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## Effects Of Yoga Practice With Low Volume Circuit Resistance Training And High Volume Resistance Training On Muscular Strength Endurance And Skill Performance Of Male Kabaddi Players

**K. Shanmuga Sundaram**

Research Scholar, Department Of Physical Education  
Karpagam University, Coimbatore, India

**Dr. V. Vallimuragan**

Principal, Selvam College Of Physical Education, Namakkal, India

### **Abstract:**

*The purpose of this study was to examine muscular strength endurance and skill performance variables during and after yoga practice with low volume circuit resistance training and high volume resistance training. Eighty healthy men performed the following three types of training modalities, the first group underwent yoga practice alternative days, experimental group two underwent yoga practice with low volume circuit resistance training on separate days: (1) low-volume circuit resistance exercise with slow movement: 35 % of one-repetition maximum (1-RM) and 4 s each of lifting and lowering phases; Experimental group three underwent yoga practice with high-volume resistance training with normal movement: 75 % of 1-RM and 1 s each of lifting and lowering phases; and group four act as a control group. These three experimental groups trials were performed for three sets in a circuit pattern with four exercises, and the participants performed each set until exhaustion. To find the muscular strength endurance sit ups test was used and skill performance offensive and defensive skills 10 point rating scale was used. Average muscular strength endurance and skill performance throughout the exercise session was significantly higher with yoga -high- and low-intensity resistance exercise with normal movement than with low-volume resistance exercise with slow movement ( $P < 0.05$ ); however, total muscular strength endurance and skill performance were significantly greater in low-volume resistance exercise with slow movement than in the other trials. In contrast, there were significant differences in the total excess post-exercise explosive power among the three exercise trials. The results of this study suggest that yoga with high-volume resistance exercise with normal movement induces much greater energy expenditure than low volume circuit resistance training with slow movement of high or low volume and yoga practice.*

**Key words:** YP- Yoga Practice, YPLVCRT-Yoga Practice with Low volume Circuit Resistance Training, YPHVRT-Yoga Practice with High Volume Resistance Training, CG – Control Group; Muscular Strength Endurance, Offensive and Defensive Skill

### **1.Introduction**

Though kabaddi is primarily an Indian game, not much is known about the origin of this game. There is, however, concrete evidence, that the game is 4,000 year old. It is a team sport, which requires both skill and power, and combines the characteristics of wrestling and rugby. It was originally meant to develop self-defense, in addition to responses to attack and reflexes of counter attack by individuals and by groups or teams. It is a rather simple and inexpensive game, and neither requires a massive playing area, nor any expensive equipment. This explains the popularity of the game in rural India. Kabaddi is played all over Asia with minor variations.

### **2.Methodology**

The purpose of the study was to find out the effects of yogic practices with low circuit type and high volume resistance training programme on muscular strength endurance and skill performance variables of kabaddi players. To fulfill the purpose of the study eighty male kabaddi players were randomly selected from SSB college of Arts and science, Namakkal in Tamilnadu State. The selected subjects were divided into four equal groups consisting of twenty each. No attempt was made to equate the groups. The investigator explain about the study and training method to the subjects. All the subject were accepted and voluntarily participated for this study. The collected data when in number, though it is valid and reliable, would not give us useful meaning in terms of what we need. The data has to be processed with the help of statistics, analyzed scientifically, interpreted and intelligently concluded. In this study the data have been collected on variables such as muscle fitness parameter of muscular strength, leg explosive power, muscular strength endurance and Kabaddi offensive and defensive skills. The investigator used pre

and post test random group design in this study. This procedure involves dividing a sample into two or more groups based on random selection. The investigator did not make any attempt to equate the groups in this study. The selected one hundred and twenty subjects were divided into four equal groups such as Experimental group I (n = 20) underwent Yoga Practice Group (YPG), experimental group II (n = 20) underwent yoga practice with low volume circuit resistance training group (YPLVCRTG), experimental group III (n = 20) underwent yoga practice with periodized high volume resistance training group (YPPHVRTG) for a period of 12 weeks. Group IV (n = 20) acted as control group (CG), the subjects in control group were not engaged in any training programme other than their regular work. The subjects were free to withdraw their consent in case of feeling any discomfort during the period of their participation but there was no dropout during the study. Descriptive statistics such as mean and standard deviation were found in order to get basic idea of the data distribution. 't' test was done for finding whether there is any statistically significant differences in their respective variables of each groups. 0.05 level of confidence was fixed for muscular strength endurance and skill performance kabaddi techniques to test the level of significance.

