Effects of Varied Frequencies of Acceleration Sprinting on Speed and Pulse Rate of College Men Students

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Abstract

The purpose of the study was to find out the effect of varied frequencies of acceleration sprinting on selected motor ability components and physiological variables of college men students. To find out the speed, 50 meters run was conducted by using stop watch and the scores were recorded in seconds. The pulse rate was measured in beats / min by radial artery method. The Co-efficient of reliabilities are significant at the 0.01 level for all the tests under investigation which have reliability of more than 0.632 required for degrees of freedom.

Key words: Acceleration Sprinting, Speed, Pulse rate.

Values of Physical Training

Every one participates in some kind of sports activity or physical training during the course of his life. This training may assume different forms for different individuals. This training may influence physical, physiological, and mental fitness of an individual.

Physical fitness is a capacity for sustained physical activity. It is the key to success in every walk of life. To understand the concept of physical fitness and adopting a balanced approach to improve your state of fitness, it is important to develop and adopt sensible training habits towards fitness training.

Acceleration Sprinting

This type of training develops almost exclusively speed and strength. it involves 50 to 110 yards of jogging followed by 50 to 110 yards of following in recovery (via walking) distance of 50 to 110 yards the procedure should be repeated as with points out this type of training is excellent when running outside in cold weather. Since the athlete, instead of reaching his or her top sprint, speed, gradually obtains it and avoids the possibility of muscle injury as so often occurs in conditions of low atmosphere temperature.

Acceleration Sprinting and Speed Performance

The acceleration sprinting may be explained as the physical speed, which enables an individual rapidly change body position and direction in a precise manner.

Speed plays an important role in physical activities. It is revealed to a great extent in sports involving efficiently footwork and quick changes in body position. Speed is more effective when it is combined with high levels of strength, endurance and speed.

Speed is referred to as the controlled speed to change position and direction rapidly and accurately.

The average speed of a body is obtained by dividing the distance covered by time taken.

Acceleration Sprinting and the Development of Physiological Variables

A number of physiological variables will improve in proportion to physical activity. Some selected physiological variables related to this study are resting heart rate; mean arterial pressure, vo2 max and body weight. Physical training helps to develop the various organic in a healthy way to the increase.

Frequencies of Training and its Values

Frequencies in how many times a day or week training sessions are undertaken. It may also relate the number of repetitions in a set of exercises, or as common in weight training and interval workout. Because fatigue and frequency in repetitive activities such as interval training should be carefully controlled particularly if duration and intensity factors are felt constant the fact that the training effects are both gained or lost rather quickly is of equal importance. Regular, continual stimulation is necessary to maintain efficiency, although modes of training can make, many forms and variety very important. Motivation may vary, however, some athletes may become very disturbed if their habitual routine is altered.

Review of Literature

The review of literature is instrumental in the selection of the topic, formulation of hypothesis and deductive reasoning leading to the problem. It helps to get a clear idea and supports the finding with regard to the problem under study.

Sajwan (1989) compared the effects of cardio respiratory endurance and related physiological variable caused by jogging and rope skipping. 45 male students aged between 14 and 16 years have been analyzed on the basis of their post test results on Coopers 12 minute run and walk, basic basal blood pressure, vital capacity on basal pulse rate and positive breath holding time.

Leshkevitch and other (1990) studied the influences of sequence of exercise in training under taken in the development of physical foundation of speed, strength and endurance found in sportsmen. Three groups of boys aged between 12 and 14 were given physical training 4 times a week for 3 months to determine the effects of the sequence of exercise. The observed changes were noted in speed, strength and endurance.

Methodology

Purpose of the Study

The purpose of the study was to find out the effect of varied frequencies of acceleration sprinting on selected motor ability components and physiological variables of college men students.

Selection of Subjects

Sixty college non sports men were selected at random from Alagappa Government Arts College, Karaikudi. The age of the subjects ranged from Nineteen to Twenty two years. All the subjects had a similar academic work and regular activities in accordance with the requirement of college curriculam

Statistical Techniques

Analysis of covariance statistical technique was used to test the adjusted mean differences among the treatment groups. If the adjusted post test result was significant then the Scheffe's post hoc test was used to find out the paired mean significant difference.

Level of Significance

The probability level below that we reject the hypothesis is termed as the level of significance., The F-ratio obtained by analysis of covariance was 9.49 is greater than the table F-ratio at 0.05 level. In addition to that, the paired adjusted final means were also tested any computing the confidence interval value utilizing Scheffe's significant difference test method. In which the obtained mean difference value was greater than the confidence interval value, it was considered significant.

