

EFFECT OF PLYOMETRIC WITH PILATES EXERCISES ON SELCETD SKILL RELATED PERFORMANCE VARIABLES AMONG VOLLEYBALL PLAYERS



PHYSICAL EDUCATION

Keywords :

T.RAVINDER

Lecturer, Sri Venkateswara B.P.Ed College , Dubbaka, Siddipet Dist, Telangana

ABSTRACT

Aim of the Study find out the assess The purpose of the study was to find out the effect of Plyometric training and Plyometric with Pilates exercises on selected skill related performance variables among volleyball players. volleying ability for selected male volleyball player. To achieve the purpose of this study, 60 inter collegiate male volleyball player were selected randomly from in an around Warangal district, Telangana, their age ranged from 18-23 years. They were divided into three equal groups and each group consists of 20 subjects. Group A underwent Plyometric training; Group B underwent Plyometric with Pilates exercise for three days per week for 12 weeks on alternative days and Group C acted as a control who did not involve any special training apart from the regular curricular activities. Due to some unavoidable problem one subject dropped from the middle of the combined Plyometric with Pilates exercises programme (n = 19)..

I. INTRODUCTION

Sports in the narrow sense can be defined as competitive activity, an active factor in physical education, which has taken shape mainly in the field of physical culture of a society, as a special sphere of identifying and comparing between potentials in a united form. Sports is worldwide phenomenon today, it has occupied a prominent place both in the physical as well as in the moral culture of a society. Sports allows the sportsmen to below off tension and to forget the problems for a while and also to go out and have good time no matter whatever pressures they may be under in their life (Jannes & Dobbins, 1984).

Sports Training

Sports training refer to a systematic process of repetitive progressive exercise, having ultimate goal of improving athletic performance. Training involves constriction of exercise programme to envelop an athlete for a particular athletic event. Thus, increasing skill and energy capacities take equal consideration. Through training the athlete is conditioned and is modeled, not only to match, but more importantly to over pass the special demand of the chosen sport, and the specific requirements of the athletic performance (Bompa, 1996).

Plyometric training

Volleyball is dominated by techniques which require two-foot takeoff jumps. Nevertheless, the speed of movement and the suddenness of the actions have forces volleyball players to use single foot takeoff jumps during serves, lifts, spikes, blocks and other techniques. Exercise involving two foot takeoff jumps mainly dominate training techniques.

Pilate's exercises

Pilates has become a popular form of exercise for conditioning and rehabilitation. Pilates has similarities with spinal stabilization training, both aiming to normalize spinal motor control and emphasizing Transversus abdominis (TrA) and Obliqueintern us abdominis (OI) recruitment (Richardson et al., 2004; Rydeard et al., 2006).Transverses abdominis and OI are activated during Pilates exercises when performed by experienced practitioners (Endleman & Critchley, 2008). Pilates training is claimed to increase activation of TrA and OI during athletic or daily living activities, which is said to improve sporting performance and reduce back pain (Muscolino & Cipriani, 2004).

Volleyball

William G. Morgan invented volleyball as a recreational activity to some business people. William Morgan was the physical director of the young men Christian association at Holyoke. He was later known as the father of volleyball. This game spread over the world war period. YMCA of Madras introduced volley ball game in India, during the early part of the 20th century. India took membership in Asian Volleyball federation in the year of 1949.

Pre requisites for a Volleyball Players

The important re requisites for a good performance in volleyball are the skills related to physical, psychomotor and psycho-physiological factors.

Abilities and Skills

Abilities and skills play an important role in physical education. Fleshman (1964) states the term ability refers to a more general trait of individual which has been inferred from certain response consistencies in certain kinds of task. These traits are long lasting and it is very difficult to change them.

The development process of certain abilities takes place mainly during childhood. There are certain abilities like colour vision that depend more genetic than on any other factor.

Statement of the Problem

The purpose of this study was to find out the effect of Plyometric training with Pilates exercises on selected motor ability physiological and Skill related Performance Variables among Volleyball Players.

