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Sarojini R

Ph.D. Scholar, (Part Time)

Alagappa University College of
Physical Education, Karaikudi,
Tamilnadu, India

Dr. K Usharani

Professor, Dept. of Physical
Education and Health Sciences,
Alagappa University, Karaikudi,
Tamilnadu, India

Effects of 3 months skill based drills training on agility and explosive power of volleyball players

Sarojini R and Dr. K Usharani

Abstract

The purpose of the study was to find out the “effects of 3 months skill based training on Explosive power and Agility of volleyball players”. For this purpose sixty subjects were selected as players at random and their age was ranged between 14 to 18 years. They were divided into two equal groups of thirty players each. Group I underwent skill based drills training (Passing Drills, Hit and Block Drills, Service Drills for three days per week for 3 months. Group II acted as a control group that did not participate in any special training programme apart from their regular activities as per their curriculum. The following skill related physical fitness components namely explosive power and agility were selected as dependent variables. All the players of the two groups were tested on dependent variables, prior to and immediately after the training programme. The analysis of covariance (ANCOVA) was used to analyse the significant differences, if any, among the groups on selected dependent variables separately. Whenever they obtained ‘F’ ratio for adjusted post test was found to be significant, if any the .05 level of confidence was fixed as the level of significance to test the ‘F’ ratio obtained by the analysis of covariance, which was considered as an appropriate. The result of the study revealed that 3 months volleyball skill based training method has produced significant improvements in skill related physical fitness components such as explosive power and agility.

Keywords: Skill based drills training, volleyball, explosive power, agility

Introduction

Volleyball is a team sport in which two teams of six players are separated by a net. Each team tries to score points by grounding a ball on the other team's court under organized rules. It has been a part of the official program of the Summer Olympic Games since 1964.

The complete rules are extensive, but simply, play proceeds as follows: a player on one of the teams begins a 'rally' by serving the ball (tossing or releasing it and then hitting it with a hand or arm), from behind the back boundary line of the court, over the net, and into the receiving team's court. The receiving team must not let the ball be grounded within their court. The team may touch the ball up to 3 times but individual players may not touch the ball twice consecutively. Typically, the first two touches are used to set up for an attack, an attempt to direct the ball back over the net in such a way that the serving team is unable to prevent it from being grounded in their court.

The rally continues, with each team allowed as many as three consecutive touches, until either (1): a team makes a *kill*, grounding the ball on the opponent's court and winning the rally; or (2): a team commits a *fault* and loses the rally. The team that wins the rally is awarded a point, and serves the ball to start the next rally.

According to Matveyev Sports Training is the basic forms of preparation of sportsmen.

Training is teaching, or developing in oneself or others, any skills and knowledge that relate to specific useful competencies. Training has specific goals of improving one's capability, capacity, productivity and performance.

Coaching may be define as the technical skill which involve co-ordination of factors like time, sequence, action, movement and speed.

Coaching for volleyball can be classified under two main categories: match coaching and developmental coaching. The objective of match coaching is to win a match by managing a team's strategy.

Correspondence

Sarojini R

Ph.D. Scholar, (Part Time)

Alagappa University College of
Physical Education, Karaikudi,
Tamilnadu, India

Developmental coaching emphasizes player development through the reinforcement of basic skills during exercises known as "drills." Drills promote repetition and refinement of volleyball movements, particularly in footwork patterns, body positioning relative to others, and ball contact. A coach will construct drills that simulate match situations thereby encouraging speed of movement, anticipation, timing, communication, and team-work. At the various stages of a player's career, a coach will tailor drills to meet the strategic requirements of the team.

Physical fitness is a state of health and well-being and, more specifically, the ability to perform aspects of sports, occupations and daily activities. Physical fitness is generally achieved through proper nutrition, moderate-vigorous physical exercise, and sufficient rest.

Methods and Materials

To achieve the purpose of the study the investigator met the volleyball players (girls) from SDAT in Chennai. Their age ranged between 14 to 18 years. The study was formulated as a true random group design in which Sixty players were divided into two equal groups. The Experimental group I (n=30, SBT) underwent skill based (drills) Training, group II acted as a control group (n=30, CG) and did not undergo any specific training programme but they practiced the regular volleyball game. The following skill related physical fitness components namely explosive power (Sargent Vertical Jump) and agility (T-Test) were selected as dependent variables. All the players of the two groups were tested on dependent variables. The subjects were made to perform tests and data was collected prior and after the study of 3 Months drills Training program.

