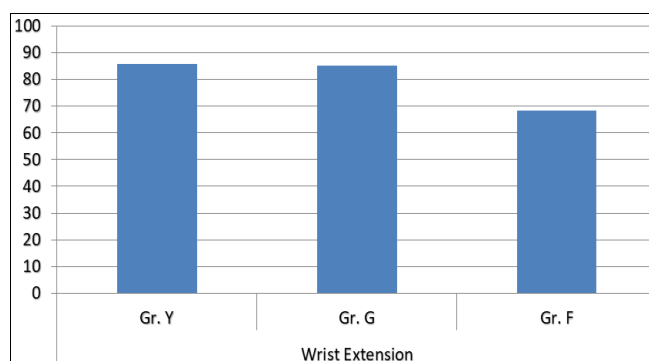
Variable	Source of variance	Sum of squares	Mean square variance	Degree of Freedom	‘F’ ratio
Wrist Extension	Between Groups	3878.95	1939.27	(K- 1) = 2	29.01
	Within Groups	3810.40	66.85	(N-K) = 57	

\*significant at 0.05 level of confidence:  $F_{0.01}(2, 57) = 3.18$

It was understood from Table-3 that the calculated ‘F’ was statistically significant at 0.05 level of confidence confirming the significant difference among means of groups – G, F and Y in wrist extension. In order to find out the exact location of the differences among the means critical difference was used as a post-hoc test. Table-4 shows the results.

**Table 4:** Analysis of critical difference of groups- G, F, and Y in Wrist Extension

Group Compared	Wrist Extension		
	Mean (Degree)	Mean Difference	Critical Difference
Gr. Y & Gr. G	85.8	0.5	5.19
	85.3		
Gr. G & Gr. F	85.3	16.8	5.19
	68.5		
Gr. F & Gr. Y	68.5	17.3	5.19



**Fig 2:** showed that the mean difference among Gr. Y, Gr. G and Gr. F in Wrist Extension

From the findings of Table-4, it can be stated from the critical

difference at 0.05 levels, Gr. Y and Gr. G were not superior to each other but Gr. Y and Gr. G were superior to Gr. F in wrist extension. The results indicate that wrist extensions of the footballers are comparatively less than gymnasts and yogic practitioners. In yogasanas and gymnastics is more involvement in wrist flexion than football.

‘F’-ratio of elbow flexion for different groups i.e. Group-Y, Group-G and Group-F has been presented in Table-5.

**Table 5:** ‘F’ ratio for Elbow Flexion of different groups

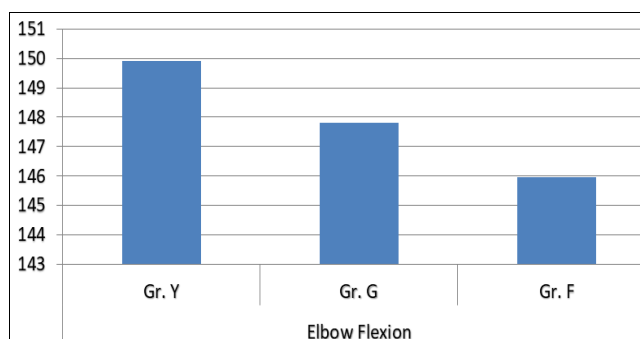
Variable	Source of variance	Sum of squares	Mean square variance	Degree of Freedom	‘F’ ratio
Elbow Flexion	Between Groups	156.2	78.10	(K- 1) = 2	2.96
	Within Groups	150.4	26.37	(N-K) = 57	

\*significant at 0.05 level of confidence:  $F_{0.01}(2, 57) = 3.18$

From Table –5, it can be stated that there was no significant difference among the means of elbow flexion. None of the group is superior in elbow flexion. So critical differences have not done. Table-6 showed the results.

**Table 6:** Analysis of mean difference of groups- G, F, and Y in Elbow Flexion

Group Compared	Elbow Flexion		
	Mean (Degree)	Mean Difference	Critical Difference
Gr. Y & Gr. G	149.9	2.1	--
	147.8		
Gr. G & Gr. F	147.8	1.85	--
	145.95		
Gr. F & Gr. Y	145.95	3.95	--
	149.9		



**Fig 3:** showed that the mean difference among Gr. G, Gr. F and Gr. Y in Elbow Flexion

Data relating to Elbow Flexion of Gr. G, Gr. F and Gr. Y were computed by analysis of variance. It was found that there was no significant difference among the means of the three groups in Elbow Flexion.

‘F’-ratio of shoulder flexion for different groups i.e. Group-Y, Group-G and Group-F has been presented in Table-7.

