

EFFECT OF INTERVAL TRAINING METHOD AND REPETITION TRAINING METHOD ON PERFORMANCE OF 200 METERS SPRINT

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ABSTRACT

To find out the effect of Interval Training Method and Repetition Training Method on Performance of 200 Meters Sprint. Thirty six male and female students from athletics specialization were selected as subjects for the present study. They were classified into three groups of 12 each. Out of three, two were experimental and one was control group. Group 'A' and 'B' were designated as experimental, while 'C' was designated as control group. The treatment was assigned to experimental groups. The training was given for two months, five days a week to both the experimental groups. The volume of the work was very less for very first week and it was gradually increased from second to the last week of the training programme. The repetitions of 80mts, 100mts, 150mts, 200mts and 250mts were given to the both experimental groups. The number of repetitions was gradually increased from 6 to 10 repetitions. The intensity of work load was set 70–80% and 90-100% for Interval Group and Repetition Group respectively. Data were taken at the beginning and at the conclusions of an experimental period of two months. Paired 't' test was applied between pre – test and post – test means of each group, in order to find out within group improvement in two experimental and one control group. To find comparative effect of different training programme on speed variable, analysis of covariance was applied. The level of significance was set at 0.05 levels. Two months of Interval Training Method and Repetition Training Method were effective for the improvement in 200 meters sprint in comparison of Control Group.

Keywords: Intensity, Duration, Set and Speed

INTRODUCTION

From the earliest time running has been a natural part of man's existence, whether he was catching animals for food or escaping from predators. However, he also began to run for pleasure and then competitively, leading to a desire to improve on his speed or ability to run farther. Athletics is great fun and people of all ages, can enjoy it. Athletic activities can be traced back to the ancient Greeks, who used to take part in games of running, throwing and jumping. Running is the most natural of athletics movements. Children run as part of their play and practically every game requires reserves of stamina and the ability to run fast. Every track event has running as its essence, sometimes alone, sometimes with a team and sometimes between obstacles. Every training and conditioning programme contains an element of running and test of fitness or physical ability always include running for speed. Two hundred meters running may requires the speed like short distance sprinter, but by no means and all 100 meters sprinters can completed successfully at 200 meters. In addition to the extra distance, there is also a bend that must be negotiated at top speed. It is not a long 100 meters or a short 400 meters, but in an event of the 200 meters it also needs control, balance and poise. During the past decade, interval training has become one of the most common methods of conditioning for competition in events requiring physical endurance. It has been used by almost all distance runners during the past 10 years. Many coaches have contributed much of the tremendous improvement in the performance of endurance events in track and field and swimming to the increased use

of interval training by athletes of both sex and all ages and abilities. Interval method is perhaps the most versatile method for improving endurance of various types. In interval method, the exercise is done at relatively higher intensity with interval of incomplete recovery. Interval method is based on the following principal: Work should be done with sufficient speed and duration so that the heart rate goes up to 180 beats/min. After this there should be a recovery period and when the heart rate comes down to 120-130 beats/min, the work should be started again. The training load in interval method, therefore, can be controlled by repeatedly checking the heart rate. The repetition method is characterized by high intensity (90-100%) of work with intervals of complete recovery. It is the best method for improvement of speed abilities including speed endurance. In endurance training, the repetition method is used to improve components or factors of specific endurance or of anaerobic capacity. For the improvement of specific endurance the repetition method is used in the form of repetitions of the complete distance or part distance with the purpose of improving pace judgment of competition tactics. It is already proved that interval training method and repetition training method are effective method for improving performance in athletics. The research scholar is motivated to take this study to specifically analyze the performance of 200 meters by interval training method and repetition training method.

MATERIALS AND METHODS

The research scholar conducted a two months training programme to analyze the effects of interval training method and repetition training method on performance of 200 meters sprint. The subjects were divided into three equal groups of 12 subjects each: Interval Group (A)(2) Repetition Group (B) and Control Group (C) The training was given five days in a week for both the experimental groups and no training was given to control group.

ADMINISTRATION OF PROGRAMME

Training Programme for Interval Group (A)

The volume of the work load was less in the preparatory phase and it was increased gradually. The repetitions distances were given of 80 mts, 100 mts, 120 mts, 150 mts, 200 mts, and 250 mts. For checking the intensity after each load heart rate was considered as a measure of load. The heart rate was kept between 170 to 180 beats/min. When heart rate came down at 120-130 beats/min the next work load was started again.

Training Programme for Repetition Group (B)

The volume of the work load was less in the preparatory phase and it was increased gradually. The repetitions distances were given of 80 mts, 100 mts, 120 mts, 150 mts, 200 mts, and 250 mts. For checking the intensity, heart rate was kept about 180 beats/min. and above. Next work load was given after the complete recovery. The criterion measure chosen for this study was the performance of 200 meters recorded up to higher 1/10th of a second.

