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Influence of Aerobic Training and Pranayama on Selected Physiological and Psychological Variables among Men Hockey Players

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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 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. 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

In the last few decades sports have gained tremendous popularity all over the globe. The popularity of sports is still increasing at a fast pace and this happy trends is likely to continue in the future also. Performance sports aim at high sports performance and for that the physical and physique and psychic capacities of sportsmen are developed to extreme limits. Physical fitness is now defined as body's ability to do functions effectively and effectively in work and leisure activities, to be healthy, to resist hypo kinetic diseases, and to meet emergency situations. Physical fitness is the capacity of the heart, blood vessels, lungs and muscles to function at optimum efficiency. "Aerobics" basically means living or working with oxygen. Aerobics or endurance exercises are those in which large muscle groups are used in rhythmic repetitive fashion for prolonged periods of time. Aerobic activities are incorporated throughout the physical education curriculum in order to improve this component. These activities include walking, jogging, running, jumping rope, distance swims, stationary bicycling, aerobic dance, step aerobics, basket ball, hand ball, touch football, or any other activities which utilize the large muscles of the legs and elevate the heart rate.

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

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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)

	PRANAYAMA	AEROBICS	CONTROL	SOURCE OF VARIANCE	SUM OF SQUARES	DF	MEAN SQUARES	OBTAINED F
Pre Test Mean	51.25	51.60	51.50	Between	1.30	2	0.65	0.01
				Within	3601.55	57	63.19	
Post Test Mean	46.85	48.90	51.95	Between	263.43	2	131.72	4.21*
				Within	1785.30	57	31.32	
Adjusted Post Test Mean	46.96	48.81	51.92	Between	250.99	2	125.49	11.48*
				Within	612.23	56	10.93	
Mean Diff	-4.40	-2.70	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 I shows that the pre-test means on resting pulse rate of aerobic training group, pranayama training group and control group are 51.25, 51.60 and 51.50 respectively. The obtained 'F' ratio value 0.01 is less than the required table value 3.16 for 2 and 57 at .05 level of confidence on resting pulse rate. The post-test means on resting pulse rate of aerobic training group, pranayama training group and control group are 46.85, 48.90 and 51.95 respectively. This obtained 'F' ratio value 4.21 is greater than the required table value 3.16 for 2 and 57 at .05 level of confidence on resting pulse rate. The adjusted post-test means on resting pulse rate of aerobic training group, pranayama training group and control group are 46.96, 48.81 and 51.92 respectively. This obtained 'F' ratio value 11.48 for adjusted post-test is greater than the required table value 3.17 for 1 and 56 at 0.05 level of confidence on resting pulse rate. The results of the study indicated that there was a significant difference between the adjusted post-test means of aerobic training group, pranayama training group and control group on resting pulse rate. Since, three groups were compared, whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences and it was presented in Table II.

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		
46.96	48.81	-	1.85	2.62
46.96	-	51.92	4.96*	2.62
-	48.81	51.92	3.11*	2.62

*Significant at 0.05 level of confidence

The table II shows that the mean difference values between aerobic training group and Pranayama training group, aerobic training group and control group, Pranayama training group and control group, 46.96, 48.81 and 51.92 respectively on resting pulse rate which were greater than the required confidence interval 2.62 significance. The results of this study showed that there was a significant difference between aerobic training group and Pranayama training group, aerobic training group and control group, Pranayama training group and control group on resting pulse rate.

Achievement Motivation

The analysis of covariance of the data obtained for achievement motivation of pre-test and post-test for aerobic training group, pranayama training group and control group have been presented in Table III.

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)

	PRANAYAMA	AEROBICS	CONTROL	SOURCE OF VARIANCE	SUM OF SQUARES	DF	MEAN SQUARES	OBTAINED F
Pre Test Mean	13.25	12.15	11.65	Between	26.80	2	13.40	5.27*
				Within	144.85	57	2.54	
Post Test Mean	13.50	14.30	12.95	Between	18.43	2	9.22	5.04*
				Within	104.15	57	1.83	
Adjusted Post Test Mean	13.23	14.36	13.16	Between	18.06	2	9.03	5.54*
				Within	91.24	56	1.63	
Mean Diff	0.25	2.15	1.30					

* 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 III shows that the pre-test means on achievement motivation of aerobic training group, pranayama training group and control group are 13.25, 12.15 and 11.65 respectively. The obtained 'F' ratio value 5.27 is less than the required table value 3.16 for 2 and 57 at .05 level of confidence on achievement motivation. The post-test means on achievement motivation of aerobic training group, pranayama training group and control group are 13.50, 14.30 and 12.95 respectively. This obtained 'F' ratio value 5.04 is greater than the required table value 3.16 for 2 and 57 at .05 level of confidence on achievement motivation. The adjusted

post-test means on achievement motivation of aerobic training group, pranayama training group and control group are 13.23, 14.36 and 13.16 respectively. This obtained 'F' ratio value 5.54 for adjusted post-test is greater than the required table value 3.17 for 1 and 56 at 0.05 level of confidence on achievement motivation. The results of the study indicated that there was a significant difference between the adjusted post-test means of aerobic training group, pranayama training group and control group on achievement motivation. Since, three groups were compared, whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences and it was presented in Table IV.

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

MEANS			Mean Difference	Required C I
Pranayama	**Aerobics**	**Control**		
13.23	14.36	-	1.13*	1.01
13.23	-	13.16	0.07	1.01
-	14.36	13.16	1.20*	1.01

*Significant at 0.05 level of confidence

The table IV shows that the mean difference values between aerobic training group and Pranayama training group, aerobic training group and control group, Pranayama training group and control group, 13.23, 14.36 and 13.16 respectively on achievement motivation which were greater than the required confidence interval 1.01 significance. The results of this study showed that there was a significant difference between aerobic training group and Pranayama training group, aerobic training group and control group, Pranayama training group and control group on achievement motivation.

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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