**Table 7:** ‘F’ ratio for Shoulder Flexion of different groups

Variable	Source of variance	Sum of squares	Mean square variance	Degree of Freedom	‘F’ ratio
Shoulder Flexion	Between Groups	397.63	198.82	(K- 1) = 2	10.46
	Within Groups	1082.99	18.99	(N-K) = 57	

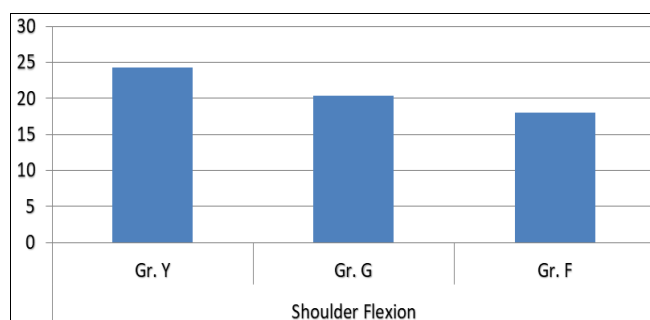
\*significant at 0.05 level of confidence:  $F_{0.01}(2, 57) = 3.18$

It was understood from Table-7 that the calculated ‘F’ was statistically significant at 0.05 level of confidence confirming

the significant difference among means of groups – G, F and Y in Shoulder Flexion. In order to find out the exact location of the differences among the means critical difference was used as a post-hoc test. Table–8 shows the results.

**Table 8:** Analysis of mean difference of groups- G, F, and Y in Shoulder flexion

Group Compared	Shoulder Flexion		
	Mean (Degree)	Mean Difference	Critical Difference
Gr. Y & Gr. G	24.25	4.21	2.75
	20.4		
Gr. G & Gr. F	20.4	2.4	2.75
	18		
Gr. F & Gr. Y	18	6.25	2.75
	24.25		



**Fig 4:** showed that the mean difference among Gr. G, Gr. F and Gr. Y in Shoulder Flexion

From the findings of the study, it can be stated that Gr. Y was superior to Gr. G and Gr. F in shoulder flexion. Also Gr. G was superior to Gr. F in shoulder flexion. The result indicate that shoulder flexion of the footballers are comparatively less than gymnasts and yogic practitioners. In yogasanas and gymnastics is more involvement in shoulder flexion than football. Improvement of shoulder flexibility was due to specific training exercises to the shoulder joints by Gr. G, Gr. F and Gr. Y. In case of yoga practice the exercise types were static stretching in asanas. These static stretching exercises for some time with repetition strengthen the group of muscles around the shoulder joints and allow full range of motion on it. Gymnastics involved mainly ballistics stretching technique. This is also helpful for the development of flexibility. ‘F’-ratio of spine flexion for different groups i.e. Group-Y, Group-G and Group-F has been presented in Table-9.

**Table 9:** ‘F’ ratio for Spine Flexion of different groups

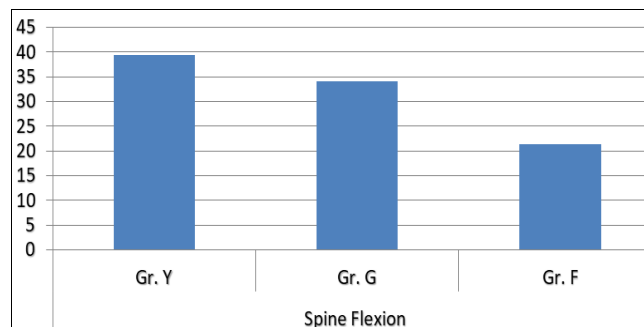
Variable	Source of variance	Sum of squares	Mean square variance	Degree of Freedom	‘F’ ratio
Spine Flexion	Between Groups	3443.03	1721.52	(K- 1) = 2	74.84
	Within Groups	1311.15	23.01	(N-K) = 57	

\*significant at 0.05 level of confidence:  $F_{0.01}(2, 57) = 3.18$

It was understood from Table-9 that the calculated ‘F’ was statistically significant at 0.05 level of confidence confirming the significant difference among means of groups – G, F and Y in Spine Flexion. In order to find out the exact location of the differences among the means critical difference was used as a post-hoc test. Table–10 shows the results.