### 3.Result Of The Study

The statistical analysis on significance of the mean gains or losses made in the scores in the criterion variables related to physical fitness components and skill performance are presented in Tables.

#### 3.1.Table-1

Significance Of Mean Gains / Losses Between Pre And Post Test During Yogic Practices Group (Ypg, Group – I) On Muscular Strength Endurance And Skill Performance Variables Of Kabaddi Players.

VARIABLE	Pre-Test Mean $\pm$ S. D.	Post-Test Mean $\pm$ S.D	M.D	S.E.M	't' ratio
MUSCULAR STRENGTH ENDURANCE	24.10 $\pm$ 3.31	26.25 $\pm$ 3.32	2.15	16.37	16.376*
OFFENSIVE SKILL	6.35 $\pm$ .67	7.35 $\pm$ 0.58	1.00	9.74	9.70*
DEFENSIVE SKILL	6.25 $\pm$ 0.78	7.40 $\pm$ 0.68	1.15	7.66	7.66*

Table 1

\*Significant At 0.05 Level

Table 1 indicates the obtained 't' values of the yogic practices group on muscular strength endurance 16.37 (Muscular Strength Endurance), 9.747 (Offensive Skill), 7.667 (Defensive Skill). The obtained t- values to be significant at 0.05 level for degree of freedom 1, 19 the required critical value was 2.09. Hence the obtained t-values on the selected criterion variables higher than the required critical values, it was concluded that the yogic practices group produced significant improvement in Muscular Strength Endurance (+2.15<0.05), Offensive Skill (+1.00<0.05), Defensive Skill (+1.15<0.05)

#### 3.2.Table-2

Significance Of Mean Gains / Losses Between Pre And Post Test During Yogic Practices With Low Volume Circuit Resistance Training Group (Yplvcrtg, Group – Ii) On Muscular Strength Endurance And Skill Performance Variables Of Kabaddi Players

VARIABLE	Pre- Test Mean $\pm$ S.D	Post – Test Mean $\pm$ S.D	M.D	S.E.M	't' ratio
MUSCULAR STRENGTH ENDURANCE	23.95 $\pm$ 3.03	27.35 $\pm$ 2.85	3.40	0.2103	16.17*
OFFENSIVE SKILL	6.35 $\pm$ 0.58	7.65 $\pm$ 0.74	1.30	0.1277	10.17*
DEFENSIVE SKILL	6.25 $\pm$ 0.96	7.70 $\pm$ 0.80	1.45	0.1535	9.45*

Table 2

\*Significant At 0.05 Level

Table 2 indicates the obtained 't' values of the yogic practices with low volume resistance training group on muscular strength endurance 16.17 (Muscular Strength Endurance), 10.17 (Offensive Skill), 9.45 (Defensive Skill). The obtained t- values to be significant at 0.05 level for degree of freedom 1, 19 the required critical value was 2.09. Hence the obtained t-values on the

selected criterion variables higher than the required critical values, it was concluded that the yogic practices with low volume resistance training group produced significant improvement in Muscular strength Endurance (+3.40<0.05), Offensive Skill (+1.30<0.05), Defensive Skill (+1.45<0.05)

### 3.3.Table-3

Significance Of Mean Gains / Losses Between Pre And Post Test During Yogic Practices With Periodised High Volume Resistance Training Group (Ypphvtg, Group – Iii) On Muscular Strength Endurance And Skill Performance Variables Of Kabaddi Players

VARIABLE	Pre- Test Mean ± S. D.	Post- Test Mean ±	M.D	S.E.M	't' Ratio
MUSCULAR STRENGTH ENDURANCE	24.15 ± 2.92	28.15 ± 2.39	4.00	.3078	12.99*
OFFENSIVE SKILL	6.40 ± .5026	8.55 ± 0.51	2.15	.1313	16.37*
DEFENSIVE SKILL	6.25 ± 0.78	8.45 ± 0.60	2.20	.1376	15.98*

Table 3

\*Significant At 0.05 Level

Table 3 indicates the obtained 't' values of the yogic practices with periodised high volume resistance training group on muscular strength endurance of: 12.99 (Muscular Strength Endurance), 16.37 (Offensive Skill), 15.98 (Defensive Skill). The obtained t-values to be significant at 0.05 level for degree of freedom 1, 19 the required critical value was 2.09. Hence the obtained t-values on the selected criterion variables higher than the required critical values, it was concluded that the produced significant improvement in Muscular yogic practices with periodised high volume resistance training group Muscular Strength Endurance (+4.00<0.05), Offensive Skill (+2.15<0.05), Defensive Skill (+2.20<0.05)