The Objectives of the Study

- To determine the effect of Plyometric training on selected motor ability physiological and skill related performance variables among volleyball players.
- To determine the effect of Plyometric training with Pilates exercise on selected motor ability physiological and skill related performance variables among volleyball players.

Delimitations

The study was delimited to the following aspects.

- The study was delimited sixty Volley ball players from Warangal district.
- The study was delimited to intercollegiate level male Volleyball players
- The age was ranged from 18-23years.
- The duration of the experimental period was restricted to 12 weeks and the training was given for 3 session per week on alternate days
- The selected skill related variables were delimited to volleying ability.

Limitations

- The study was limited to the following aspects
- Certain factor like rational habits, life style, daily routine, diet and climatic conditions were not taken in to account in study.
- The subjects had engaged themselves in different type of game and the effect of these activities on their playing ability would not be controlled.
- The subject body type and economic status of the students were not being taken in to consideration.
- The previous experience of the subjects in the field of sports and games which might influence the training and data collection was not considered.
- Socio-economic back ground was not taken into consideration
- No motivational techniques which will here an effect on the result of the study were used during the testing and this was considered as a limitation.

II. METHODOLOGY

Methodology is a branch of logic concerned with the principles of reasoning. It is concerned with scientific and philosophical enquiry, through a particular science, a system

of method. This helps a person involved in a process to set a definite procedure in investigating through and orderliness in action, through and handling of ideas. In this chapter, the selection of subjects, selection of variables, selection of test, instrument reliability, reliability of data, subject reliability, experimental design, pilot study, orientation of subjects, collection of data, test administration, training programme and statistical technique employed for analyzing the data have been described.

Selection of Subjects

The purpose of the study was to find out the effect of Plyometric training and Plyometric with Pilates exercises on selected skill related performance variables among volleyball players. volleying ability for selected male volleyball player. To achieve the purpose of this study, 60 inter collegiate male volleyball player were selected randomly from in an around Warangal district, Telangana, their age ranged from 18-23 years. They were divided into three equal groups and each group consists of 20 subjects. Group A underwent Plyometric training; Group B underwent Plyometric with Pilates exercise for three days per week for 12 weeks on alternative days and Group C acted as a control who did not involve any special training apart from the regular curricular activities. Due to some unavoidable problem one subject dropped from the middle of the combined Plyometric with Pilates exercises programme (n = 19).

Selection of Variables

To determine the effect of Plyometric with Pilates exercises on selected skill related performance variables among volleyball players. The independent dependent variables such as

Independent variables

- Plyometric training
- Plyometric with Pilates exercises

Dependent variables:-Skill Related Variables

- Volleying ability

Selection of Tests

The purpose of the study to find out the effect of Plyometric training with Pilates exercise on selected skill related performance variables among volleyball players., the dependent variables such as volleying ability was selected on state level men volleyball players. The researcher had consulted with the experts, physical educational personnel, reviewed various literatures accessible to him and selected the following test items, which were standardized, appropriate and ideal for the selected variables. The criterion variables are presented in table 1.

Table – I: Selection of variable, test and unit of measurement

Sl. No.	Variables	Test	Unit of measurement
1	Volleying ability	Russell-Lange	In numbers

III. EXPERIMENTAL DESIGN

The random group design was used as experimental design. The purpose of the study was to find out the effect of Plyometric training Plyometric with Pilate’s exercises on selected skill related performance. For this purpose sixty male volleyball players were selected at random as subject from in an around Warangal district, Telangana. They were divided into three groups equally of twenty subjects each. Group ‘A’ underwent Plyometric training; Group ‘B’ underwent Plyometric with Pilates exercise and Group ‘C’ act as control group. The training was given three days per week alternate days for twelve weeks.

Collection of data

At the end of the treatment period, as post test, the subjects belong to the treatment groups namely Plyometric training group, Plyometric with Pilates exercise group and control group were tested on criterion variables volleying ability as such in the pre-test of the same. The collected data was processed with appropriate statistical tool and the detailed procedure of the same is given below.

