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Isolated and Combined Effect of Game Specific Drills and Specific Fitness Training on Selected Volleyball Skill Performance

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ABSTRACT

The purpose of the study is to find out the isolated and combined effect of game specific drills and specific fitness training on selected volleyball skill performance**.** To solve the problem 60 women volleyball players were selected from various colleges affiliated to Annamalai university Tamil Nadu. The age of the subjects ranged between 18 and 25. They all were healthful and normal. The range of subjects within the study become delimited to 4 groups, viz., Experimental group-I (specific fitness training group), Experimental group-II (Game specific drill training group), Experimental group-III combined group (specific fitness and drill training group) and control group. The criterion variables selected for the study was spiking and service and they were measured by the standard test such as spiking for accuracy test and Russel Lunge service test respectively. After the initial measurement the specially designed training programme named as volleyball specific fitness training programme and volleyball game specific drill training and combined training was to given to the subjects of each experimental groups. Each experimental session was of 45 minutes duration with including warm up and warm down for five days in a week for 12 weeks in the morning sessions only. The data were collected on selected fitness variables namely service and spiking before and after twelve weeks of training. The data was analyzed by using analysis of covariance (ANCOVA). The level of significance was fixed at 0.05. The findings of the present study have strongly indicated that that package of specific fitness training and specific drill training and combined training shows significant changes among volleyball players.

Key words: Specific Fitness training, Game Specific Drill training, service, spiking.

1. Introduction

Volleyball is an excellent all-round team-sport, and it has been widely accepted as a highly competitive game all over the universe and it gained advantage in being played for both male and females and also played by all age peoples to improve the physical ability. Skills in the game is easy to learn and it is a non-body-contact game between opponents so it is considered to be less dangerous game prone to injuries risks. In older days sport-specific training means becoming more physically fit by resistance training, jogging, and performing interval sprints, for longer duration and for many hours in a court for skill practice in one chosen game or sport. In the present scenario sport-specific training is meant for training the skills and fitness with specific drills as in the specific game or sport. The term specific fitness and drill training makes a successful player to complete training in a particular sport and game at different levels of competition. Sport specific training in a current stage is to build the individuals or the players in the specific game or specific position by training according to their needs and necessity without the risk of injury with proper volume and intensity to attain the peak performance at a particular sport (Cittibabu, 2005).

Specificity of training is close evaluation of specific body movements while executing various movements in the body in a given activity. The skill related training improves specific sports fitness and skills of the various games and technics and tactical form of performances. Sports specific training can help to increase strength, flexibility and stamina by specific mode of training where the players can improve his performance in specific sports. By knowing the requirements of the game, training should be planned according to the requirements of the particular sports. To meet the demand and requirements specific packages of sports training is a new type of package for the players to achieve at various levels in a competition. Training to specific in a particular sport have merit at the top levels, assuming the athlete to developmentally sound. A good athlete is a combination of raw athleticism and sport-specific skill. To be a good sportsman their parents and players should look for a good coach with all potential characteristics. A coach should have two main factors in coaching a individual or team, the one is that sports skill coaches always concentrate on a sports skills specific to the game whereas the other thing is that the conditioning trainer should always aims on the individuals or players fitness components such as speed power, flexibility, injury rehabilitation and endurance. One of the well-established principles of motor learning is that the only way to improve a skill is to practice that skill as accurately as possible. Besides sports specific training improve the neuro-muscular adaptations, athletic performance, injury prevention and decreased rehabilitation time. The game related drills not only improved their skill of a specific game but also the other fitness components and other tactical performances it also results the safer method of training in reducing injuries risks when compare to some other forms of training.

2. Methodology

The purpose of the study is to find out the isolated and combined effect of game specific drills and specific fitness training on selected volleyball skill performance**.** To solve the problem 60 women volleyball players were selected from various colleges affiliated to Annamalai university Tamil Nadu. The age of the subjects ranged between 18 and 25. They all were healthful and normal. The range of subjects within the study

become delimited to 4 groups, viz., Experimental group-I (specific fitness training group), Experimental group-II (Game specific drill training group), Experimental group-III combined group (specific fitness and drill training group) and control group. The criterion variables selected for the study was spiking and service and they were measured by the standard test such as spiking for accuracy test and Russel Lunge service test respectively.

