

## Research Paper

**THE EFFECT OF INCLINE RUN, DECLINE RUN AND RUNNING WITH LIGHT WEIGHT ON PLAIN SURFACE ON EXPLOSIVE POWER OF COLLEGE ATHLETES IN PERIYAR UNIVERSITY****K. Balamurugan <sup>1</sup>, Dr. K. Usharani <sup>2</sup>**

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[balas.arthi@gmail.com](mailto:balas.arthi@gmail.com)**Abstract:**

The purpose of the study was to find out the effect of incline run, decline run and running with light weight on plain surface on explosive power of college athletes in Periyar University. To attain the purpose sixty (N=60) Male athletes who have participated Periyar University inter collegiate athletic meet of during the year 2014-2015 were selected randomly selected as subjects. The age of the subjects were ranged between 18 to 21 years. 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 3 days per week for 12 weeks duration. Explosive Power was selected as dependent variable and it was measured through Sergeant Jump Test. All the subjects were tested prior to and after the training for the selected variable. 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. The results of the study showed that experimental groups such as , Incline Surface Running group, Decline Surface Running group and Running with light weight on Plain surface group was significantly improved in Explosive power. Further the results of the study showed Incline Surface Running group was better than Decline Surface Running group, running with light weight on Plain surface group and Control group.

**Keywords:** Incline Run, Decline Run, Plain Surface Run, Explosive Power**Introduction**

Running not only is an athletic event but is also a very important part of other sports. Short distance and middle distance races are similar except that the actions are greatly accentuated in running. The basic sprinting action is of considerable importances not only in track and field but in many other sports as well. Although successes in sprinting obviously depends on athlete's ability to combine the actions of the legs, arms, trunk and so on into a

smoothly coordinated whole, for the purpose of analysis that follows, the position and movements of each body part are considered separately. Power is an essential quality in many sports, for it represents the effective combination of strength and speed. Increase in strength or speed will increase power, and when power increases, more work can be done in less time (Sharkey, 1975). Muscular power is related to muscular strength. One may possess adequate strength, but may not be able to deliver

the generated force judiciously on time, and at Power is the application of force, per unit time or per unit area of Surface. The nature of power application determines the effectiveness of the execution of the skill (Sundararajan, 1979). Explosiveness is the spark of force that triggers speed. It can be described as force plus quickness. Explosiveness is critical for athletes who must rapidly reach their sprint speed to achieve or sustain a competitive advantage. My power programs are especially designed to help athletes generate and project explosiveness in to critical movements of their sport (Singh, 1991).

### Methodology

To achieve the purpose sixty (N=60) 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. The subjects were divided into four equal groups of fifteen each (n=15). 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)

the particular point of action to advantages.

acted as control. The Experimental groups underwent the respective training for 3 days per week for 12 weeks. Explosive Power was selected as dependent variable and it was assessed through Sergeant Jump test. The data for all the groups were collected before and immediately after the training period of 12 weeks. To find out the significant differences Analysis of covariance (ANCOVA) was used. 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.

### Analysis of the Data

The analysis of covariance on Explosive Power of Incline Surface Running group, Decline Surface Running group, running with light weight on Plain surface group and Control group have been analyzed and presented in Table 1.

Table – 1.

Analysis of Covariance and 'F' ratio for Explosive Power 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
	Incline Surface Running	Decline Surface Running	Running with light weight on Plain	Control group					
Explosive Power	41.35	40.05	40.55	39.75	Between Within	22.09 24.11	3 55	7.36 0.44	16.80*

\* Significant at .05 level of confidence

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

Table-1 shows that the adjusted post -test mean values of Explosive Power for Incline Surface Running group, Decline Surface

Running group, running with light weight on Plain surface group and Control groups were

41.35, 40.05, 40.55 and 39.75. The obtained 'F' ratio value of 16.80 for adjusted post test scores

of Incline Surface Running group, Decline Surface Running group, running with light weight on Plain surface group and control groups on Explosive Power was higher than the required table value of 16.80 for significant with df 2 and 55 at 0.05 level of confidence. The above statistical analysis showed that there was Table – 2.

Scheffe's test for the difference between the adjusted post-test mean of Explosive Power

development in Explosive Power after the testing. Further to determine which of the paired means has a significant improvement, Scheffe's post hoc test was applied and which is presented in table 2..

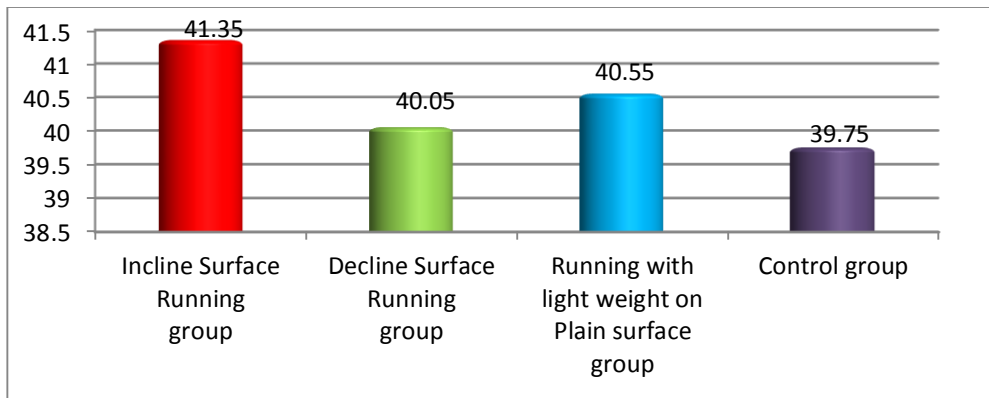
Dependent Variable	Adjusted Post test Means				Mean Difference	Confidence Interval
	Incline Surface Running group	Decline Surface Running group	Running with light weight on Plain surface group	Control group		
Explosive Power	41.35	40.05	--	--	1.30*	0.32
	41.35	--	40.55	--	0.80*	0.32
	41.35	--	--	39.75	1.60*	0.32
	--	40.05	40.55	--	0.50*	0.32
	--	40.05	--	39.75	0.30	0.32
	--	--	40.55	39.75	0.80*	0.32

\* Significant at 0.05 level of confidence

Table-II shows that the adjusted post test mean difference of Explosive Power on Incline Surface Running group and Decline Surface Running group, Incline Surface Running group and Running with light weight on Plain surface group, Incline Surface Running group and Control group, Decline Surface Running group and Running with light weight on Plain surface group, and Running with light weight on Plain surface group and Control group are 1.30, 0.80, 1.60, 0.50 and 0.80 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 II shows that the adjusted post test men difference of Explosive Power between Decline Surface Running group and Control group is 0.30 and they are lesser than the confidence interval value 0.32, which shows insignificant differences at 0.05 level of confidence. It may be concluded

Figure-1: The Adjusted Post Tests Mean values of Experimental Groups on Explosive Power

from the results of the study that there is a significant difference in Explosive Power on, Incline Surface Running group and Decline Surface Running group, Incline Surface Running group and Running with light weight on Plain surface group, Incline Surface Running group and Control group, Decline Surface Running group and Running with light weight on Plain surface group, and Running with light weight on Plain surface group and Control group. The values between Decline Surface Running group and Control group showed insignificant difference. However, the increase in Explosive Power was significantly higher for Incline Surface Running group than other Experimental Groups. The adjusted post test mean values of Experimental Groups on Explosive Power are graphically represented in the Figure -1.



### 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 Explosive Power. 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 Explosive Power.

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