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Research Paper

THE EFFECT OF INCLINE RUN, DECLINE RUN AND RUNNING WITH LIGHT WEIGHT ON PLAIN SURFACE ON CARDIO RESPIRATORY ENDURANCE OF COLLEGE ATHLETES IN PERIYAR UNIVERSITY

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Abstract:
The present study aimed to achieve the effect of incline run, decline run and running with light weight on plain surface on cardio respiratory endurance of college athletes in Periyar University. The sample for the present study is sixty Male athletes between the age group of nineteen to twenty two years studying various colleges affiliated to Periyar University, Salem, and Tamil Nadu were selected as subjects. The subjects were randomly divided into four equal of fifteen(n=15) each namely, Incline Surface Running group, Decline Surface Running group, Running with light weight on Plain surface group and control group. All the Experimental groups underwent their respective experimental training for 12 weeks. Cardio respiratory endurance was selected as dependent variable and it was measured through Twelve Minute Cooper Test. The athletes were made to run twelve minute in four hundred meters track at Gandhi Stadium Salem in the batch of ten Members and the results recorded based upon the distance covered in the twelve minutes. All the subjects were tested prior to and after the training for all the selected variables. The data collected from the four groups prior to and post experimentation was statistically analyzed by using Analysis of Covariance (ANCOVA). Scheffe's post hoc test was applied to determine the significant difference between the paired means. In all the cases 0.05 level of significance was fixed.This study shows that experimental groups athletes are having good Cardio Respiratory Endurance compare to Control group and the Incline Surface Running group has covered the more distance in twelve minute.

Keywords: Incline Run, Decline Run, Plain Surface Run, Cardio Respiratory Endurance

Introduction

Running is a fundamental natural human movement, which is essential to successful performance in many sports and games. It is the primary activity in a sport. Considerable interest in distance running can be found throughout the world as indicated by the number of runners participating in national and international competitions. The increased enthusiasm for running has been accompanied by expanded interest on the part of the scientists concerned with various aspects of the sport, resulting in better training methods. Running is a cyclic behavior in which the legs state machine and transition events are used for the simulation of Running (Wooten, swing fore and aft and provide support for the body in alternation. Because the legs perform different functions during the phases of the locomotion cycle, the muscles are used for different control actions at different times in the cycle. When the foot of the simulated runner is on the ground, the ankle, knee and hip provide support and balance. During the flight phase, a leg is swung forward in preparation for the next touchdown. These distinct phases and corresponding changes in control actions make a state machine a natural tool for selecting the control actions that should be activated at a particular time. The

1995).Cardio respiratory endurance refers to the ability of the circulatory system to provide oxygen to the cells to support the oxidative energy scheme of the body and to remove the waste products of metabolism. When many muscles are worked for long periods of time, these factors limit the amount of work which can be accomplished. Therefore, the primary objective of cardio respiratory endurance training is to improve the circulation to the working muscles. Cardio respiratory endurance training can be divided into two main categories aerobic training and anaerobic training. Aerobic trainings involve training the systems which supply oxygen to the cells of the body, whereas anaerobic training involves the energy mechanisms which supply energy without the presence of oxygen.

Methodology:

In this study it was aimed to find out the effect of incline run, decline run and running with light weight on plain surface on cardio respiratory endurance of college athletes in Periyar University. To achieve the purpose sixty male athletes who were participated inter collegiate athlete meet from various colleges affiliated to Periyar University, Salem, Tamil Nadu were selected as subjects at random from the total population of 274 students. They were divided into four equal groups of fifteen each and further divided as three experimental groups and one control group, in which the group I (n=15) underwent Incline Surface Running, group II (n = 15) underwent Decline Surface Running and group III (n = 15) underwent the Running with light weight on Plain surface, and group IV (n=15) acted as control which did not participate in any special training apart from the regular physical education programme of the curriculum. For every training programme there would be a change in various structure and systems in human body. So, the researchers consulted with the experts and then Cardio respiratory endurance was selected as criterion variable and it was assessed through Cooper's 12 minutes run/walk test.

Analysis of the Data:

Analysis of covariance was used to determine the differences, if any, among the adjusted post test means on selected criterion variables separately. Whenever the 'F' ratio for adjusted post test mean was found to be significant, the Scheffé S test was applied as post-hoc test. The level of significance was fixed at 0.05 level of confidence to test the 'F' ratio obtained by analysis of covariance.

Table – 1

Analysis of Covariance and 'F' ratio for Cardio respiratory endurance of, Incline Surface Running group, Decline Surface Running group, running with light weight on Plain surface group and Control group

Criterion variable	Adjusted Post test Means				Source of Variance	Sum of Squares	df	Mean Squares	'F' Ratio
	Surface Runn.	Surface Runn.	ight weight on Plain	Control group					
Cardio Respiratory Endurance	2483.91	2403.79	2360.10	2158.86	Between Within	861762.47 537456.47	3 55	287254.16 9771.94	29.40*

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

(The table value required for Significance at 0.05 levels with df 3 and 55 is 2.77)

Table 1 show that the adjusted post - test mean values of cardio respiratory endurance for Incline Surface Running group, Decline Surface Running group, running with light weight on Plain surface group and Control groups. The obtained 'F' ratio value of 29.40 for adjusted post test mean of Incline Surface Running group, Decline Surface Running group, running with light weight on Plain surface group and control groups on cardio respiratory endurance was higher than the required table value of 2.77 for significant with df 2 and 55 at 0.05 level of confidence. The above statistical analysis showed that there was development in cardio respiratory endurance after the testing. Further to determine which of the paired means has a

significant improvement, Scheffe'S test was applied and which is presented in table 2.