Statistical Procedure

The data collected from experimental Group I, Group II and control group prior to and after completion of the training period were statistically analyzed for significant difference if any, by applying analysis of covariance (ANCOVA). The pre-test and post-test means of experimental Group I, II and the control groups were tested for significance by applying analysis of variance (ANOVA). After eliminating the influence of pretest, the adjusted post-test mean of experimental groups and the control groups were tested for significance by using analysis of covariance (ACOVA). All the data were analyzed using computer with SPSS statistically package. The level of confidence was fixed at 0.05 level for significance as the number of subjects were limited and also because the selected variables might fluctuate due to various extraneous factors as mentioned in the limitation. In addition to this Scheffes post-hoc test was employed when the ‘F’ ratio of the adjusted post test mean was significant to find out the paired mean difference, if any among the group the groups for each variables separately.

Table -I: Analysis of covariance for Pre test and Post test Data on volleying ability of Control group and Experimental groups

	PTG	PTPEG	CG	Sources of variance	Sum of square	df	Mean square	F’ ratio
Pre-test Mean	22.00	21.42	21.05	B	9.16	2	4.58	2.22
S.D.	1.29	1.38	1.60	w	115.58	56	2.06	
Post-test Mean	24.45	24.97	20.00	B	293.49	2	146.74	63.26*
S.D.	1.70	1.07	1.68	W	129.89	56	2.32	
Adjusted Post-test Mean	24.45	24.94	20.00	B	226.73	2	113.36	135.28*
				W	46.08	55	0.83	

*Significant at 0.05 level.

Table- I shows that the pre test means value on volleying ability for Plyometric training group (PTG), Plyometric training with Pilates exercise program (PTPEG) and control group (CG) are 22.00, 21.42 and 21.05 respectively. The obtained ‘F’ ratio value 2.22 for the pre test mean is lesser than the required table value 3.16 for 2 & 56 degrees of freedom at 0.05 level of significance. This reveals that there is no significant difference between the control and experimental groups on volleying ability before the commencement of the experimental training. It is inferred that the selection of subject for the three groups are successful.

The post test means on volleying ability of the Plyometric training group (PTG), Plyometric training with Pilates exercise group (PTPEG) and control group (CG) are 24.45, 24.97 and 20.00 respectively. The obtained ‘F’ ratio value 63.26 for the post test mean is greater than the required table value 3.16 for 2 & 56 degrees of freedom at 0.05 level of significance. It discloses that there is a statistically significant difference between the control and experimental groups on volleying ability after the experimental training.

The adjusted post test means on volleying ability of the Plyometric training group (PTG), Plyometric training with Pilates exercise group (PTPEG) and control group (CG) are 24.45, 24.94 and 20.00 respectively. The obtained ‘F’ ratio value 135.28 for the adjusted post test mean is greater than the required table value 3.17 for 2 & 55 degrees of freedom at 0.05 level of significance. It reveals that there is significant change on volleying ability as a result of the experimental training. Since the result revealed that there is a significant difference, the hypothesis is accepted. Since the ‘F’ ratio was found significant, the scheffe’s test was applied Post-hoc test to find out the paired mean differences if any and it was presented in table II.

Table -II: The Scheffe’s test for the differences between Paired mean of groups on volleying ability

PTG	PTPEG	CG	MD	CI
24.45	24.94		0.49*	0.206
24.45	-	20.00	4.45*	0.203
-	24.94	20.00	4.94*	0.206

*Significant at 0.05 level.

The above II table shows that the significance differences between adjusted paired mean values on volleying ability for Plyometric training group (PTG), Plyometric with Pilates exercise group (PTPEG) and control groups (CG). The mean differences between the Plyometric training group (PTG) and Plyometric training with Pilates exercise program group (PTPEG) are 0.49, which is significant at 0.05 level of confidence interval. In the comparison between the Plyometric training group (PTG) and control group (CG) the difference is 4.45, which is significant at 0.05 level of confidence interval. The mean differences between the Plyometric training with Pilates exercise group (PTPEG) and control group (CG) is 4.94, which is significant at 0.05 level of confidence interval. This indicates that there was a significant difference among three groups on volleying ability ability. However the improvement was in favor of Plyometric training with Pilates exercise group. The comparison of pre post and adjusted post

test mean values on volleying ability ability for Plyometric training group, Plyometric training with Pilates exercise group and control group are graphically presented in figure -10

