



EFFECT OF VARIED PACKAGES OF PHYSICAL TRAINING FOR COMPETITIVE PERIOD ON CARDIO RESPIRATORY ENDURANCE OF ADOLESCENT BOYS

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Abstract:

For the purpose of this study, eighty adolescent boys studying in the high school and higher secondary schools of Puducherry region were randomly selected as subjects and their range of age group was between fourteen to nineteen years. The total subjects were divided into four groups called as I, II, III and IV and each group consist of twenty students. The groups I, II, and III were treated as experimental groups and the group IV was considered as control group. The pre and post tests on cardio respiratory endurance variable were taken and recorded for all the four groups. All the three experimental groups were trained for six days per week for a period of 14 weeks. The adjusted post test mean differences between experimental group I and experimental group III was 10.01 and it was significant at 0.01 level. The value of 0.10 was obtained as adjusted post test mean difference between experimental group II and experimental group III. The experimental group I packaging I competitive period physical training with required intensity and required volume had significantly improved on cardio respiratory endurance greater than the other two experimental groups.

Introduction:

Sports Training is done for improving sports performance. The sports performance is not the product of one single system or aspect of human personality. The total personality of a sportsman has to be improved in order to improve his performance. Compleitive Sports is becoming a highly technical job. A lot of research is being done by the western countries on the scientific basis of performance in sports. As a result of more research new techniques are being adopted for training high level sportsmen. In recent years the dramatic changes that have taken place has brought about some revolution in performance. These recent changes in conditioning methods are based on and have been motivated careful observation and scientific research. The changed programme has produced valid and precise information on the relative effectiveness of different training methods. As a result we currently know much better than ever before about the functioning of the body systems during training and competition. We have learned more about the effects of diet, drugs, attitude, warm up and other influencing factors. In recent years, we have gained new knowledge about almost every aspect of conditioning and performance. The efficiency of athletes can be boosted up through proper training and conditioning. The condition of training has different aspects including the varied physical and physiological factors. The use of scientific method or technique has helped to develop every new and effective training method one such method of training is package of trainings which has now come to be used by sports coaches in different parts of the world.

Cardio-Respiratory Endurance:

Cardio-respiratory endurance is the ability to do movements involving large number of muscles, at a slow pace for prolonged period e.g., jogging, walking at moderate speed.

Training and Cardio Respiratory Endurance:

Cardio respiratory endurance is considered to be the ability of the circulatory system to supply oxygen to the cells to sustain the oxidative energy demands of the body and to remove the waste materials of the metabolism. Most physiologists agree that gas transport, especially oxygen is the primary determinant of the cardio respiratory endurance. Gas transport depends on cardiac output, and the oxygen carrying capacity of the blood, that is hemoglobin and the number of red blood cells per unit of blood. Thus, one reason for developing cardio respiratory endurance is to improve the circulation to the muscular being exercised.

Harper, Billings and Mathews conducted a study of the effects of two physical conditioning programme on cardio respiratory fitness of twenty five college men. The subjects were placed into three matched groups on the basis of maximum oxygen consumption. One group participated in the modified army conditioning programme of calisthenics and marching while the second group participated in a programme of interval training involving running. The third group participated in recreational activities. The group met five days per week for seven weeks. Cardio respiratory efficiency was measured by the help of Harvard Step test. The result showed that both intervals trained and army trained groups improved significantly in their cardiovascular efficiency, the control group did not significantly improve.

Kibban conducted a study on the comparison of three work load of varying intensities and distance on cardio respiratory endurance, divided the subjects in to three groups. Group I trained at a heart rate of 150 beats per minute for fifteen minutes, Group II trained at a rate ranging from 120 to 180 beats per minutes for fifteen

minutes. Group III trained at a rate of 150 beats per minute over a distance run by group II. Subjects were trained five days a week. It was concluded that running for fifteen minutes a day at a heart rate of 150 beats per minute for seven weeks significantly increased cardio respiratory endurance.

Uppal and Tunidan studied the comparative effect of different frequencies of endurance training on cardio respiratory endurance. According to their findings the cardio respiratory endurance of secondary school students could be effectively improved by administering a progressive programme of interval training. To bring about significant improvement in cardio respiratory endurance, varied frequencies of training namely twice, thrice and five days a week was employed. Endurance training work out using interval running method, administered, three and five days a week were more effective in developing Cardio-respiratory endurance as compared to work outs twice a week.

Yeager and Brynnteson sampled eighteen female volunteers and they were randomly divided into three experimental groups which trained 10, 20 or 30 minutes a day at a heart rate of 144 beats per minute, three days per week for six weeks on a bicycle ergo meter. The subjects were tested before and after the conditioning programme on cardiovascular efficiency. The two tests administered during each testing period were the Strand test of predicted maximal oxygen uptake and a test physical work capacity. The results indicated that all three groups significantly improved in cardiovascular efficiency between Tests I and Test II predicted maximal oxygen values increased five, five and eight ml.kg per minute in the 10-20 and 30 minute groups respectively. Times in physical work capacity test increased 24, 50 and 35 seconds in the three respective groups the 30 minute group however, showed a more consistent increase in cardiovascular efficiency than the other two.

