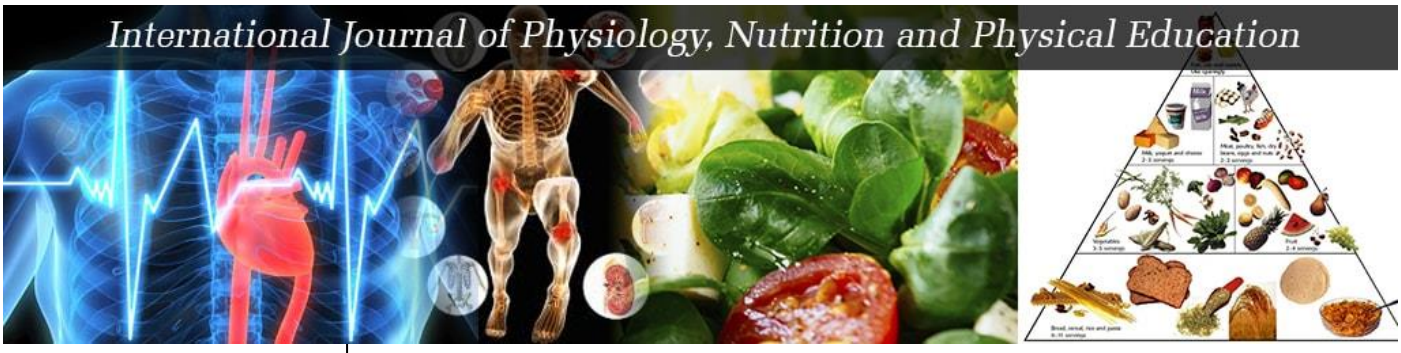

ISSN: 2456-0057
IJPNPE 2018; 3(2): 139-141

www.journalofsports.com
Received: 16-05-2018
Accepted: 17-06-2018

S Shanmuga Priya,
Ph. D Research Scholar, Department of Physical Education, Bharathiar University, Coimbatore, Tamil Nadu, India

Dr. R Annadurai
Assistant Professor, Department of Physical Education, Bharathiar University, Coimbatore, Tamil Nadu, India

Correspondence
S Shanmuga Priya,
Ph. D Research Scholar, Department of Physical Education, Bharathiar University, Coimbatore, Tamil Nadu, India

Influence of high intensity training and stretching exercise on physical fitness variables of inters collegiate volleyball players

S Shanmuga Priya and Dr. R Annadurai

Abstract
This study to find out the isolated and combined High intensity muscle exercise and stretching exercise on Physical fitness variables of inter collegiate volleyball players. The subjects selected for this study forty women volleyball players (N = 40) age between 19 to 25 years from Bharathiar University affiliated college teams Coimbatore. In this design, subjects are assigned to the experimental and control group systematic sample and are given pre-test on the dependent variables for forty women volleyball players and divided into two equal groups of 20 each. Group-I consider as High Intensity Muscle Exercise (HIME) and Group-II consider as combine as High Intensity Muscle Exercise with Stretching exercise (CHIWSE). The collected data were statistically analyzed with paired sample't' test to find out the significant improvement between pre and posttest means the groups. It was further concluded that Combine as High Intensity Muscle Exercise with Stretching exercise (CHIWSE) showed greater improvements on selected Physical Fitness variables.

Keywords: Speed, muscular strength and endurance, leg explosive power, flexibility

Introduction

Volleyball is a worldwide popular game and ranks third as a recreational team sport. It is one of the few popular games that originated from the United States. The object of the game is to keep the ball in flight, going back and forth over the net without it touching the floor. Volleyball has been described as an 'interval' sport with both anaerobic and aerobic components. At the higher skill levels, technical performance may be limited by physical characteristics as well as physical fitness, and performance characteristics. Volleyball is an Olympic team sport in which two teams of six active players, separated by a high net, each trying to score points by trying to ground the ball on the other team's court under organized rules. The complete rules of volleyball are extensive, but in general, play proceeds as follows: Points are scored by grounding the ball on the opponents' court, or when the opponent commits a fault. The first team to reach 25 points wins the set and the first team to win three sets wins the match. Teams can contact the ball no more than three times before the ball crosses the net and consecutive contacts must be made by different players. The ball is usually played with the hands or arms, but players can legally strike or push (short contact) the ball with any part of the body. Spiking the ball is easy to hit and has a fair advantage that the other team will not be able to hit back.

