



SELECTED PHYSIOLOGICAL VARIABLES RESPONSE TO THE INFLUENCE OF YOGA PRACTICES AFTER PLYOMETRIC TRAINING FOR MALE PLAYERS

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ABSTRACT

This researcher investigated the selected physiological variables response to the influence of yoga practices after plyometric training for male players. To achieve the purpose of the study 30 south zone inter university participated male players (football & hockey) were selected from Kalasalingam University, Krishnankoil, Tamilnadu, India. The subjects were randomly assigned to two equal groups (n=15). Group- I underwent yoga practices after plyometric training (YPAPT) and group - II was acted as control group (CG). The yoga practices after plyometric training 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 selected physiological variables of vital capacity (wet spirometer), resting pulse rate (radial pulse) and breath holding time (holding breath test for time) were measured. Before and after training period the data collected from the subjects was statistically analyzed with 't' test to find out significant improvement if any at 0.05 level of confidence. The result of the vital capacity, resting pulse rate and breath holding time speculated significant improvement due to influence of yoga practices after plyometric training with the limitations of (diet, climate, life style) status and previous training. The result of the present study coincide findings of the investigation done by different experts in the field of sports sciences. Influence of yoga practices after plyometric training significantly improved vital capacity, resting pulse rate and breath holding time of south zone inter university participated male players (football & hockey).

KEY WORDS: Yoga practices after plyometric training, vital capacity, resting pulse rate and breath holding time.

INTRODUCTION

Yoga is an ancient system of breathing practices, physical exercises and postures, and meditation intended to integrate the practitioner's body, mind, and spirit. It originated in India several thousand years ago, and its principles were first written down by a scholar named Patanjali in the second century B.C. The word yoga comes from a Sanskrit word, yukti, and means "union" or "yoke." The various physical and mental disciplines of yoga were seen as a method for individuals to attain union with the divine. In the contemporary West, however, yoga is more often regarded as a beneficial form of physical exercise than as a philosophy or total way of life. As of 2002, more than six million people in the United States were practicing some form of yoga, with 1.7 million claiming to practice it regularly. Yogasanas are Indian's unique contribution to physical education. Yoga and physical education may be compared to two bullocks hitched to shaft as they are for the judicious blending of the education of the body and the mind. There is no denial of the fact that yoga and physical education attach importance by gaining the benefits of

physical health, mental health, physical fitness and peace of mind through their regular practices. The term "plyometrics" was born in the late 1970s in the United States thanks to the work of Fred Wilt (1920-1994), a long-distance runner and member of the U.S. Olympic Team in 1948 and 1952. After his retirement from racing, Wilt became the coach of the women's running team at Purdue University. His greatest merit was to have popularized in the United States the "jump training" method of the coaches of the Soviet Bloc, thus coining the term "plyometrics." Plyometrics, also known as "jump training" or "plyos", are exercises in which muscles exert maximum force in short intervals of time, with the goal of increasing power (speed-strength). This training focuses on learning to move from a muscle extension to a contraction in a rapid or "explosive" manner, such as in specialized repeated jumping. Plyometrics are primarily used by athletes, especially martial artists, sprinters and high jumpers, to improve performance, and are used in the fitness field to a much lesser degree.

METHODS

Experimental Approach to the Problem

In order to address the hypothesis presented herein, we selected 30 south zone inter university participated male players (football & hockey) from Kalaslingam University, Krishnankoil, Tamilnadu, India. The subjects were randomly assigned in to two equal groups namely, Yoga Practices after Plyometric Training Group (YPAPTG) (n=15) and Control group (CG) (n=15). 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.

TABLE -I Criterion Variables and Tests

S.No	Criterion Variable	Test	Unit of Measurement
1.	Vital capacity	Wet spirometer	Cub.ml
2.	Resting pulse rate	Radial Pulse	Beats per minute
3.	Breath Holding Time	Breath holding test	Seconds

TRAINING PROGRAMME

The training programme was lasted for 45 minutes for session in a day, 3 days in a week for a period of 12 weeks duration. This 45 minutes included 5 minutes warm up, plyometric training for 20 minutes, 15 minutes yoga practices and 5 minutes warm down. Every three weeks of training 5% of intensity of load was increased from 65% to 80% of work load. The volume of plyometric training is prescribed based on the number of sets and repetitions. The equivalent in yoga practices after plyometric training 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 yoga practices after plyometric training was statistically analyzed with 't' test to find out the significant improvement between pre and post test. In all cases the criterion for statistical significance was set at 0.05 level of confidence. ($P < 0.05$).