Hypothesis:

It was hypothesized that there would be significant differences among the effect of package I, Package II and package III for competitive period of physical trainings on cardio respiratory endurance of adolescent boys.

Method:

The main purpose of the study was to find out the effect of varied packages of physical training for competitive periods on cardio respiratory endurance of adolescent boys.

For the purpose of this study, eighty adolescent boys studying in the high school and higher secondary schools of Puducherry region were randomly selected as subjects and their range of age group was between fourteen to nineteen years. The total subjects were divided into four groups called as I, II, III and IV and each group consist of twenty students. The groups I, II, and III were treated as experimental groups and the group IV was considered as control group. The initial and post tests on cardio respiratory endurance (cooper's 12 minutes run and walk test) were taken and recorded for all the four groups. All the three experimental groups were trained for six days per week for a period of 14 weeks.

Competitive period (14 weeks) Training Programme

- ✓ Package I Physical training – with required intensity and required volume.
- ✓ Package II Physical training – with fixed high intensity and required volume.
- ✓ Package III Physical training – with fixed high intensity and fixed high volume.

The statistical analysis of the data collected from the pretest and post test of experimental groups and control group on adolescent for the competitive period of training have been presented in the table I

Table 1: Analysis of Covariance for the Pretest and Posttest Data of Experimental Group I, Experimental Group II, Experimental Group III and Control Group on Cardio Respiratory Endurance for the Competitive Period (Scores in Meters)

Test	Group I Gradually Loaded Intensity & Required Volume	Group II Fixed High Intensity & Required Volume	Group III Fixed High Intensity & Fixed High Volume	Group IV Control Group	SOV	DO	SS	MS	"F"
Pre -Test Mean	3170.0	2967.50	2996.25	2831.25	B.M	3	1162812.5	387604.17	14.55**
SD	132.90	235.07	138.36	95.81	W.G	76	2024812.5	26642.27	
Post - Test Mean	3321.2	3017.50	3155.00	2855.00	B.M	3	1576773.44	525591.15	17.54**
SD	133.76	232.12	152.19	137.52	W.G	76	2276968.75	29960.12	
Adjusted Post -Test Mean	3049.6	3040.30	3150.20	3008.60	B.S	3	218402.46	72800.82	13.29**
					W.S	75	410795.95	5477.28	

* = Significant at .05 level

** = Significant at .01 level

Table value for df 3 and 76 at .05 level =2.72

Table value for df 3 and 75 at .05 level =2.73

Table value for df 3 and 76 at .01 level =4.05

Table value for df 3 and 75 at .01 level =4.05

Table I shows the analyzed data of Cardio respiratory endurance... The pre test means of experimental group I, experimental group II, experimental group III and control group were 3170.00 metres, 2967.50 metres, 2996.25 metres and 2831.25 metres respectively. The obtained 'F' ratio was 14.55 and it was insignificant for

the degree of freedom 3 and 76. The post test means of experimental group I, experimental group II, experimental group III and control group were 3321.25 metres, 3017.50 metres, 3155.00 metres and 2855.00 metres respectively. The obtained 'F' ratio of 17.54 was insignificant at .01 level for the degree of freedom 3 and 76. The adjusted post test means were 3049.65 metres for experimental group I, 3040.30 metres for experimental group II, 3150.20 metres for experimental group III and 3008.60 metres for control group. The obtained 'F' ratio of 13.29 was significant at 0.01 level for the degree of freedom 3 and 75. The above results indicated that there was significant difference existed among the adjusted post test means of experimental group I, experimental group II, experimental group III and control group. Further, to determine which of the paired means had a significant difference, the Scheffe's test was applied as post hoc test and the results were presented in the table II.

Table 2: Scheffe's Test for the Differences between the Paired Adjusted, Post - Test Means on Cardio Respiratory Endurance for Competitive Period (Scores in Metres)

