

INFLUENCE OF PLYOMETRIC AND CIRCUIT TRAININGS ON SELECTED PHYSIOLOGICAL PARAMETERS AMONG COLLEGE MEN VOLLEYBALL PLAYERS

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ABSTRACT

The purpose of this study was to find out the effects of plyometric and circuit trainings on selected physiological parameters among college men volleyball players. To achieve the purpose of this study, forty-five men volleyball players studying in the colleges affiliated to the University of Madras, Chennai were selected as subjects and they were divided into three equal groups of fifteen each. Group I underwent plyometric training, Group II underwent circuit training. Group I and Group II underwent their respective training programmes for three days per week for twelve weeks and Group III acted as control in which they didn't undergo any special training programme apart from their daily curricular activities. The selected subjects were tested on the selected criterion variables such as breath holding time and resting pulse rate at prior and immediately after the training programme with holding the breath for time and by taking radial pulse. The analysis of covariance was used to find out the significant differences, if any, at prior and immediately after the training programme among groups on selected criterion variables separately. Whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test was applied as post hoc test to determine the paired men differences, if any. The level of confidence was fixed at .05 level which was considered as an appropriate. The results of this study showed that there was a significant difference between PTG & CTG, PTG & CG and CTG & CG on BHT and RPR.

KEYWORDS: Plyometric And Circuit Trainings -Physiological Parameters - College Men Volleyball Players.

INTRODUCTION

Sport has very prominent role in modern society. It is important to an individual, a group, a nation indeed the world. To a large extent general education was physical education in early societies, for the environment made great demands on the physical conditions of man. Youth how lacked in physical courage, stamina, and skill were a danger to the community. The increase the chances of group survival, the tribe encouraged youths to develop the strength, endurance, agility and skills needed to withstand the rigors of outdoor life, to obtained the defensive actions. In addition to acquiring the physical browses

necessary to perform the work required for survival, youths were expected to master the communication media of bodily movement through which they could articulate their wants and fears to the invisible forces that controlled their lines.

The word training denotes the process of preparation for some task. This process invariably extends to a number of days and even months & years. The benefits of aerobic exercise and fitness include improved circulation and respiration, reduced risk of heart disease, improved fat metabolism and reduced body weight, fat free mass, strengthened bones, ligaments, body image and emotional stability.

METHODOLOGY

The purpose of this study was to find out the effects of plyometric and circuit trainings on selected physiological parameters among college men volleyball players. To achieve the purpose of this study, forty-five volleyball players studying in the colleges affiliated to the University of Madras, Chennai were selected as subjects and they were divided into three equal groups of fifteen each. Group I underwent plyometric training, Group II underwent circuit training. Group I and Group II underwent their respective training programmes for three days per week for twelve weeks and Group III acted as control in which they didn't undergo any special training programme apart from their daily curricular activities. The selected subjects were tested on the selected criterion variables such as breath holding time and resting pulse rate at prior and immediately after the training programme with holding the breath for time and by taking radial pulse. The analysis of covariance was used to find out the significant differences, if any, at prior and immediately after the training programme among groups on selected criterion variables separately. Whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test was applied as post hoc test to determine the paired men differences, if any. The level of confidence was fixed at .05 level which was considered as an appropriate.

TRAINING PROGRAMME

Plyometric training and circuit training groups underwent their respective training programme for twelve weeks for three days per week. Trainings were given in the morning session. The training session includes warming up and limbering down. Every day the workout lasted for 45 to 60 minutes approximately. The subjects underwent their respective training programmes as per the schedules under the strict supervision of the investigator. During experimental period control group did not participate in any of the special training.

ANALYSIS OF THE DATA

The influence of plyometric and circuit trainings on each criterion variables were analysed separately and presented below.

BREATH HOLDING TIME [BHT]

The analysis of covariance on breath holding time [BHT] of the pre and post test scores of plyometric training group [PTG] and circuit training group [CTG] and control group [CG] have been analyzed and presented in Table I.

