



RESEARCH ARTICLE

EFFECT OF VARIED INTENSITIES, FREQUENCIES AND DENSITIES OF HOLLOW SPRINTS ON THE PERFORMANCE OF 100 METERS SPRINT AMONG SCHOOL BOYS

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ABSTRACT

The purpose of the study was to find out the effect of varied intensities, frequencies and densities of the hollow sprint of the performance of 100 meters sprints. To facilitate the study, eighty school boys of government higher secondary school, Salem district, were selected as subjects at random and they were divided into eight equal groups. The data were collected on 100mts running performance before training (pre test) as well as after the training (post test). The hollow sprints involve sprinting, jogging, sprinting, walking and repeating. This type of training provided adequate recovery, during the walking phase, mainly develops speed and muscular strength. In the high density of hollow sprints, the subject was performed 5 minutes rest between the sets. In low density of hollow sprints, the subjects performed 3 minutes rest between the sets. The pre test and post test were taken before starting the training programme and at the end of the sixth week respectively. In the pre and post test, random group research design was applied for analyzing the results. The finding of the study showed that there was significant improvement in speed, due to the influencing of varied intensities of hollow sprints.

Key words: Intensity, Frequency's, Density, Hollow sprint.

INTRODUCTION

Human beings have consistently strived to run faster, jump higher, throw further and exhibit greater strength, endurance and skill we are naturally competitive and ambitions for excellence in athletics performance. As a result of practical experience, observations and much scientific experimentation, old methods of conditioning, though fascinating and rich in interdiction have been discarded and replaced by new methods. Scientific researchers have produced valid and precise information about the relative effectiveness of different training methods. As a result, we currently know much more than over before about the functioning of the body systems during training and competition and how to develop speed, explosive power and athletic skills. Through literature is related effect, it is found that no sufficient attempt has been made to compared the effects of varied intensities frequencies and densities of repetitions of hollow sprints of the performance of 100mts sprints. Therefore, the present study was undertaken by the investigator.

METHODOLOGY

The purpose of the study was to find out the effect of varied intensities, frequencies and densities of the hollow sprint of the performance of 100 meters sprints. To facilitate the study, eighty school boys of government higher secondary school,

Salem district, were selected as subjects at random and they were divided into eight equal groups. The data were collected on 100mts running performance before training (pre test) as well as after the training (post test).

Group I: was treated by hollow sprint with 50% intensity, 3 days/week frequency and 3 minutes density.

Group II: was treated by hollow sprint with 50% intensity 3 days/week frequency and 5 minute density.

Group III: was treated by hollow sprint with 70 % intensity 3 days / week frequency and 3 minute density.

Group IV: was treated by hollow sprint with 70 % intensity, 3 days / week frequency and 5 minutes density.

Group V: was treated by hollow sprints with 50 % intensity, 5 days / week frequency and 3 minutes density.

Group VI: was assigned by hollow sprints with 50 % intensity, 5 days / week frequency and 5 minutes density.

Group VII: was assigned by hollow sprints with 70 % intensity, 5 days / week frequency and 3 minute density.

Group VIII: was assigned by hollow sprints with 70 % intensity, 5 days / week frequency and 5 minutes intensity.

An initial reading was taken from the subjects of all the eight groups. In the high intensities of hollow sprints, the subjects were performed 70 % run. This was repeated for three times.

In low intensities of hollow sprints, the subjects were performed 50 % run. This was repeated for three times. In high frequencies of hollow sprints, the subjects were performed 70 % intensity, with 3 days/week frequency of training. This was repeated for three times. In low frequencies of hollow sprints, the subjects were performed 50 % intensity, with five days/week frequency training. This was repeated for three times. In the high density of hollow sprints, the subject was performed 5 minutes rest between the sets. In low density of hollow sprints, the subjects performed 3 minutes rest between the sets. The following variables were selected.