3. **Training Procedure**

After the initial measurement the specially designed training programme named as volleyball specific fitness training programme and volleyball game specific drill training and combined training was to given to the subjects of each experimental groups. Each experimental session was of 45 minutes duration with including warm up and warm down for five days in a week for 12 weeks in the morning sessions only. The package of volleyball specific drill and specific fitness training were as follows: SAQ training exercise such as ladder drill, shuttle runs, foot matrix, short sprints, plyometric metrics such as hurdle jumps, box jumps weight training exercise such as arm curl leg curls bench press shoulder curls knee extension exercise set with sideways walk, set to box, blocker movement setting drill**,** setter concentration drill, blind blocking drill, middle blocking drill, jousting blocking drill, side-to-side blocking drill, middle attack drill, block and hit drill, hitter versus hitter, six-on-six drill, court drills passing with partners by jogging in between, bump pass, make a turn and pass, pass to self, do a forward roll, pass to self again, then bump to a partner, passing the ball with moving in a circle, pass-moving to left and pass, then move to the right then pass, outside in hitting, four way step close, multiple area deep hitting, power and vision hitting, make a pass to the setter and attack the ball, continuous attack in all the three positions etc.(Dunphy et al.,2000).

4.Statistical Procedure

The data were collected on selected fitness variables namely service and spiking before and after twelve weeks of training. The data was analyzed by using analysis of covariance (ANCOVA). The level of significance was fixed at 0.05.

5. Analysis of the Data

The analysis of covariance on physical fitness variables of the pre and post test scores of control group with specific fitness and specific drill training and combined training groups have been analyzed and presented in Table I to IV.

Table –I
Analysis of Covariance of Experimental Groups and Control Groups on spiking

	Control Group	Specific fitness training	Specific drill training	Combined group	S o V	Sum of Squares	df	Mean squares	'F' ratio
Pretest Mean	13.73	13.86	13.66	13.26	B	3.00	3	1.00	1.19
SD	.79	1.12	.61	1.03	W	46.93	56	.83	
Posttest Mean	13.33	16.53	18.00	20.60	B	413.51	3	137.83	27.70*
SD	3.55	1.64	.65	2.02	W	278.66	56	4.97	

Adjusted Posttest Mean	13.24	16.33	17.97	20.91	B	443.92	3	147.97	33.27*
					W	244.57	55	4.44	

*Significant at 0.05 level of confidence. The table values required for significance at 0.05 level of confidence for 3 and 56 (df)=2.77, 3 and 55(df)=2.78 respectively.

. The above table shows that the pretest means of control group with specific fitness and specific drill training and combined training groups 13.73, 13.86, 13.66 and 13.26 respectively. The obtained F value of 1.19 was less than the required table value 2.77. This proved that there was no significant mean difference between the groups at pretest period. The posttest means of the variable spiking among control group, specific fitness and specific drill training and combined training groups 13.33,16.53,18.0 and 20.60 respectively. The obtained F value of 27.70 was greater than the required table value of 2.77. This proved that there was a significant mean difference among the groups after the twelve weeks training. The adjusted posttest means of the control group, specific fitness and specific drill training and combined training groups were 13.24, 16.33, 17.97 and 20.91 respectively. The obtained F value of 33.27 was greater than the required table value of 2.77. This proved that there was a significant mean difference among the three groups. Since the obtained F ratio of the adjusted posttest means was found to be significant, Scheffe's post hoc test was applied. The obtained paired mean differences among the training and control group, between the training groups and the confidence interval required for significance are presented in table-IV.

Table II
Scheffe's Confidence Interval Test Scores and the Mean Differences between the Groups on spiking

Means of				Paired Mean Difference	Confidence interval
Control Group	Specific fitness training	Specific drill training	Combined group		
13.24	16.33			3.09*	2.22
13.24		17.97		4.73*	2.22
13.24			20.91	7.67*	2.22
	16.33	17.97		1.64	2.22
	16.33		20.91	4.58*	2.22
		17.97	20.91	2.94*	2.22

*Significant at 0.05 level

The paired mean difference obtained for control group with specific fitness, specific drills and combined training group was 3.09, 4.73, and 7.67 respectively. All the paired mean differences were higher than the confidence interval value of 2.22 which resulted in a significant improvement than the control group. The paired mean difference between specific fitness training and specific drill training group was 1.64 was lower than the confidence interval value which resulted no significant improvement and combined training group was 4.58 which resulted in a significant improvement. The paired mean differences between specific drill training group and combined training group was 2.94 was higher than the confidence interval value which resulted significant improvement. The results of the study showed that all the three trainings had resulted in a significant

improvement in spiking as compared with control group. Among the three groups combined training groups showed higher significance.

