

EFFECT OF SPECIFIC CORE AND YOGA TRAINING IMPACT ON RESTING PULSE RATE OF STATE LEVEL MALLAKHAMB PERFORMERS

Mr. S. Ramachandiran, Ph.d -Scholar, Department of Physical Education, Annamalai University

Dr R. Saravanan, Assistant Professor, Department of Physical Education, Annamalai University

ABSTRACT

The intention of this investigation was to examine the impact of specific core and yoga training on resting pulse rate of mallakhamb players. For purpose 45 state level school Mallakhamb players from Madras Mallakhamb Association in Chennai, Tamilnadu were selected and randomly assigned to experimental group-I (specific core training), experimental group-II (yoga training), and control group of fifteen each (n=15) in a group. The training regimen lasted for twelve weeks for 6 days per week. The selected dependent variable resting pulse rate was assessed by using digital blood pressure monitor, before and after the training regimen. Analysis of Covariance statistics was applied and it revealed that the resting pulse rate of Mallakhamb players has significantly reduced due to the effect of specific core training (2.17%) and yoga training (3.77%) protocols.

Key Words: Specific core training, Yoga training, Resting heart rate and Mallakhamb

INTRODUCTION

Martial art training aims to result in several benefits to trainees, such as their physical, mental, emotional and spiritual health (Bu et al., 2010). Through systematic practice in the martial arts a person's physical fitness may be boosted (strength, stamina, speed, flexibility, movement coordination, etc.) as the whole body is exercised and the entire muscular system is activated. Beyond contributing to physical fitness, martial arts training also have benefits for mental health, contributing to self-esteem, self-control, emotional and spiritual well-being. For this reason, a number of martial arts schools have focused purely on therapeutic aspects, de-emphasizing the historical aspect of self-defense or combat completely. Mallakhamb is an ancient Indian martial art and has also been recognized as a traditional sport fighting to bag its spot in today's sports world. Successful performance in mallakhamb requires the ability to generate strength combined with other physical, physiological and psychological capacities to achieve desired results. Mere skills can never assure victory, as a player has to possess requisite fitness components. The fitness variables helps to elevate the "skills" to higher levels of performance in the event.

To develop effective training programmes for mallakhamb performers, trainers should be familiar with the predominant characteristics of mallakhamb performers. This information is also essential for coaches to help their trainees to develop a repertoire of skills required for achievement. To maximize mallakhamb performances the clear understanding of the coordination abilities, physical, physiological and psychological demands of the event is necessary. Coaches and trainers can effectively use the relevant information to develop more effective conditioning programmes for mallakhamb performers. Core strength and yoga training are well-established working out and vital necessary for mallakhamb performers but most of the mallakhamb performers are not concentrating on these training and its importance.

There are many articles in the literature that promote core training programmes and exercises for performance enhancement without providing a strong scientific rationale of their effectiveness, especially in the sporting sector. In the rehabilitation sector, improvements in lower back injuries have been reported by improving core stability. Few studies have observed any performance enhancement in sporting activities despite observing improvements in core stability and core strength following a core training programme. A clearer understanding of the roles that specific muscles have during core stability and core strength exercises would enable more functional training programmes to be implemented, which may result in a more effective transfer of these skills to actual sporting activities.

Yoga is a system for the complete development of the personality - physical, mental, intellectual, vital and spiritual - of a human being. It is a methodical, conscious effort towards self perfection by the unfoldment of the latent potentialities in an individual. In practice, it is a technique of calming down of the mind. It is the hypersensitivity and psychological conflicts leading to emotional upsurges that cause great stresses at the subconscious level. This may percolate in to the physical frame manifesting as diseases. Hence, Yoga in its general methodology of perfecting an individual, through removal of stresses, contains the therapeutic aspects of treating such stress induced diseases.