Dependent Variables: 100mts sprinting performance

Independent Variables

Factor A : Intensities of Training

1. High intensities (70%)
2. Low intensities (50%)

Factor B : Frequency of Training

- a. 3 days / week training
- b. 5 days / week training

Factor C : Densities of Training

- a. High density (5 minutes rest between the sets)
- b. Low density (3 minutes rest between the sets)

RESULTS AND DISCUSSIONS

Table-I: Three Way Factorial Analyses of Varied Intensities Frequencies and Densities of Hollow Sprints on the Performance of 100 Meters Sprinting of School Boys (Scores in Seconds)

| Sources of variance | Sum of scores | Degrees of freedom | Mean scores | 'F' ratio |
|---------------------|---------------|--------------------|-------------|-----------|
| Factor 'A' | 6.87 | 1 | 6.87 | 7.55 |
| Factor 'B' | 0.07 | 1 | 0.07 | 0.97 |
| Factor 'C' | 1.58 | 1 | 1.58 | 1.65 |
| Interaction | 0.17 | 1 | 0.17 | 0.20 |
| I X D | | | | |
| F X D | 1.78 | 1 | 1.78 | 1.91 |
| I X F | 2.58 | 1 | 2.58 | 2.84 |
| I X F X D | 2.11 | 1 | 2.11 | 2.32 |
| Error | 29.24 | 32 | 0.89 | |

*Significant 0.05 level of confidence

The initial and final tests were conducted on the above variables for all the eight groups. The pre test and post test were taken before starting the training programme and at the end of the sixth week respectively. In the pre and post test, random group research design was applied for analyzing the results. The above table II shows the anglicized data on the effect of varied intensities frequencies of densities of hollow sprints on the performance of 100 meters sprinting of school boys. Factor 'A' shows the two categories of intensities such as 50 % and 70 % of Hollow sprints training on 100 meters sprinting performance of school boys. Factor 'B' shows the two categories of frequencies such as 3day / week and 5 days week of hollow sprints on 100 meters sprinting performance of school boys. Factor 'C' shows the two categories of densities such as 3 minutes and 5 minutes density of hollow sprints on 100 meters sprinting performance of school boys. Factor A X B (Interaction) shows the combined effect of varied intensities and frequencies of hollow sprints on the performance of 100 meters sprinting performance of school

boys. Factor A and C (Interaction) shows the combined effects of varied intensities and densities of hollow sprints on the performance of 100 meters sprinting performance of school boys. Factor 'B' and 'C' (Interaction) shows the combined effects of varied frequencies and densities of hollow sprints on the performance of 100 meters sprinting performance of school boys. Factor A x B x C (Interaction) shows the combined effects of varies Intensities frequencies and densities of hollow sprints on the performance of 100 meters sprinting performance of school boys.

The obtained F ratio of Factor 'A' of the effect of two intensities of hollow sprints such as 50 % and 70 % distance on speed of school boys was 7.55. The table 'F' ratio was 4.17. As the obtained F ratio was greater than the table F ratio, the factor 'A' was significant at 0.05 level of confidence for the degrees of freedom 1 and 32. The obtained F ratio of factor 'B' of the effect of two frequencies of hollow sprints, such as 3 days / week and 5 days / week on speed of school boys was 0.97. The table F ratio was 4.17. As the obtained F ratio was lesser than the table F ratio, the factor 'B' was insignificant at 0.05 level of confidence for the degrees of freedom 1 and 32. The obtained F ratio of factor C of the effect of two densities of hollow sprints such as 3 minutes and 5 minutes density on speed of school boys was 1.65. The table F ratio was 4.17. As the obtained F ratio was lesser than the table 'F' ratio, the factor 'C' was insignificant at 0.05 level of confidence for the degree of freedom 1 and 32. The obtained 'F' ratio of the combined effect of interaction of two intensities and two different densities of hollow sprints training on the performance of 100 meters sprinting of school boys was 0.20. The table 'F' ratio was 4.17.

Since the obtained 'F' ratio was lesser than the table F ratio, the interaction was insignificant at 0.05 level of confidence for the degrees of freedom 1 and 32. The obtained 'F' ratio of the combined effect of interactions of two different frequencies and densities of hollow sprints training on the performance of 100 meters sprinting of school boys was 1.91. The table 'F' ratio was 4.17. Since the obtained 'F' ratio was lesser than the table 'F' ratio, the interaction was insignificant at 0.05 level of confidence for the degrees of freedom 1 and 32. The obtained 'F' ratio of the combined effect of interactions of two different frequencies and densities of hollow sprints training on the performance of 100 meters sprinting of school boys was 2.84. The table 'F' ratio was 4.17. Since the obtained 'F' ratio was less than the table 'F' ratio, the interaction was insignificant at 0.05 level of confidence for the degrees of freedom 1 and 32. The obtained 'F' ratio of the combined effect of interactions of two different frequencies and densities of hollow sprints training on the performance of 100 meters sprinting of school boys was 2.32. The table 'F' ratio was 4.17. Since the obtained 'F' ratio was less than the table 'F' ratio, the interaction was insignificant at 0.05 level of confidence for the degrees of freedom 1 and 32.

