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Effect of high intensity plyometric training with mat Pilates exercises on selected physical fitness variables of men volleyball players

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Abstract

This study was investigated the impact of high intensity with pilates exercises on selected physical fitness variables of men volleyball players. To achieve the purpose of the study 40 men volleyball players were selected from Coimbatore district. The subjects was randomly assigned to two equal groups (n=20). Group- I underwent high intensity with pilates exercises (HIWPEG) and group - II was acted as control group (CG). The high intensity 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 physical parameters of leg explosive power (standing broad jump test) muscular strength endurance (sit-ups) 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 high intensity with pilates exercises significantly improved leg explosive power and muscular strength endurance and of men volleyball players.

Keywords: High Intensity with pilates exercises, leg explosive power, muscular strength endurance and men volleyball players

Introduction

Volleyball is a 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 been three hits or contacts to return the ball. To play volleyball one has to be good at vertical jump, known as explosive power. A volley match can we 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 action 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 action 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 points. Volleyball is a dynamic, fast-paced game. The purpose of strength training for volleyball is not to develop the physical attributes necessary to improve a player's performance. 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, 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. One of the most crucial phases of volleyball is how players perform at the net. To be successful, terms must be able to control play at the 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 height, the focus of training falls squarely on jumping ability. It includes beginner's program as well as all the necessary drills and exercise to improve strength, speed, agility, explosive power, conditioning and much more. Ply metrics are include as your progress through the program so this workout can be incorporated with it

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or performed during the year (Gabbet, 2008)^[7].

High Intensity Plyometric Training

Plyometric exercises are used to develop explosive power. In plyometric exercise, overload is applied to skeletal muscle in a manner that rapidly stretches the muscle (an eccentric or stretch phase) immediately prior to the concentric or shortening phase of action. It is this "pre stretch" that activates the muscles natural elastic recoil elements. Research has indicated that with plyometric training, greater power will be produced if the depth and rate of the movement is short and rapid rather than large and slow. This means that bounding/jumping should be done quickly and depth jump heights should not be too large. If the counter movement is performed quickly, the energy that's stored can be used to aid in jumping higher. If the counter movement is performed too slowly, the energy will be lost. The intensity of volleyball exercises or jumping drills refers to how much stress is placed on muscles, connective tissues, and joints.

Pilates Exercises

Pilates exercise is a good conditioning and cross-training program for runners. As running exerts great stress on the lower back and lower joints, any imbalance in the muscular usage of the legs and hips can cause pain and injury to a runner. Pilates is very effective at developing the stabilization muscles around the pelvis and strengthening the core. Pilates also highlights the awareness of good posture so that your upper body is more upright, leading to a better alignment and less prone to injury while running. Pilates improves flexibility and range of motion without compromising strength as you are strengthening and stretching your muscles simultaneously. Especially if you run on uneven ground or trails, a strong and flexible core will protect your back and absorb shock impact

that comes with every step. It is important to balance your body and train muscles that may be neglected when you do your runs.

Methodology

In this study the selected 40 men volleyball players selected from Loyola college. The subjects were randomly assigned in to two equal groups namely, high intensity with pilates exercises (HIWPEG) (n=20) and Control group (CG) (n=20). The respective training was given to the experimental group the 3 days per weeks (alternate days) for the training period of twelve weeks. The control group was not given any sort of training except their routine. The evaluated physical parameters were leg explosive power was assessed by standing broad jump test and the unit of measurement was in metres, muscular strength endurance was assessed by sit-ups the unit of measurements was in counts.

Training Programme

The training programme was lasted for 60 minutes for session in a day, 3 days in a week for a period of 12 weeks duration. These 60minutes included 10 minutes warm up, 40 minutes for traditional training and 10 minutes and warm down. The equivalent in high intensity with pilates exercises is the length of the time each action in total 3 day per weeks (Monday, Wednesday and Friday).

