



Comparative Effects of Bunch Medium and Elongated Blocks Spacing in Crouch Start on Acceleration Speed

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Abstract

The purpose of this study was to find out the comparative effect of varied block spacings in crouch start on acceleration speed. For this study the acceleration was selected 10m, 20m, 30m and 40m distance. The subjects were 15 female students of track and field specialization of department of physical education and sports sciences, Annamalai University, chidambaram. The average age of the students were ranging from 18 to 22 years. The subject were tested in different distance of acceleration (10m, 20m, 30m, and 40m) from different block spacing (bunch, medium and elongated). For analysis and interpretation of the data and to find out which of the blocks spacing was more superior in different distance of acceleration. Analysis of variance and post-hoc-test were used.

Keywords: Blocks, Crouch start, Acceleration Speed.

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Introduction

Sprinting events have been on the programme of the modern Olympic Games from the very beginning. Earlier athletes did not adopt any sophisticated (raining means for the development of speed. In the competitions the athlete exhibit whatever he gained through daily physical work and whatever speed characteristics he inherited from his parents. The saying "sprinters are never made they are born" used to carry weight in ancient days. The saying is now modified. Sprinter is born with some inherent speed but he can also be trained and shaped into a still butter sprinters. With the passage of time newer speed training means have been developed to guarantee improvements on desired lines.

Speed plays a vital role in all games and sports, but it plays a very dominant role for sprinters. For a sprinter to give good performance he must possess acceleration speed, sprinting speed, speed of movement and reaction time. Even though these four components of speed affect the performance of a sprinter yet the contribution made by reaction time to enhance speed performance is still not very certain. 'here is no doubt regarding the contribution of acceleration speed, sprinting speed and speed of movement to bring about better performance on the Part of sprinters. Where speed is the main factor, the optimum performance in activities can be brought together.

Methodology

To find out comparative effects of bunch medium and elongated blocks spacing in crouch start on acceleration speed. To achieve these purpose 15 female students were selected from department of physical education and sports sciences, Annamalai University, selected as subjects. 15 female athletes studying in the three years B.P.E and two years M.P.Ed. The age, height and weight of the subjects ranged from 18 to 22 years, 162 to 173 centimeters and 56 to 67 kilograms respectively. They all athletes have represented the All India Inter-varsity Athletic meet. Proper commands of sprints were used to give the start, to the subjects. The subject were tested in different distance of acceleration (10m, 20m, 30m and 40m) were marked from different block spacings (bunch, medium and elongated).The purpose of the study and the role of the subjects were clearly explained with demonstration. The block spacings are as such the bunch 11-16 inches, medium 16-21 inches and elongated 21-26 inches. Standard and high quality split timers were used. The timings of each subject were taken by two time keepers using digital manual times to the nearest 1/100th' of second. For analysis and interpretation of data analysis of variance and post hoc test were used. The level of significance was set at 0.05.

Results

For each of the chosen distance of acceleration, 10m, 20m, 30m and 40m by different block spacings, the data was subjected to analysis of variance which is presented in Table-1,3,5 and 7 and the mean differences is presented in Table-2,4,6and8.

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Table I. Analysis of variance of the different block spacing on 10 m acceleration distance

Variance	SS	DF	MS	F- Ratio
Within sets	0.1662	12	0.0138	1.19
Between sets	0.033	2	0.0165	

Table II. Differences between means for the different block spacing in 10m acceleration distance

Bunch	Medium	Elongated	Differences
1.82	1.85	---	0.03
1.82	---	1.93	0.11
	1.85	1.93	0.08

Analysis of data revealed in Table-1 and 2 that there was no significant difference in acceleration for 10m distance when it was taken from different block spacings such as bunch, medium and elongated. This group has not shown any significant difference, this may be because of less distance on which high acceleration is not possible.

Table III. Analysis of variance of the different block spacing on 20 m acceleration distance

Variance	SS	DF	MS	F- Ratio
Within sets	0.2628	12	0.0219	5.945*
Between sets	0.2605	2	0.1302	

Table IV. Differences between means for the different block spacing in 20m acceleration distance

Bunch	Medium	Elongated	Differences
3.10	3.18	---	0.08
3.10	---	3.41	0.30
	3.18	3.41	0.25

Analysis of data revealed in Table-3 and 4 that there was significant difference in acceleration for 20m distance. When it was taken from different block spacing such as bunch, medium and elongated. It was observed that there is no significant difference on 20m distance for acceleration when it was taken from both bunch and medium block spacings. But there was much

more difference between bunch and elongated block spacings. It has shown that bunch block spacings are much better than elongated block spacings up to the distance of 20m for acceleration. Medium and elongated block spacing is having very less difference. It shows up to 20m and distance acceleration is same with both block spacings.

Table V. Analysis of variance of the different block spacing on 30 m acceleration distance

Variance	SS	DF	MS	F- Ratio
Within sets	0.1776	12	0.0148	8.45*
Between sets	0.2505	2	0.1242	

Table VI. Differences between means for the different block spacing in 30m acceleration distance

Bunch	Medium	Elongated	Differences
4.24	4.03	---	0.21
4.24	---	4.34	0.10
	4.03	4.34	0.31

Analysis of data revealed in Table-3 and 7 that there was significant difference in acceleration for 30m distance when it was taken from different block spacings such as bunch, medium and elongated. It was observed that there was a difference on acceleration of 30m from bunch and medium block spacing which shows that the

medium block spacing is better than the bunch block spacing. But there is no difference in acceleration from bunch and elongated block spacings. Again medium block spacings are much better than the elongated block spacings on acceleration up to 30m distance.

Table VII. Analysis of variance of the different block spacing on 40 m acceleration distance

Variance	SS	DF	MS	F- Ratio
Within sets	0.2644	12	0.0220	
Between sets	0.3810	2	0.1905	8.659*

Table VIII. Differences between means for the different block spacing in 30m acceleration distance

Bunch	Medium	Elongated	Differences
5.33	5.12	---	0.21
5.33	---	5.51	0.18
	5.12	5.51	0.39

Analysis of data revealed in Table-7 and 8 that there was significant difference in acceleration for 40 m distance. when it was taken from different block spacings such as bunch, medium and elongated. It is also observed that medium block spacings are much better than block spacings. There is no difference between bunch and elongated block spacings but there is much more difference in medium and elongated block spacings for acceleration which shows that up to a distance of 40m medium block spacings is the best block spacings.

Conclusions

1. Medium block spacings start is superior than other two block spacing (bunch and elongated) for acceleration. Up to 20m distance acceleration is much better from bunch block spacing. It may be attributed in bunch block spacing that clearance is faster which help to keep the athlete in better position for short distance.
2. Medium start is much better for acceleration than other two block spacing on 30m and 40m distance because medium block spacings keep the athlete in more comfortable position from where the best velocity is produced.

3. Medium block spacing of 16-21 inches between the blocks was found to place the front leg in better position from which force time can be applied against the blocks and thereby increase the velocity.
4. It is also attributed in medium block spacing athletes is able to put his front foot in such a way that force time is better which effect on velocity due to optimum angle of force leg and front leg is achieved.

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