

THE COMBINED EFFECT OF YOGA AND ENDURANCE EXERCISE ON BODY COMPOSITION PARAMETERS AMONG FOOTBALL PLAYERS



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Abstract:

The study was to find out the combined effect of yoga and endurance exercise on body composition parameters among players. For this study forty five (N=45) men Football players studying in various Engineering Colleges in East Godavari (Zone-II) affiliated to JNTU Kakinada, Andhra Pradesh State during the academic year 2014-2015 were selected randomly as subjects. Their age ranged from 18 to 21 years. The subjects were assigned at random into three groups of fifteen each (n=15). Group-I underwent Yoga training (n=15), Group-II underwent Endurance exercise (n=15) and Group-III underwent Combined yoga & Endurance exercise (n=15). The data were analyzed statistically by using analysis of covariance (ANCOVA). Whenever the 'f' ratio for adjusted post test means was found to be significant, Scheffe's test was followed as a post hoc test to determine which of the paired means difference was significant.

Introduction:

Yoga means "to unite". Primarily an exercise in moral and mental cultivation of poses and practices aims towards harmonizing your mind, body and soul to achieve a state of oneness with the universe. It's a spiritual practice that does not subscribe nor promote any particular faith; hence it can be practiced by all. A lifestyle choice by many, the universally timeless philosophies of yoga can be incorporated into any belief system. Stress, anxiety, ill-health, unhappiness and anger can be transformed into peacefulness, vibrant health, service and love towards all creations. The techniques are important in this process but the goal should be kept firmly in mind (Iyengar, 1981).

Endurance Exercise:

Endurance exercise is the act of exercising to increase stamina and endurance. The term 'endurance exercise' generally refers to training the aerobic system as opposed to anaerobic. The need for endurance in sports is often predicated as the need for cardiovascular and simple muscular endurance, but the issue of endurance is far more complex. Endurance can be divided into two categories: general endurance and specific endurance. It can be shown that endurance in sport is closely tied to the execution of skill and technique. A well-conditioned athlete can be

defined as, the athlete who executes his or her technique consistently and effectively with the least effort (Yessis, 2008).

Purpose of the Study:

The purpose of this study was to find out the combined effect of yoga and endurance exercise on body composition parameters among football players.

Methodology:

For this study forty five (N=45) men Football players studying in various Engineering Colleges in East Godavari (Zone-II) affiliated to JNTU Kakinada Andhra Pradesh State, India. During the academic year 2014-2015 were selected randomly as subjects. Their age ranged from 18 to 21 years. The subjects were assigned at random into three groups of fifteen each (n=15). Group-I underwent Yoga training (n=15), Group-II underwent Endurance exercise (n=15) and Group-III underwent Combined yoga & Endurance exercise (n=15).

Independent Variables:

Yoga and Endurance exercise Training

Dependent Variables:

Body Composition Parameters

1. Weight
2. Waist Girth

Variables and Test Item:

Sr. No	Variables	Test Item	Units
1.	Weight	Weighing machine	In Kilograms
2.	Waist Girth	Measuring tape	In Centimeters

Statistical Technique:

The collected data from the three groups prior to and after the training programme on selected criterion variables were statistically analyzed by using analysis of covariance (ANCOVA). Whenever the 'F' ratio for adjusted post test means was found to be significant, Scheffe's test was followed as a post hoc test to determine which of the paired means difference was significant. In all the cases 0.05 level of confidence was fixed as a level of confidence to test the hypothesis.

Results and Discussion:

Table - 1
Analysis of Covariance of the Data on Weight of Pre, Post and Adjusted
Scores of Experimental Groups

Test	Yoga Training Group (Group-I) Expt. Group	Endurance Exercise Group (Group-II) Expt. Group	Combined Yoga & Endurance Exercise Group (Group-III) Expt. Group	Source of Variance	Sum of Squares	df	Mean Squares	F-ratio
Pre test mean	73.00	72.93	72.13	Between Groups	6.98	2	3.49	1.06
SD(±)	±1.55	±2.08	±1.59	Within Groups	138.67	42	3.30	
Pre test mean	74.93	76.20	77.40	Between Groups	45.64	2	22.82	9.50*
SD(±)	±1.53	±1.72	±1.20	Within Groups	100.93	42	2.40	
Adjusted post mean	74.69	76.01	77.84	Between Groups	72.24	2	36.12	113.58*
				Within Groups	13.04	41	0.32	

* Significant at 0.05 level of confidence

The above table shows that the pre-test mean & standard deviation values on weight of experimental groups 'A', 'B' and 'C' group were 73.00, 72.93 & 72.13 and ±1.55, ±2.08 & ±1.59 respectively. The obtained 'F' ratio of 1.06 for pre-test scores was lesser than the table value of 3.22 for degrees of freedom 2 and 42 required for significance at 0.05 level of confidence on weight.

