

INFLUENCES OF YOGIC PRACTICES AND STEP AEROBICS ON RANGE OF MOVEMENT AMONG MEN VOLLEYBALL PLAYERS

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ABSTRACT

The purpose of the study was to find out the influences of yogic practices and step aerobics on range of movement among men volleyball players. To achieve the purpose of the present study, sixty volleyball players were selected as subjects at random from Pondicherry, India and their ages ranged from 18 to 23 years. They were divided into four equal groups of fifteen each ($n=15$) at random. Group-I performed yogic practices, group-II performed step aerobics training, group-III assigned combined yogic practices and step aerobics and group-IV was act as control. The initial testing took place before the beginning of the training while the final testing was performed after 12 weeks of intervention with the yogic practices and step aerobic training methods on range of movement. To find out the pre and post test mean differences paired 't' test was applied. Further, percentage of improvement was also calculated. The data collected from the four groups prior to and post experimentation on range of movement was statistically analyzed to find out the significant difference if any, by applying the analysis of covariance (ANCOVA). Whenever an obtained 'F' ratio value was found to be significant for adjusted post test means, the Scheffe's test was applied as post hoc test. In all the cases the level of confidence was fixed at 0.05 level for significance. In response to yogic practices (30.30%), step aerobics (15.91%) and combined training (18.58%) the men volleyball player's range of movement was improved greatly.

Key Words: Yogic practices, Step aerobics, Range of movement, Volleyball players

INTRODUCTION

Volleyball is currently considered to be a dynamic game, during which low intensity and high intensity movements alternate. The high intensity movements include jumps, shuffles and rapid changes in direction (Calleja-Gonzalez et al., 2019). The offensive and defensive skills in volleyball are characterized as double-leg take-off and double-leg or single-leg landings (Tillman et al., 2004a; Lobietti et al., 2010; Zahradnik et al., 2017). Therefore, a corresponding level of physical conditioning is required to effectively cope with the load in the long term. This physical conditioning is achieved with regular physical activity, which is performed during the training process. The long-term preparation should influence the development of specific physical skills as well as the somatic parameters of the volleyball players.

Fitness and conditioning are important elements to success in the game of volleyball. The player's energy will be drained toward the end of a volleyball match if the fitness level is

lacking. In games where two teams are evenly matched, the one with the best overall conditioning often prevails. Fatigue in a volleyball match can lead to mistakes, and mistakes can lead to a loss.

There are different types of training methods for the development of performance abilities of volleyball players. Understanding these training methods and the effectiveness of the training methods to suit a particular game and game situations is a challenging task for any coach or player. This helps coaches and athletes prevent injury and overtraining while trying to maximize their performance variables, and analyze the strengths and weaknesses related to their specific training programs.

Though many types of trainings prevail to develop physical fitness and game performance the role of yogic practices and step aerobics training is an undisputed one. Lot of researches had been carried out on the effects of yogic practices and step aerobics training, but still the bone of contention is about the duration to get the maximum benefit. Experts differ in their views based on their studies. Hence, the purpose of the present study was to evaluate the effect of yogic practices and step aerobics training on range of movement of volleyball players.

METHODOLOGY

Subject and Variable

To achieve the purpose of the present study, sixty volleyball players were selected as subjects at random from Pondicherry, India and their ages ranged from 18 to 23 years. They were divided into four equal groups of fifteen each (n=15) at random. Group-I performed yogic practices, group-II performed step aerobics training, group-III assigned combined yogic practices and step aerobics and group-IV was act as control. The chosen dependent variable range of movement was assessed by conducting sit and reach test.

