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## Influence of training on the motor fitness variables of young athletes with special reference to duration

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### Abstract

Training effect on various motor fitness variables are in evident but what critical duration will be the effective for a training effect, was the purpose of this study. Thirty IITKGP male athletes, 18-25 years of age in long-term residential training programme were the subjects of the study. A training schedule for eight weeks followed by the subjects. Tests for speed, explosive strength, agility and endurance conducted at onset of training and after completion of eight and five weeks training respectively. Improvement in speed, explosive strength, agility were observed after eight weeks but most of the improvement initiated after completion of 13 weeks. According to the study, eight weeks duration of training may be considered as minimum time required having the training effect.

**Keywords:** Influence, training, the motor fitness, variables, young athletes, special reference

### Introduction

In modern age, athletes are trained scientifically for improvement of motor fitness. To have desired result out of a training programme, the regulation of sports training is very important part. The arrangement of training process in a scientific manner, ie. Periodisation is also related with the duration of training programme, regarding duration of training, many researchers have suggested different time period ranging from 4-10 weeks as minimum duration to achieve training effect. (Combell, 1962; More house and miller, 1967, Fox, 1984, Fox and Mathews, 1985, Islegen and Akgun, 1978, Mondal and Banerjee, 1987). The emphasis of the present study was to find the effective duration of a training programme on young IIT KGP Athletes.

### Materials and methods

Thirty male athletes, (18-25 years age), mean height 168.08 cm and mean weight 68.18 kg from Indian institute of technology, Kharagpur, Paschim Medinipur, West Bengal.

The measurement of motor fitness was taken as the criteria for evaluating the training effect.

Tests for these two aspects were conducted (a) before onset of training and after completion of (b) 8, (c) 13 weeks of training.

Tests for motor fitness components were conducted in the following items: i) 30mts sprint for speed. ii) Standing broad jump for leg explosive strength. iii) 4x10mts shuttle run for agility. IV) 1500mts continuous run/walk for endurance.

The schedule of training for the 13weeks period followed by the subjects may be considered as treatment for experiment and was as follows:

Two hours in a day, 6 days in a week; and out of 6 days, 3 days for the development of speed, explosive strength and agility and other 3 days have been spent for development of endurance.

Two hours time was utilized as mention below:

Fifteen minutes for assembly, roll call, prayer and free hand exercises: 15minutes for general warm-up and 35 minutes for the development of specific component of motor fitness ability; 5 minutes break followed by lead up game or minor game for 30 minutes; and last 10 minutes was for cooling down, discussion and break off.

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## Results and discussion

The results of the tests conducted at three different times, for aspects of motor fitness performance, are presented in Table-I. The mean scores obtained before the one set of training ( $T_1$ ), after 8 weeks ( $T_2$ ), and after 13 weeks ( $T_3$ ), of training were statistically analysed through 't' test and significant difference between the two paired means are indicated accordingly in the tables. For a comprehensive understanding of the mean difference, among the three scores, the symbols ( $T_1$ ,  $T_2$  and  $T_3$ ) are placed in the table of the means and sd.

**Table 1:** Motor fitness performance after eight weeks and thirteen weeks specific comparison of mean and standard deviation values between pre, mid and post-test training program (EX. Group).

| Variables                    | Mean and SD | Pre test ( $T_1$ ) | Mid Test ( $T_2$ ) | Post-test ( $T_3$ ) | M.D (pre-mid) | MD (pre-post) | Pre SEM | Mid SEM | Post SEM | 't' -ratio |
|------------------------------|-------------|--------------------|--------------------|---------------------|---------------|---------------|---------|---------|----------|------------|
| Speed (50mt) [sce]           | Mean-       | 6.76               | 6.65               | 6.52                | 0.11          | 0.24          | 0.03    | 0.04    | 0.06     | 3.72**     |
|                              | SD          | 0.15               | 0.21               | 0.33                |               |               |         |         |          |            |
| Leg explosive power(SBJ) [m] | Mean        | 2.44               | 2.50               | 2.55                | 0.06          | 0.11          | 0.05    | 0.04    | 0.05     | 1.67       |
|                              | SD          | 0.26               | 0.25               | 0.25                |               |               |         |         |          |            |
| Agility (Shuttle run) [sce]  | Mean        | 10.18              | 9.99               | 9.84                | 0.19          | 0.34          | 0.56    | 0.51    | 0.50     | 2.49**     |
|                              | SD          | 0.56               | 0.51               | 0.50                |               |               |         |         |          |            |
| Endurance (1500 run) [sce]   | Mean        | 5.94               | 5.89               | 5.81                | 0.05          | 0.13          | 0.21    | 0.16    | 0.15     | 0.52       |
|                              | SD          | 1.13               | 0.86               | 0.84                |               |               |         |         |          |            |

\*significant at 0.05 level of confidence, N= 30,  $t_{0.05(28)} = 2.04$ .

It is observed that in case of 50mt.the speed pre-test mean was 6.76, mid test mean was 6.65 and the post-test mean was 6.52. In this test if time, gradually decreases it means performance has improved. From this it is clear that following participation in specific training programme the young athlete could improve their speed performance significantly.

The pre-test, mid test and post-test performance data of standing broad jump also shows that, the pre, mid and post-test mean gradually increases. The mean pre-test distance was 2.44m, mid test distance was 2.50m and post-test distance was 2.55m. It means mid test and post-test mean were significantly higher than that of pre-test mean distance. The specific training program planned for the experimental group was effective to improve explosive leg strength.

In case of agility (shuttle run) pre-test mean was 10.18 Sec. mid test mean was 9.99 Sec, and post-test mean was 9.84 Sec. In this test if time decreases it means performance has improved. So participation in specific training programme the young athletes could improve their agility performance significantly.

1500m test was conducted to measure cardio respiratory endurance. From this table it is observed that mean pre-test score was 5.94 sec.mid test scores was 5.89 Sec. and the post test score was 5.81 Sec. It means time, gradually decreased than that of pre-test mean. The specific training programme planned for the experimental group was effective to improve cardio respiratory endurance.

## Discussion with Reference

1. There is found the specific training program the young athletes could improve that 50mt speed performance significantly.
2. There is also found significant change in explosive leg strength.
3. The obtained result shows that there was a significant change in agility and cardio respiratory endurance also.

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## Motor fitness components

Following training, improvement in speed, explosive strength, agility and endurance performance was observed  $T_2$  after completion of 8 weeks. Further improvement was observed  $T_3$  after completion of 13 weeks.

Pre, mid and post tests were conducted before, after eight week and after thirteen week the experimental period. Pre, mid and post test data of experimental group are presented in table-1.

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