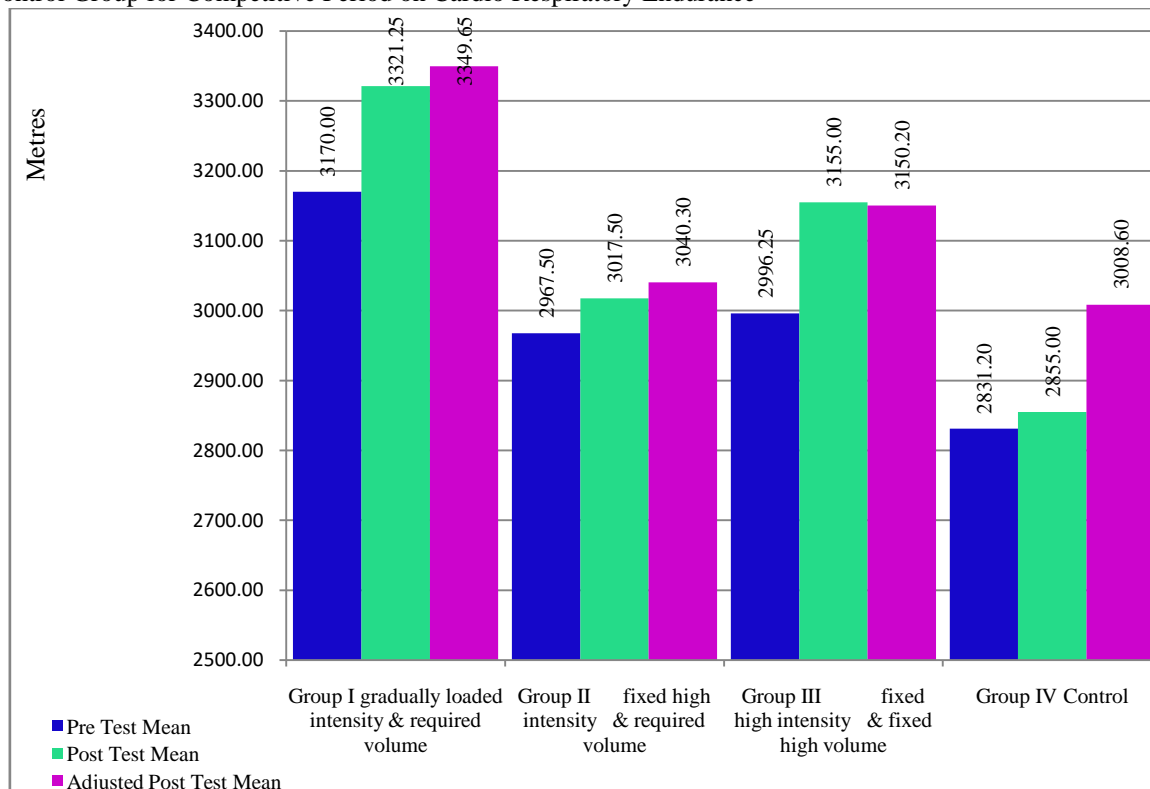
Adjusted post test Means				Means differences	Level of significant
Group I Gradually Loaded High Intensity & Required Volume	Group II Fixed High Intensity & Required Volume	Group III Gradually Loaded High Intensity & Fixed High Volume	Group IV Control Group		
3049.65			3008.60	41.04	NS
	3040.30		3008.60	31.70	NS
		3150.20	3008.60	141.60	0.01
3049.65	3040.30			9.34	NS
3049.65		3150.20		100.55	0.01
	3040.30	3150.20		109.90	0.01

Confidence interval value at .05 level = 66.98

Confidence Interval value at .01 level = 81.58

Table 2 shows the difference between paired adjusted post test means on cardio respiratory endurance. The confidence interval value at .05 level was 66.98; and the value of 81.58 was the confident interval value at .01 level of significance. The adjusted post test mean difference on cardio respiratory endurance between experimental group I and control group was 41.04 and the obtained value was significant at 0.01 level. The adjusted post test mean difference of 31.70 was obtained between experimental group II and control group. The obtained value was significant at .01 level. The adjusted post test mean difference on cardio respiratory endurance between experimental group III and control group was 141.60 and the obtained value was insignificant.

Figure: The Pre-Test, Post - Test and Adjusted Post Test Mean Values of Experimental Groups and Control Group for Competitive Period on Cardio Respiratory Endurance



The adjusted post test mean difference of 9.34 was obtained between experimental group I and experimental group II. The obtained value was insignificant. The adjusted post test mean difference between experimental group I and experimental group III was 100.55 and the obtained value was significant at .01 level.

The value of 109.90 was obtained as adjusted post test mean difference between experimental group II and experimental group III. The obtained value was significant at .01 level.

The above results indicated that experimental group III was significantly improved cardio respiratory endurance and experimental group I and experimental group II were not significantly improved the cardio respiratory endurance, when compared with the control group and also there was significant difference existed between experimental groups I and III and also between groups II and III.

It was also indicated that experimental group III had significantly improved the cardio respiratory endurance greater than the other two experimental groups.

The pre test, post test and adjusted post test mean values of experimental groups and control group on cardio respiratory endurance for competitive period were graphically represented in the figure.

Discussion on Findings for the Competitive Period Training:

The result of the study for the competitive period indicate that the experimental groups namely package I, package II and package III physical trainings groups had significantly improved the dependent variables namely resting pulse rate and anaerobic power when compared to the control group. In addition, the result of the study indicates that package I physical training group significantly improved the cardio respiratory endurance when compared to package II and package III physical training groups. Aerobic activities can be given in reduced level during the competitive period. Hence, package I indicate insignificant level regarding cardio – respiratory endurance. The result of the study regarding cardio respiratory endurance was supported by the findings of Uppal & Tunidion, Morrel & Mark and Morgan.

Conclusion:

From the finding of the above relative literature and results of the present study, it is included that significant differences existed among package I, package II, and package III physical training groups in developing dependent variable of cardio respiratory endurance. The package III training had recorded significant improvement in cardio respiratory endurance when compared to control group.

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