**Table 10:** Analysis of critical difference of groups- G, F, and Y in Spine Flexion

Group Compared	Spine Flexion		
	Mean (Degree)	Mean Difference	Critical Difference
Gr. Y & Gr. G	39.4	5.2	3.05
	34.1		
Gr. G & Gr. F	34.1	12.75	3.05
	21.35		
Gr. F & Gr. Y	21.35	18.05	3.05
	39.4		



**Fig 5:** showed that the mean difference among Gr. G, Gr. F and Gr. Y in Spine Flexion

After computing the analysis of variance, it can be stated that the Gr. Y is superior to Gr. G and Gr. F and Gr. G also superior to Gr. F in spine flexion. The spine is more involved in yogasanas and gymnastics than football. This may possibly the reason for improving spine flexibility. ‘F’-ratio of trunk flexion for different groups i.e. Group-Y, Group-G and Group-F has been presented in Table-11.

**Table 11:** ‘F’ ratio for Trunk Flexion of different groups

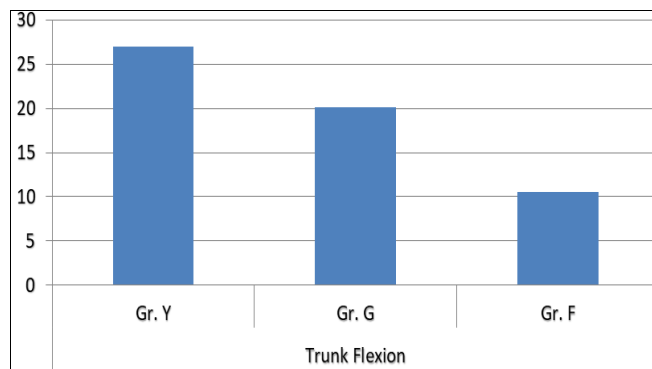
Variable	Source of variance	Sum of squares	Mean square variance	Degree of Freedom	‘F’ ratio
Trunk Flexion	Between Groups	2607.03	1303.52	(K- 1) = 2	152.6
	Within Groups	486.92	8.54	(N-K) = 57	

\*significant at 0.05 level of confidence:  $F_{0.01}(2, 57) = 3.18$

It was understood from Table-11 that the calculated ‘F’ was statistically significant at 0.05 level of confidence confirming the significant difference among means of groups – G, F and Y in Trunk Flexion. In order to find out the exact location of the differences among the means critical difference was used as a post-hoc test. Table–12 shows the results.

**Table 12:** Analysis of critical difference of groups- G, F, and Y in Trunk Flexion

Group Compared	Trunk Flexion		
	Mean (Degree)	Mean Difference	Critical Difference
Gr. Y & Gr. G	26.97	6.83	1.84
	20.14		
Gr. G & Gr. F	20.14	9.61	1.84
	10.53		
Gr. F & Gr. Y	10.53	16.44	1.84
	26.97		



**Fig 6:** showed that the mean difference among Gr. G, Gr. F and Gr. Y in Trunk Flexion

Trunk flexibility play major role in performing various movements especially movement involves in yoga and gymnastics, acrobatic, driving and other kind of sports. In this study the analysis of variance was done to compare the means of Gr. G, Gr. F and Gr. Y in trunk flexion. The observed value was significant at.05 level of confidence. From the critical difference it can be stated that Gr. Y was superior to Gr. G and Gr. F in trunk flexion. On the other hand, Gr. G was superior to Gr. F in trunk flexibility. The superiority of Gr. Y may be due to flexion of the trunk through specific practice of asanas. This is passive stretching in nature. In gymnastics, such type of stretching are also involved, that may be the cause of superiority over Gr. F.

‘F’-ratio of Knee flexion for different groups i.e. Group-Y, Group-G and Group-F has been presented in Table-13.

**Table 13:** ‘F’ ratio for Knee Flexion of different groups

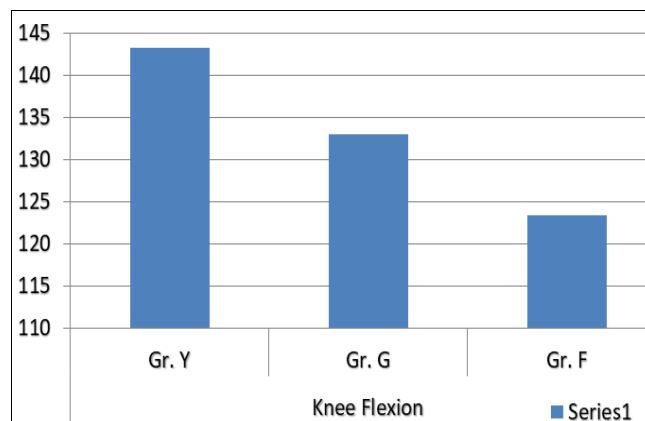
Variable	Source of variance	Sum of squares	Mean square variance	Degree of Freedom	‘F’ ratio
Trunk Flexion	Between Groups	3941.3	1970.65	(K- 1) = 2	38.01
	Within Groups	2255.5	51.85	(N-K) = 57	

\*significant at 0.05 level of confidence:  $F_{0.01}(2, 57) = 3.18$

It was understood from Table-13 that the calculated ‘F’ was statistically significant at 0.05 level of confidence confirming the significant difference among means of groups – G, F and Y in Knee Flexion. In order to find out the exact location of the differences among the means critical difference was used as a post-hoc test. Table–14 shows the results.

