

EFFECT OF SWISSBALL AND PLYOMETRIC TRAINING PROGRAMME ON SELECTED PHYSICAL VARIABLES AND SKILL PERFORMANCE OF INTER COLLEGIATE MEN VOLLEYBALL PLAYERS

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Abstract:

The purpose of the study was to find out the effect of Swiss ball and plyometric training programme on selected physical variable and skill performance of inter collegiate men volleyball players, to achieve that 45 subjects aged from 19 to 28 years from affiliated college of Bharathiar University Coimbatore, Tamilnadu were selected, subjects (N = 45) were divided into three equal groups. Namely, Group - I underwent Swiss ball training group (SBTG), Group - II underwent plyometric training group (PTG), and Group - III acted as control group (CG) was not given any specific training. Each group consists of 15 subjects. They were assessed before and after six weeks in both groups. The analysis of co-variance (ANCOVA) was used to determine any significant difference was present among the three groups of the dependent variables. The study revealed that the selected dependent variables such as speed, flexibility, explosive power, muscular strength and endurance, serving Ability and passing ability have significant improvement due to the Swiss ball and plyometric training programme on selected physical fitness variables and skill performance of inter collegiate men volleyball players.

KEYWORDS:

1.Speed 2.Flexibility 3.Explosive Power 4.Muscular strength and endurance 5.Serving Ability 6.Passing ability.

INTRODUCTION

Volleyball is a sport played by two teams consisting of 12 players each on a playing court, divided by a net. The object of the game is to send the ball over the net in order to ground it on the opponent's court and to prevent the same effort by the opponent. The team has three hits or contacts to return the ball.

To play volleyball one has to be good at vertical jump, known as explosive power. A volleyball match can be played for five sets which means a match can last about 90 minutes, during which a player can perform 250 -300 actions dominated by the explosive type of strength of the leg muscles. The total number of actions as jumps takes up around 50-60% high speed movements and change of direction in space about 30% and as falls about 15%. The spike and block actions are dominated by the corresponding explosive type of strength which is referred to as a player's vertical jump which is usually the key to winning point (Stojanovic, Radmila Kostic, 2004).

SWISS BALL

The physical object known as a "Swiss Ball" was developed in 1963 by Aquilino Cosani, an Italian plastics manufacturer. He perfected a process for molding large puncture-resistant plastic balls. Those

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balls, then known as "Pezzi balls", were first used in treatment programs for newborns and infants by Mary Quinton, a British physiotherapist working in Switzerland. Later, Dr. Susanne Klein-Vogelbach, the director at the Physical Therapy School in Basel, Switzerland, integrated the use of ball exercise as physical therapy for neuro-developmental treatment. Based on the concept of "functional kinetics", Klein-Vogelbach advocated the use of ball techniques to treat adults with orthopedic or medical problems. The term "Swiss Ball" was used when American physical therapists began to use those techniques in North America after witnessing their benefits in Switzerland. From their development as physical therapy in a clinical setting, those exercises are now used in athletic training, [as part of a general fitness routine and incorporation in alternative exercises such as yoga and Pilates. Flett, Maureen (2003)

PLYOMETRIC TRAINING

Plyometrics, also known as "jump training" or "plyos", are exercises based around having muscles exert maximum force in as short a time as possible, with the goal of increasing both speed and power. This training focuses on learning to move from a muscle extension to a contraction in a rapid or "explosive" way, for example with specialized repeated jumping. Plyometrics are primarily used by athletes, especially martial artists and high jumpers, to improve performance and are used in the fitness field to a much lesser degree. Chu, Donald (1998)

METHODOLOGY

To achieve that 45 subjects aged from 19 to 28 years from affiliated college of Bharathiar University Coimbatore, Tamilnadu were selected, subjects (N = 45) were divided into three equal groups. Namely, Group - I underwent Swiss ball training group (SBTG), Group - II underwent plyometric training group (PTG), and Group - III acted as control group (CG) was not given any specific training. Each group consists of 15 subjects. The following criterion variables were chosen namely speed, flexibility, explosive power, Muscular strength and endurance, serving and passing. They were assessed before and after six weeks in both groups. The analysis of co-variance (ANCOVA) was used to determine any significant difference was present among the three groups of the dependent variables. These three groups were compared, when the obtained the 'F' ratio for the adjusted post test mean was found to be significant, the scheff's post hoc test was applied to determine the paired mean differences.

S.NO	VARIABLES	TEST ITEMS	UNIT OF MEASUREMENT
Physical Variables			
1	Speed	50m dash	In seconds
2	Flexibility	Sit and Reach	In centimeters
3	Explosive power	Vertical jump	In centimeters
4	Muscular strength and endurance	Sit ups	In Counts
Skill Performance Variables			
4	Serving Ability	Russel Lange volleyball test	In Numbers
5	Passing Ability	Bredy volleyball test	In Numbers

RESULT AND STATISTICAL ANALYSIS

ANALYSIS OF COVARIANCE ON SELECTED PHYSICAL VARIABLE AND SKILL PERFORMANCE OF INTER COLLEGIATE MALE VOLLEYBALL PLAYERS

Variables	STG	PTG	CG	Source of Variance	Sum of square	df	Mean Square	F
Speed	7.22	7.43	7.65	Between	1.298	2	0.649	13.79*
				Within	1.929	41	0.047	
Flexibility	30.75	27.29	22.95	Between	437.53	2	218.77	19.47*
				Within	460.59	41	11.23	
Explosive Power	51.26	54.13	48.27	Between	252.7	2	126.3	26.49*
				Within	195.5	41	4.77	
Muscular strength and Endurance	43.97	48.09	33.87	Between	1604.28	2	802.14	75.63*
				Within	434.87	41	10.61	
Serving	41.62	40.06	36.25	Between	228.19	2	114.09	81.95*
				Within	57.22	41	1.40	
Passing	31.96	29.71	26.00	Between	242.43	2	121.22	70.20*
				Within	70.79	41	1.73	

DISCUSSION ON FINDINGS

The results of the study indicate that the experimental group namely Swiss ball exercise and plyometric training programme had significantly improved the selected variables namely speed, flexibility, explosive power, muscular and endurance (physical variables) serving and passing (skill performance) when compared to the control group. From the results of the present investigation, it is also concluded that significant difference exists between experimental group and control group in developing all variables. The Swiss ball training had significantly improved speed, explosive power, flexibility, Muscular strength and endurance, serving and passing. Robert Stanton, (2004). The effect of short-term Swiss ball training on core stability and running economy.

The plyometric training had significant improved on explosive power of muscular strength and endurance Nicola A. Maffioletti (2002) Effect of combined electro stimulation and plyometric training on vertical jump height.

CONCLUSIONS

1.It was concluded that the Swiss ball training and plyometric training programmes enhanced the performance of physical and skill performance namely of (speed, flexibility, explosive power, Muscular strength and endurance, serving and passing) inter collegiate men volley ball players.

2.The Swiss ball training programme was more effective then the plyometric training in improving the physical and skill performance (speed, flexibility, serving and passing) of inter collegiate men volley ball players.

3.It was concluded that the Plyometric training programme was more effective than the Swiss ball training programme in improving (explosive power, Muscular strength and endurance) of inter collegiate men

volley ball players.

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