Statistical Analysis

The collected data before and after training period of 12 weeks on the above said variables due to the effect of traditional training was statistically analyzed with ‘t’ test to find out the significant improvement between pre and posttest. In all cases the criterion for statistical significance was set at 0.05 level of confidence. (P < 0.05)

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

Group	Variables	Mean	N	Std. Deviation Pre	Std. Deviation Post	T ratio	
Experimental Group	Leg explosive power	Pre test	1.46	20	0.23	0.19	3.15*
		Post test	1.62	20			
	Muscular strength	Pre test	23.73	20	1.27	1.18	
		Post test	26.53	20			
Control group	Leg explosive power	Pre test	1.46	20	0.23	0.26	1.14
		Post test	1.47	20			
	Muscular strength	Pre test	23.73	20	1.27	1.29	
		Post test	23.66	20			

*significant level 0.05 level degree of freedom (2.09, 1 and 19)

Table I reveals the computation of mean, standard deviation and ‘t’ ratio on selected physical parameters namely leg explosive power and muscular strength experimental group. The obtained ‘t’ ratio on leg explosive power and muscular strength were 3.15 and 12.58 respectively. The required table value was 2.09 for the degrees of freedom 1and 19 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 selected physical parameters namely leg explosive power and muscular strength control group. The obtained ‘t’ ratio on leg explosive power and muscular strength were 1.14 and 1.00 respectively. The required table value was 2.14 for the degrees of freedom 1and 19 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.

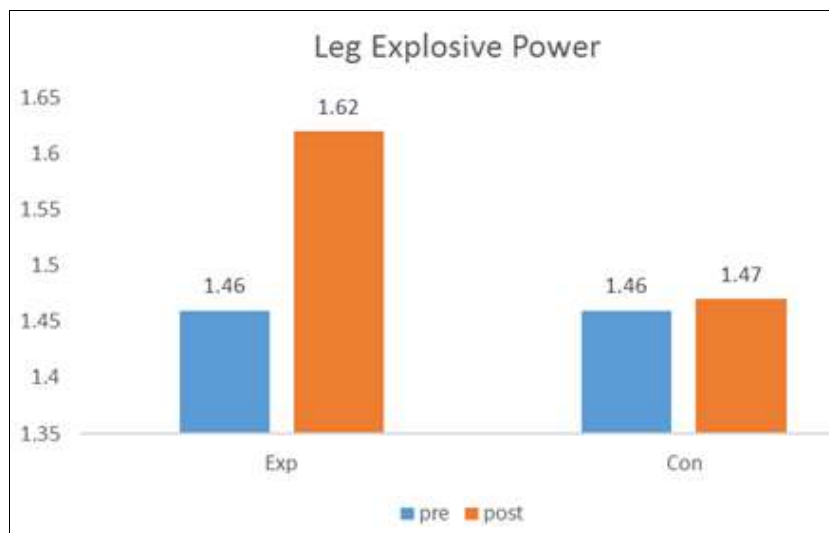


Fig 1: Bar diagram showing the mean value on Leg explosive power of volleyball players on Experimental and Control group (Scores in numbers)

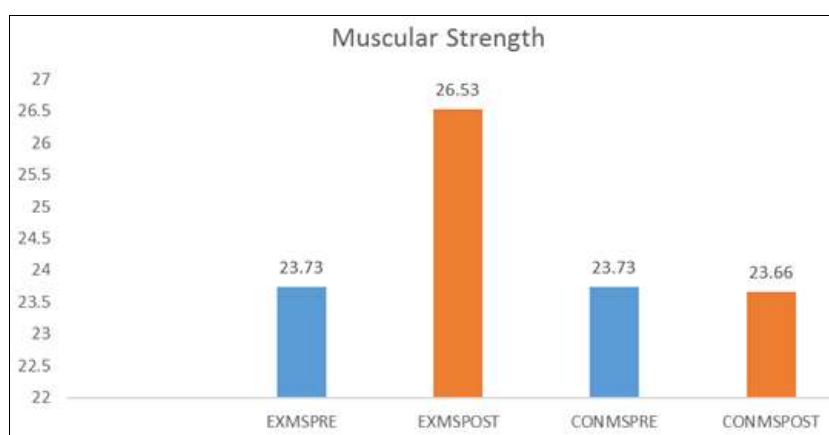


Fig 2: Bar diagram showing the mean value on muscular strength of volleyball players on Experimental and Control group (Scores in numbers)