The post test mean & standard deviation values on weight of experimental groups ‘A’, ‘B’ and ‘C’ group were 74.93, 76.20 & 77.40 and ± 1.53 , ± 1.72 , & ± 1.20 respectively. The obtained ‘F’ ratio of 9.50 for post-test scores was greater than the table value of 3.22 for degrees of freedom 2 and 42 required for significance at 0.05 level of confidence on weight.

The adjusted post-test means on weight of experimental groups ‘A’, ‘B’ and ‘C’ group were 74.69, 76.01 and 77.84 respectively. The obtained ‘F’ ratio of 113.50 for adjusted post-test mean was greater than the table value of 3.23 for degrees of freedom 2 and 41 required for significance at 0.05 level of confidence on weight. The results of the study indicated that there was a significant difference between the adjusted post-test means of yoga Training, endurance exercise and combined yoga & endurance exercise group on weight. Since, three groups were compared, whenever they obtained ‘F’ ratio for adjusted post test was found to be significant, the Scheffe’s test was used to find out the paired mean difference and it is presented in table-2

Table – 2
Scheffe’s Test for the Difference between Paired Means on Weight

Yoga Training Group (Group-I) Expt. Group ‘A’	Endurance Exercise (Group-II) Expt. Group ‘B’	Combined Yoga & Endurance Exercise Group (Group- III) Expt. Group ‘C’	Mean Difference	Confident Interval Value
74.69	76.01	--	1.32*	0.52
74.69	--	77.84	3.15*	
----	76.01	77.84	1.83*	

***Significant at 0.05 level of confidence.**

The above table shows that the mean difference values of experimental group ‘A’ and experimental group ‘B’ group, experimental group ‘A’ and experimental group ‘C’ group and experimental group ‘B’ and experimental group ‘C’ were 1.32, 3.15 and 1.83 respectively, which were greater than the confidence interval value of 0.52 on weight at 0.05 level of confidence. The results of the study showed that there was a significant difference between experimental group ‘A’ and experimental group ‘B’ group, experimental group ‘A’ and experimental group ‘C’ group and experimental group ‘B’ and experimental group ‘C’ on weight.

The above data also reveal that the combined yoga & endurance exercise group were better than the yoga group and the endurance exercise group on body weight.

The pre, post and adjusted mean values of yoga Training, endurance exercise and combined yoga & endurance exercise group on weight are graphically represented in Figure- 1

FIGURE – 1

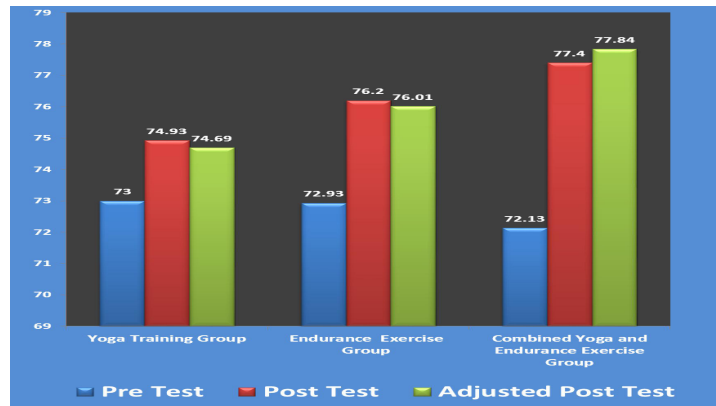


Table- 3

Analysis of Covariance of the Data on Waist Girth of Pre, Post and Adjusted Scores of Experimental Groups

Test	Yoga Training Group (Group-I) Expt. Group	Endurance Exercise Group (Group-II) Expt. Group	Combined Yoga & Endurance Exercise Group (Group-III) Expt. Group	Source of Variance	Sum of Squares	Df	Mean Squares	F-ratio
Pre test mean	73.27	73.60	72.67	Between Groups	6.71	2	3.36	1.10
SD(±)	±1.53	±1.82	±1.70	Within Groups	127.87	42	3.04	
Pre test mean	76.27			Between Groups	188.31	2	94.16	27.85*

SD(±)		77.67	81.13	Within		42		
		±1.62	±2.12	Groups	142.00		3.38	
Adjusted post mean	76.23			Between		2		
		77.47	81.37	Groups	208.88		104.44	37.49*
				Within		41		
				Groups	114.22		2.79	

*** Significant at 0.05 level of confidence**

The above table shows that the pre-test mean & standard deviation values on waist girth of experimental groups ‘A’, ‘B’ and ‘C’ group were 73.27, 73.60 & 72.67 and ±1.53, ±1.82 & ±1.70 respectively. The obtained ‘F’ ratio of 1.10 for pre-test scores was lesser than the table value of 3.22 for degrees of freedom 2 and 42 required for significance at 0.05 level of confidence on waist girth.