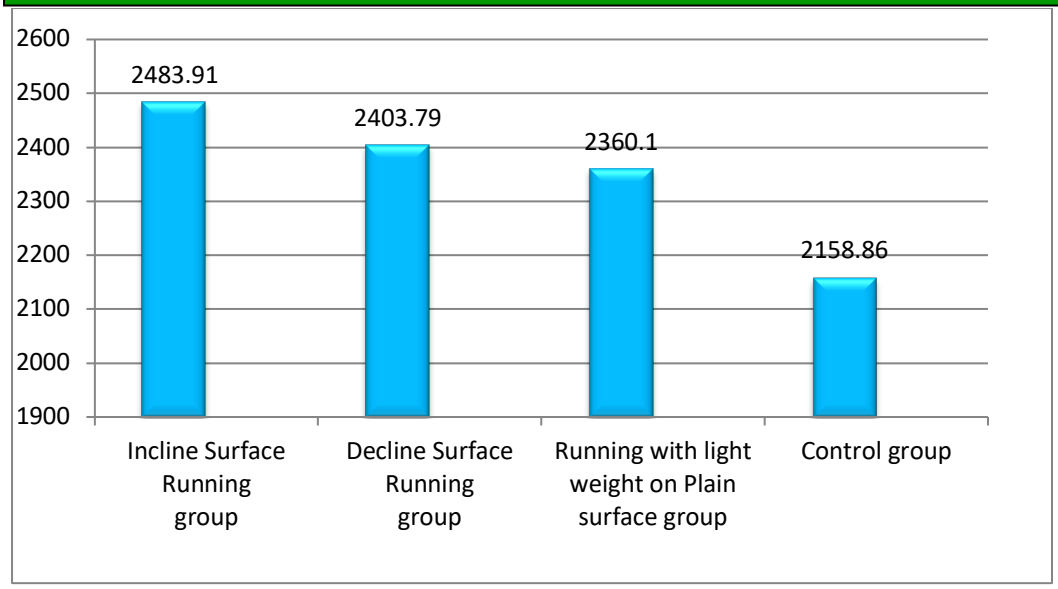
Table - 2
Scheffe's test for the difference between the adjusted post-test mean of Cardio Respiratory Endurance

Dependent Variables	Adjusted Post test Means				Mean Difference	Confidence Interval
	Incline Surface Running group	Decline Surface Running group	Running with light weight on Plain surface group	Control group		
Cardio Respiratory Endurance	2483.91	2403.79	--	--	80.12	358.35
	2483.91	--	2360.10	--	123.81*	358.35
	2483.91	--	--	2158.86	325.05*	358.35
	--	2403.79	2360.10	--	43.69	358.35
	--	2403.79	--	2158.86	244.93	358.35
	--	--	2360.10	2158.86	201.24	358.35

*** Significant at 0.05 level of confidence**

Table-2 shows that the adjusted post test mean difference of Cardio Respiratory Endurance on Incline Surface Running group and Running with light weight on Plain surface group, Incline Surface Running group and Control group, are 123.81 and 325.05 respectively and they are greater than the confidence interval value 358.35, which shows significant differences at 0.05 level of confidence. Further the table-2 shows that the adjusted post test men difference of Cardio Respiratory Endurance between Incline Surface Running group and Decline Surface Running group, Decline Surface Running group and Running with light weight on Plain surface group, Decline Surface Running group and Control group, Running with light weight on Plain surface group and Control group are 80.12, 43.69, 244.93 and 201.24 respectively and they are greater than the confidence interval value 358.35, which shows insignificant differences at 0.05 level of confidence. It may be concluded from the results of the study that there is a significant difference in Cardio Respiratory Endurance on, on Incline Surface Running group and Running with light weight on Plain surface group, Incline Surface Running group and Control group. The values between Incline Surface Running group and Decline Surface Running group, Decline Surface Running group and Running with light weight on Plain surface group, Decline Surface Running group and Control group, Running with light weight on Plain surface group and Control group showed insignificant difference. However, the increase in Cardio Respiratory Endurance was significantly higher for Incline Surface running group than other Experimental Groups. The adjusted post test mean values of Experimental Groups on Cardio Respiratory Endurance are graphically represented in the Figure -1.

Figure–1: The Adjusted Post Tests Mean values of Experimental Groups on Cardio Respiratory Endurance



Conclusion:

The experimental groups namely, Incline Surface Running group, Decline Surface Running group, running with light weight on Plain surface group and control groups had significantly improved in Cardio Respiratory Endurance. The Incline Surface Running group was found to be better than the Decline Surface Running group, running with light weight on Plain surface group and control groups in increase Cardio Respiratory Endurance.

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