Table-I
Analysis of Covariance of Speed of Three Groups
(Scores in Seconds)

	Groups			Sources of Variance	Sum of Squares	df	Mean square (MS)	'F' ratio
	Control Group	Experi-mental Group I	Experi-mental Group II					
Mean	7.26	7.35	7.02	1.25 5.40	2.44 7.98	2 57	1.22 0.14	8.71*
Mean	7.25	7.18	6.69	2.29 5.32	4.64 10.26	2 57	2.32 0.18	12.89*
Adjusted mean	7.25	7.05	6.84	0.32 0.99	0.56 1.68	2 56	0.28 0.03	9.33*

*Significant at 0.05 level of confidence., Table F ratio = 3.16

Table-II
Ordered Scheffe's Post Test Ordered Means and Differences Between the Means for Speed
(Scores in Seconds)

Control group	Experimental group I	Experimental group II	Mean difference	CI
7.25	7.06		0.19	
7.25		6.85	0.40	0.35
	7.0585	6.85	0.20	

CI – Confidence interval value

Result of Speed

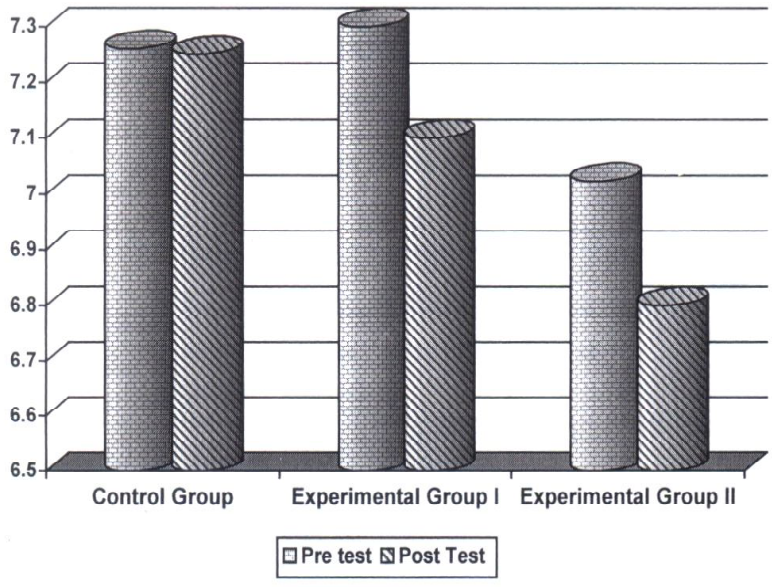
Table-II shows analysed data on speed. The pre test means of speed were 7.26 for the control group, 7.36 for experimental group — I and 7.02 for experimental group-II. The obtained F-ratio 8.71 was greater than the table F-ratio 3.16. Hence the pretest was significant at 0.05 level of confidence for the degrees of freedom 2 and 57.

The post test means were 7.25 for control group 7.19 for experimental group-I and 6.69 for experimental group-II. The obtained F ratio 12.89 was greater than the table F-ratio 3.16. Hence the post test was significant at 0.05 level of confidence for the degrees of freedom 2 and 57.

The adjusted post test means were 7.25 for control group 7.06 for experimental group —I and 6.85 for experimental group — II. The obtained F ratio 9.33 was greater than the table F-ratio 3.16. Hence the adjustment post test mean was significant at 0.05 level of confidence for the degrees of freedom 2 and 57.

Figure-1

Speed



Discussion on Finding of Speed

Table - II shows the Scheffe's post hoc test of speed for three groups. The mean difference between (I) Control group and experimental group-I. (ii) Control groups and experimental group-II. (iii) Experimental group-I and experimental group-II were 0.19,0.40 and 0.20. The Scheffe's confidence interval value was 0.35. Hence the comparison of control group and Experimental group-II were significant. The comparison of control group and experimental group-I and experimental group-I and experimental group-II were insignificant.

The above results indicated that all the three groups were significantly improved the speed. It was also indicated that 5 day training improved the speed greater than control group.