Volleyball is a game of constant action and requires continuous adaptations to changing situations by the team as a whole as well by the individual players. Although it is a team game, there is ample room for players to display their brilliance through individual performance with the ball as well as through the team play involving improvisation and tactical knowledge. One of the greatest strengths of the game is its simplicity. At its crudest level all that are needed is a ball with something to act as net. No other sport is so easily available and so immediately inspiring. The most exciting quality of volleyball is that it is a quick moving and a fast flowing game. The simplicity of the rules and familiarity of the tactical moves make every movement of the play immediately unpredictable. Strength is important for volley ballers because the spiker must spike the ball heavily, which can be done only with the help of the strength of his arms and legs. Since the game takes a considerable amount of time to finish, a team has to play

about an hour or more to complete the whole five sets. So volley ballers must have a good cardio respiratory endurance to play efficiently even during the fifth set.

High Intensity Training for Players (Hit)

In volleyball performance depends on well-developed physical qualities, which are agility, acceleration, strength, and vertical jumping, and superior anticipation and decision-making skills. Volleyball performed on an area requires high-speed whole body movements. Many of these are in response to the motion of a ball, opposition players, or team-mates. Thus, volleyball is an intermittent sport that combines active and passive phases of play and requires players to compete in frequent short bouts of high-intensity exercise, followed by periods of low-intensity activity Also, volleyball is an intermittent sport that vertical jump is a fundamental part of the spike, the block, and the topspin and floating serves. The most effective spike in volleyball is likely dependent on vertical jump height and the body position adopted before ball contact. Specifically, a high vertical jump in volleyball is a critical component in hitting and blocking. Indeed, the vertical jump is a common tool used to assess explosive strength in volleyball athletes. During volleyball competitive, players are involved in defensive and offensive jumping activities where power, strength, agility, and speed are required. Generally, athletic performance coaches are responsible for the improvement of these movements. Speed, agility, and power are important components of sport performance. Agility performance has been determine many ways, including ‘‘the whole body quick/accurate movement in response to a stimulus’’ and ‘‘the ability to change direction, as well as to start and stop quickly’’, Also, agility has been reported to be influenced by explosive strength, balance, muscular coordination, and flexibility. Agility deals with the changes in direction and the ability to effectively couple eccentric and concentric actions in ballistic movements. The cognitive components involved in tasks that have traditionally been described as agility differ greatly from tasks that contain significant uncertainty of time or space (e.g. reacting to a spike in volleyball).

Stretching exercise for volleyball players

Stretching is a form of physical fitness exercise in which a specific muscle or tendon is deliberately flexed or stretched in order to improve the muscle's felt elasticity and achieve comfortable muscle tone. There are four different types of stretching: ballistic, dynamic, proprioceptive neuromuscular facilitation, and static stretching. Ballistic stretching is a rapid bouncing stretch in which a body part is moving with momentum that stretches the muscles to a Maximum. Muscles respond to this type of stretching by contracting to protect itself from over extending. Dynamic stretching is a walking or movement stretch. By performing slow controlled movements through full range of motion, a person reduces risk of injury. Proprioceptive neuromuscular facilitation (PNF) is a type of stretch for a particular muscle and its specific job, so resistance should be applied, then the muscle should be relaxed. Static stretching is a type of stretch whereby a person stretches the muscle until a gentle tension is felt and then holds the stretch for thirty seconds or until a muscle release is felt, without any movement or bouncing.

Methods

The subjects selected for this study forty women volleyball players (N = 40) age between 19 to 25 years from Bharathiar University affiliated college teams Coimbatore. In this design, subjects are assigned to the experimental and control group systematic sample and are given pre-test on the dependent variables for forty women volleyball players and divided into two equal groups of 20 each. Group-I consider as High Intensity Muscle Exercise (HIME) and Group-II consider as Combine as High Intensity Muscle Exercise with Stretching exercise (CHIWSE).

Result and Discussion

Table 1: Significance of mean gains & losses between pre and post test scores on selected Physical fitness variables of combined as high intensity muscle exercise with stretching exercise (CHIWSE)

S. No	Variables	Pre-Test Mean	Post-Test Mean	Mean difference	Std. Dev (±)	σ DM	‘t’ Ratio
1	Speed	8.89	8.52	0.37	0.24	0.07	5.86*
2	Muscular Strength and Muscular strength and endurance	21.90	27.20	-5.3	2.59	0.58	9.31*
3	Leg explosive power	1.84	2.21	-0.37	0.09	0.01	8.19*
4	Flexibility	8.76	11.36	-2.8	0.18	0.29	3.45*

An examination of table-1 indicates that the obtained‘t’ ratios are 5.86, 9.31, 8.19, and 3.45, for its Muscular Strength and endurance, Leg explosive power, Flexibility respectively. The obtained‘t’ ratios on the selected variables are found to be greater than the required table value of 2.09 at 0.05 level of significance for 19 degrees of freedom. So it is found to be significant. The results of this study showed that statistically significant and explained its effects positively.