Discussions and findings

The present study experimented the effect of high intensity with pilates exercises on selected physical parameters of men volleyball players. The result of the study shows that the high intensity with pilates exercises improved the leg explosive power and muscular strength endurance. The findings of the present study had similarity with the findings of the investigations referred in this study. However, there was a significantly changes of subjects in the present study the leg explosive power and muscular strength endurance was significantly improved of subject in the group may be due to the in traditional training.

Sheppard, *et al.*, (2012) ^[4] assisted jumping on vertical jump height in high-performance significantly improvement of volleyball players.

Perrier *et al.*, (2008) ^[3] reported that Athletes in sports requiring lower-extremity power should use stretching techniques in warm-up to enhance explosive power while improving performance.

Taskin *et al.*, (2009) ^[9] suggested that the circuit based plyometric training is effective in improving muscle strength and endurance, and in decreasing the fatigue of the subject thereby improving the subject's ability to walk.

The result of the present study indicates that the high intensity with pilates exercises programme is effective method to improve muscular strength endurance and leg explosive power of volleyball players.

Conclusion

1. It was concluded that 12 weeks of high intensity with pilates exercises significantly improved the leg explosive power of men volleyball players.
2. It was concluded that 12 weeks of high intensity with pilates exercises significantly improved the muscular strength of men volleyball players.

Reference

1. Bazett DM, Jones M. Sprint and vertical jump performances are not affected by six weeks of static hamstring stretching. Department of Exercise and Sports Science. 2007;39(10):1825-31.
2. Carvalho FL, *et al.* Acute effects of a warm-up including active, passive, and dynamic stretching on vertical jump performance. Journal of Strength and Conditioning Research. 2011;25(11):2991-8.
3. Perrier E, *et al.* Athletes in sports requiring lower-extremity power should use stretching techniques in warm-up to enhance flexibility while improving performance. 2008.
4. Sheppard JM, *et al.* The effect of assisted jumping on vertical jump height in high-performance volleyball players. Journal of Strength and Conditioning Research. 2012;26(6):1475-80.
5. Singh Raspal *et al.* An evaluation of selected physical fitness variables of kabaddi, kho-kho and wrestling players from Haryana and Punjab. Research Journal of

- Physical Education Sciences. 2013;1(2):1-4.
6. Trajković N, *et al.* The effects of 6 weeks of preseason skill-based conditioning on physical performance in male volleyball players. *Journal of Strength and Conditioning Research.* 2011;25(6):1686-94.
 7. Gabbett T, *et al.* Changes in skill and physical fitness following training in talent-identified volleyball players. *International Journal of Sport Psychology Research.* 2008;20:29–35.
 8. Chimera NJ. Effects of Plyometric Training on Muscle-Activation Strategies and Performance in Female Athletes. *Journal of Strength and Conditioning Research.* 2009;25(9):1442-1543.
 9. Taşkin H. Effect of circuit-based plyometric training on sprint-agility and anaerobic endurance. *Journal of Strength and Conditioning Research.* 2009;23(6):1803-10. doi: 10.1519/JSC.0b013e3181b3dfc0.
 10. Sedano S Campo. Effects of Lower-Limb Plyometric Training on Body Composition, Explosive Strength, and Kicking Speed in Female Soccer Players. *Journal of Strength and Conditioning Research.* 2012;23(6):1714-1722.
 11. Meikis L, Wicker P, Donath L. Effects of Pilates training on physiological and psychological health parameters in healthy older adults and in older adults with clinical conditions over 55 years: A meta-analytical review. *Frontiers in Neurology.* 2021;1877.
 12. Lee JC. The Effects of 8-week Pilates Mat Exercises on Body Composition and Level of Satisfaction of Female College Students. *International Journal of Advanced Smart Convergence.* 2018;7(3):119-129.