
Research Papers

**COMPARATIVE EFFECT OF DIFFERENT GROUND TRAINING &
GROUND + TREADMILL TRAINING METHODS ON
PERFORMANCE OF 800 METRES RUN****Hariom Sharma**Master of Phy. Edu.
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Abstract

Athletics is a 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.

With the advancement in the performance in athletics the 800 metre race now attracts athletes who in the past would have been sprinters. Today's middle distance athlete has both sprinting speed and endurance. His running style is a model of mechanical efficiency and even in the later stages of a race when fatigue is sapping his strength, his skill help him not to break down.

INTRODUCTION

Interval training is a good example of progressive overload. It improves physical endurance and increase the capacity to respond well to the maximum load.

The primary advantage of interval training over other forms of endurance conditioning is that with the interval approach a greater amount of work can be performed in a shorter periods of time.

Interval training helps substantially to improve cardiovascular respiratory condition; it contributes little to upper body muscular endurance, total body strength,

flexibility, agility, balance or power.

Interval method is perhaps the most versatile method for improving endurance of various types. In interval method, the exercise is done relatively higher intensity with interval of incomplete recovery. Interval method is based on the following principle: work should be done with sufficient speed and duration so that the heart rate

goes up to 180beats/min. After this there should be a recovery periods 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.

Maintaining a home gym has become the most happening trend of the contemporary times, when it comes to working on home gym, it is the

treadmill-walking workout that makes the top score.

Slow treadmill workout carried out for an hour leads to the burning of about 200 calories. And if the intensity is increased to a medium level, it is likely to lead to a loss of approx 700 calories. For people, who do not feel like doing a vigorous workout at gym, treadmill serves as an excellent option for their exercising, treadmill walking helps in toning your body muscles, thereby ensuring your overall body fitness.

A treadmill is a piece of indoor sporting equipment used to allow for the motions of running or walking while staying in one place.

METHODOLOGY

The research scholar conducted a six week training programme to know the effects of different training programme on performance of 800 mts run. The subjects were divided into three equal groups of 12 subjects each.

1. Ground training (A).
2. Ground and Treadmill training (B).
3. Control group (C).

The training was given six days in a week of 40-50 minutes duration for both the experimental groups whereas no training was given to control group by researcher but they had participated in their regular schedule of physical education.

Monday to Saturday was chosen for training session and Sunday was used as the rest day for relaxation for both the groups. Training programme for both the group were conducted in sinder track and on treadmill at School of Physical Education, D.A.V.V., Indore. Group A was given training on the ground. Group B was given training on the ground as well as on treadmill. Six days training programme was conducted according to the schedule prepared by the researcher.

For group B, the researcher divided the whole group into three parts. i.e. B1, B2 and B3 because only 1 treadmill was available for training and it was not possible to conduct training to 12 subjects on a single treadmill. As the training consist of repetition and interval training on the treadmill, so it is quite difficult to execute the training to all subjects at a time, as it take long duration of time to complete the training and the subjects cannot perform the activity effectively as they got too much rest in between the training which will affect the training.

Each subgroup in group B had given two days training on treadmill and four days training in ground. Sub group of group B had performed 800mts interval run and 1000mts repetition run on

treadmill with slight (1-3) incline.

In the first week of training on treadmill the subjects were given practice run with slow speed and slowly speed and inclination is increased according to the ability of the athlete.

Findings

For finding the significance of the difference shown by the groups after the experimental periods of six weeks, and to find out the significance difference between initial and final scores of each treatment and a control group, an analysis of covariance and 't' test was applied.

The mean difference of two experimental viz. ground training group, ground and treadmill training group and one control group and their 't' value are presented in the study.

The study clearly reveals that experimental i.e. ground training group 'A' and ground and treadmill training group 'B' improved significantly at 0.05 level yielding 't' values as 2.89 and 1.90 respectively. Whereas control group did not show any significant improvement ('t' value -0.79) also the -(ve) value of 't' indicates that post test performance was lower than pre test performance. The needed 't' value for significance at 0.05 level with 11 and 10 df for one tailed test is 1.81 and 1.80. The graphical representation of Analysis of covariance of two experimental and one control group are presented in figure -1.

The analysis of covariance of ground training group(A), ground and treadmill training group(B) and one control group(C) for 800 metres performance are presented in the study.

The study reveals that 'F' value for adjusted post-test means (9.56) for two experimental and one control group was found significant at 0.05 level. The 'F' value needed for the significant at 0.05 level with (2, 30) df was 3.32. This finding indicates that there are significant difference in between two experimental and one control group and further analysis is required.

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.

