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Impact of game specific plyometric training on explosive power and strength endurance among male volleyball players

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Abstract
The purpose of the study is to find out impact of game specific plyometric training on explosive power and strength endurance among male volleyball players. To achieve the purpose of the study twenty male volleyball players were selected from various departments of Annamalai University, Chidambaram, Tamil Nadu during the year 2019-2020. The age group of the subjects were between 18-23 years. Twenty subjects were selected at random and subjects were divided into two equal groups designed one experimental group and the other control Group. Thus each group consisted of 10 subjects. Each subject was oriented in the procedure to the administration of the test. Prior to and after the exercises period the subjects were tested for, explosive power and strength endurance measured by vertical jump and sit-ups respectively. The statistical tool were used for the present study is ANACOVA. The result of the study was a significant increase on passing and serving ability after six weeks of game specific plyometric training. However the increase was favour of experimental group. There was a significant difference was occurred between experimental and control group after six weeks of game specific plyometric training.

Keywords: game specific plyometric training, explosive power, strength endurance and volleyball

Introduction

"Sports training is a planned and controlled process in which, for achieving a goal, changes in complex sports motor performance, ability to act and behavior are made through measures of content, methods and organization. Sports training are the basic form of preparation of sportsmen". Plyometric training is a sports training method that in based on the contractions of the body's muscles. This method has been proven to improve the athletic performance of athletes in a number of sports. This training style can help athletes improve their jumping ability, upper body strength, speed and agility. Game specific training is simply fitness and performance training designed specifically for performance enhancement. Volleyball is a complex game of simple rules, invented by William G. Morgan in the year 1896, and got recognized as an Olympic sport during the year 1964. Volleyball is an exciting and challenging sport that has developed into a premier interscholastic and professional spectator event. Understanding the rules, technical skills and strategies of competitive volleyball is essential for its full appreciation. Volleyball is a game of constant action and requires continuous adaptations to changing situations by the team as whole as well as individual players. The game of volleyball, which requires power, strength, agility, speed and fitness, is played around the world.

Methodology

The purpose of the study is to find out impact of game specific plyometric training on explosive power and strength endurance among male volleyball players. To achieve the purpose of the study twenty male volleyball players were selected from various departments of Annamalai University, Chidambaram, Tamil Nadu during the year 2019-2020. The age group of the subjects were between 18-23 years. Twenty subjects were selected at random and subjects were divided into two equal groups designed one experimental group and the other control Group. Thus each group consisted of 10 subjects. Each subject was oriented in the procedure to the administration of the test. Prior to and after the exercises period the subjects were tested for, explosive power and strength endurance measured by vertical jump and sit-ups respectively. The statistical tool were used for the present study is ANACOVA. In order to ensure full co-operation from the subjects, the scholar explained the requirements, importance of this study and the subjects voluntarily agreed to undergo the prescribed tests and exercises.

Analysis and Interpretation of Data

The data collected prior to and after the experimental periods on explosive power on game specific plyometric training and control group were analyzed and presented in the following table -1.

Table 1: Analysis of covariance on explosive power of game specific plyometric training group and control group

Test	Game specific plyometric training group	Control group	SOV	Sum of squares	Df	Mean square	'F' Ratio
Pre-Test							
Mean	59.10	51.00	B	328.05	1	328.05	3.716
S.D	12.66	4.02	W	1580.90	18	88.27	
Post-Test							
Mean	62.80	53.00	B	480.20	1	480.20	5.259*
S.D	12.89	4.05	W	1643.60	18	5.25	
Adjusted Post-Test							
Mean	58.72	57.07	B	11.17	1	11.17	5.935*
			W	32.02	17	1.88	

*Significance at 0.05 level of confidence
(The table values required for significance at 0.05 level of confidence for 1 and 18 and 17 are 4.41 and 4.45) respectively.

The Table-I shows that the pre-test mean values on explosive power for game specific plyometric training group and control group were 59.10 and 51.00 respectively. The obtained 'F' ratio of 3.716 for pre-test scores was less than the table values of 4.41 for DF 1 and 18 required for significance at 0.05 level of confidence on explosive power.

The post-test mean values on explosive power for game specific plyometric training group and control group were 62.80 and 12.89 respectively. The obtained 'F' ratio of 5.259 for post test scores was higher than the table values of 4.41 for DF 1 and 18 required for significance at 0.05 level of confidence on explosive power.

The adjusted post-test mean values on explosive power for game specific plyometric training group and control group were 58.72 and 57.07 respectively. The obtained 'F' ratio of 5.935 for adjusted post test scores was greater than the table values of 4.45 for DF 1 and 17 required for significance at 0.05 level of confidence on explosive power.

The results of this study showed that there was a significant difference between game specific plyometric training group and control group on explosive power.

The data collected prior to and after the experimental periods on strength endurance on game specific plyometric training and control group were analyzed and presented in the following table-2.

Table 2: Analysis of covariance on strength endurance of game specific plyometric training group and control group

Test	Game specific plyometric training group	Control group	SOV	Sum of squares	Df	Mean square	'F' Ratio
Pre-Test							
Mean	43.70	40.60	B	48.05	1	48.05	2.00
S.D	4.76	5.04	W	432.50	18	24.03	
Post-Test							
Mean	49.70	44.10	B	156.80	1	156.80	8.23*
S.D	4.40	4.33	W	343.00	18	19.06	
Adjusted Post-Test							
Mean	48.35	45.45	B	38.07	1	38.07	38.10*
			W	16.99	17	0.99	

*Significance at 0.05 level of confidence

(The table values required for significance at 0.05 level of confidence for 1 and 18 and 17 are 4.41 and 4.45) respectively.

The Table-II shows that the pre-test mean values on strength endurance for game specific plyometric training group and control group were 43.70 and 40.60 respectively. The obtained 'F' ratio of 2.00 for pre-test scores was less than the table values of 4.41 for DF 1 and 18 required for significance at 0.05 level of confidence on strength endurance.

The post-test mean values on strength endurance for game specific plyometric training group and control group were 49.70 and 44.10 respectively. The obtained 'F' ratio of 8.23 for post test scores was higher than the table values of 4.41 for DF 1 and 18 required for significance at 0.05 level of confidence on strength endurance.

The adjusted post-test mean values on strength endurance for game specific plyometric training group and control group were 48.35 and 45.45 respectively. The obtained 'F' ratio of 38.10 for adjusted post test scores was greater than the table values of 4.45 for DF 1 and 17 required for significance at 0.05 level of confidence on strength endurance.

The results of this study showed that there was a significant difference between game specific plyometric training group and control group on strength endurance.

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 improvement in explosive power and strength endurance among volleyball players due to game specific plyometric training.
2. The result of the study reveal that game specific plyometric training would improve volleyball Players explosive power and strength endurance significantly.

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