**Physical Education** 

### **Research Paper**



# Isolated and Combined Effects of General Fitness and Skill Fitness Training on Arm Explosive Power of South Indian University Women Volleyball Players

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### ABSTRACT

The purpose of the study was to find out the isolated and combined effects of general fitness and skill fitness training on arm explosive power performances of south Indian university women volleyball players whose age group ranging from 18 to 25 years 80 in numbers and was divided into four groups of 20 each. Group-I underwent general fitness training, Group-II was skill fitness training, Group-III was combination of general fitness and skill fitness training and group-IV acted as control group. The experimental period was for 12 weeks. Pre-test and post test were taken before and after the training programme. The selected arm explosive power was a criterion measure. To find out the significant effects of general fitness and skill fitness training on selected variable, the statistical method of ANCOVA was used to find the mean difference between the groups on the selected variable. The results of the study revealed a significant group × test interaction (p < 0.05). Follow-up analyses all the experimental groups were found to have significantly (p < 0.05) better performance on the selected variables than the control group. The findings of the present study suggest that combined effects of general fitness and skill fitness training improved the arm explosive power among the south Indian university volleyball women players.

# Keywords : Volleyball, Arm Explosive Power, Experimental group, Control group

#### INTRODUCTION

Volleyball is a worldwide popular and ranks third as a recreational team sport. It is one of the few popular games that originated from the United States. The object of the game is to keep the ball in flight, going back and forth over the net without it touching the floor. Volleyball has been described as an 'interval' sport with both anaerobic and aerobic components. At the higher skill levels, technical performance may be limited by physical characteristics as well as physical fitness, and performance characteristics. Volleyball is a game of constant action and requires continuous adaptations to changing situations by the team as a whole as well by the individual players. Although it is a team game, there is ample room for players to display their brilliance through individual performance with the ball as well as through the team play involving improvisation and tactical knowledge. The most exciting quality of volleyball is that it is quick moving and fast flowing game. The simplicity of the rules and familiarity of the tactical moves make every movement of play immediately unpredictable embedded in the explosive parameters.

#### METHODOLOGY

The purpose of the study was to find out the isolated and combined effects of general fitness and skill fitness training on arm explosive power performances of south Indian university women volleyball players whose age group ranging from 18 to 25 years 80 in numbers and was divided into four groups of 20 each. Group-I underwent general fitness training, Group-II was skill fitness training and Group-III was combination of general fitness and skill fitness training and group-IV acted as control group. The experimental period was for 12 weeks. Pre-test and post test were taken before and after the training programme. The selected arm explosive power was a criterion measure. To find out the significant effects of general fitness and skill fitness training on selected variable, the statistical method of ANCOVA (Clarke and Clarke, 1972) was used to find the mean difference between the groups on the selected variable. Since four groups were involved, whenever the F ratio was significant, Scheffe's post hoc test was used determine which of the paired mean differed significance 0.05 was fixed. Arm explosive power was selected as a dependent variable and it was tested through sitting medicine ball throw test the distance measured by meters. Pre test-post test-random group-research design was followed in this study.

#### **RESULTS ON ARM EXPLOSIVE POWER**

The statistical analysis comparing the initial and final means of arm explosive power due to general fitness and skill fitness training on arm explosive power among south Indian university men volleyball players is presented in Table I.

### TABLE - I

COMPLITATION OF ANALYSIS	S OF	COVARIANCE	OF ARM	EXPLC	SIVE P	
CONFUTATION OF ANALISI	зог	COVARIANCE		EVL		OWER

Mean	General Fitness	Skill Fitness	Combined Training	Control	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre-Test	6.44	6.49	6.51	6.5	Between	0.06	3	0.02	0.00
Mean					Within	4.69	76	0.06	0.32

Post-Test	6.53	6.93	7.00	6.5	Between	3.88	3	1.29	14 69*
wear					Within	6.69	76	0.09	14.00
Adj-Post Test	6.57	6.92	6.96	6.5	Between	3.25	3	1.08	39 72*
Mean					Within	2.04	75	0.03	
Mean Diff	0.10	0.44	0.48	0.03					

#### Table F-ratio at 0.05 level of confidence for 3 and 76 (df) =2.73, 3 and 75(df) =2.73 .\* Significant

As shown in Table-I, the obtained F ratio of 0.32 on pre test means of the groups is not significant at 0.05 levels. This shows that there is no significant difference among the means of the groups at the initial stage and the random assignment of the groups is successful. The obtained F ratio on post test means is 14.68, which is significant at 0.05 levels; the obtained F value is greater than the required F value of 2.73 to be significant at 0.05 levels.

Taking into consideration the pre test means and post test means, adjusted post test means are determined and analysis of covariance is done and the obtained F value 39.72 is greater than the required value of 2.73 and hence it is accepted. This shows that there are significant differences among the adjusted means on the south Indian university men volleyball players. Since significant improvements were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results are presented in Table -II.

#### TABLE-II SCHEFFE'S CONFIDENCE INTERVAL TEST ON ARM EX-PLOSIVE POWER

General Fitness	Skill Fitness	Combined Training	Control Group	Mean Difference	C.I
6.57	6.92			0.35*	0.15
6.57		6.96		0.39*	0.15
6.57			6.51	0.06	0.15
	6.92	6.96		0.05	0.15
	6.92		6.51	0.41*	0.15
		6.96	6.51	0.46*	0.15

\* Significant at 0.05 level.

The post hoc analysis of obtained ordered adjusted means prove that there are significant differences between (1) general fitness (2) skill fitness (3) combined and (4) control groups. It is found that there is no significant difference between (1) general fitness group and control group and (2) skill fitness and combined training.

#### **DISCUSSIONS ON FINDINGS**

As shown in Table -I, the obtained F value on the scores of pre test means 0.32 is less than the required F value, which proves that the random assignment of the subjects is successful and their scores in arm explosive power before the training were equal and there were no significant differences. Taking into consideration the pre test means and post test means, adjusted post test means are determined and analysis of covariance is done and the obtained F value 39.72 is greater than the required value of 2.73 and hence it is accepted. This shows that the interventional programmes significantly improve arm explosive power of the south Indian university men volleyball players.

The post hoc analysis of obtained ordered adjusted means proves that there are significant differences between all the three groups on arm explosive power of the south Indian university men volleyball players significant at 0.05 level.

#### CONCLUSIONS

1. It is concluded that general fitness and combined effect of general fitness and skill fitness training significantly improve arm explosive power of the south Indian university men volleyball players.

2. The comparing among the treatment groups, the combined general fitness and skill fitness training would be better training for developing arm explosive power for south Indian university men volleyball players.

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