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

their specific training programs. Though all methods lead to sound programming of sports training with a view to enhance sports performance, sports scientists join their hands in the core strength and yoga training methods as sound and scientific. Despite the popularity of core stability and yoga training, relatively little scientific research has been conducted to demonstrate the benefits among mallakhamb performers. Hence, the investigator was interested to find out the physiological effects of core strength training and yoga training among mallakhamb performers.

METHODOLOGY

Subjects and Variables

The purpose of the study was to find out the effect of specific core training and yoga training on resting pulse rate of state level mallakhamb players. To achieve the purpose, a total number of 45 state level school Mallakhamb players in the age of 15 to 18 years from Madras Mallakhamb Association in Chennai, Tamilnadu were selected and randomly assigned to experimental group-I (specific core training), experimental group-II (yoga training), and control group of fifteen each (n=15) in a group. The selected dependent variable resting pulse rate was assessed by using digital blood pressure monitor, before and after the training regimen.

Training Protocol

Training programme was administered to the mallakhamb players for twelve weeks with six training units per week. Experimental group-I underwent specific core training and experimental group-II underwent yoga training. The specific core training group performed ten core-related exercises alternatively six days in a week for twelve weeks. The training load was progressively increased once in two weeks. The yoga training (experimental group-II) group performed asanas, six days in a week for twelve weeks. It consists of three phases namely asana (first phase), pranayama (second phase) and meditation (third phase). The duration of training was 45 to one hour approximately including warm-up and warm-down.

Experimental Design and Statistical Technique

The experimental design used in this study was random group design involving 45 subjects, who were divided at random into three groups of fifteen subjects each. The data collected from the experimental and control groups on selected dependent variables was statistically analyzed by paired 't' test to find out the significant differences if any between the

pre and post test. Further, percentage of changes was calculated to find out the chances in selected dependent variables due to the impact of experimental treatment. Further, the data collected from the three groups prior to and post experimentation on selected dependent variable was statistically analyzed to find out the significant difference if any, by applying the analysis of covariance (ANCOVA). Since three groups were involved, whenever the 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 for significance.

RESULTS

The data (pre & post) collected from the two experimental and a control groups on resting pulse rate were statistically analyzed by dependent T test and the outcomes are as in table number-I.

Table-I: Analysis of 'T' Test on Resting Pulse Rate of Chosen Groups

Group	Test	N	Mean	SD	DM	%	't'
Specific Core Training	Pre	15	70.46	1.06	1.53	2.17	3.88*
	Post	15	68.93	1.09			
Yoga Training	Pre	15	70.60	1.12	2.66	3.77	6.57*
	Post	15	67.93	1.08			
Control	Pre	15	70.80	1.26	0.20	0.35	0.48
	Post	15	71.00	1.00			

* Table value for $df 14 = 2.15(0.05 \text{ level})$

Table-I presents the pre (70.46 ± 1.06 ; 70.60 ± 1.12 & 70.80 ± 1.26) and post test (68.93 ± 1.09 ; 67.93 ± 1.08 & 71.00 ± 1.00) mean and standard deviation values on resting pulse rate of specific core training, yoga training and control groups. As the obtained 't' value (3.88 & 6.57) on resting pulse rate was higher than the required table value (2.15) for significant (0.05 level) with 14 degrees of freedom, it was decided that, significant level of differences be present between the pre and post test means of specific core training and yoga practice groups on resting pulse rate. More over insignificant level of difference found between the pre and post test mean value of control group.

Specific core and yoga training produced 2.17% and 3.77% improvement on resting pulse rate after 12 weeks of training.

Table-II: ANCOVA Output on Resting Pulse Rate of Chosen Groups

Adjusted means of Groups			S o V	SS	df	MS	'F'
Specific Core Training	Yoga Training	Control					
68.94	67.93	70.99	B	72.14	2	36.07	31.01*
			W	47.69	41	1.16	

(Table value for df 2 & 41 = 3.23) *Significant (.05 level)

The resting pulse rate (adjusted means) of specific core training, yoga training and control subject's (68.94, 67.93 & 70.99) vary considerably as the derived 'F' value (31.01) is more than the necessary value (df 2 & 41 = 3.23) for significance (0.05 level). As it is found significant the follow up test (Scheffe's) was utilized as in table-4.15, in order to discover the paired mean variations.