TABLE NO.1

LOAD PARAMETERS OF INTERVAL TRAINING METHOD AND REPETITION TRAINING METHOD

Method	Intensity	Recovery	Volume
Interval Method	70-80%	Incomplete Recovery or 90-180 sec.	6-10 Repetitions
Repetition Method	90-100%	Complete Recovery 90-100% or 3-10 min.	6-10 Repetitions

RESULT OF THE STUDY

In order to find the effects of Interval Training Method and Repetition Training Method and their comparative effect on performance of 200 meters sprint Analysis of Covariance was applied at 0.05 level of significance. The mean difference of two experimental viz. Interval Group, Repetition Group and one Control Group and their values are presented in table 2.

TABLE NO. 2
ANALYSIS OF COVARIANCE OF INTERVAL GROUP (A) REPETITION GROUP (B) AND CONTROL GROUP (C) FOR 200METERS PERFORMANCE

	Means			Sum of Square	df	Mean Sum of Square	F - ratio
	Interval Group (A)	Repetition Group (B)	Control Group (C)				
Pre -Test mean	31.33	31.85	31.00	B =4.41 W =504.74	2 33	B = 2.20 W = 15.29	0.14
Post -Test mean	29.91	30.47	31.10	B =8.41 W =477.32	2 33	B = 4.20 W = 14.46	0.29
Adjusted Post -Test mean	29.96	30.05	31.46	B =17.35 W =35.33	2 33	B = 8.67 W = 1.10	7.51*

*Significant at 0.05 level $F(2,33) = 3.26$

Above table no 2 indicate significant difference between three selected groups on their 200 meter running performance. No significant difference was found in pretest mean and posttest mean but significant difference was found in adjusted mean which may be due to different kind of training as calculated r value is higher than required f value i.e., 3.26 at 0.05 level of significance. Graphical representation of above table is made in fig. no. 1.

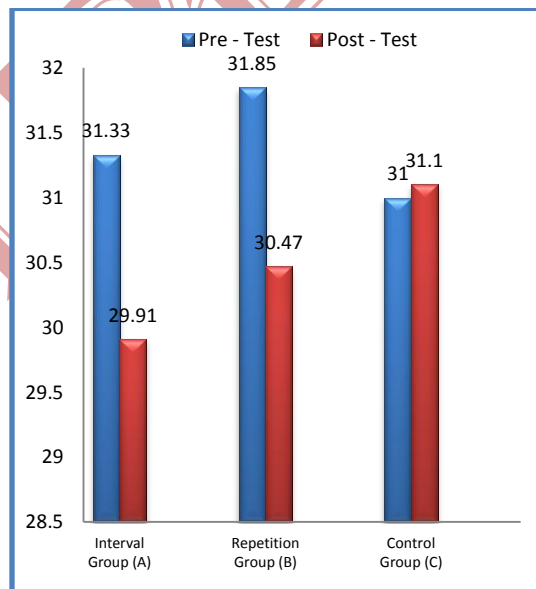


Fig. No.1: Analysis of Covariance of Interval Group (A), Repetition Group (B) and Control Group (C) for 200 meters performance is presented in Table No.3.

To find out which of the differences between adjusted group means were statistically significant, post hoc 't' test was applied as an extension of analysis of covariance. This finding related to this are presented in table no.4.

TABLE - 04
PAIRED ADJUSTED FINAL MEANS AND DIFFERENCE BETWEEN MEANS OF
TWO EXPERIMENTAL AND ONE CONTROL

Group Means			M.D.	C.D.
Interval Group (A)	Repetition Group (B)	Control Group (C)		
29.96	30.05		0.09	0.85
	30.05	31.46	1.41*	0.85
29.96		31.46	1.50*	0.85

*Significant at 0.05 level of significance.

Above table reveals that their no significant differences exist between interval training group and repetition group as their adjusted mean difference is less than required 0.85 critical differences. In case of repetition training group and control group and also interval training group and control group significant difference exit among then as their adjusted mean difference is higher than required critical difference at 0.05 level of significance.

DISCUSSION OF FINDINGS

Analysis of data revealed that the two experimental group trained by Interval Training Method and Repetition Training Method improve significantly the performance of 200 meters sprint whereas the control group did not show any significant improvement. Control group did not show any significant improvement in spite of their regular physical training as physical education students. Such result might have occurred due to the fact that a specific type of speed and speed endurance training was lacking for the control group. When the analysis was done for finding out the effect of the two training programme on performance of 200 meters, the Interval Group and Repetition Group were not shown any significant difference between them and it was also found that Interval Group and Repetition Group significantly superior to the Control Group. This finding clearly indicates that both the training method is equally effective for improving the performance of 200 meters sprint. This finding also give an idea of nature of 200 meters sprint which require speeds, as well as speed endurance and might be one of the cause for this type of findings.

On the basis of analysis of the data the following conclusions may be drawn:

There has been a significant improvement on the performance of 200 meters sprint due to the effect of Interval Training Method Programme.

There has been a significant improvement on the performance of 200 meters sprint due to the effect of Repetition Training Method Programme.

No significant difference has been found between two training programme viz., Interval Training Method Programme and Repetition Training Method Programme.

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