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Effect of Strength Exercises on Sprint-Start and Speed

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Abstract

The purpose of the study was to find out the effect of strength exercise on sprint-start and speed of the students of Lakshmbai National Institute of Physical Education (L.N.I.P.E.), Gwalior, studying in B.P.E. first year. Twenty male students were selected randomly as subjects for this study. The age of the subjects ranged from 18 to 21 years. All the subjects were boarders and had regular physical education classes as per scheduled program of the institute. The subjects were divided into two groups randomly- one experimental and one control group. After familiarizing the subjects with testing and training procedure, initial data was collected in 50mts. run and then 30mts. run. After giving the training for 6 weeks again data were collected on the same items. With the help of paired 't' test significance of the values of differences was tested, the level of significance being 0.05 level. Results show that there was significant decrease in the timing of the 30mts. run after training as the obtained 't' value was 2.26 which was significant at nine degree of freedom. In case of control group, no significant difference was found.

Key Words: Physical education, exercise, 50mts. run, 30mts. run

Introduction

Strength is one of the most important components of fitness which affects the performance in all activities in some form or the other; weight training is not usually thought of as an end in itself, but as a means to an end. The primary objective is not to learn to lift as much weight as possible but to increase strength and power for application to the relevant sport. The emphasis should be on the correct exercise or the power the muscle exerts. This is possible only when coaches and physical education teachers use the correct and most beneficial and economical means to train their sportsmen¹.

Strength training has long been accepted as a means of improving performance and preventing injury, and most coaches have made it an integral part of their overall conditioning programme during the off-season. Since performance depends upon explosive power, speed of movement, and anaerobic muscle endurance, any athlete who hopes to maintain his precession strength level must continue working at it during the season².

Objectives

1. To help the physical education teachers, coaches and other (sprinters) in order to prepare

their training schedule to enhance the performance to the optimum level.

2. To enable the physical education teachers and coaches to select the strengthening exercises for sprinters.

Experimental

Subjects

For the purpose of the study 20 male sprinters belonging to the age group 18 to 21 years from LNIEP, Gwalior, studying in BPE first year, were selected randomly.

Measures

1. Sprinting speed was measured by 50mts. dash.
2. Strength exercises are step-up, split jumps and half-squat.

Scoring of Data

The effect of exercise before and after the training programme on the sprint-start and speed were analysed. The initial and final readings were recorded.

Statistical Analysis

To find out the effect of six-week strength exercise programme on the sprint-start, paired 't' test was used. The level of significance was fixed at 0.05.

Test of Significance

The obtained data were statistically analysed to assess the significance at 0.05 level of confidence. The required 't' value was obtained from table for the level of significance since the data to be compared and the degree of freedom was (n-1).

Experimental Designing

The experiment was conducted for the period of six weeks. Total 20 subjects were divided into two equal groups, viz. 'A' and 'B'. Group 'A' was offered strengthening exercise whereas group 'B' acted as a control group. Weekly schedule of training was given as shown in Table 1.

Results and Discussions

Data presented in Table 2 and Table 3 clearly show that for experimental group the calculated value is more than that of control group and simultaneously 't' value is significant for experimental group only at 0.05 level of significance and nine degree of freedom, which shows that training had significant effect on the sprinting-start in 30mts. and 50 mts. run.

The findings of the study showed that step-up, half-squat, and split-jump- these three exercises made positive contribution for improving sprint-start and speed. No change was noticed in control group. The three exercises selected in the study as experimental variables mainly pertaining to development of leg-power of strength. Hence, the

Table 1 Weekly schedule of training

Week	Step-Up	Half-Squat	Split-Jump
1 st and 2 nd	Weight- 10 kgs Repetitions- 12 to 15 Sets- 3	Weight- 20 kgs Repetitions- 12 to 15 Sets- 3	Weight- 10 kgs Repetitions- 12 to 15 Sets- 3
3 rd and 4 th	Weight- 15 kgs Repetitions- 12 to 15 Sets- 3	Weight- 30 kgs Repetitions- 12 to 15 Sets- 3	Weight- 15 kgs Repetitions- 12 to 15 Sets- 3
5 th and 6 th	Weight- 20 kgs Repetitions- 12 to 15 Sets- 3	Weight- 40 kgs Repetitions- 12 to 15 Sets- 3	Weight- 20 kgs Repetitions- 12 to 15 Sets- 3

Table 2 't' value for sprinting-start in 30mts

	Calculated Value	Tabulated Value
Experimental Group	4.30	2.26
Control Group	1.16	2.26

Table 3 't' value for sprinting-start in 50mts

	Calculated Value	Tabulated Value
Experimental Group	4.18	2.26
Control Group	0.39	2.26

improvement in sprint-start and speed may be due to the probable cause of development of leg strength and power which is an important factoring in sprint performance. From the findings it was observed that strength exercise brought significant changes on the sprinting-start and speed among male students of Lakshmibai National Institute of Physical Education, Gwalior (M.P.).

Conclusion

1. Strength training helped in developing speed both by 30mts. run and 50mts. run.
2. The control group timing increased as they all didn't undergo six-week strength training programme.

References

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