Table 2: Significance of mean gains & losses between pre and post test scores on selected Physical fitness variables of high intensity muscle exercise (HIME)

S No	Variables	Pre-Test Mean	Post-Test Mean	Mean difference	Std. Dev (±)	Σ DM	‘t’ Ratio
1	Speed	9.87	8.64	1.23	0.24	0.05	3.63*
2	Muscular Strength and Muscular strength and endurance	22.76	27.28	-4.76	0.94	0.21	20.17*
3	Leg explosive power	1.73	2.04	-0.31	0.21	0.04	3.42*
4	Flexibility	4.00	9.00	5.00	1.25	0.87	15.44*

An examination of table-2 indicates that the obtained‘t’ ratios are 3.63, 20.17, 3.42 and 15.44 for its Muscular Strength and endurance, Leg explosive power, Flexibility respectively. The obtained‘t’ ratios on the selected variables are found to be greater than the required table value of 2.09 at 0.05 level of significance for 19 degrees of freedom. So it is found to be

significant. The results of this study showed that statistically significant and explained its effects positively.

Conclusion

1. It was concluded that individualized effect of High Intensity Muscle Exercise (HIME), showed a statistically significant positive sign over the course of the treatment period on selected physical fitness variables of inter collegiate women volleyball players.
2. It was further concluded that Combine as High Intensity Muscle Exercise with Stretching exercise (CHIWSE) showed greater improvements on selected physical fitness variables of inter collegiate women volleyball player as compared to their performance with either High Intensity Muscle Exercise (HIME).

Reference

1. Kinnunen JV1, Piitulainen H, Piirainen JM. Neuromuscular adaptations to short-term high-intensity interval training in female ice hockey players. J Strength Cond Res. 2017. doi: 10.1519/JSC.0000000000001881.
2. Hornbuckle LM1, McKenzie MJ2, Whitt-Glover MC3. Effects of high-intensity interval training on cardiometabolic risk in overweight and obese African-American women: a pilot study. Ethn Health. 2017; 1:1-15. doi:10.1080/13557858.2017.1294661.
3. Robinson MM1, Dasari S2, Konopka AR1, Johnson ML1, Manjunatha S1, Esponda RR1. *Et al*. Enhanced Protein Translation Underlies Improved Metabolic and Physical Adaptations to Different Exercise Training Modes in Young and Old Humans. Cell Metab. 2017; 7: 25(3):581-592. doi: 10.1016/j.cmet.2017.02.009.
4. Tolfrey K1, Zakrzewski-Fruer JK2, Smallcombe J1. Metabolism and Exercise during Youth. Pediatr Exerc Sci. 2017; 29(1):39-44. doi: 10.1123/pes.2017-0015.
5. Nayebifar S1, Afzalpour ME2, Kazemi T3, Eivary SH4, Mogharnasi M2. The effect of a 10-week high-intensity interval training and ginger consumption on inflammatory indices contributing to atherosclerosis in overweight women. J Res Med Sci. 2016; 7: 21-116. doi:10.4103/1735-1995.193507. e Collection 2016.
6. Ramírez-Vélez R1, Tordecilla-Sanders A, Téllez-T LA, Camelo-Prieto D, Hernández-Quiñonez PA, Correa-Bautista JE. Et al. Effect of Moderate versus High-Intensity Interval Exercise Training on Heart Rate Variability Parameters in Inactive Latin-American Adults: A Randomised Clinical Trial. J Strength Cond Res. 2017. doi:10.1519/JSC.0000000000001833.
7. O'Leary TJ1, Collett J1, Howells K1, Morris MG1, 2. Endurance capacity and neuromuscular fatigue following high vs moderate-intensity endurance training: a randomised trial. Scand J Med Sci Sports. 2017, 16. doi: 10.1111/sms.12854.
8. Oh S, So R, Shida T, Matsuo T, Kim B, Akiyama K, *et al*. High-Intensity Aerobic Exercise Improves Both Hepatic Fat Content and Stiffness in Sedentary Obese Men with Nonalcoholic Fatty Liver Disease. Sci. Rep. 2017; 22(7):43029. doi:10.1038/srep43029.