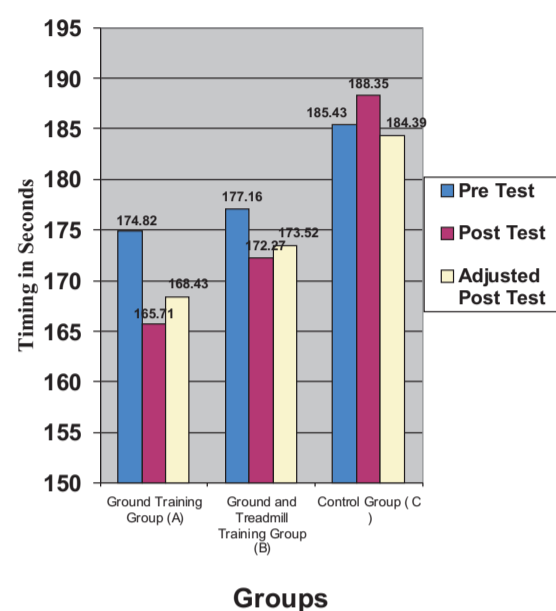


Fig 1. The Analysis of Covariance of Ground Training Group (A), Ground and Treadmill Group (B) and Control Group (C) for 800 Metres Performance

The study indicates that groups trained through ground training, ground and treadmill training were not shown any significant difference between them (M.D. = 5.09). It was also found from the study that ground training group and ground and treadmill training group is significantly superior than control group (M.D. = 15.96) and (M.D. = 10.87).

The findings of table indicate that both the training programme were superior to control group and were effective for improving the performance of 800 metres run but no significant difference was found between both experimental group and both the experimental groups are considered equally good.

The graphical representation of the paired adjusted final means of two experimental and one control group for 800 metres performance are presented in fig 2.

Conclusions

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

- 1) There has been a significant improvement on the performance of 800 metres run due to the effect of Ground Training Method Programme.
- 2) There has been a significant improvement on the performance of 800 metres run due to the effect of Ground and Treadmill Training Method Programme.
- 3) Control group did not show any significant improvement on the performance of 800 metres run.
- 4) When the both experimental group was analyzed for between group differences, no

significant difference has been found between two training program but both group have been found significantly superior than control group.

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TABLE 1

ONE TAILED 'T' RATIO FOR GROUND TRAINING GROUP (A), GROUND AND TREADMILL TRAINING GROUP (B) AND CONTROL GROUP (C)

Groups	N	Pre-test mean	Post-test mean	DM	SEd	't' ratio
Ground training group (A)	12	174.82	165.71	9.11	3.15	2.89*
Ground and treadmill training group (B)	11	177.16	172.27	4.89	2.57	1.90*
Control group (C)	11	185.43	188.35	-2.92	3.71	-0.79

*Significant at 0.05 level

t_{0.05} (11) = 1.80

t_{0.05} (10) = 1.81

(for one tailed test)

Table 1 clearly reveals that experimental i.e. ground training group 'A' and ground and treadmill training group 'B' improved significantly at 0.05 level yielding 't' values as 2.89 and 1.90 respectively. Whereas control group did not show any significant improvement ('t' value -0.79) also the -(ve) value of 't' indicates that post test performance was lower than pre test performance. The needed 't' value for significance at 0.05 level with 11 and 10 df for one tailed test is 1.81 and 1.80.

The analysis of covariance of ground training group(A), ground and treadmill training group(B) and one control group(C) for 800 metres performance are presented in table 2.

TABLE 2

THE ANALYSIS OF COVARIANCE OF GROUND TRAINING GROUP (A), GROUND AND TREADMILL TRAINING GROUP (B) AND CONTROL GROUP (C) FOR 800 METRES PERFORMANCE

	Group means			Sum of square	df	Mean sum of square	'F' ratio
	Ground training group (A)	Ground and treadmill training group (B)	Control group (C)				
Pre-test mean	174.82	177.16	185.43	B = 702.01 W = 11674.41	2 31	B = 351.01 W = 376.59	0.93
Post-test mean	165.71	172.27	188.35	B = 3077.64 W = 6918.67	2 31	B = 1538.82 W = 223.18	6.89*
Adjusted Post-test mean	168.43	173.52	184.39	B = 1416.55 W = 2223.38	2 30	B = 708.28 W = 74.11	9.56*

* Significant at 0.05 level

N = 34

'F' ratio needed for significance

B = Between Groups Variance

at 0.05 level = 3.32

W = Within Groups Variance

Table 2 reveals that 'F' value for adjusted post-test means (9.56) for two experimental and one control group was found significant at 0.05 level. The 'F' value needed for the significant at 0.05 level with (2, 30) df was 3.32. This finding indicates that there are significant difference in between two experimental and one control group and further analysis is required.

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. The findings related to this are presented in table 3.

TABLE 3
PAIRED ADJUSTED FINAL MEANS AND DIFFERENCE BETWEEN MEANS OF
TWO EXPERIMENTAL AND ONE CONTROL GROUP

Groups means			M.D.	C.D.
Ground training group (A)	Ground and treadmill training group (B)	Control group (C)		
168.43	173.52		5.09	7.20
	173.52	184.39	10.87*	7.20
168.43		184.39	15.96*	7.20

* Significant at 0.05 level

Table – 3 indicates that groups trained through ground training, ground and treadmill training were not shown any significant difference between them (M.D. = 5.09). It was also found from table 7 that ground training group and ground and treadmill training group is significantly superior than control group (M.D. = 15.96) and (M.D. = 10.87).