Experimental group: volleyball skill based drills training

The training schedule, given below, exhibits the volleyball skill based drills training given to the experimental group for a period of 3 months. For the first month the group was given 4 sets, each consisting of 6 times in each drill. In the second month the group was given 3 sets, each consisting of 8 times in each drill. Next last month 3 sets, each consisting of 10 times in each drill. Following drills were selected for execution of this experimental (i) Passing Drills (Set (volley pass) and Underarm Pass) - 1.Self / Partner Passing, 2.Passing Circle, 3.Pipe line Passing, 4.Set and Follow, 5. 3-Station Passing, 6.Around the World, 7.Butterfly Passing, 8.M-Passing, 9.Deep Pass Drill, 10.Net save Drill (ii)Hit and Block Drills – 1. Hits Drill, 2.Corner Tip drill, 3.Wipe Off, 4.Find the Hole, 5.Apex Ball Catch, 6.Tennis Ball Throw, 7. Back Attack 8.Tip, Cross, Line, 9.Blind Blocking, 10.Over Pass Drill. (iii) Service Drills – 1.Serving Tape, 2.Miss The Chair, 3.Target Serve, 4. Serve against the Wall.

Statistical Procedure

They were statistically analyzed by using the analysis of covariance (ANCOVA) to determine the differences, if any, among the groups on selected dependent variables separately. Whenever they obtained ‘F’ ratio for adjusted post test was found to be significant, if any the .05 level of confidence was fixed as the level of significance to test the ‘F’ ratio obtained by the analysis of covariance, which was considered as an appropriate.

Results and discussions

Table 1: Significance of mean gains / losses between pre test and post test on selected variables of Skill based drills training group

S. No	Variables	Pre Test mean	Post Test mean	Mean diff.	Std. Dev	Std. Er. of mean	"r"	't' ratio
Physical Fitness Variables								
2	Explosive power	42.93	48.93	6.00	1.20	0.21	0.99	27.30
3	Agility	12.93	12.20	0.73	0.76	0.13	0.17	5.22

*Significant at 0.05 level

An examination of table – I indicates that the obtained ‘t’ ratios are 27.30,5.22, for leg explosive power and agility respectively. The obtained ‘t’ ratios on the selected variables come out to be greater than the required table value of 2.04 at

0.05 level of significance for 29 degrees of freedom. This is found to be significant. Thus the results of this study are found to be statistically significant. In short, the effects of the training imparted to the subjects are positive.

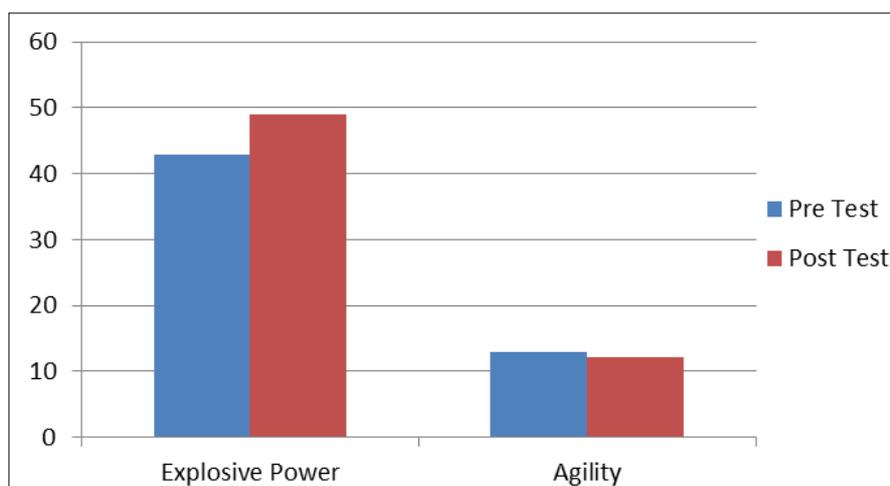


Fig 1: Pre test and post test mean values of skill based drills training group on physical fitness variables

Table 2: Significance of mean gains / losses between pre test and post test on selected variables of control group

S. No	Variables	Pre Test mean	Post Test mean	Mean diff.	Std. Dev	Std. Er. Of mean	"r"	't' ratio
Physical fitness variables								
1	Explosive power	42.80	42.86	0.06	1.38	0.25	0.98	0.26
2	Agility	12.88	12.85	0.03	0.11	0.02	0.98	1.70

*Significant at 0.05 level

An examination of table –II indicates that the obtained ‘t’ ratios are 0.26 and 1.70 for explosive power and agility respectively. The obtained ‘t’ ratios on the selected variables are found to be lesser than the required table value of 2.04 at

0.05 level of significance for 29 degrees of freedom. This is found to be insignificant. Thus the results of this study are found to be statistically no significant.

