

# Effects of Yoga and Circuit Training on endurance of hand and shoulder muscles of Kho-Kho Players

Dr. Jaydeepsinh Rathod  
SDJ International College Surat

**Abstract :** Effects of Yoga and Circuit Training on endurance of hand and shoulder muscles of Kho-Kho Players. Male players of Kho-Kho selected at SDJ International College, Vesu were selected in the present study. Total 90 male players were selected as subjects for the sample of the present study, in which 30 players were included in the yoga training group, 30 in circuit training group and 30 players were included in the control group. The male players of 13 to 17 years age group were included in the present study. Endurance of hand and shoulder muscles measurement through Pull-ups. Statistical technique such as analysis of covariance was applied to know the effects on yoga training group and circuit training group. Mean difference was examined at 0.05 levels by using Least Significant Difference (Post Hoc) Test. Analysis of data indicates that remarkable improvement was found in endurance of hand and shoulder muscles performance of yoga training group and circuit training group with compared to control group because of yoga training and circuit training. Remarkable improvement was found in endurance of hand and shoulder muscles of selected subjects by 12 weeks systematic yoga training and circuit training programmes.

## Introduction :

Yoga is a special kind of science that holds matter, life and consciousness together and acts as a bridge between the valley of science and spirituality. Yoga is a science of human seriousness. Is the science of development of human consciousness. He is the name of the scientific system. There are different ways of doing this system. Through which yoga can be practiced. This is the path of Karma Yoga, Rhythm Yoga, Raj Yoga, Tantra Yoga etc. Modern science should resort to yoga science to remain disease free. It is impossible to get rid of diseases of the body without support. Every living creature in the world works to attain happiness for God the Father. Every creature constantly tries to be happy. Wants to get rid of sorrow. Even in a dream, if something called misery comes near, the person is afraid of it. The arrival of happiness and sorrow continues from the beginning of creation till today. Therefore the person always wants to stay away from sorrow. Therefore, it is very important to know about its form.

Circuit training is very important for the development of essential elements for muscle fitness. The trainee will have to do 8 to 12 exercises in this circuit training. The cycle has also been fixed for each type of exercise. The order of practice is also fixed. The rest of the time after completing the exercise is also fixed. After completing the first practice, for some time, 8 to 12 exercises have to be taken in second, third and next order without stopping. In this way, a cycle of circuit training is completed. Typically, circuit training consists of three to five cycles according to the players' needs. After the player completes the first cycle, the remaining training is given according to the weighting. Circuit training includes weight lifting exercises, other restraint exercises, kalethics, running, swimming or stretching exercises.

To frame circuit training, the coach measures the physical fitness characteristics of the levels by giving a physical fitness test and determining what is lacking in their qualifications. After that, the coach creates a training program to develop abilities. For example, if the coach sees a decrease in the strength of the shoulder muscles, circuit training will include supportive exercises to increase the strength of the shoulder muscles. If the coach gets low speed, one or two exercises will be chosen to increase speed. Similarly, if the thigh or abdominal muscles develop, then some exercises may be chosen for the development of the thigh or abdominal muscles. Thus, one or two exercises for muscle strength, relaxation, endurance, etc. are to be included in circuit training and a training program is designed. Exercise, exercise cycle, duration of training, density of exercise, etc. are chosen while designing for circuit training.

**Aims of the Study :**

Effects of Yoga and Circuit Training on endurance of hand and shoulder muscles of Kho-Kho Players

**Selection of Subjects :**

Male players of Kho-Kho selected at SDJ International College, Vesu were selected in the present study. Total 90 male players were selected as subjects for the sample of the present study, in which 30 players were included in the yoga training group, 30 in circuit training group and 30 players were included in the control group. The male players of 13 to 17 years age group were included in the present study.

**Criterion Measurement :**

No.	Variable	Test	Measurement
1	Endurance of hand and shoulder muscles	Pull-ups	Number

**Statistical Process :**

Statistical technique such as analysis of covariance was applied to know the effects on yoga training group and circuit training group. Mean difference was examined at 0.05 levels by using Least Significant Difference (Post Hoc) Test.

**Result of the study :**

**Table – 1**  
**Analysis of covariance of mean scores of endurance of hand and shoulder muscles of two experimental groups and a control group**

Test	Groups			Analysis of variance				
	Yog	Circuit	Control	Sum of classes (SS)	df	MSS	'F'	
Pretest mean	12.001	11.766	11.666	A	1.756	2	0.878	0.782
				W	112.033	87	1.288	
Post-test mean	14.033	14.500	11.966	A	109.067	2	54.533	24.376*
				W	195.433	87	2.246	
Adjusted mean	13.907	14.530	12.064	A	98.225	2	49.112	29.228*
				W	145.002	86	1.686	

\*Significance criterion at 0.05 levels 'F' = 0.05 (2,87) = 3.101 & (2,86) = 3.103

In table – 1 detail of mean scores of pretest and post test, analysis of covariance and all statistical data of 'F' is mentioned. The mean scores on endurance of hand muscles pretest of yoga group, circuit group and control group was found 12.001, 11.766 and 11.666 respectively. 'F'- ratio was found 0.782, which was not significance with the tabular value (3.101) at 0.05 levels. The mean scores on endurance of hand muscles final test of yoga group, circuit group and control group was found 14.033, 14.500 and 11.966 respectively. 'F'- ratio was found 24.376, which was significance with the tabular value (3.103) at 0.05 levels. It proved that performance of subjects was improved at significant level by the training given to them. Moreover, adjusted mean of yoga group, circuit group and control group was found 13.907, 14.530 and 12.064 respectively. 'F'- ratio was found 29.128, which was significance with the tabular value (3.103) at 0.05 levels. Significance between adjusted means of all three groups was found significance. Effectiveness of experimental treatments on yoga training group and circuit group and adjusted mean difference were examined with critical difference. The detail is presented in table – 2.

Table – 2

**Critical difference of mean scores of endurance of hand and shoulder muscles of two experimental groups and a control group**

Mean			Mean difference	Critical difference
Yog Training	Circuit Training	Control Group		
13.907	14.530		0.623	0.669
13.907		12.064	1.843*	
	14.530	12.064	2.466*	

**\* Significance at 0.05 levels**

Difference between adjusted mean scores of endurance of hand and shoulder muscles of two experimental groups and a control group is seen clearly in table – 2. The difference is found out between yoga group and circuit group, yoga group and control group and circuit group and control group and it was compared with critical difference. It is observed in table – 2 that higher significant improvement (2.466) was found in circuit group with compared to the control group. Then, higher significant improvement (1.843) was found in yoga group with compared to the control group. Significant effect of experimental treatment was found higher in yoga training group and circuit training group with compared to control group, whereas significant effect of experimental treatment was not found between yoga group and circuit group.

**Conclusion :**

Analysis of data indicates that remarkable improvement was found in endurance of hand and shoulder muscles performance of yoga training group and circuit training group with compared to control group because of yoga training and circuit training. Remarkable improvement was found in endurance of hand and shoulder muscles of selected subjects by 12 weeks systematic yoga training and circuit training programmes.

**Reference :**

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