The post test mean & standard deviation values on waist girth of experimental groups ‘A’, ‘B’ and ‘C’ group were 76.27, 77.67 & 81.13 and ±1.53, ±1.62, & ±2.12 respectively. The obtained ‘F’ ratio of 27.85 for post-test scores was greater than the table value of 3.22 for degrees of freedom 2 and 42 required for significance at 0.05 level of confidence on waist girth. The adjusted post-test means on waist girth of experimental groups ‘A’, ‘B and ‘C’ group were 76.23, 77.47 and 81.37 respectively. The obtained ‘F’ ratio of 37.49 for adjusted post-test mean was greater than the table value of 3.23 for degrees of freedom 2 and 41 required for significance at 0.05 level of confidence on waist girth.

The results of the study indicated that there was a significant difference between the adjusted post-test means of yoga training, endurance exercise and combined yoga & endurance exercise group on waist girth.

Since three groups were compared, whenever they obtained ‘F’ ratio for adjusted post test was found to be significant, the Scheffe’s test was used to find out the paired mean difference and it is presented in table-4.

Table – 4
Scheffe’s Test for the Difference between Paired
Means on Waist Girth

Yoga Training Group (Group-I)	Endurance Exercise (Group-II)	Combined Yoga & Endurance Exercise Group (Group- III)	Mean Difference	Confident Interval Value
Expt. Group ‘A’	Expt. Group ‘B’	Expt. Group ‘C’		
74.69	76.01	--	1.32*	0.52
74.69	--	77.84	3.15*	
----	76.01	77.84	1.83*	

***Significant at 0.05 level of confidence.**

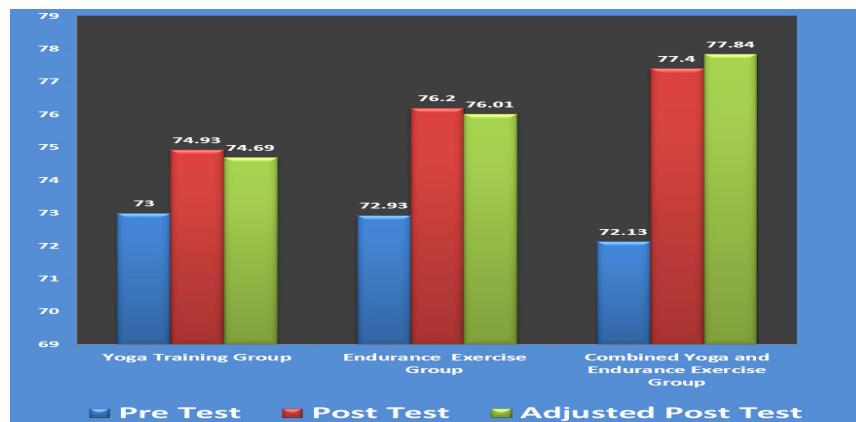
The above table shows that the mean difference values of experimental group ‘A’ and experimental group ‘B’ group, experimental group ‘A’ and experimental group ‘C’ group and experimental group ‘B’ and experimental group ‘C’ were 1.32, 3.15 and 1.83 respectively, which were greater than the confidence interval value of 0.52 on weight at 0.05 level of confidence.

The results of the study showed that there was a significant difference between experimental group ‘A’ and experimental group ‘B’ group, experimental group ‘A’ and experimental group ‘C’ group and experimental group ‘B’ and experimental group ‘C’ on weight.

The above data also reveal that the combined yoga & endurance exercise group were better than the yoga group and the endurance exercise group on body weight.

The pre, post and adjusted mean values of yoga Training, endurance exercise and combined yoga & endurance exercise group on weight are graphically represented in Figure –II.

FIGURE - II



Conclusions:

On the basis of the results obtained any by statistically analyzing the data on the combined effect of yoga and endurance exercise on body composition parameters among football players the following conclusions were drawn:-

- There was a significant difference among yoga training and endurance exercise on body composition parameters namely weight.
- There was a significant difference among yoga training and endurance exercise on body composition parameters namely waist girth.

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