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**Address**

• Vikram Nagar, Boudhi Chouk, Latur.  
• Tq. Latur, Dis. Latur 413512 (MS.)  
• (+91) 9922455749, (+91) 8999250451

**Email**

• aiirjpramod@gmail.com  
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### Influence of Aerobic Training and Pranayama on Selected Physiological and Psychological Variables among College Hockey Players

Dr. Santosh P. Tayde

Shri Ganesh Arts College Kumbhari, Akola

#### Abstract

*The purpose of the study was to find out the influence of aerobic training and pranayama on selected physiological and psychological variables of men hockey players. To achieve this purpose of the study sixty men students were selected. To achieve this purpose of the study, sixty men students of Shri Ganesh Art College, Akola (M.S.) were tested. They were divided into three equal groups of each twenty subjects. It was conducted by aerobic training and pranayama each namely aerobic training group, pranayama training group and control group. The group I aerobic training group, group II pranayama training group conducted test for three days per week for twelve weeks and group III acted as control. Who did not underwent any special training programme apart from their regular day today physical education curriculum. The following physiological and psychological variables namely resting pulse rate and achievement motivation were selected as criterion variables. The resting pulse rate was assessed by Scores in Counts per minute and achievement motivation was assessed by using Scores in numbers. All the subjects of three groups were tested on selected criterion variables at prior to and immediately after the training programme as pre and post test selection. Analysis of covariance (ANCOVA) was used to find out the significant difference if any, among the groups on each selected criterion variables separately. In all the cases .05 level of confidence was fixed to test the significance, which was considered as appropriate. The results of the study revealed that there was a significant difference between aerobic training group, pranayama training group and control group on selected criterion variables such as resting pulse rate and achievement motivation. And there was an improvement as per selected criterion variables namely resting pulse rate and achievement motivation with respect to aerobic training and pranayama training.*

**Keywords:** Aerobic training, Pranayama, Hockey.

#### Introduction

The most important benefit of yoga is physical and mental therapy. Indians have given great importance to yoga and „physical exercises not only to prevent or cure the physical ailments/diseases but to keep fit also. The great ancient Rishis, Vedas and Purans also have given much importance to physical fitness (Uppal & Gautam, 2006). Traditionally lord Shiva is regarded as the Original founder of yoga. It is believed that this secret divine Science of life, revealed to enlightened sages in meditation, was firstly narrated by lord Shiva to his wife Parvati for “Upliftment of humanity”. Hiranyagarbha has been proclaimed as the very first teacher of yoga.

Yoga is an ancient science of physical, mental and spiritual development. Yoga has become increasingly popular in Western cultures as a means of exercise and fitness training. Yoga is ultimate for developing harmony among body, mind and spirit. Yoga asana are ways of moving and/or holding the body in different position. Yoga asana has several exercises or postures that work wonders on fitness and health. Varying widely in application and style, these exercises (postures) gently stretch and explore all parts of body. Yoga asana boost physical strength, stamina and flexibility, improve blood circulation, enhance posture and muscle tone and bestow greater powers of concentration and self-



control. Through the practice of yoga, we become aware of the connection between our emotional, mental and physical levels. On the other hand pranayama is one of the five principles of Yoga or breathing and exercise which promote proper breathing. The ultimate goal of yoga is to make it possible for you to be able to fuse together the gross material (annamaya), physical (pranamaya), mental (manomaya), intellectual (vijñanamaya) and spiritual (anandamaya) levels within your being. In a Yogic point of view, proper breathing is to bring more oxygen to the blood and to the brain, and to the control Prana or the vital life energy. The union of these two Yogic Principles is considered as the highest form of purification and self-discipline, covering both mind and body.

Yoga is the science practiced in India since ancient times. Modern medical science tries to achieve optimum physical & mental health of the individual through preventive, curative & promotive approach. In yogic practices the stress is mainly on promotive aspect although some yogic methods are prescribed for curative purpose also. Patanjali, the father of yoga, has suggested eight stages of yoga to secure health of body, mind & soul which are known as "Ashtang Yoga". From medical point of view out of above eight stages, Asana & Pranayama are more important. Pranayama is an ancient science, which makes use of voluntary regulation of breathing and calm the mind. The word pranayama is formed by two words that are Prana & Ayama. Prana means an inner life force which provides energy to different organs & controls vital life processes. Ayama means voluntary effort to control & direct the Prana. Numerous people all over the world have derived subjective benefits by practicing pranayama regularly. But to prove its efficacy as a health science it must be studied in the light of modern medicine. Hence, present study was undertaken to find out effects of pranayama on cardio-respiratory efficiency. In the light of the above this study was

undertaken to study the effect of pranayama on cardio respiratory functions.