TABLE - II Computation of 'T' Ratio on Selected Physiological Variables of South Zone Inter University Participated Male Players on Experimental Group and Control Group

Group	Variables		Mean	N	Std. Deviation	Std. Error Mean	t - ratio
Experimental Group	RPR	Pre Test	72.93	15	0.96	0.24	7.23*
		Post Test	70.40	15	1.45	0.37	
	BHT	Pre Test	30.06	15	3.01	0.77	5.42*
		Post Test	34.06	15	3.75	0.96	
	VC	Pre Test	4.17	15	0.33	0.08	5.42*
		Post Test	4.52	15	0.24	0.06	
Control Group	RPR	Pre Test	72.86	15	2.06	0.53	0.71
		Post Test	72.60	15	2.47	0.63	
	BHT	Pre Test	30.13	15	2.47	0.63	0.48
		Post Test	30.40	15	2.82	0.72	
	VC	Pre Test	4.28	15	0.23	0.06	2.01
		Post Test	4.34	15	0.27	0.06	

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

Table II reveals the computation of mean, standard deviation and 't' ratio on selected physiological variables namely vital capacity, resting pulse rate and breath holding time of experimental group. The obtained 't'- ratio on vital capacity, resting pulse rate and breath holding time were 7.23, 5.42 and 5.42 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 table reveals the computation of mean, standard deviation and 't' ratio on selected

physiological variables namely vital capacity, resting pulse rate and breath holding time of control group. The obtained 't' ratio on vital capacity, resting pulse rate and breath holding time were 0.71, 0.48 and 2.01 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.

DISCUSSIONS AND FINDINGS

The present study experiment the impact of twelve weeks yoga practices after plyometric training on the selected physiological variables of the south zone inter university participated male (football hockey) players. The results of this study indicated that yoga practices after plyometric training is more efficient to bring out desirable changes over the vital capacity, resting pulse rate and breath holding time of the south zone inter university participated male (football & hockey) players. The finding of the present study had similarity with the findings of the investigators referred in this study. Raja et al., (2013) evaluated aerobics exercise on training cessation helped to increase resting heart rate and breath hold timing. The forced vital capacity decreases due to the training cessation on aerobics exercises of high fat intake young men in Chennai. Andrew et al., (2000) Endurance exercise training results in numerous adaptations to the neuromuscular, metabolic, cardiovascular, respiratory and endocrine systems. These adaptations are reflected in improvements in the key parameters of aerobic fitness, namely the VO₂max, exercise economy, the lactate/ventilator threshold and the CP which will influence the oxygen uptake kinetics. Dawans et al., (2014) a 12-week endurance exercise program significantly reduced the reactivity to a psychosocial stressor in terms of cortisol, heart rate (HR), and heart rate variability (HRV). Sivaraman et al., (2014) There was a significant decrease on resting pulse rate between aerobic training group and control group. Selvaganesh(2015) demonstrated that, aerobic training has significant impact on cardio respiratory endurance, flexibility, vital capacity and resting pulse rate. Muralikrishna et al., (2014) High intensity aerobic training positively influences the cardiopulmonary (vital capacity) variable of middleaged obese men. Shankarappa et al., (2012) Pranayama training causes an increase in the voluntary breath holding time. Pradnya et al., (2013) It also improves cardiac efficiency as indicated by significant decrease in pulse rate & highly significant increase in 40 mmHg endurance time. Keerthi et al., (2013) the Pranayama procedures the only respiratory parameter that will reduce is the rate of respiration and all the other parameters including volumes and capacities will increase depending on the regularity of practice. Pushparajan et al., (2015) investigation indicates that twelve weeks of power yoga practice and significantly reduce the resting pulse rate and significantly can increase the vital capacity among middle aged men. Rahul et al., (2015) conclude that pranayama exercises have positive effect on the selected physiological

variables resting pulse rate, maximum breath holding. From of result of the present study, it is speculated that the improvement in the vital capacity of the subjects may be due to the improvement in breath holding time are reduction in resting plus rate, further, the planned programme pranayama practices after endurance training might have influenced the resting plus rate and breath holding time of the subjects involved in this study.

CONCLUSIONS

It was concluded that 12 weeks twelve weeks yoga practices after plyometric training significantly improved the vital capacity, resting pulse rate and breath holding of the south zone inter university participated male (football & hockey) players. Yoga practice after plyometric training is one among the most appropriate means to bring about the desirable changes over physiological variables of football & hockey players. Hence, suggested that coaches and the experts deal with football players to incorporate yoga practices after plyometric training as a component in their training programme.

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