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Effect of medium intensity plyometric training with pilates exercises on selected physiological parameters of men volleyball players

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Abstract

This study was investigated the impact of medium intensity plyometric training with pilates exercises on selected physiological parameters of men volleyball players. To achieve the purpose of the study 30 men volleyball players were selected from DB Jain College of arts and science. The subjects were randomly assigned to two equal groups (n=15). Group- I underwent medium intensity plyometric training with pilates exercises (MIPWPT) and group - II was acted as control group (CG). The medium intensity plyometric training with pilates exercises was given to the experimental group for 3 days per week (Monday, Wednesday and Friday) for the period of twelve weeks. The control group was not given any sort of training except their routine work. The anaerobic performance variables of vo2 max and resting pulse rate before and after training period. The data collected from the subjects was statistically analysed with 't' test to find out significant improvement if any at 0.05 level of confidence. The result of the present study medium intensity plyometric training with pilates exercises significantly improved selected physiological variables of men volleyball players.

Keywords: Vo2 max, resting pulse rate, medium intensity plyometric training with pilates exercises, men volleyball players

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. Volleyball is a dynamic, fast-paced game. The purpose of strength training for volleyball is not to build big muscles, but to develop the physical attributes necessary to improve a player's performance. So strength training is very important to volleyball and should not be developed independently of other abilities such as agility, quickness and endurance. When watching a great volleyball player, the one word that comes to the mind is "quick". Everything the player does is short and quick. There are no long drawn out motions like sprinting in other sports. There is simply a succession of explosive bursts that keep the ball in play and control the flow of the game. The quickness that must be focused on, when training a volleyball player is not only quickness from side to side and front to back, but also quickness from up to down. Unique from other sports, volleyball players must be able to quickly change direction from the upward motion of a vertical jump to the downward motion of a point-saving dig (or vice versa). One of the most crucial phases of volleyball is how players perform at the net. To be successful, teams must be able to control play at the net both offensively and defensively. Since this is the case, two of the most valued traits in a volleyball player are height and jumping ability. Both of these traits allow players to greatly influence the game because they can more easily go where the ball is inevitably going...Up! Since there is no way to train height (yet), the focus of training

falls squarely on jumping ability. Developing an athlete's jumping skills allows them to elevate quicker and higher in order to take better shots themselves and to block more of their opponent's shots. Also, since the same skills that send an athlete up also create quick first steps, improving jumping skills will also positively impact other areas of a volleyball player's performance (Stojanovic, 2004) [1].

Methodology

The purpose of this study was to find out the effect of medium intensity plyometric training with pilates exercises on physiological variables for men volleyball players. To achieve the purpose of the study, 30 men volleyball players were randomly selected from the DB Jain College of arts and science. Their age ranged from 18 to 25 years. They

were divided into two equal groups consist of 15 each named control group and experimental group. The investigator did not made any attempt to equate the groups. The control group was not given any treatment and the experimental group was given medium intensity plyometric training with pilates exercises for three days a week. The experimental group was given training for the period of eight weeks of plyometric training.

Criterion measures

S.no	Variables	Test items	Unit of measurements
1.	Vo2 Max	cooper 12 minutes test	In ml/kg
2.	Resting Pulse Rate	Bio-monitor	In seconds

Table 1: Computation of 't' ratio on selected parameters on experimental group and control group (Scores in numbers)

Group	Variables	Mean	N	Std. Deviation	T ratio	
Experimental Group	Vo2 max	Pre test	42.38	15	2.65	13.40*
		Post test	45.64	15	3.68	
	Resting Pulse Rate	Pre test	76.81	15	2.33	
		Post test	74.99	15	3.55	
Control group	Vo2 max	Pre test	42.24	15	0.45	0.94
		Post test	42.02	15	1.02	
	Resting Pulse Rate	Pre test	76.28	15	0.09	
		Post test	76.10	15	0.87	

*significant level 0.05 level degree of freedom (2.14, 1 and 14)

Table I reveals the computation of mean, standard deviation and 't' ratio on selected vo2 max and resting pulse rate of experimental group. The obtained 't' ratio on explosive power and speed were 13.60 and 6.89 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained 't' values were greater than the table value it was found to be statistically significant.

