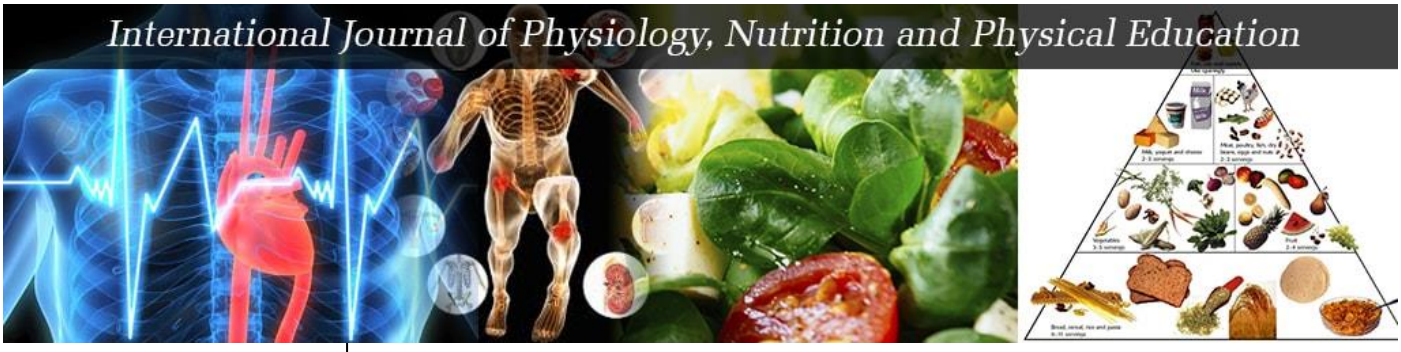

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Dr. D Abraham Samson
Assistant Professor, Dr. Sivanthi Aditanar College of Physical Education, Tiruchendur, Tuticorin, Tamil Nadu, India

Dr. K Balamurugan
Assistant Professor, Dr. Sivanthi Aditanar College of Physical Education, Tiruchendur, Tuticorin, Tamil Nadu, India

Corresponding Author:
Dr. D Abraham Samson
Assistant Professor, Dr. Sivanthi Aditanar College of Physical Education, Tiruchendur, Tuticorin, Tamil Nadu, India

Investigation of the changes on muscular endurance of volleyball players due to core with speed training and plyometric with speed training

Dr. D Abraham Samson and Dr. K Balamurugan

Abstract
The purpose of the study is to find out the investigation of the changes on muscular endurance of volleyball players due to core with speed training and plyometric with speed training. To achieve the purpose of the study, thirty six (n=36) college volleyball players were selected as subject from K.G.S. Arts College, Srivaikundam, Nazareth Margoschis College, Pillaiyanmanai, Nazareth, and Aditanar College of Arts and Science, Virapandianpatnam, Tiruchendur. The selected subjects had participated in Manonmaniam Sundaranar University intercollegiate tournaments by representing their respective colleges. The age of the subjects ranged from 18 to 24 years. In which, thirty-six were assigned into three groups of twelve subjects each (n=12). Group, I underwent Core with Speed Training (CSTG), group II underwent Plyometric with Speed Training (PSTG) and group III acted as control. According to matched group design the K.G.S. Arts College, Srivaikundam volleyball players underwent Core with Speed Training; Nazareth Margoschis College at Pillaiyanmanai, Nazareth volleyball players underwent Plyometric with Speed Training and Aditanar College of Arts and Science, Virapandianpatnam, Tiruchendur, volleyball players acted as control in their respective campus for 12 weeks of 60-morning sessions. Prior to and after the exercises period the subjects were tested for, explosive power. Muscular endurance was measured by bent knee sit-ups. The statistical tool were used for the present study is ANACOVA. The result of the study was a significant increase on muscular enduranceafter twelve weeks of core with speed training and plyometric with speed training. However the increase was favour of experimental group. There was a significant difference was occurred between experimental and control groups after twelve weeks of core with speed training and plyometric with speed training.

Keywords: Core with speed training, plyometric with speed training, volleyball and muscular endurance

Introduction
Core training is the gradual development of the lumbo-pelvic-hip complex and/or transversus abdominis muscles, which are crucial for posture and lumbar spine stabilisation. Exercises include bounding when the most effort is put forth while a muscle group lengthens and performs negative work. Any jumping activity that involves a landing and a leap is an example of a plyometric exercise.

Moving quickly is typically a need in speed training. Running and other quick actions are a part of speed training. Speed is the capacity to cover ground fast or to quickly move limbs for catching or throwing.

Muscular Endurance is the ability of the muscle or group of muscles to continue contracting over and extended time against moderate resistance.

Methodology
The purpose of the study is to find out the investigation of the changes on muscular endurance of volleyball players due to core with speed training and plyometric with speed training. To achieve the purpose of the study, thirty six (n=36) college volleyball players were selected as subject from K.G.S. Arts College, Srivaikundam, Nazareth Margoschis College, Pillaiyanmanai, Nazareth, and Aditanar College of Arts and Science, Virapandianpatnam, Tiruchendur. The selected subjects had participated in Manonmaniam Sundaranar University intercollegiate tournaments by representing their respective colleges.