### **Methodology**

The purpose of the study was to find out the influence of aerobic training and pranayama on selected physiological and psychological variables of men hockey players. To achieve this purpose of the study sixty men students were selected. To achieve this purpose of the study, sixty men students of Department of Physical Education, Thanthai Hans Roever College from Perambalur, Tamil Nadu, India were tested. They were divided into three equal groups of each twenty subjects. It was conducted by aerobic training and pranayama each namely aerobic training group, pranayama training group and control group. The group I aerobic training group, group II pranayama training group conducted test for three days per week for twelve weeks and group III acted as control. Who did not underwent any special training programme apart from their regular day today physical education curriculum. The following physiological and psychological variables namely resting pulse rate and achievement motivation were selected as criterion variables. The resting pulse rate was assessed by Scores in Counts per minute and achievement motivation was assessed by using Scores in numbers. All the subjects of three groups were tested on selected criterion variables at prior to and immediately after the training programme as pre and post test selection. Analysis of covariance (ANCOVA) was used to find out the significant difference if any, among the groups on each selected criterion variables separately. In all the cases .05 level of confidence was fixed to test the significance, which was considered as appropriate.

### **Training Programme**

During the training period, the subjects were selected at random and were into three groups. Group I aerobic training, group II pranayama yogic practice training programme, for three days per week for twelve weeks. Every day the workout lasted for 45 to



60 minutes approximately including warming up and warming down periods. And group III who acted as control who instructed not to participate in any strenuous physical exercises and specific training throughout the training period. However, they performed activities as per their curriculum. The subjects underwent the training program as per the schedules under the supervision of the researcher in the morning time. All the subjects involving in the training programs were questioned about their status throughout the training period. None of them reported injury. However, muscle soreness and fatigues were reported in the early weeks, which subsided later.

### Statistical Analysis

The data was collected from three groups at prior to and after completion of the training period on selected criterion variables were statistically examined for significant difference if any, by applying analysis of covariance (ANCOVA). The Scheffe's post hoc test was also applied to know the significant difference between groups. The obtained "F" ratio was also significant. In all cases .05 level of confidence was utilized to test the significance.

### Resting Pulse Rate

The analysis of covariance of the data obtained for resting pulse rate of pre-test and post-test for aerobic training group, pranayama training group and control group have been presented in Table I

**Table I.** Analysis of covariance of the data on resting pulse rate of pre and post tests scores of aerobic training group, pranayama training group and control group (Scores in Counts per minute)

Test	Pranayama	Aerobics	Control	Source of variance	Sum of squares	Df	Mean squares	Obtained f
Pre Test Mean	50.24	50.60	50.50	Between	1.30	02	0.62	
				Within	360	560	0.01	

				hin	1.40	7	15	
Post Test Mean	45.83	47.90	50.95	Between	260.30	02	130.70	
				Within	1780.30	57	30.30	4.21*
Adjusted Post Test Mean	45.95	46.80	50.90	Between	250.95	02	125.49	
				Within	610.20	56	10.90	11.45*
Mean Diff	-4.39	-2.65	0.45					

\* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 57 and 2 and 56 are 3.16 and 3.17 respectively).

**Table II.** The scheffe's test for the differences between paired means on mean resting pulse rate (Scores in Counts Per minute)

MEANS			Mean Difference	Required C I
Pranayama	Aerobics	Control		
45.95	47.80	-	1.83	2.60
45.95	-	50.90	4.90*	2.60
	47.80	50.90	3.10*	2.60

\*Significant at 0.05 level of confidence

**Table III.** Analysis of covariance of the data on achievement motivation of pre and post tests scores of aerobic training group, pranayama training group and control group (Scores in Numbers)

Test	Pranayama	Aerobics	Control	Source of variance	Sum of squares	Df	Mean squares	Obtained f
Pre Test Mean	12.24	11.14	10.63	Between	250.78	2	12.40	5.25*
				Within	142.82	57	2.50	
Post Test Mean	12.50	13.30	12.90	Between	17.40	2	8.20	5.02*
				Within	102.15	57	1.80	
Adjusted Post Test Mean	12.20	14.30	12.15	Between	16.06	2	9.00	5.50*
				Within	90.22	56	1.60	



Mean Diff	0.25	2.15	1.30					
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\* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 57 and 2 and 56 are 3.16 and 3.17 respectively).

**Table IV.** The scheffe's test for the differences between paired means on mean achievement motivation (Scores in Numbers)

MEANS				
Pranayama	Aerobics	Control	Mean Difference	Required CI
12.20	14.30	-	1.10*	1.01
12.20	-	12.15	0.05	1.01
	14.30	12.15	1.20*	1.01

\*Significant at 0.05 level of confidence

### Conclusions

1. It was concluded that aerobic exercises and pranayama groups were significantly improved resting pulse rate of the college men.
2. It was concluded that pranayama group was better than aerobic group on stabilizing resting pulse rate among college men.
3. It was concluded that aerobic and pranayama practices groups were significantly improved the achievement motivation of the college men.
4. It was concluded that pranayama group was better than aerobic exercises group on improving achievement motivation of the college men.

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