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COMBINED EFFECTS OF AEROBIC AND ANAEROBIC TRAINING ON BREATH HOLDING TIME AMONG HOCKEY PLAYERS

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ABSTRACT

The purpose of this study was to find out the combined effects of aerobic and anaerobic training on Breath holding time among hockey players. To facilitate the study, 45 male hockey players from the Sports Hostel, Tirunelveli were randomly selected as subjects and their age were between 14 – 16 years. They were assigned into three groups, namely, experimental group I, experimental group II, and control group. Experimental group I served as aerobic training group, Group - II, served as combined group of aerobic and anaerobic training group, and the third group served as control group. Pre tests were conducted for all the 45 subjects on selected physiological variable as Breath holding time. After the experimental period of six weeks post test were conducted and the scores were recorded. The obtained data were subjected to statistical treatment using ANCOVA. It all cases to test the significance, 0.05 level of confidence was fixed, which was appropriate for this study.

KEYWORDS: *Aerobic training, Anaerobic training, Breath holding time, hockey.*

INTRODUCTION

Training is the process or routing of one who trains or is trained. Training is the way to learn the spiritual technology of scientology. It is a word used to describe the study of scientology principles by a parishioner. So they can be applied to accomplish the purpose of improving conditions in life, his own and lives of others. Training also provides individuals with a means of dealing with real life situations by understanding their causes. Training gives an individual they know how to resolve difficulties in life that might otherwise appear unsolvable.

In this study, the researcher was interested to find out the effect of aerobic, anaerobic and combined effect of aerobic and anaerobic power on Breath holding time among hockey players.

METHODOLOGY

The purpose of this study was to find out the combined effect of aerobic and anaerobic training on selected physiological variable as Breath holding among hockey players. To facilitate the study, 45 male hockey players from the Sports Hostel, Tirunelveli were randomly selected as subjects and their age were14 – 16 years. They were assigned into three groups, namely, experimental group I, experimental group II, and control group. Experimental group I served as aerobic training group, Group - II, served as combined group of aerobic and anaerobic training, and the third group served as control group. Pre tests were conducted for all the 45 subjects on selected physiological variable. After the experimental period of six weeks post test were conducted and the scores were recorded.

The post tests were conducted on the above said dependent variables after a period of six weeks training. The training programme was scheduled at 7.30 a.m. to 8.30 a.m., five days a week for six weeks.

STATISTICAL TECHNIQUE

To find out the combined effects of aerobic and anaerobic training on selected physiological variable among hockey players, the pre test and post test scores were analyzed by using ANCOVA technique. Analysis of covariance was applied to determine the significant difference among the three groups namely experimental group-I, group-II, and control group in the development of 6 weeks of training. When F ratio was found to be significant, the Scheffe's post hoc test was applied to test the significance of pairs of adjusted final group's means.

RESULTS

The statistical analysis comparing the initial and final means of breath holding time due to combined effect of aerobic and anaerobic training, and aerobic training presented in Table I.

Table I

COMPUTATION OF ANALYSIS OF COVARIANCE OF BREATH HOLDING TIME

(Scores in Seconds)

	Combined aerobic & anaerobic	**Aerobic training**	**Control**	**Source of variance**	**Sum of squares**	**df**	**Mean squares**	**Obtained F**
Pre Test Mean	41.33	41.60	37.73	Between	139.9	2	69.96	1.08
				Within	2713.9	42	64.62	
Post Test Mean	51.00	49.47	37.06	Between	1753.2	2	876.60	15.24*
				Within	2415.1	42	57.50	
Adjusted Post Test Mean	50.01	48.24	39.28	Between	945.1	2	472.53	78.06*
				Within	248.2	41	6.05	
Mean Diff	9.67	7.87	-0.67					

Table F-ratio at 0.05 level of confidence for 2 and 42 (df) =3.35, 2 and 41(df) =3.37 . *Significant

As shown in Table II, the obtained F value on the scores of pre test means 1.08 was less the required F value, which proved that the random assignment of the subjects were successful and their scores in breath holding time before the training were equal and there was no significant differences.

The obtained F value on post test means was 15.24, which was greater than the required table F value of 3.37 and was significant

Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table II

Table II

Scheffe's Confidence Interval Test Scores on Breath Holding Time

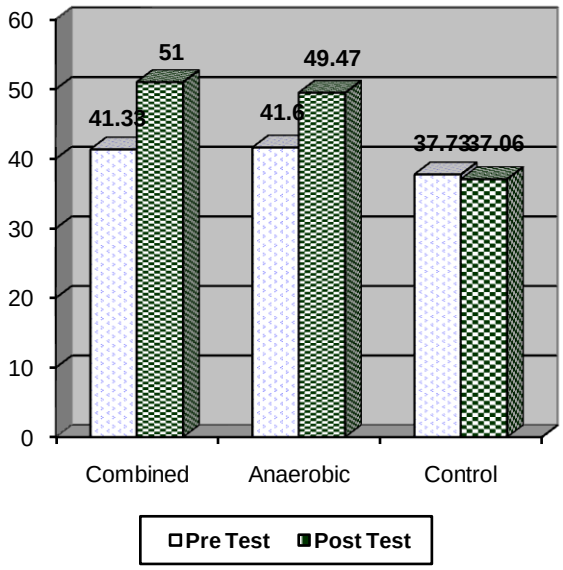
MEANS				Required . C I
Combined Anaerobic & Aerobic	Aerobic Group	Control	Mean Difference	
50.01	48.24		1.77	2.26
50.01		39.28	10.72*	2.26
	48.24	39.28	8.95*	2.26

* Significant

The post hoc analysis of obtained ordered adjusted means proved that (1) there was significant differences existed between combined group and control group (2) there was significant difference between aerobic group and control group (3) there was no significant difference between combined group and aerobic group in breath holding time.

