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Influence of Plyometric Training on Selected Physiological Variables among Kho Kho Players

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Abstract

The purpose of the study is to find out the influence of Plyometric training on selected physiological variables among school level kho kho players. To achieve this purpose, Thirty boys are selected as subjects who are studied in Government Higher Secondary School, Kuniyamuthur, Coimbatore, Tamilnadu. The selected subjects are aged between recommended to 15 to 17 years for school level players. The selected subjects are randomly divided into two groups of 15 subjects each in the group. Group one acts as an experimental group and group two acts as the control group. The Plyometric training is given to Group I for eight weeks and the routine physical exercise is given to Group III and not involved in any specific training. Resting heart rate and breath holding time are selected as the dependent variables for this study and they are tested by using radial pulse and nostril holding methods respectively prior and after the training. Analysis of Covariance (ANCOVA) for interpreting the results are done as recommended by Clarke and Clarke. Scheffe's post hoc test is used to find out the paired adjusted mean difference when the study is significant. It is concluded that, the experimental group namely the Plyometric training group has achieved a significant improvement on resting the heart rate and breath holding time.

Keywords: Resting heart rate, breath holding time and Plyometric training.

Introduction

Physiological and physical fitness are one of the components of the total fitness of the individual, which also includes mutual, social and emotional fitness. It is one of the basic requirements of life when broadly speaking, it means the ability to carry out the daily tasks without fatigue. Plyometric training includes trouncing, jumping and a depth jumping exercises. The principle applies to any activity where the body is falling and the kinetic energy developed by the loaded muscle is utilized. Plyometric concentric contractions while involving the strength reflex, found in depth jumping and other bounding activities. Plyometric training improves significantly in developing the physiological components of kho kho players.

Methodology

The purpose of the study was to find out the influence of Plyometric training on the selected physiological variables among the school level kho kho players. To achieve this purpose, Thirty boys were selected as subjects who were studied in Government higher secondary school, Kuniyamuthur, Coimbatore, Tamil nadu. The selected subjects were aged between 15 to 17 years. The selected subjects were randomly divided into two groups of 15 subjects in each group. Group I acted as an experimental group and group II acted as the control group. Group one underwent the Plyometric training for eight weeks and group two underwent the routine physical exercise and not involved in any specific trainings. Resting heart rate and breath holding time were selected as the dependent variables for this study and they were tested by using radial pulse and nostril holding methods respectively prior and after the training.

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Training Programme

Group one acted as the Experimental Group I and group II acted as the Control Group. Group II underwent routine physical exercise and not involved in the training. Group I underwent Plyometric training for eight weeks as three days per week for one hour. Training included warming up, Plyometric exercises, rest and warm down.

Plyometric Training Exercises
Standing jump and reach, Depth jump and reach, Three-step vertical jump**,** One Repetition Maximum (RM) parallel squat, Five second parallel squat with 60% of body weight, Rim Jumps, Depth Jumps, Single Leg Push-Off and Cone Hops.

Experimental Design and Statistical procedure

Analysis of Covariance (ANCOVA) was used for interpreting the results as recommended by Clarke and Clarke. Scheffe's post hoc test was used to find out the paired adjusted mean differences when the study was significant. The data were analyzed with the computer using 'SPSS' statistical package. The level of confidence was fixed at 0.05 level of confidence.

Analysis of Data

The influence of independent variables on the selected criterion variable was determined by subjecting the collected data to the analysis of covariance and it was presented in the table 1. The mean values of Plyometric Training and control groups on resting the heart rate and breath holding time were graphically represented in the figure I and II.