Training Programme

The experimental group-I performed yoga training six days in a week for 12 weeks. The standing series of asanas like Suriyanamaskar, Tadasana, Trikonasana, Utkatansana, Utthita Parsvakonasana and Cakrasana; long sitting series of asanas like Yoga Mudra, Paschimottanasana and Ardha Matsyendrasana; kneeling asana like vajrasana; Prone position asanas like Bhujangasana, Shalabhasana and Dhanurasana; and Supine position asanas like Naukasana, Sarvangasana, Halasana and Savasana were given. The training load was progressively increased once in three weeks. The work rest ratio of 1:1 between each asana and 1:2 between sets were given.

The experimental group-II performed aerobic exercise alternatively six days in a week for twelve weeks. To fix the training load for the aerobic exercise group the subjects were examined for their exercise heart rate in response to different work bouts, for proposed repetitions and sets, alternating with active recovery based on work-rest ratio. The subject's training zone was computed using Karvonen formula and it was fixed at 60%HRmax to 80%HRmax. The work rest ratio of 1:1 between exercises and 1:3 between sets was given.

The subjects of experimental group-III performed combined step aerobics training and yogic practices alternatively six days in a week for 12 weeks. They performed step aerobics training alternatively three days in a week during every Monday, Wednesday and Fridays. They performed yogic practices alternatively three days in a week during every Tuesday, Thursday and Saturdays.

Statistical Technique

To find out the pre and post test mean differences paired 't' test was applied. Percentage of improvement was also calculated. Further, the data collected from the four groups prior to and post experimentation on range of movement was statistically analyzed to find out the significant difference if any, by applying the analysis of covariance (ANCOVA). Since four groups were involved, whenever an obtained 'F' ratio value was found to be significant for adjusted post test means, the Scheffe's test was applied as post hoc test to determine the paired mean differences, if any. In all the cases the level of confidence was fixed at 0.05 level for significance.

RESULT

The found results by the applied dependent 't' test statistical procedure, so as to evaluate the efficiency of yogic practices, step aerobics and combined yogic practices and step aerobics training group's range of movement is in table-I.

Table-I: Descriptive Statistics Results Obtained on Range of Movement of experimental and Control Groups

Group's	Tests	N	Mean	SD	DM	't' – test	%
Yoga Practice	Pre	15	15.40	2.79	4.66	6.92*	30.30%
	Post		20.06	2.96			
Step Aerobic Training	Pre	15	15.66	2.69	1.86	4.52*	11.91%
	Post		17.53	2.26			
Combined Treatment	Pre	15	15.06	1.48	2.80	12.58*	18.58%
	Post		17.86	1.59			
Control	Pre	15	15.26	1.98	0.06	0.08	0.43%
	Post		15.20	1.69			

Table value for df 14 is 2.14(*significant)

The results by the applied dependent 't' test, confirm that the difference in range of movement mean values found between pre and post test of yogic practices, step aerobics and combined yogic practices and step aerobics training group's vary noticeably, as the dependent 't' values 6.92, 4.52 and 12.58 are more than requisite table(df14=2.14) value. In response to yogic practices (30.30%), step aerobics (15.91%) and combined training (18.58%) the men volleyball player's range of movement was improved greatly.

In below specified table (II), the resultant ANCOVA statistic outcome on range of movement of yogic practices, step aerobics, combined treatment and control group's men volleyball players are given.

Table – II: ANCOVA Results Obtained on Range of Movement of Experimental and Control Groups

Mean	Yoga Practice	Step Aerobic Training	Combined Training	Control Group	S o v	SS	df	MS	'F' ratio
Adjusted Post test	20.04	17.36	18.01	15.24	B	175.76	3	58.58	16.84*
					W	191.30	55	3.47	

(Table value for df 3 & 55 are 2.77) *Significant (.05 level)

The ANCOVA (16.84) result demonstrate that the adjusted range of movement mean values of yogic practices (20.04%), step aerobics (17.36%), combined treatment (18.01%) as well as control groups (15.24) men volleyball players be different from each other. Because the applied ANCOVA statistics, range of movement 'F' value (16.84) of yogic practices, step aerobics, combined treatment and control group is more than table value 2.77 for 3 and 55 degrees of freedom.