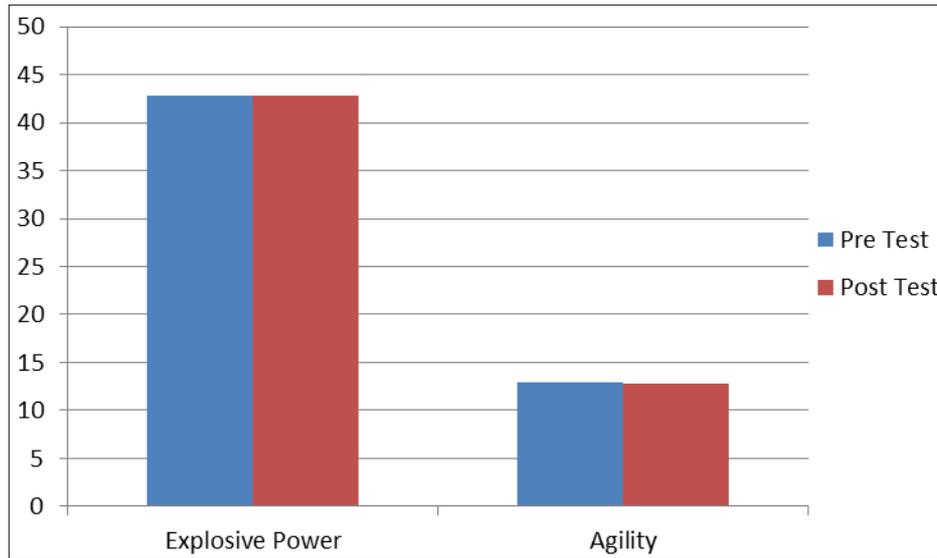


Fig 2: Pre test and post test mean values of control Group on physical fitness variables

Results of analysis of covariance

Table 3: Analysis of covariance for the pre test, post test and adjusted post test means on explosive power of skill based drills training and control groups

	Experimental Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	F-ratio
Pre-Test Means	42.93	42.80	BG	0.26	1	0.26	0.004
			WG	4278.66	58	73.77	
Post-Test Means	48.93	42.86	BG	552.06	1	552.06	6.94
			WG	4609.33	58	79.47	
Adjusted Post-Test Means	48.86	42.93	BG	527.38	1	527.38	317.43
			WG	94.70	57	1.66	

BG- Between Group Means

* - Significant

WG- Within Group Means

(Table Value for 0.05 Level for df 1 & 58 = 4.01)

df- Degrees of Freedom

(Table Value for 0.05 Level for df 1 & 57 = 4.01)

Results on explosive power

A perusal of table – III showed that the pre-test mean values on explosive power of skill based drills training and control group are 42.93 and 42.80 respectively. The obtained ‘F’ ratio 0.004 for pre-test scores is lesser than the table value 4.01 for df 1 and 58 required for significance at 0.05 level of confidence on explosive power. The results of the study indicated that there is no significant difference among the pre-test means of skill based drills training and control group on explosive power.

The post-test mean values on explosive power of skill based drills training and control group come out to be 48.93 and 42.86 respectively. The obtained ‘F’ ratio 6.94 for post-test scores is greater than the table value 4.01 for df 1 and 58

required for significance at 0.05 level of confidence on explosive power. The results of the study indicated that there is a significant difference among the pre-test means of skill based drills training and control group on explosive power.

The adjusted post-test means values on explosive power of skill based drills training and control group come out to be 48.86 and 42.93 respectively. The obtained ‘F’ ratio of 317.43 for adjusted post-test means is greater than the table value of 4.01 for df 1 and 57 required for significance at 0.05 level of confidence on explosive power. The results of the study indicated that there is a significant difference among the adjusted post-test means of skill based drills training and control group on explosive power.