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Analysis and interpretation of data

The data collected prior to and after the experimental periods on muscular endurance on core with speed training and plyometric with speed training and control group were analyzed and presented in the following table-1.

Table 1: Analysis of covariance on muscular endurance of core with speed training and plyometric with speed training and control group

Test	CSTG	PSTG	Control group	SOV	Sum of Square	df	Mean Square	Obtained "F'' Ratio
Pre test								
Mean	45.17	45.00	45.08	B	0.236	2	0.236	0.598
S.D	2.11	2.15	2.46	W	0.394	33	0.394	
Post tes								
Mean	46.33	47.92	44.92	B	15.025	2	15.025	15.715*
S.D	2.15	2.58	2.21	W	11.801	33	0.421	
Adjusted Post test								
	45.86	46.54	45.01	B	12.232	2	12.232	53.017*
Mean				W	6.223	32	0.231	

*Significant at 0.05 level of confidence. Table value required for significance at 0.05 level with df 2 and 33 and 2 and 32 are 3.31and 3.30.

Table-1 showed that the pre-test and S.D values of muscular endurance for core with speed training and plyometric with speed training and control group were 45.17 ± 2.17, 45.00 ± 2.15 and 45.08 ± 2.46 respectively. The obtained 'F' ratio value of 0.598 for pre-test sore of core with speed training and plyometric with speed training and control group on muscular endurancewas less than the required table value of 3.31 for significance with df 2 and 33 at 0.05 level of confidence.

The post-test and S.D values of muscular endurancefor core with speed training and plyometric with speed training and control group were 46.33 ± 2.15, 47.92 ± 2.58 and 44.92 ± 2.21 respectively. The obtained 'F' ratio value of 15.715 for post-test score of core with speed training and plyometric with speed training and control group on muscular endurancewas greater than the required table value of 3.31 for significance with df 2 and 33 at 0.05 level of confidence.

The adjusted post-test mean value of muscular endurancefor core with speed training and plyometric with speed training and control group were 45.86, 46.54 and 45.01 respectively. The obtained 'F' ratio value of 53.017 for adjusted post-test score of core with speed training and plyometric with speed training and control group was more than the required table value of 3.30 for significant with df 2 and 32 at 0.05 level of confidence.

Since the value of F-ratio is higher than the table value, it indicates that there exists a significant difference between the adjusted post-test means of core with speed training, plyometric with speed training groups in improving the performance of muscular endurance. So Scheffe's post hoc test on muscular endurance of core training with speed training, plyometric training with speed training and control groups have been applied and the results were presented in table-2.

Table 2: Scheffe's post hoc test for the differences between paired means on muscular endurance

CSTG	PSTG	Control Group	Mean Difference	CI
45.86	46.54		0.68*	0.616
45.86		45.01	0.85*	
	46.54	45.01	1.53*	

Result

The above table indicated that the post hoc pairwise mean difference between the adjusted posttest mean values of CSTG and PSTG on the development of muscular endurance with confidence interval value 0.616. Since the pairwise comparison mean difference values 0.68 of CSTG, PSTG are higher than the respective confidence interval value of 0.616, it is clearly understood that there exists a significant difference between core with speed training and plyometric with speed training on explosive power. Further, the pairwise comparison means difference values 0.85 of CSTG and control group are higher than the respective confidence interval value of 0.616. It is clearly understood that there exists a significant difference between CSTG and control group. Further, the pairwise comparison means difference values 1.53 of Plyometric with PSTG and control group are higher than the respective confidence interval value 0.616. It is also clearly understood that there exists a significant difference between plyometric with speed training group and control group.

Conclusions

Within the limitations and delimitations of this study the following conclusions were drawn from the result.

1. It was concluded that there was significant development of muscular enduranceamong volleyball players due to core with speed training and plyometric with speed training.
2. The result of the study reveal that plyometric with speed training group have better development of muscular

endurance compared with core with speed training group and control group.

References

1. Clarke Harrison H, David Clarke H. Application of Measurement to Physical Education, 6 Ed. Englewood Cliffs, New Jersey: Prentice Hall, hic; c1987, p. 155.
2. Johnson BL, Nelson JK. Practical measurements for evaluation in Physical Education (4 ed), Edina, MN: Burgess Publishing; c1986.
3. Branquinho L, Ferraz R, Mendes PD, Petricia J, Serrano J, Marques MC. The Effect of an In-Season 8-Week Plyometric Training Programme Followed By a Detraining Period on Explosive Skills in Competitive Junior Soccer Players. Montenegrin Journal of Sports Science and Medicine. 2020;9(1):33-40.
4. Camacho-Cardenosa AM, Martínez-Guardado I, Brazo-Sayavera J, Timon R, Olcina G. Effects of repeated-sprint training in hypoxia on physical performance of team sports players. Revista Brasileira de Medicina do Esporte. 2020;26(2):153-157.
5. Chakravarthy M, Vivekanandhan T. Effect of selected core strengthening workouts & Balanced diet in reducing weight among college teachers under Calicut University. International Journal of Physiology, Nutrition and Physical Education. 2020;5(1):109-112.
6. Chiranjivi MS. Impact of plyometric practices on physical wellness port speed in volleyballplayers. International Journal of Multidisipilary Educational Research. 2020;9(6):39-41.