Table-III
Analysis of Covariance of Resting Pulse Rate of Three Groups
(Scores in Beats per Minute)

Groups		Sources of variance	Sum of squares	df	Mean square (MS)	. 'F' ratio
Experimental group I	Experimental group II					
73.5	71.45	Between	51.1	2	25.55	2.59
		Within	560.15	57	9.83	
71.15	68.30	Between	237.64	2	118.82	10.31*
		Within	657.3	57	11.53	
70.45	69.51	Between	56.91	2	28.46	9.85*
		Within	171.04	57	3.00	

*Significant at 0.05 level of confidence,
Table F ratio = 3.17

Table-IV
Ordered Scheffe's Post Hoc Test Ordered Means and Differences between the Means for Resting Pulse Rate of Three Groups
(Scores in Beats per Minute)

Control group	Experimental group I	Experimental Group II	Mean difference	CI
72.64	70.45	-	2.19	1.38
72.64	-	69.51	3.14	1.38
-	70.45	69.51	0.94	1.38

CI – Confidence interval value

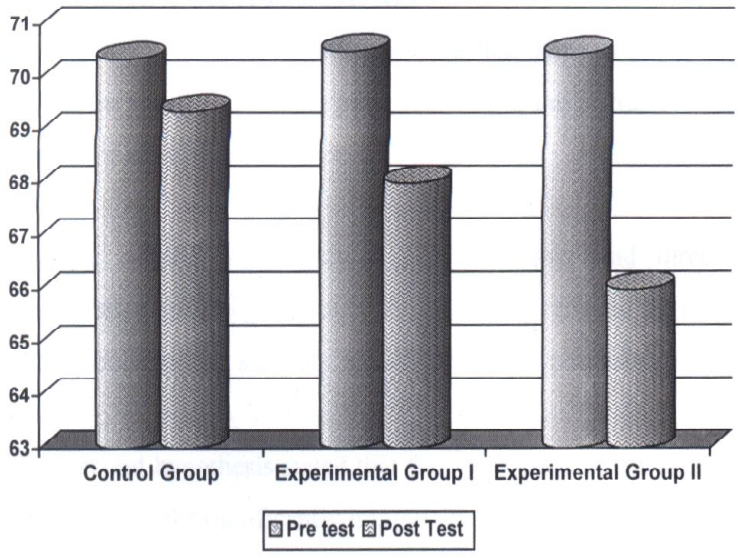
Result of Resting Pulse Rate

Table — III shows analysed data on speed. The pre test means of speed were 7.26 for the control group, 7.36 for experimental group — I and 7.02 for experimental group — II. The obtained F-ratio 8.71 was greater than the table F-ratio 3.16. Hence the pretest was significant at 0.05 level of confidence for the degrees of freedom 2 and 57.

The post test means were 7.25 for control group 7. 19 for experimental group - I and 6.69 for experimental group-II. The obtained F ratio 12.89 was greater than the table F-ratio 3.16. Hence the post test was significant at 0.05 level of confidence for the degrees of freedom 2 and 57.

The adjusted post test means were 7.25 for control group 7.06 for experimental group-I and 6.85 for experimental group-II. The obtained F ratio 9.33 was greater than the table F-ratio 3.16. Hence the adjustment post obtained F ratio 9.85 was greater than the table F-ratio 3.17 at 0.05 level of confidence. Hence the adjustment post test mean was significant at 0.05 level of confidence for the degrees of freedom 2 and 57.

Figure-2
Resting Pulse Rate



Discussion on Finding of Resting Pulse Rate

The above results indicated that all the three groups were significantly improved the resting pulse rate. It was also indicated that 5 days training improve resting pulse rate greater than control group.

It was also indicated 5 days and 3 days training of acceleration sprinting significantly improved the resting pulse rate.

Table-IV shows that Scheffe's post hoc test of resting pulse rate for three groups. The mean difference between (i) Control group and Experimental group —I (ii) Control group and Experimental group —II (iii) Experimental group —I and Experimental group —II were 2.19, 3.14, 0.94. The Scheffe's confidence interval value was 1.38. Hence the comparison of control group and experimental group — I and control group and experimental group — II were significant the comparison of experimental group - I and experimental group —II were not significant.

Conclusions

Within the limitations of the present study, the following conclusions were drawn.

1. There was significant improvement in resting pulse rate and speed due to the influence of 3 days and 5 days frequencies of acceleration sprinting among college men.
2. Five days frequencies of acceleration sprinting significantly improved the resting pulse rate and speed greater than that of 3 days frequencies of acceleration sprinting among college men.

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