In below presented table (III), the applied post hoc test results on range of movement of yogic practices, step aerobics, combined treatment and control group's men volleyball players are given.

Table – III: Scheffe's Test Results Obtained on Range of Movement of Experimental and Control Groups

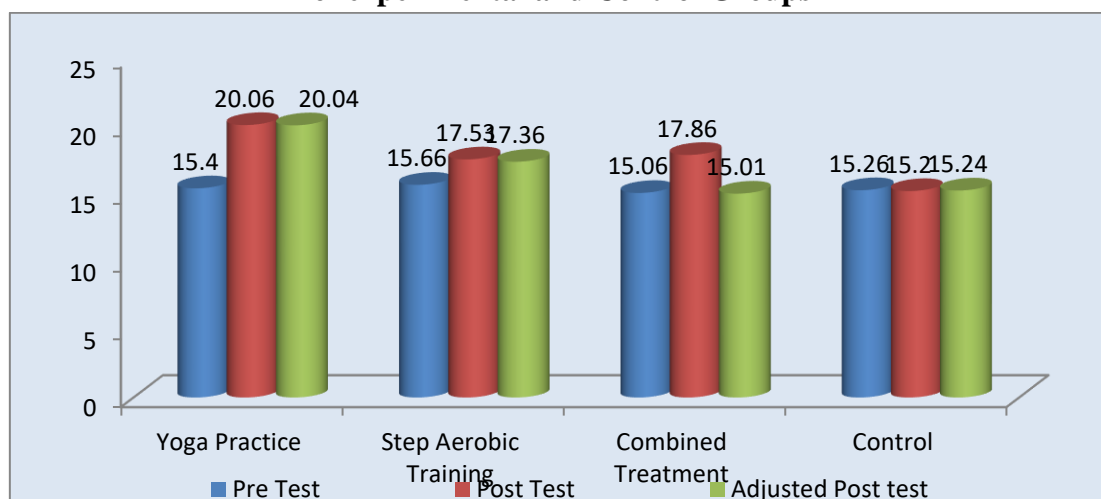
Yoga Practice	Step Aerobic Training	Combined Treatment	Control	MD	CI
20.04	17.36			2.68*	1.96
20.04		18.01		2.03*	1.96
20.04			15.24	4.80*	1.96
	17.36	18.01		0.65	1.96
	17.36		15.24	2.12*	1.96
		18.01	15.24	2.77*	1.96

*Significant (.05)

It shows that due to yogic practices (4.80), step aerobics (2.12) and combined treatment (2.77) the men volleyball player's range of movement was improved very much, as these mean differences with control groups are better to CI value 1.96. Although, yogic practices and combined treatments are much better to performing and step aerobics only, however, combined treatments is much better than step aerobics.

The Figure-I, showing the mean value on range of movement of yogic practices, step aerobics, combined treatment and control groups volleyball players.

Figure – I: Graph Showing the Mean Value on Range of Movement of experimental and Control Groups



DISCUSSION

The present study result reveals that due to yogic practices, step aerobics and combined treatment the men volleyball player's flexibility was improved very much. Kasirajan and Karuppiah (2016) examined the effect of yogic practice on selected physical variables among school level handball players. The findings of the study showed that there was a significant difference between the post-test and adjusted post-test of Flexibility and Cardio respiratory endurance. Chandrakumar & Ramesh (2016) determined the best training packages among the yogic practices, aerobic exercise and interval training on selected health related physical fitness namely cardio respiratory endurance and flexibility among school boys. In testing post-test mean difference among the experimental groups statistically significant on variables of cardio respiratory endurance and flexibility. In comparing the

effect the YPG showed better performance on flexibility. In comparing the effect the AEG and ITG produced similar effect on both the variables.