**Table 14:** Analysis of critical difference of groups- G, F, and Y in Knee flexion

Group Compared	Knee Flexion		
	Mean (Degree)	Mean Difference	Critical Difference
Gr. Y & Gr. G	143.25	10.2	4.57
	133.05		
Gr. G & Gr. F	133.05	9.65	4.57
	123.4		
Gr. F & Gr. Y	123.4	19.85	4.57
	143.25		



**Fig 7:** showed that the mean difference among Gr. G, Gr. F and Gr. Y in Knee Flexion

From the findings of the study, it can be stated that Gr. Y was superior to Gr. G and Gr. F in knee flexion. Also Gr. G was superior to Gr. F in knee flexion. The result indicate that knee flexion of the footballers are comparatively less than gymnasts and yogic practitioners. Flexibility increases as a result of repeated stretching- static and ballistic of the ligaments over a long period of time. The result of present study reflects that yogic practice improves knee flexion.

‘F’-ratio of ankle Dorsi flexion for different groups i.e. Group-Y, Group-G and Group-F has been presented in Table-15.

**Table 15:** ‘F’ ratio for Ankle Dorsi Flexion of different groups

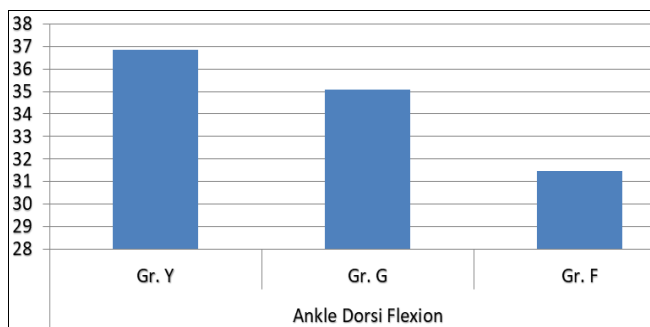
Variable	Source of variance	Sum of squares	Mean square variance	Degree of Freedom	‘F’ ratio
Ankle Dorsi Flexion	Between Groups	303.63	151.82	(K- 1) = 2	3.05
	Within Groups	2831.3	49.67	(N-K) = 57	

\*significant at 0.05 level of confidence:  $F_{0.01}(2, 57) = 3.18$

From Table –15, it can be stated that there was no significant difference among the means of ankle Dorsi flexion. None of the group is superior in dorsi flexion. So critical differences had not done

**Table 16:** Analysis of critical difference of groups- G, F, and Y in Ankle Dorsi Flexion

Group Compared	Ankle Dorsi Flexion		
	Mean (Degree)	Mean Difference	Critical Difference
Gr. Y & Gr. G	36.85	1.75	--
	35.1		
Gr. G & Gr. F	35.1	3.65	--
	31.45		
Gr. F & Gr. Y	31.45	5.4	--
	36.45		



**Fig 8:** showed that the mean difference among Gr. G, Gr. F and Gr. Y in Ankle Dorsi Flexion

Data relating to ankle dorsi flexion of Gr. G, gr. F and Gr. Y were computed by analysis of variance. The observed F-value was not significant. So there was no significant difference among the means of the three groups in ankle dorsi flexion. From the finding of above result, it can be stated that the passive stretching like yogasanas and ballistic type exercise like gymnastics develop the range of motion of ankle joint. Tough the Gr. F was less develop than Gr. G and Gr. Y. ‘F’-ratio of ankle Planter Flexion for different groups i.e. Group-Y, Group-G and Group-F has been presented in Table-17.

