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Efficacy of combination of aquatic and plyometric training on selected physiological variables among badminton players

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Abstract

The purpose of the study was to find out the efficacy of combination of aquatic and plyometric training on selected physiological variables among badminton players. To achieve this purpose, thirty male badminton players were selected as subjects, their aged between 18 to 24 years; they are studying in the various departments of Calicut University, Lakshadweep. The selected subjects were divided into two equal groups of fifteen subjects each, namely Combination of aquatic and plyometric training group and control group. The experimental group trained for three alternative days in a week for eight weeks with three sets per exercise per session at 60 to 80% with a progressive increase in load with the number of weeks. Physiological variables such as Breath holding time and Vital capacity were selected as criterion variables and they were tested by using Stop watch and Wet spirometer respectively. ANCOVA was used to find out the significant difference if any between the groups. The results of the study showed that there was a significant improvement on selected physiological variables such as breath holding time and vital capacity due to eight weeks of combination of aquatic and plyometric training as compared to control group.

Keywords: Aquatic training, plyometric training, breath holding time and vital capacity

Introduction

Aquatic training and conditioning enables an athlete to compete at a higher level and prepares him for other events by getting fit and strong and by improving his skills. "Aqua training is starting to become a buzzword in fitness, and I'm not talking about your traditional water aerobics classes,"

Plyometric training can take many forms, including jump training for the lower extremities and medicine ball exercises for the upper extremities. All the exercises are progressive in nature, with a range of low to high intensity in each type of exercises. Plyometric training is used for the lower body, upper body and core to enhance speed of movement in more specific skills. Plyometric training helps athletes learn greater balance, co-ordination, quickness, agility, speed and power. Plyometric movements are performed in a wide spectrum of sports.

In establishing the aim of plyometric training we must proceed from the definition of the general concept of training. We have stated that plyometric training is a means of achieving higher standard performances in athletics.

Methodology

The purpose of the study was to find out the efficacy of combination of aquatic and plyometric training on selected physiological variables among badminton players. To achieve this purpose, thirty male badminton players were selected as subjects, their aged between 18 to 24 years, they are studying in the various departments of Calicut University, Lakshadweep. The selected subjects were divided into two equal groups of fifteen subjects each, namely combination of aquatic and plyometric training group and control group.

The selected subjects had undergone the Combination of aquatic and plyometric training for eight weeks, with three days per week in alternate days. After 10 to 15 minutes of warm-up the subjects underwent aquatic followed by plyometric training programme and the subjects performed under water exercises for four weeks after that they performed four weeks

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of plyometric exercises 6 to 12 repetitions of plyometric exercises namely hopping, bounding, hurdles exercises, depth jumps, medicine ball throws, with a recovery distance of 20 to 40 meters or one to three minutes between repetitions. The control group did not participate in any specialized training during the period of study.

Experimental design and statistical procedure

The experimental design used for the present investigation was random group design involving 30 subjects for training effect. Analysis of Covariance (ANCOVA) was used as a

statistical technique to determine the significant difference, if any, existing between pretest and posttest data on selected dependent variables separately and presented in Table-I.

Experimental design and analysis of data

The experimental design used for the present investigation was random group design involving 30 subjects for training effect. Analysis of Covariance (ANCOVA) was used as a statistical technique to determine the significant difference, if any, existing between pretest and posttest data on selected dependent variables separately and presented in Table-1.

Table 1: Show the variables separately and presented

Variables	Test		Combination of Aquatic and Plyometric Training Group	Control Group	Source of Variance	SS	df	Mean Square	'F' Ratio	
Breath Holding Time	Pre test	Mean	40.13	40.96	Between	0.833	1	0.833	0.742	
		S.D	4.191	2.95	Within	110.133	28	3.96		
	Post test	Mean	44.65	40.82	Between	19.20	1	19.20		22.049
		S.D	2.65	2.95	Within	123.6	28	4.86		
	Adjusted Post test	Mean	44.68	40.96	Between	26.72	1	26.72		27.64*
			Within	270.3	27	10.03				
Vital Capacity	Pre test	Mean	2408	2428	Between	3.33	1	3.33	1.33	
		S.D	307.68	302.1	Within	648.53	28	23.162		
	Post test	Mean	2854	2434	Between	24.30	1	24.30		177.15
		S.D	260.90	305.54	Within	335.07	28	335.07		
	Adjusted Post test	Mean	2858	2432	Between	31.905	1	31.905		179.4*
			Within	708.53	27	40.02				

Discussion

The result of the study indicates that the combination of Aquatic and plyometric training group had significantly improved the selected dependent variables namely breath holding time and vital capacity. However, control group did not show any improvement on the selected variables as it was not involved in any of the specific training means. The result of the study in consonance with the findings of plyometric training has produced significant improvement on breath holding time and vital capacity.

Conclusion

Based on the results of the study, it was concluded that

- There was a significance difference among combination of Aquatic and Plyometric training group and control group.
- The results of the study revealed that there was a significant improvement on selected physiological variables such as breath holding time and vital capacity due to eight weeks of Combination of breath holding time and vital capacity.

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