The ordered adjusted means were presented through bar diagram for better understanding of the results of this study in Figure I.

Figure I
BAR DIAGRAM ON PRE AND POST TEST MEANS ON BREATH HOLDING TIME



DISCUSSIONS ON FINDINGS

The aim of this research is to find out the combined effect of aerobic and anaerobic exercises on Breath holding time among hockey players.

The results presented in Tables I to II on physiological variable, breath holding time, proved that there was significant differences in adjusted post test means as the obtained F values of 78.06 and 7.56 were greater than the required table value of 3.23 to be significant at 0.05 level. The results presented in Table II proved that there was no significant difference due to combined aerobic and anaerobic exercises on anaerobic power of the hockey players.

The statistical analysis comparing the initial and final means of anaerobic power due to combined effect of aerobic and anaerobic training, and aerobic training s presented in Table III.

Table III
COMPUTATION OF ANALYSIS OF COVARIANCE OF ANAEROBIC POWER
(Scores in Numbers)

	COMBINED AEROBIC & ANAEROBIC	ANAEROBIC TRAINING	CONTROL	SOURCE OF VARIANCE	SUM OF SQUARES	DF	MEAN SQUARES	OBTAINED F
Pre Test Mean	74.75	77.63	79.74	Between	188.0	2	94.00	0.87
				Within	4559.3	42	108.56	
Post Test Mean	82.51	82.51	81.79	Between	5.1	2	2.54	

				Within	4897.5	42	116.61	0.02
Adjusted Post Test Mean	84.73	82.29	79.79	Between	175.4	2	87.70	2.20
				Within	1631.7	41	39.80	
Mean Diff	7.75	4.87	2.05					

Table F-ratio at 0.05 level of confidence for 2 and 42 (df) =3.35, 2 and 41(df) =3.37 . Not Significant

As shown in Table III, the obtained F value on the scores of pre test means 0.87 was less the required F value, which proved that the random assignment of the subjects were successful and their scores in anaerobic power before the training were equal and there was no significant differences.

The obtained F value on post test means was 0.02, which was less than the required table F value of 3.35 and not significant.

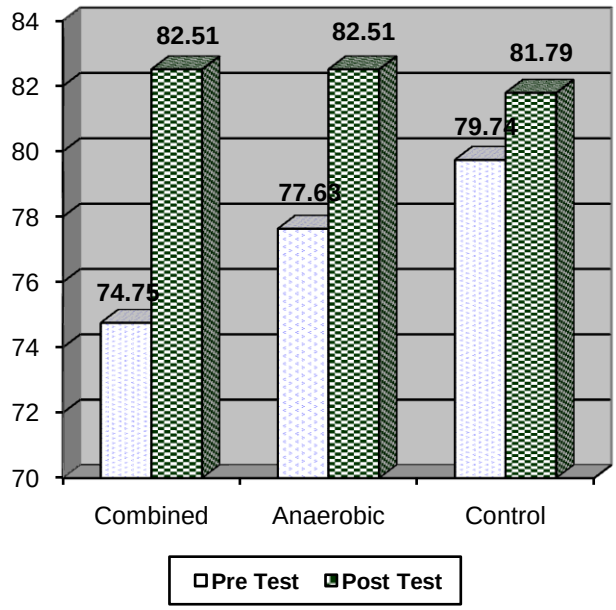
Taking into consideration of the pre test means and post test means adjusted post test means were determined and analysis of covariance was done and the obtained F value 2.20 was less than the required value of 3.37 and hence it was accepted that there was significant differences among the treated groups.

Since there was no significant differences were recorded, the results were not subjected to post hoc analysis.

The ordered adjusted means were presented through bar diagram for better understanding of the results of this study in Figure II.

Figure II

BAR DIAGRAM ON PRE AND POST TEST MEANS ON ANAEROBIC POWER



The post hoc analysis proved that selected interventional programmes, namely, six weeks combined exercises of aerobic and anaerobic exercises and aerobic exercises were significantly influenced breath holding time compared to control group. The results further proved that there was no significant difference between combined group and aerobic exercise groups in breath holding time.

CONCLUSIONS

Within the limitations and delimitations of this study, the following conclusions were drawn:

1. It was concluded that aerobic exercises and combined aerobic and anaerobic exercises significantly influenced breath holding time of hockey players compared to control group.
2. It was concluded that aerobic exercises and combined aerobic and anaerobic exercises failed to significantly influence anaerobic power of hockey players compared to control group.

RECOMMENDATIONS

The findings proved that combined effect of aerobic and anaerobic exercises significantly altered the selected physiological variable among hockey players; hence, it was recommended that the combined aerobic and anaerobic exercises be included in the schedule of training for hockey players for all round development of their fitness.

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