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Influence of Progressive Anaerobic Training on Selected Physiological Variables of Football Players

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Abstract

The present study was conducted with the aim of find out the effect of progressive anaerobic training on selected physiological variables such as resting pulse rate, breath holding time and cardio respiratory endurance of football players for these purpose 40 football players from annamalai university, selected as subjects with their consent, Group- I- Progressive Anaerobic Training and Group- II Control Group. Each group randomly divided 20 players. The variables such as resting pulse rate, breath holding time & cardio respiratory endurance were measured by pulse monitor, stop watch and coopers 12 minutes run / walk test respectively.Random group experimental design was used, experimental group and control group data were carefully recorded for pre and post test scores analysis of Co-variance (ANCOVA) was used to find out the adjusted post test mean significant difference among treatment group.Experimental group performed progressive anaerobic training three days a week for a period of twelve weeks. ANCOVA was used to find out the adjusted mean significant difference between the groups.

Keywords: Progressive Anaerobic Training, Resting Pulse Rate, Breath Holding Time, Cardio Respiratory Endurance.

Introduction

Anaerobic means “without oxygen”. Anaerobic exercise is an exercise intense enough to trigger lactic acid formation, it is used by athletes in non-endurance sports to promote strength, speed and power and by body builders to muscle mass. Muscle energy systems trained using anaerobic exercise develop differently compared to aerobic exercise, leading to greater performance in short duration, high intensity activities, which last from mere seconds to up to about 2 minutes. Any activity lasting longer than about two minutes has a large aerobic metabolic component. Exercise helps us lose weight, eliminate and manage stress, stimulates the immune system and reduces the risk of certain diseases. In particular, the aerobic exercise refers to any low-intensity activity that increases the heartbeat rate while the high-intensity physical activity is called anaerobic exercise. Cardio respiratory endurance is the ability to persist in a physical activity requiring oxygen for physical exertion without experiencing undue fatigue. Football is also referred to as soccer in some parts of the world, is a high-energy athletic team sport in this new age. It would be a joy to trace the birth and growth of this popular sport. It said that the number of countries that are FIFA members even outnumber the members of United Nations Organizations – another undeniable proof of the game’s popularity. Since 1900, football has also been integral part of the greatest sports extravaganza in the world, the Olympics. The game, as we know it today, has been followed in a feverish fashion in Europe, especially in England, for centuries. In fact, the game has been followed by men and women throughout the world. The first recorded game took place as early as A.D. 217 in the town of Derby in England. This particular game was once part of a grand festival that was celebrated by the local folk after the victory over the invading Romans.

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Methodology

The present study was conducted with the aim of find out the effect of progressive anaerobic training on selected physiological variables such as resting pulse rate, breath holding time and cardio respiratory endurance of of football players for these purpose 40 football players from annamalai university, selected as subjects with their consent, Group- I- Progressive Anaerobic Training and Group- II Control Group. Each group randomly divided 20 players. The variables such as resting pulse rate, breath holding time & cardio respiratory endurance were measured by pulse monitor, stop watch and coopers 12 minutes run / walk test respectively. Random group experimental design was used, experimental group and control group data were carefully recorded for pre and post test scores analysis of Co-variance (ANCOVA) was used to find out the adjusted post test mean significant difference among treatment group. In all the cases statistical significance was fixed at 0.05 levels.

Results

Table I. Analysis of covariance on criterion variables of experimental group and control group

Criterion Variables	Adjusted Post Test Mean		Sources of Variance	SS	DF	Mean Squares	'F'
	Experimental	Control					
Resting Pulse Rate	66.85	71.30	Between	190.40	1	190.40	67.76*
			Within	103.81	37	2.81	
Breath Holding Time	43.36	41.50	Between	77.13	1	77.13	77.91*
			Within	36.8	37	0.99	
Cardio Respiratory Endurance	2711.83	2575.67	Between	185183.62	1	185183.62	5.67*
			Within	1208371.34	37	1208371.34	

* Significant F .05 (1, 37) = 4.09

From Table – I, the obtained value of 'F' ratio for resting pulse rate, breath holding time and cardio respiratory endurance for adjusted post test means were more than the table value of 4.09 with df 1 and 37 required for significant at 0.05 level of confidence. The results of the study indicated that significant differences exist among the adjusted post test means of experimental and control groups on the development of pulse rate, breath holding time and cardio respiratory endurance.

Results and Discussion

The data collected from experimental group and control group prior and after experimentation on selected variables were statistically examined by using analysis of covariance (ANCOVA) was used to determine differences, if any among the adjusted post test means on selected criterion variables separately. The level of significance was fixed at .05 level of confidence to test the 'F' ratio obtained by analysis of covariance for all the groups selected criterion variables. Physical activity causes beneficial changes in the functioning of all internal organs, particularly, the heart, lungs and circulatory system. It is a physiological fact that the human organism needs stimulating exercise. When the whole body is subjected to regular muscular activity, requiring vigorous stress on the heart, lungs and muscles, the general efficiency of physiological functions is being improved. Research now strongly has the theory that regular and vigorous exercise helps to keep the heart healthy and may prevent cardio-vascular diseases. A physically fit person's heart beats at a lower rate and pumps more blood, which denotes the substantial increase of ability to do more physical work.

Conclusion

From the analysis of data, the following conclusion was drawn. The Progressive anaerobic training group improved significantly on for resting pulse rate, breath holding time and cardio respiratory endurance when compared to the control group.

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