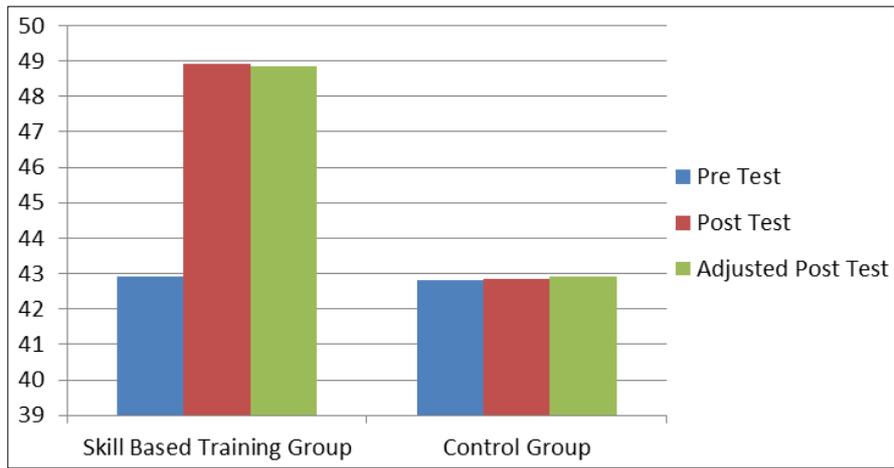


Fig 3: Mean values of skill based drills training and control group on explosive power

Table 4: Analysis of covariance for the pre test post test and adjusted post test means on agility of skill based drills training and control groups

	Experimental Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	F-ratio
Pre-Test Means	12.93	12.88	BG	0.02	1	0.02	0.06
			WG	25.55	58	0.44	
Post-Test Means	12.20	12.85	BG	6.27	1	6.27	16.33
			WG	22.30	58	0.38	
Adjusted Post-Test Means	12.19	12.86	BG	6.78	1	6.78	29.46
			WG	13.12	57	0.23	

BG- Between Group Means *- Significant

WG- Within Group Means (Table Value for 0.05 Level for df 1 & 58 =4.01)

df- Degrees of Freedom (Table Value for 0.05 Level for df 1 & 57 = 4.01)

Results on agility

A perusal of table – IV showed that the pre-test mean values on Agility of skill based drills training and control group are 12.93 and 12.88 respectively. The obtained ‘F’ ratio 0.06 for pre-test scores is lesser than the table value 4.01 for df 1 and 58 required for significance at 0.05 level of confidence on agility. The results of the study indicated that there is no significant difference among the pre-test means of skill based drills training and control group on agility.

The post-test mean values on Agility of skill based drills training and control group come out to be 12.20 and 12.85 respectively. The obtained ‘F’ ratio 16.33 for post-test scores is greater than the table value 4.01 for df 1 and 58 required for

significance at 0.05 level of confidence on Agility. The results of the study indicated that there is significant difference among the pre-test means of skill based drills training and control group on Agility.

The adjusted post-test means values on Agility of skill based drills training and control group come out to be 12.19 and 12.86 respectively. The obtained ‘F’ ratio of 29.46 for adjusted post-test means is greater than the table value of 4.01 for df 1 and 57 required for significance at 0.05 level of confidence on Agility. The results of the study indicated that there is a significant difference among the adjusted post-test means of skill based drills training and control group on Agility.

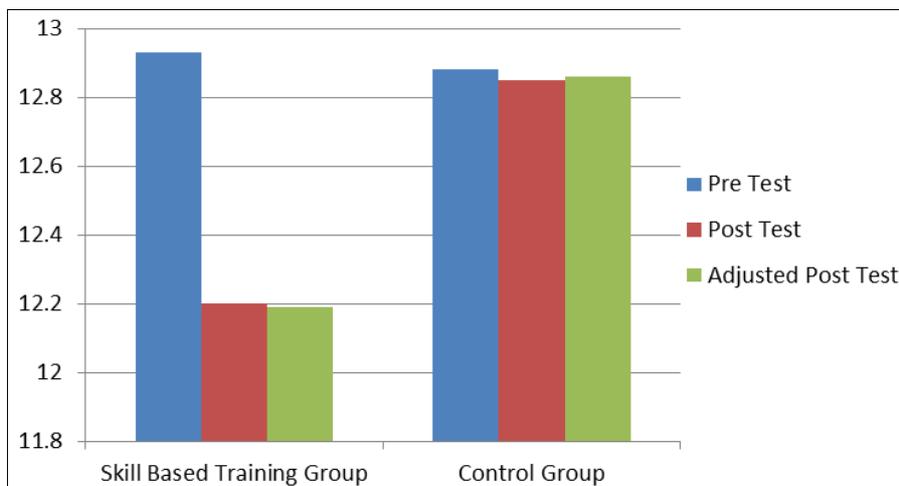


Fig 4: Mean values of skill based drills training and control group on agility

Conclusions

It can be concluded that 3 months volleyball skill based training method may lead to greater improvements in skill

related physical fitness components such as explosive power and agility of volleyball players.

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