### 3.4.Table-4

Significance Of Mean Gains / Losses Between Pre And Post Test During Control Group On Muscle Fitness Parameter Of Muscular Strength Endurance And Skill Performance Variables Of Kabaddi Players

VARIABLE	Pre-Test Mean ± S.D	Post-Test Mean ± S.D	M.D	S.E.M	't' ratio
MUSCULAR STRENGTH ENDURANCE	24.00 ± 2.36	24.20± 2.3306	0.20	0.091	2.02
OFFENSIVE SKILL	6.45 ± .7592	6.70 ± .9234	0.25	0.1602	1.56
DEFENSIVE SKILL	6.25 ± .5501	6.35 ± .5871	0.10	0.068	1.45

Table 4

\*Significant At 0.05 Level

Table 4 indicates the obtained 't' values of the control group on muscular strength endurance of: 2.02 (Muscular Strength Endurance), 1.56 (Offensive Skill), 1.45 (Defensive Skill). The obtained t- values to be not significant at 0.05 level for degree of freedom 1, 19 the required critical value was 2.09. Hence the obtained t-values on the selected criterion variables failed to reach the required critical values, it was concluded that the control group did not produced any significant improvement in Muscular Strength Endurance (+0.25<0.05), Offensive Skill (+0.25<0.05), Defensive Skill (+0.10<0.05)