Further the computation of mean, standard deviation and 't' ratio on vo2 max and resting pulse rate control group. The obtained 't' ratio on vo2 max and resting pulse rate were 0.94 and 0.72 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained 't' values were lesser than the table value it was found to be statistically not significant.

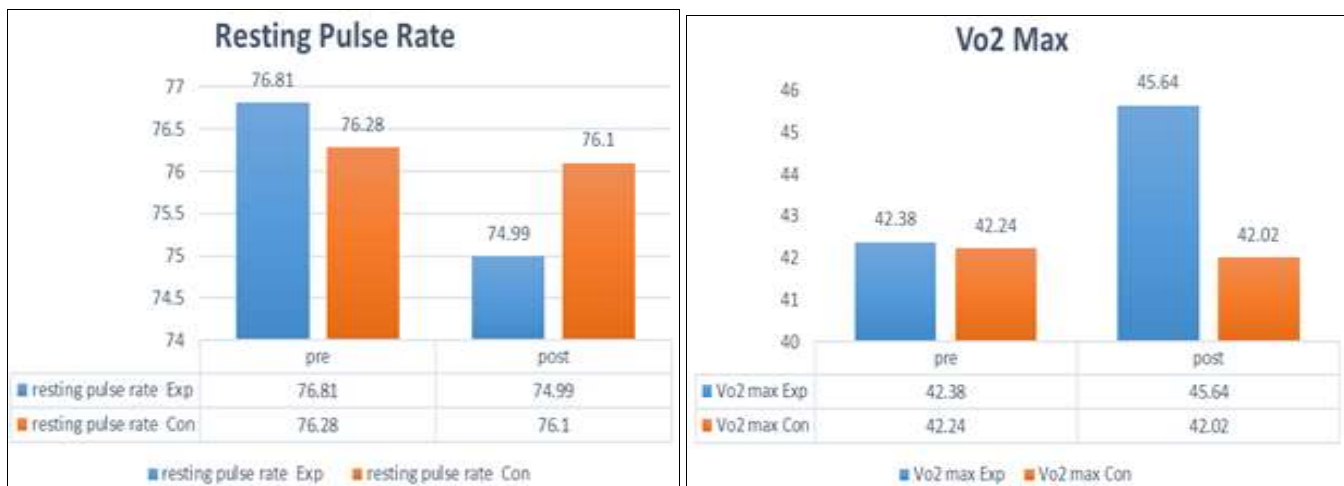


Fig 1: Bar Diagram shows the mean values of pre and post test on vo2 max and resting pulse rate of control and experimental group

Discussions of Finding

The present study experimented the effect of medium intensity plyometric training with pilates exercises on vo2 max and resting pulse rate of volleyball players. The results of this study indicated that the medium intensity plyometric training with pilates exercises on vo2 max and resting pulse rate.

The findings of the present study had similarity with the findings of the investigation referred in this study. Meylan

et al., (2009) [3] experimented short term plyometric programme had a beneficial impact on aerobic performance such as change of direction and jumping. Matavulj *et al.*, (2001) [2] reported that limited amount of plyometric training could improve jumping performance in elite junior basketball players.

The results of the present study indicates that the medium intensity plyometric training with pilates exercises programme is effective method to improve vo2 max and

resting pulse rate of volleyball players. The discrepancy between the results and the results of previous studies might be attributed to several reasons, such as the training experience level of the subjects, the training programme, the intensity used and the duration of the training programme.

Conclusion

Based on the results, the following conclusions have been arrived.

It was concluded that eight weeks of medium intensity plyometric training with pilates exercises programme produced significant improvement on vo2 max and resting pulse rate of volleyball players.

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