Table-III: Scheffe's Test Results on Resting Pulse Rate of Chosen Groups

Group's Adjusted Means			DM	CI
Specific Core Training	Yoga Training	Control		
68.94	67.93		1.01*	0.99
68.94		70.99	2.05*	0.99
	67.93	70.99	3.06*	0.99

*Significant

In response to specific core training (2.05) and yoga training (3.06) the resting pulse rate was remarkably decreased, although yoga training treatment was much better than specific core training in decreased resting pulse rate, as these mean differences (1.01) were found higher than CI value (0.99). The means values on resting pulse rate of all groups are illustrated in figure-I.

Figure-I: Graph Depicting the Means (Pre, Post & Adjusted) Values Found on Resting Pulse Rate of All Groups



Discussion

Due to the effect of specific core strength and yoga training the resting heart rate was significantly decreased. The above findings can also be substantiated by observations made by renowned experts in the science of sports training. Research on the effect of core strength training on health and fitness determinants revealed that core strength training, like other types of exercise, positively affects physical performance and number of health parameters. Training of the trunk or core muscles for enhanced health, rehabilitation, and athletic performance has received renewed emphasis. In recent years, fitness practitioners have increasingly recommended core stability exercises in sports conditioning programs. Greater core stability may benefit sports performance by providing a foundation for greater force production in the upper and lower extremities.

Different types of pranayams produce different physiological responses in normal young volunteers (Madanmohan et al., 2005). Yoga practice for 12 weeks results in significant increase in respiratory pressures and breath holding times (Madanmohan et al., 1992). Ramesh, Sakthignanavel and Subramaniam (2010) made an attempt to test the effect of Yogasanas and pranayama on the selected physiological variables of school boys and found significant improvement on the selected physiological variables. Rajakumar (2010) found significant improvement due to 12 weeks training on resting pulse rate, breath holding time and peak flow rate compared to the physical exercise and control group. In the overall training effects in terms of improved number of Physiological variables and their magnitude of improvement through training, yogic practice group is found to be the better group when compared to the other two groups.

CONCLUSIONS

In response to specific core training and yoga training the resting pulse rate was remarkably decreased, although yoga training was much better than specific core training. Specific core and yoga training produced 2.17% and 3.77% changes on resting pulse rate after 12 weeks of training. Hence, it is suggested that yoga, which is a time-tested method, has shown great positive influence on physiological capacities of an individual.

REFERENCES

- Bu, Bin; Haijun, Han; Yong, Liu; Chaohui, Zhang; Xiaoyuan, Yang; Singh, Maria Fiatarone (2010). "Effects of martial arts on health status: A systematic review". *Journal of Evidence-Based Medicine*, 3 (4): 205–219.
- Madanmohan, Thombre D.P. et al. (1992), "Effect of Yoga Training On Reaction Time, Respiratory Endurance and Muscle Strength". *Indian Journal of Physiology and Pharmacology*, 36:4, PP.229-33.
- Madanmohan, Udupa K. et al. (2005), "Effect of Slow and Fast Pranayamas on Reaction Time and Cardiorespiratory Variables". *Indian Journal of Physiology and Pharmacology*, 49:3, PP.313-8.
- Rajakumar J, (2010), "The Impact of Yogic Practices and Physical Exercises on Selected Physiological Variables among the Inter-Collegiate Soccer Players". *Journal of Bloomers Research*, 2:2, PP.160-165.
- Ramesh V, Sakthignanavel D and Subramaniam P.K. (2010), "Effect of Yogasanas and Pranayama on the Selected Physiological Variables of Adolescents". *Indian Journal for Research in Physical Education and Sports sciences*, 5:1, PP.19-24.