Findings

The finding of the study showed that there was significant improvement in speed, due to the influence of varied intensities of hollow sprint. Further there was no significant

improvement in speed due to the influence of varied frequencies and densities of hollow sprint of school boys. Further, the study showed that the interaction effects of varies intensities and densities, frequencies and densities. Intensities and frequencies and also varied intensities, frequencies and densities of hollow sprints on the performance of 100 meters sprints were insignificant. Thirumalaisamy (1995) in his study he concluded that the intensities and frequencies of treadmill training improved significantly due to the influence of varied intensity and frequencies of training. Tamilarasi (1996) in his study he concluded that the varied intensities that and frequencies of hallow sprint training will improved the motor ability components, physiological and performance of four hundred meter runner.

From the above finding it is very clear that the intensity selected for this study was sufficient for the improvement of 100 meters sprinting performance. Also, it was showed that no improvement was found in 100 meters speed due to varied frequencies and densities of hollow sprints on the performance of 100 meters sprints. Dhanapal(1995) concluded in his study that the acceleration runn and hallow sprint training showed that there was significant differences between control group, acceleration run group and hollow sprint group. Clarke and David (1987) concluded is their study that conditioning exercise of progressive resistance type caused increases in arm strength and increases speed of movements. Thirumalaisamy (1995) concluded in his study on varied intensities and densities of weight training that 90%. Intensities with 3 minutes densities improved the maximum strength greater than the other intensities. Further there were several factors which would have affected the sprinting performance of school athletes. It also noted that the density, frequency selected in this study may not be sufficient for the significant improvement of 100 meters performance and which would have not influenced the improvement of 100 meters sprints.

Conclusion

There was significant improvement in 100 meters sprinting performance due to the influence of varied intensities of hollow sprints. There was insignificant improvement in 100 meters sprinting performance due to the influence of varied frequencies of hollow sprints of school boys. There was insignificant improvement in 100 meters sprinting performance due to the influence of varied densities of hollow sprints of school boys. There was an insignificant interaction effect of varied intensities and densities, varied intensities and frequencies, varied densities and frequencies also varied intensities, frequencies, and densities of hollow sprints of school boys.

REFERENCES

- Anshel, Mark H. (1991), Dictionary of the sports and exercise sciences, champaign, Illinoid: Human Kineties Books.
- Basco, James S. and Williams F. Gustafson (1983), Measurements for_Evaluation in Physical Education and Fitness and Sports, Englewood Cliffs, New Jersey: Prentice Hall, Inc., P. 77.
- Clarke H. Harrison and David H. Clarke (1987), Application of Measurement to Physical Education, (6th ed), Englewood cliffs, New jersey: prentice hall, pp. 117 – 197.
- Dhanapal. P (1995), “Effect of Acceleration Run and Hollow Sprint on selected Physiological Variables among the school Boys”, Completed Research in Health Physical Education and Recreation, 50.
- Harward, Vivian. (1991), Advanced Fitness Assessment and Exercise Prescription, Human Kinetics, Champaign, Pp.76 – 79.
- Harward, Vivian H. (1991), Advanced Fitness Assessment and Exercise Prescription, Human Kinetics, Champaign, Pp. 76 – 81.
- Hazeldine, Rege. (1987), Fitness for Sport, Wiltshire: The ero-wood press, P.101.
- Johnson, Barry L. and Jack R. Nelson. (1982), Practical Measurement and Exercise Prescription, Human Kineties: champaign, pp. 76-81.
- Karporich, Peter V. (1996)_Physiology of Muscular Activity, philadelphia_: W . B. Saunders company, p. 164.
- Sing, Hardayal.(1984), sports training ; general theory and methods, Patiala national institute of Sports Training: General Theory and Methods, Patiala: Netaji Subey National Institute of Sport.
- Tamilarasi (1996), “Effects of Varied Internsites and frequencies of hollow Sprints Training in selected motor ability components, physiological and performance variables of 400 meters runner” Unpublished Master of Philosophy Distation, Alagappa University, Karaikudi, 10
- Thirumalaisamy. R, (1995), “Effect of varied Intensities and Frequencies of Treadmill Training on Inter Collegiate Athlete”. A Paper presented in the international Seminar on Health and Fitness, Agriculture University, Hesar, 10
- Thirumalaisamy. R (1950), varied intensities and densities of weight training on the performance of maximum strength of college men a paper presented in the International seminar on health and fitness Agriculture University, Hesar.
