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EFFECT OF ANAEROBIC INTERVAL RUNNING ON SELECTED PHYSIOLOGICAL PARAMETERS AMONG COLLEGE MEN FOOTBALL PLAYERS

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Abstract:

The purpose of the study was designed to examine the effect of anaerobic interval running on resting pulse rate and breath holding time among college men football players. For the study, thirty college men Football players studying in RNS First Grade College, Bengaluru, Karnataka, India were selected as subjects. They were divided into two equal groups. Each group consisted of fifteen subjects. Group I underwent anaerobic interval running for three days per week for twelve weeks. Group II acted as control who did not undergo any special training programme apart from their regular physical education programme. The following variables, namely resting pulse rate and breath holding time were selected as criterion variables. All the subjects of two groups were tested on selected dependent variables namely resting pulse rate and breath holding time by using radial pulse and holding the breath for time at prior to and immediately after the training programme. The analysis of covariance was used to analyze the significant difference, if any among the groups. The .05 level of confidence was fixed as the level of significance to test the 'F' ratio obtained by the analysis of covariance, which was considered appropriate. The results of the study showed that there was a significant difference between anaerobic interval running group and control group on resting pulse rate and breath holding time. And also, it was found that there was a significant improvement on selected criterion variables such as resting pulse rate and breath holding time due to anaerobic interval running.

Introduction:

Anaerobic interval running involves high-intensity bursts of activity followed by brief recovery periods. This type of training primarily targets anaerobic energy systems, which rely on stored energy sources like ATP and glycogen rather than oxygen. Anaerobic interval running is known to improve anaerobic capacity, power, and speed.

Anaerobic interval running specifically targets the anaerobic energy systems, leading to improvements in anaerobic capacity. Anaerobic capacity refers to the ability of the body to generate energy in the absence of oxygen and is crucial for high-intensity activities such as sprinting and weightlifting. Anaerobic interval running can help increase the lactate threshold, which is the point at which lactate begins to accumulate in the blood faster than it can be removed. By pushing the body to perform at high intensities, interval running can improve the body's ability to tolerate and buffer lactic acid, delaying the onset of fatigue. High-intensity interval running recruits fast-twitch muscle fibers, which are responsible for explosive movements and power generation. Training these muscle fibers through anaerobic interval running can lead to improvements in speed, power, and strength.

Anaerobic interval running can result in various metabolic adaptations, including increased enzyme activity involved in anaerobic energy production and improved efficiency in utilizing stored energy sources like glycogen. During anaerobic interval running, heart rate increases significantly during the high-intensity intervals and decreases during the recovery periods. This type of training can help improve heart rate recovery, which is a marker of cardiovascular fitness and overall health.

Anaerobic interval running creates an oxygen debt, leading to excess post-exercise oxygen consumption (EPOC) or the "afterburn effect." This means that the body continues to burn calories at an elevated rate after the workout is complete, contributing to increased calorie expenditure and potential fat loss. High-intensity interval training, including anaerobic interval running, can trigger a hormonal response, including the release of catecholamines and growth hormone, which are involved in metabolism and muscle growth.

Anaerobic interval running can have significant effects on various physiological parameters, leading to improvements in anaerobic capacity, power, speed, and metabolic efficiency. Incorporating anaerobic interval training into a comprehensive fitness regimen can help individuals achieve their performance and fitness goals effectively. However, it's essential to design training programs that are appropriate for individual fitness levels and goals and to incorporate proper warm-up, cool-down, and recovery protocols to minimize the risk of injury..

Methodology:

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Analysis of the Data:

Resting Pulse Rate:

The analysis of covariance on resting pulse rate of the pre and post test scores of anaerobic interval running group and control group have been analyzed and presented in table 1.

Table 1: Analysis of Covariance of the Data on Resting Pulse Rate of Pre and Post Tests Scores of Anaerobic Interval Running and Control Groups

Test	Anaerobic Interval Running Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test							
Mean	72.93	72.40	Between	2.13	1	2.13	2.91
S.D.	0.57	1.02	Within	20.53	28	0.73	
Post Test							
Mean	69.47	71.53	Between	32.03	1	32.03	14.58*
S.D.	1.02	0.96	Within	61.50	28	2.20	
Adjusted Post Test							
Mean	69.29	71.71	Between	39.50	1	39.50	51.04*
			Within	20.90	27	0.77	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 28 and 2 and 27 are 3.34 and 3.35 respectively).

The table 1 shows that the adjusted post-test means of anaerobic interval running group and control group are 69.29 and 71.71 respectively. The obtained "F" ratio of 51.04 for adjusted post-test means is more than the table value of 3.35 for df 1 and 27 required for significance at .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 anaerobic interval running group and control group on resting pulse rate.

Breath Holding Time:

The analysis of covariance on breath holding time of the pre and post test scores of anaerobic interval running group and control group have been analyzed and presented in table 2.

Table 2: Analysis of Covariance of the Data on Breath Holding Time of Pre and Post Tests Scores of Anaerobic Interval Running and Control Groups

Test	Anaerobic Interval Running Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test							
Mean	43.07	42.80	Between	0.53	1	0.53	0.38
S.D.	1.18	1.38	Within	39.33	28	1.40	
Post Test							
Mean	47.80	43.07	Between	168.03	1	168.03	22.26*
S.D.	1.11	1.00	Within	211.37	28	7.55	
Adjusted Post Test							
Mean	47.71	43.15	Between	153.94	1	153.94	154.34*
			Within	26.93	27	1.00	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 28 and 2 and 27 are 3.34 and 3.35 respectively).

The table 2 shows that the adjusted post-test means of anaerobic interval running group and control group are 47.71 and 43.15 respectively. The obtained "F" ratio of 154.35 for adjusted post-test means is more than the table value of 3.35 for df 1 and 27 required for significance at .05 level of confidence on breath holding time.

The results of the study indicated that there was a significant difference between the adjusted post-test means of anaerobic interval running group and control group on breath holding time.

Conclusions:

- There was a significant difference between anaerobic interval running group and control group on resting pulse rate and breath holding time.
- And also, it was found that there was a significant improvement on selected criterion variables such as resting pulse rate and breath holding time due to anaerobic interval running.

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