Results

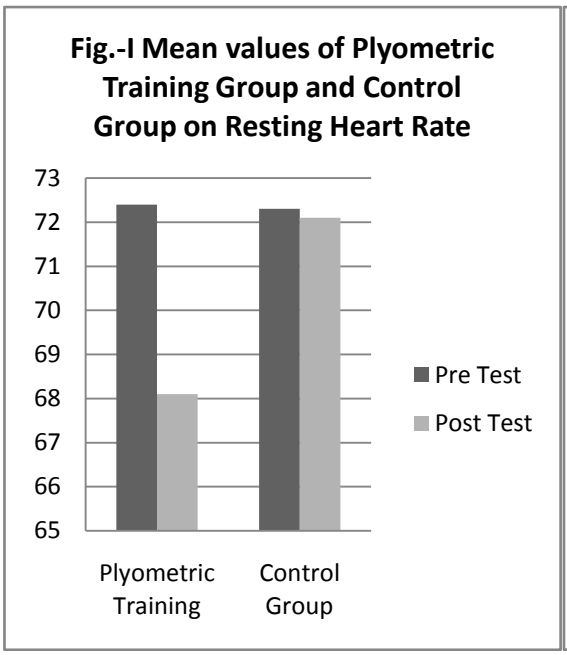
Table 1

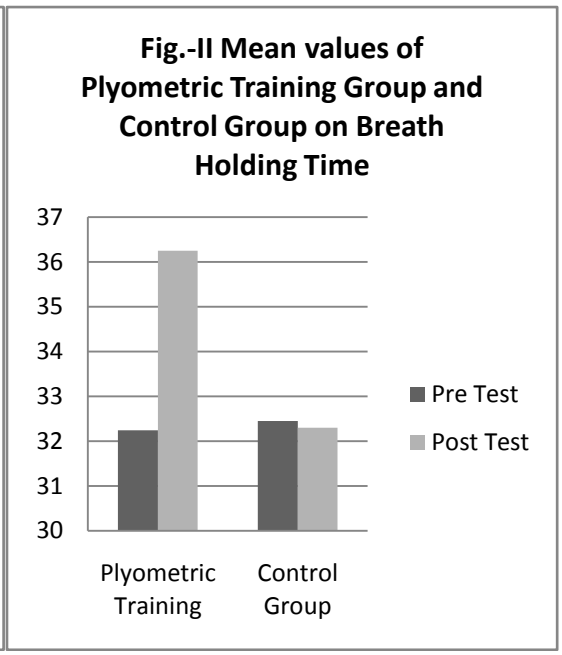
Analysis of covariance on resting the heart rate and breath holding time of plyometric training and control group

Variables	Adjusted post test mean values		S oV	S S	df	Mean Squares	F-ratio
	Plyometric Training Group	Control Group					
Resting Heart Rate	68.25	72.35	Between	1702.45	1	1702.45	4.70*
			Within	9785.26	27	362.42	
Breath Holding Time	36.15	32.24	Between	245.36	1	245.36	6.72*
			Within	985.12	27	36.49	

*Significant at .05***sa** level of confidence.

(The table value required for significance at .05 level with df 1 and 27 is 4.21)





Discussion on Findings

Plyometric exercises performed primarily in a vertical plane in the shallow or deep water; uses movements that amplify the drag by streamlining the body to create resistance. Aquatic exercises can increase the parameters like strength, speed, endurance, explosive power and aerobic capacity, according to the recent researches (Rutledge, 2007 & Peyre–Tartaruga, 2009). Number of studies demonstrated the effectiveness of plyometrics compared to non- exercising control groups (Diallo *et al*., 2001. Johnson, Salzberg and Stevenson (2011) evaluate the efficacy and safety of plyometric training for improving the motor performance in players. The research suggests that the plyometric training is safe for players to improve the motor performance. The result of the study lined with the above studies and

indicates that there is a significant improvement on resting heart rate and breath holding time due to the effect of plyometric training. The result of the study also indicates that significant difference exists between the plyometric training and control groups in developing the resting heart rate and breath holding time over eight weeks of training programme among kho kho players.

Conclusions

1. There was a significant improvement on resting heart rate and breath holding time due to the effect of plyometric training.
2. The significant difference exist between plyometric training and control groups in developing the resting heart rate and breath holding time over eight weeks of training programme among kho kho players.

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