**Table 17:** ‘F’ ratio for Ankle Planter Flexion of different groups

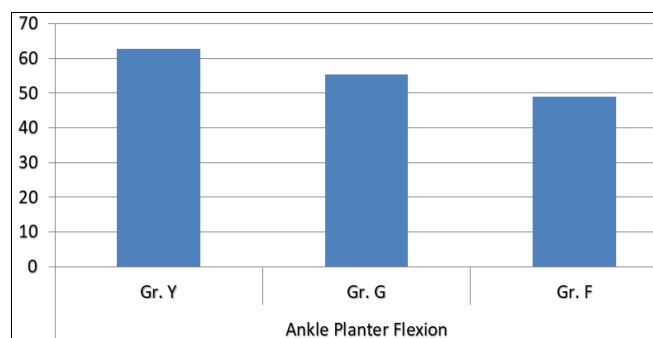
Variable	Source of variance	Sum of squares	Mean square variance	Degree of Freedom	‘F’ ratio
Ankle Dorsi Flexion	Between Groups	1893.27	946.63	(K- 1) = 2	15.36
	Within Groups	3512.47	61.62	(N-K) = 57	

\*significant at 0.05 level of confidence:  $F_{0.01}(2, 57) = 3.18$

It was understood from Table-17 that the calculated ‘F’ was statistically significant at 0.05 level of confidence confirming the significant difference among means of groups – G, F and Y in Planter Flexion. In order to find out the exact location of the differences among the means critical difference was used as a post-hoc test. Table–18 shows the results.

**Table 18:** Analysis of critical difference of groups- G, F, & Y in ankle planter flexion

Group Compared	Ankle Dorsi Flexion		
	Mean (Degree)	Mean Difference	Critical Difference
Gr. Y & Gr. G	62.75	7.3	4.99
	55.45		
Gr. G & Gr. F	55.45	6.44	4.99
	49.01		
Gr. F & Gr. Y	49.01	13.74	4.99
	62.75		



**Fig 8:** showed that the mean difference among Gr. G, Gr. F and Gr. Y in Ankle Planter Flexion

The range of motion of the right ankle planter flexion of Gr. G, Gr. F and Gr. Y were measured. In case of ankle planter flexion, the analysis of variance was computed among the three means and the observed F-value was significant. It can be stated from the critical difference at 0.05 level of confidence that Gr. Y was superior to Gr. G and Gr. F in ankle planter flexion. On the other hand, Gr. G was superior to Gr. F in ankle planter flexion. The superiority of the Gr. Y over Gr. G and Gr. F may be due to nature of asanas involved during practice. The yogasanas involved in passive stretching may have superior effects than the movement involved in gymnastics and football.

From the findings of the study, it can be stated that yogasanas group was superior to gymnastics in wrist flexion, shoulder flexion, spine flexion, trunk flexion, knee flexion and ankle planter flexion. This study corroborates with Odger (1969)<sup>[10]</sup>, Dowine (1970)<sup>[3]</sup>. Yogasanas group was also superior to wrist flexion, wrist extension, shoulder flexion, spine flexion, trunk flexion, knee flexion and ankle planter flexion. On the other hand Gymnastics group was superior to football group in wrist flexion, wrist extension, shoulder flexion, spine flexion, trunk flexion, knee flexion and ankle planter flexion. No superiority was observed among yogasanas group, gymnastics group and football groups in elbow flexion and ankle dorsi flexion. Findings also showed that no superiority was observed among yogasanas group and gymnastics group in wrist extension. Moorthy (1984)<sup>[8]</sup>, Odger (1969)<sup>[10]</sup>, Dowine (1970)<sup>[3]</sup>, Ghildyal (1980)<sup>[11]</sup> and Cureton (1941)<sup>[14]</sup> were studied on related variables.

**Conclusion**

Under the conditions of the present study the result seemed to conclude the following

- In wrist flexion:** Yogasanas group was superior to Gymnastics group and football group and Gymnastics group was also superior to Football group in wrist flexion.
- In wrist extension:** Yogasanas group and gymnastics group were not superior to each other but both groups were superior to football group in wrist extension.
- In elbow flexion:** There is no significant difference between the Yogasanas group, Gymnastics group and football group in elbow flexion. No superiority was observed among the groups in elbow flexion.
- In shoulder flexion:** Yogasanas group was superior to Gymnastics group and football group in shoulder flexion but no superiority was observed among Gymnastics group and Football group in shoulder flexion.
- In spine flexion:** Yogasanas group was superior to Gymnastics group and Football group and Gymnastics group was also superior to Football group in Spine flexion.
- In trunk flexion:** Yogasanas group was superior to Gymnastics group and Football group and Gymnastics group was also superior to Football group in trunk flexion.
- In knee flexion:** Yogasanas group was superior to Gymnastics group and Football group and Gymnastics group was also superior to Football group in knee flexion.
- In ankle dorsi flexion:** There is no significant difference among Yogasanas group, Gymnastics group and Football group in ankle dorsi flexion. No superiority was observed among the groups in ankle dorsi flexion.
- In ankle planter Flexion:** Yogasanas group was superior

to Gymnastics group and football group and Gymnastics group was also superior to Football group in ankle planter flexion.

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