TABLE I
ANCOVA DATA ON BREATH HOLDING TIME OF PRE AND POST TESTS SCORES OF PTG, CTG AND CG

Test	PTG	CTG	CG	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test								
Mean	42.53	42.93	42.00	Between	6.58	2	3.29	0.06
S.D.	6.48	8.72	6.46	Within	2396.67	42	57.06	
Post Test								
Mean	44.80	49.13	42.13	Between	374.44	2	187.22	4.07*
S.D.	5.92	7.28	6.39	Within	1933.87	42	46.04	
Adjusted Post Test								
Mean	44.76	48.75	42.55	Between	295.27	2	147.64	36.98*
				Within	163.70	41	3.99	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 42 and 2 and 41 are 3.222 and 3.226 respectively).

The table I shows that the adjusted post-test means of PTG, CTG and CG on BHT are 44.76, 48.75 and 42.55 respectively. the obtained "F" ratio of 36.98 for adjusted post-test means is greater than the table value of 3.226 for df 2 and 41 required for significance at .05 level of confidence on BHT. The results of the study indicated that there was a significant difference between the adjusted post-test means of PTG, CTG and CG on BHT.

Since, three groups were compared, whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences and it was presented in Table II.

TABLE II
THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS ON BREATH HOLDING TIME

PTG	CTG	CG	MD	CI
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44.76	48.75	-	3.99*	1.85
44.76	-	42.55	2.21*	1.85
-	48.75	42.55	6.20*	1.85

* Significant at .05 level of confidence.

The table II shows that the mean difference values between PTG & CTG, PTG & CG and CTG & CG 3.99, 2.21 and 6.20 respectively on BHT which were greater than the required confidence interval value 1.85 for significance.

The results of this study showed that there was a significant difference between PTG & CTG, PTG & CG and CTG & CG on BHT.

RESTING PULSE RATE [RPR]

The analysis of covariance on resting pulse rate [RPR] of the pre and post test scores of plyometric training group [PTG] and circuit training group [CTG] and control group [CG] have been analyzed and presented in Table III.

TABLE III
ANCOVA DATA ON RESTING PULSE RATE OF PRE AND POST TESTS
SCORES OF PTG, CTG AND CG

Test	PTG	CTG	CG	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test								
Mean	72.73	72.13	72.40	Between	2.71	2	1.36	0.13
S.D.	3.00	3.34	3.09	Within	446.27	42	10.63	
Post Test								
Mean	70.27	68.67	72.13	Between	90.31	2	45.16	5.10*
S.D.	3.11	2.62	2.87	Within	372.00	42	8.86	
Adjusted Post Test								
Mean	69.99	68.92	72.15	Between	81.28	2	40.64	59.97*
				Within	27.78	41	0.68	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 42 and 2 and 41 are 3.222 and 3.226 respectively).

The table III shows that the adjusted post-test means of PTG, CTG and CG on RPR are 69.99 68.92 and 72.15 respectively. the obtained “F” ratio of 59.97 for adjusted post-test means is greater than the table value of 3.226 for df 2 and 41 required for significance at .05 level of confidence on RPR. The results of the study indicated that there was a significant difference between the adjusted post-test means of PTG, CTG and CG on RPR.

Since, three groups were compared, whenever the obtained ‘F’ ratio for adjusted post test was found to be significant, the Scheffe’s test to find out the paired mean differences and it was presented in Table IV.

TABLE IV
THE SCHEFFE’S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS ON RESTING PULSE RATE

PTG	CTG	CG	MD	CI
69.99	68.92	-	1.07*	0.76
69.99	-	72.15	2.16*	0.76
-	68.92	72.15	3.23*	0.76

* Significant at .05 level of confidence.

The table IV shows that the mean difference values between PTG & CTG, PTG & CG and CTG & CG 1.07, 2.16 and 3.23 respectively on RPR which were greater than the required confidence interval value 0.76 for significance.

The results of this study showed that there was a significant difference between PTG & CTG, PTG & CG and CTG & CG on RPR.

RESULTS

1. There was a significant difference among plyometric training group, circuit training group and control group on breath holding time.
2. There was a significant difference among plyometric training group, circuit training group and control group on resting pulse rate.
3. There was a significant change on breath holding time and resting pulse rate due to plyometric training and circuit training.

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