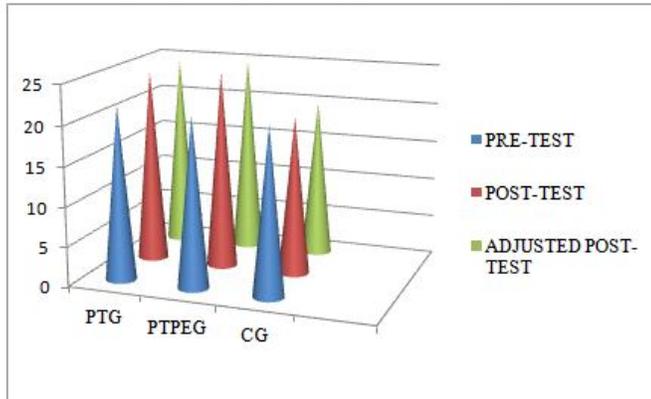


Figure 1 : Mean score of pre test, post test and Adjusted post test of Plyometric training group (PTG), Plyometric training with Pilates exercise group (PTPEG) and control group (CG) on volleying ability.

Discussion on Hypotheses

In the hypotheisis researcher stated that there might be a significant improvement in selected skill related performance variables among Volleyball player due to Plyometric training and compound training programme. The results and discussion on hypothesis showed that:

1. It was hypothesized that there would be significant differences due to the influence of Plyometric training with Pilates exercise on slected skill related performance variables such as service ability and volleying ability when compared with control group. Hence the researcher sixth hypothesis accepted.
2. There was significant difference between Plyometric training and combined Plyometric with Pilates exercise on volleying ability. Hence the researcher seventh hypothesis accepted. Where as in case of breath holding time its show no significant difference between Plyometric training and combined Plyometric with Pilates exercise, hence the research hypotheses is rejected.

DISCUSSION ON FINDINGS

Volleying Ability

The result of the present study indicated that volleying ability has significantly improved by Plyometric training and combined Plyometric with Pilates exercise. The result of the study was alien with the following studies conducted by Gortsila et al., (2013) recommended that ten weeks of different training surfaces (hard or sand surface) significantly improve the overhead and forearm passing accuracy of volleyball players. Nessic et al., (2013) concluded that volleyball training significantly improve the volleying ability of volleyball players. Natarajan (2013) suggested that isolated and combined Swiss ball and flexibility training significantly improve the skill performance of volleyball players. Sharada (2014) recommended that specific weight training programme

significantly improve the skill performance ability of the volleyball players

CONCLUSIONS

On the basis of the interpretation of data, the following conclusions were drawn from the study.

1. Volleying ability was significantly improved by the Plyometric training and Plyometric training with Pilates exercise group when compared with control group.
2. Combined Plyometric training with Pilates exercise group is better than the isolated Plyometric training group on Volleying ability.

REFERENCES

- [1] Anderson B (2000) Introduction to Pilates-based rehabilitation north Phys. Therapy Clinic North America, 9:395-410
- [2] Arnold Schwarzenegger and bill Robins (1981) Arnolds body building for men Fireside Book, (New York ; Simon and Schuster, inc.), p.13.
- [3] Chaterjee (2003) "Viva Voce on Medical Physiology (Practical)" Academic Publisher Clarke Harrison H. (1967) Application to Measurement to Health and Physical Education (Englewood Cliffs, New Jersey: Prentice- Hall Inc., P.290.
- [4] Hardayalsingh, (1995) Science of sports training, New Delhi: D.V.S. Publishers Harrison Clarke (1996) Application of measurement to health and physical education, p.174
- [5] Mathew, Donald k., (1973), Measurement in Physical Education, Philadelphia: W.B. Saunders Company.
- [6] Matveyev, L (1981) fundamental of Sports Training, Moscow: Progress Publishers, p.11 Movement Therapies, 8:15-24.