Improvements in flexibility have been achieved by the range of motion required to perform the movements of SA choreographies and stretching exercises (Nelson et al., 2007). Tortop et al., (2010) also determined the effects of the some physical fitness' parameters on the young women, during 12 weeks step-aerobic exercises program. The subjects performed step aerobic exercise three days per week and each session lasted for 60-90 min, the intensity of the heart rates was % 60-80. It was reported that significant differences were found for the values of the back strength, flexibility, right and left hand grip, vertical jump and aerobic power. According to the results, it was concluded that at the end of 12 weeks' aerobic exercises in some parameters physical fitness caused positive differences on the young women.

Combined training has been commonly used by athletes to improve neuromuscular responses and energy systems (Dudley & Djamil, 1985). Several studies have shown that combined training results in a development of muscle strength or power. In the past decade, combined strength and yogic practices has received much attention as a form of training. Many of previous investigations have examined several variables during combined training (Leveritt et al., 1999). Moreover, they have demonstrated that the impact of combined training appears to be more determinable to potential strength gains. Saroja (2012) conducted a study to find out the effect of yoga practice, physical exercise and combination of yoga practice, physical exercise on selected motor ability components among college men students. This study concluded that the level of flexibility improved greatly by selected yogic practices than that of physical exercises, and combined training of yogic practices than that of physical exercises and endurance.

CONCLUSION

In response to yogic practices (YPG =30.30%), step aerobics (SATG =15.91%) and combined training (CTG = 18.58%) the men volleyball player's range of movement was improved greatly. Although, yogic practices (YPG) and combined (CTG) treatments are much better to performing and step aerobics (SATG) only, however, combined (CTG) treatments is much better than step aerobics (SATG).

REFERENCE

Calleja-Gonzalez et al., (2019). Recovery in Volleyball, *Journal of Sports Medicine and Physical Fitness*, 59:982–993.

- Chandrakumar, N. & Ramesh, C. (2016). Effect of Yogic Practices, Aerobic Exercise and Interval Training on Selected Lipid profiles among School Boys, *International Journal of Recent Research and Applied Studies*, 3, 1(20): 107 - 113.
- Dudley, G. A., and R. Djamil (1985). Incompatibility of endurance and strength training modes of exercise, *J. Appl. Physiol.*, 59:1446– 1451.
- Kasirajan A, Karuppiah L. (2016). Effect of Selected Yogic Practices on Physical Variables among School Level Handball Players, *International Journal of Recent Research and Applied Studies*, 32(16):88-89.
- Leveritt M et al, (1999): Combined strength and endurance, *Sports Med.*, 28, 413–427.
- Lobietti et al. (2010) Lobietti R, Coleman S, Pizzichillo E, Merni F. Landing techniques in volleyball, *Journal of Sports Sciences*, 28:1469–1476.
- Nelson, ME, Rejeski, WJ, Blair, SN, Duncan, PW, Judge, JO, King, AC, Macera, CA, and Castaneda-Sceppa, C. (2007). Physical activity and public health in older adults: Recommendation from the American College of Sports Medicine and the American Heart Association, *Med Sci Sports Exerc* .,39: 1435-1445.
- Saroja M. (2012). Effects of Complex Training and the Combined Effects of Complex Training and Yogic Practices on Selected Physical and Physiological Variables among College Boys. *Yoga Mimamsa*, XLIV(3): 206-215.
- Tillman, MD. et al., (2004a). Landing constraints influence ground reaction forces and lower extremity EMG in female volleyball players, *Journal of Applied Biomechanics*, 20:38–50.
- Tortop, Y., Ön. B.O., Ögü, E.S., (2010). The Effects of the Some Physical Fitness Parameters During 12 Weeks Step-Aerobic Exercises Program on the Women. Selçuk University *Journal of Physical Education and Sports Science*, 12(2): 91-97.
- Zahradnik, D. et al., (2017). Blocking landing techniques in volleyball and the possible association with anterior cruciate ligament injury, *Journal of Sports Sciences*, 36: 955–961.