Table –III
Analysis of Covariance of Experimental Groups and Control Groups On Service

	Control Group	Specific fitness training	Specific drill training	Combined group	S o V	Sum of Squares	df	Mean squares	'F' ratio
Pretest Mean	15.86	15.26	15.53	15.73	B	3.06	3	1.02	1.16
SD	.91	.79	.99	1.03	W	49.33	56	.88	
Posttest Mean	16.13	17.33	18.40	18.93	B	69.00	3	23.00	19.63*
SD	1.06	1.44	.98	.70	W	65.60	56	1.17	
Adjusted Posttest Mean	15.93	17.58	18.44	18.83	B	74.15	3	24.71	35.17*
					W	38.64	55	.70	

*Significant at 0.05 level of confidence. The table values required for significance at 0.05 level of confidence for 3 and 56 (df)=2.77, 3 and 55(df)=2.78 respectively.

. The above table shows that the pretest means of control group with specific fitness and specific drill training and combined training groups 15.86, 15.26. 15.53 and 15.73 respectively. The obtained F value of 1.16 was less than the required table value 2.77. This proved that there was no significant mean difference between the groups at pretest period. The posttest means of the variable service among control group, specific fitness and specific drill training and combined training groups 16.13, 17.33, 18.40 and 18.93 respectively. The obtained F value of 19.63 was greater than the required table value of 2.77. This proved that there was a significant mean difference among the groups after the twelve weeks training. The adjusted posttest means of the control group, specific fitness and specific drill training and combined training groups were 15.93, 17.58, 18.44 and 18.83 respectively. The obtained F value of 35.17 was greater than the required table value of 2.77. This proved that there was a significant mean difference among the three groups. Since the obtained F ratio of the adjusted posttest means was found to be significant, Scheffe's post hoc test was applied. The obtained paired mean differences among the training and control group, between the training groups and the confidence interval required for significance are presented in table-IV.

Table IV
Scheffe's confidence interval test scores and the Mean differences between the groups on Service

Means of				Paired Mean Difference	Confidence interval
Control Group	Specific fitness training	Specific drill training	Combined group		
15.93	17.58			1.65*	0.88
15.93		18.44		2.51*	0.88
15.93			18.83	2.9*	0.88
	17.58	18.44		0.86	0.88
	17.58		18.83	1.25*	0.88
		18.44	18.83	0.39	0.88

*Significant at 0.05 level

The paired mean difference obtained for control group with specific fitness, specific drills and combined training group was 1.65, 2.51 and 2.9 respectively. All the paired mean differences were higher than the confidence interval value of 0.88 which resulted in a significant improvement than the control group. The paired mean difference between specific fitness training and specific drill training group was 0.86 is lower than the confidence interval value of 0.88 which resulted no significant improvement. The paired mean difference between specific fitness training and combined training group was 1.25 higher than the confidence interval value resulted in a significant improvement. The paired mean differences between specific drill training group and combined training group was 0.39 is lower than the confidence interval value which resulted no significant improvement. The results of the study showed that all the three trainings had resulted in a significant improvement in service as compared with control group. Among the three training groups, specific drill training had a higher significant change than the other training groups.

6. Discussion

Specific training is a widely used approach for structuring a training programme to improve competitive performance in a specific sport by training in a variety of sports. The principles of specificity of training tend to have greater significance, skill-based training is to be highly beneficial in terms of overall fitness. Skills in volleyball is considered to be an important for the player to achieve successfully in the game. Each part of skill development is related to the fulfilment of concrete tactical tasks that can arise in different game situations. Johns Reimann et al (2008) documented that specificity of skill-based conditioning games was an improvement in physiological and technical skills like passing, spiking and blocking. Bruce Abernethy et al (2006) suggested that skill-based volleyball training improves spiking, setting, and passing accuracy and spiking and passing technique, but has little effect on the physiological and anthropometric characteristics of players. Sheppard et al. (2008), evaluated that the closed and open skill-based conditioning has improved the selected physical physiological and skill performance variables among volleyball players. Gabbett et al (2006) confirmed that skill related training improves specific sports fitness and skills of the various games and technics and tactical form of

performances. The findings of the present study have strongly indicated the influence of the above findings hence the package of specific fitness training and specific drill training and combined training shows significant changes on skill performances among volleyball players.

7. Conclusion

Based on the results of the study,

1. It was concluded that spiking and service showed significant improvement among the volleyball players due to specific fitness training, game specific drill training and combined training compared to control group.
2. Among the three groups combined training group showed better improvement followed specific drill training groups by and specific fitness training group.
3. So, from the conclusion it is recommended that volleyball coaches should use the combination of game specific drill and specific fitness training to train the volleyball players.

8. References

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