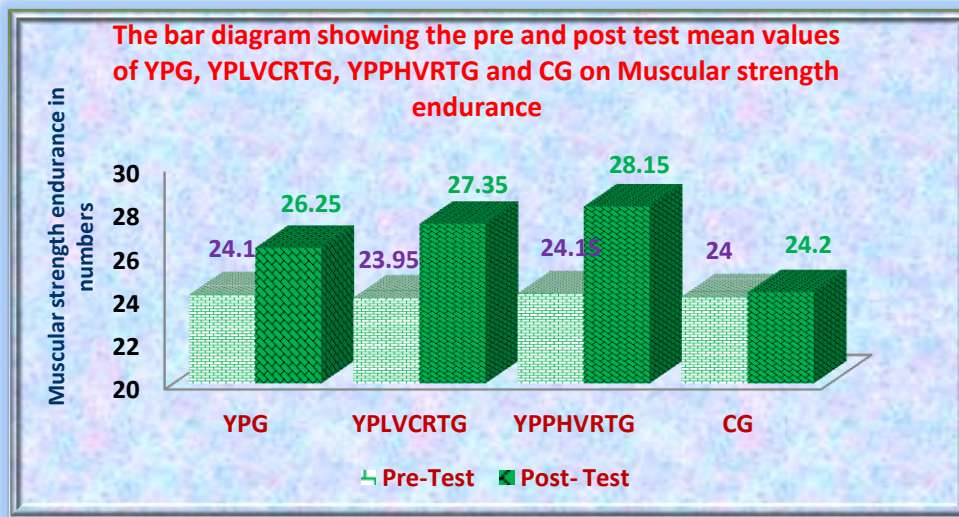


Figure 1

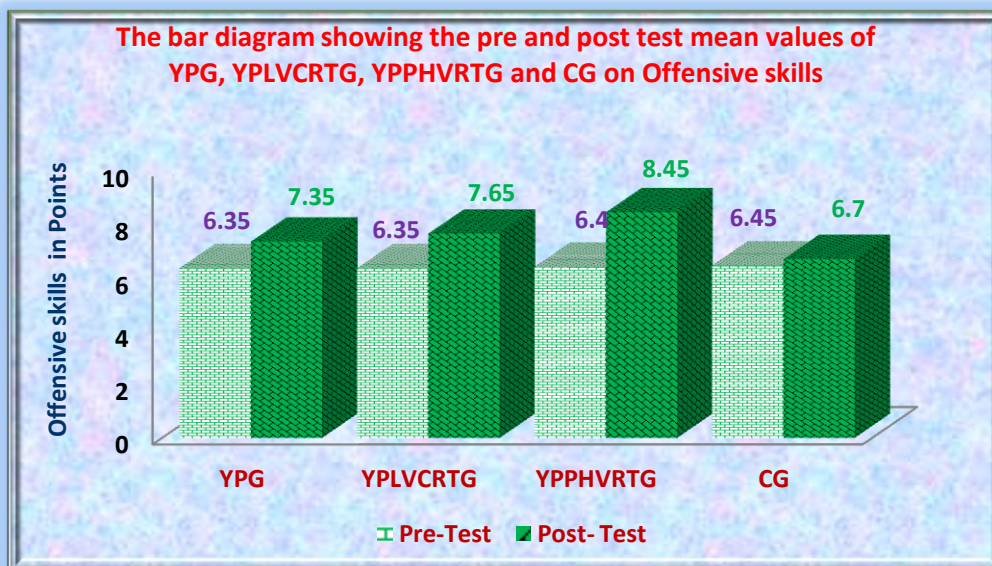


Figure 2

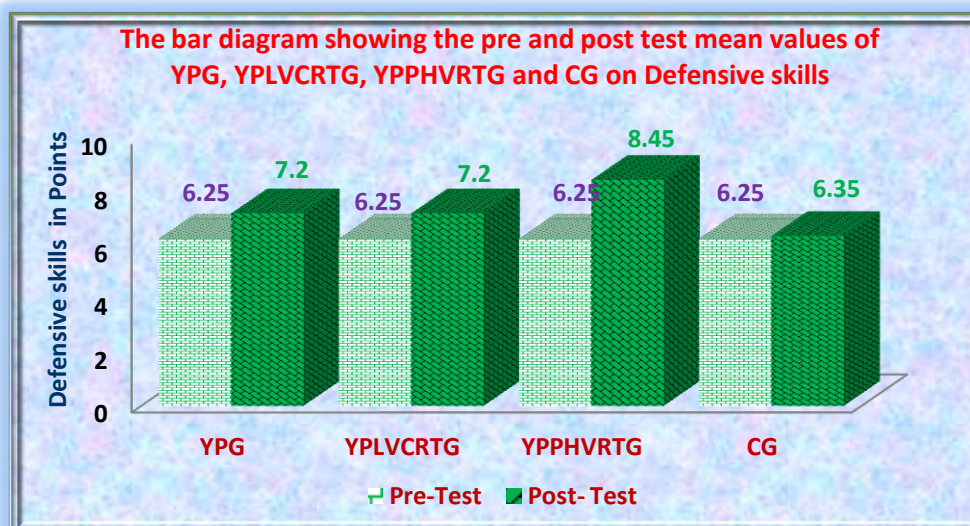


Figure 3

### 3.5. Muscular Strength Endurance

The experimental groups (YPG), yogic practices with low volume circuit resistance training group,(YPLVCRTG), yogic practices with periodised high volume resistance training group(YPPHVRTG) showed significant increase in the muscular strength endurance: 2.15 numbers, 3.40 numbers and 4 numbers respectively from pre to post training.

The YPPHVRTG group was found significantly better than ( $p<.05$ ) the YPLVCRTG group, YPG group and control group. And YPLVCRTG group was found significantly better than ( $p<0.05$ ) the YPG and control group. And the YPG group was found slight improvement and significantly better than the control group in increasing muscular strength endurance as measured by sit-ups.

### 3.6. Offensive Skills

The experimental groups (YPG), yogic practices with low volume circuit resistance training group,(YPLVCRTG), yogic practices with periodised high volume resistance training group(YPPHVRTG) showed significant increase in the offensive skills: 1.00 points, 1.30 points and 2.15 points respectively from pre to post training.

The YPPHVRTG group was found significantly better than ( $p<.05$ ) the YPLVCRTG group, YPG group and control group. And YPLVCRTG group was found significantly better than ( $p<0.05$ ) the YPG and control group. And the YPG group was found slight improvement and significantly better than the control group in offensive skills as measured by judges rating.

### 3.7. Defensive Skills

The experimental groups (YPG), yogic practices with low volume circuit resistance training group,(YPLVCRTG), yogic practices with periodised high volume resistance training group(YPPHVRTG) showed significant increase in the defensive skills: 1.15 points, 1.45 points and 2.20 points respectively from pre to post training.

The YPPHVRTG group was found significantly better than ( $p<.05$ ) the YPLVCRTG group, YPG group and control group. And YPLVCRTG group was found significantly better than ( $p<0.05$ ) the YPG and control group. And the YPG group was found slight improvement and significantly better than the control group in defensive skills as measured by judges rating.

## 4. Conclusion

On the basis of the findings, the following conclusions are drawn.

Yoga practice with periodised high volume resistance training group(YPPHVRTG) significantly improved the muscle fitness parameter and skill performance variable such as muscular strength, muscular strength and endurance, explosive power and skill performance variables such as offensive skills and defensive skills.

## 5. Reference

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