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RUNNING SPEED DEVELOPMENT BY NON-SPECIFIC METHODS TO ATHLETES GIRLS OF 12 YEARS OLD

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Abstract

Improving endurance is as important as the speed and technique. Speed running and method Fartlek are essential components in the most field and trainer of physical qualities. Speed running has relationships with trainable physical qualities such as strength, power, speed endurance and technique. The speed running has long been accepted for evaluating by 30m and 50m events for children.

Objectıve

The aim of the present study was to investigate the relationship between speed running and Fartlek method.

Research methods and procedures

In this experiment participated two groups of subjects, each consisting of 15 athletes of 12 years age, with 2 years of practice in athletics. (15 girls for experiment group and 15 girls for witness group) participated voluntarily in the study. The age, body height and body weight were12.07±0.94, CV%-7.78, 149.73±6.54 CV%-4.3635.2±4.53 CV%-12.86 for experiment group and 12.86±0.84, CV%-6.53, 148.80±6.04, CV%-4.05, 36.93±3.85, CV%-10.42 for witness group, respectively (mean±s). The subjects performed three tests: two events for speed running 30m, 50m a distance running during 2 min running test. All data are expressed as mean± standard deviation (s). Pearson's r product-moment correlations coefficients were used to explore the relationships between 30m and distance running during 2 min running $p< 0.05$ and 50m and distance running during 2 min running $p>0.05$.

Results and discussion

For 30m girls from experimental group obtained a significant difference between initial and final tests t dependent tests (n-1) 1. Numerical value of t shows a significantly different from one $p<0.025$ for "t" *student test* (n-1) between initial and final tests and significantly different $p<0.005$ for t student (n-2), for final testing between groups experiment and witness. Numerical value of "t" *student test* shows a significantly different from one $p<0.025$ for t (n-1) between initial and final tests and significantly different $p<0.005$ for t student (n-2), for final testing between groups experiment and witness for running on distance during 2 min. For Pearson correlation "r" there were significant and inverse relationships between 30m speed running and distance running 2 min event, $r=-0.57$, $p<0.05$ and insignificat between 50m speed running and distance running 2 min event.

Conclusions

Hypothesis was not confirmed in all. Significant progress has obtained evidence of only speed running of 30m event. Method of Fartlek to hill positively influenced running the test speed of 30 m distance, while not contributed to the speed of distance of 50m race to girls of 12years old.

Therefore method Fartlek may also be considered as possible predictor factor speed running on event 30m sprint.

Key words: athletics, children, fartlek method, speed running, training.

Introduction

In relation to the duration of all-out running, these speed decrements are not uniform. Speed decreases markedly with increases in the duration of shorter efforts (i.e., _180 s) but only modestly with the same relative increases in the duration of longer ones. Accordingly, top sprinters attain race speeds nearly twice as fast as those achieved by the best milers, but mile runners race only moderately faster than marathon runners do. The negative exponential relationship between all-out speed and run duration is generally attributed to differences in the metabolic power available from anaerobic vs. aerobic sources in relation to time (M. W. Bundle, R. W. Hoyt and P. G. Weyand, 2003). Specifically, peak rates of anaerobic energy release, which fuel brief maximal efforts, decline rapidly as the duration of the trial increases.(R. Margaria, 1976)

In contrast, the peak rates of aerobic energy release during prolonged efforts vary relatively little with event duration. For example, well-trained athletes can maintain _80% of their maximum aerobic power for events from 10 to 120 min (5–7). The quantitative relationship between maximal aerobic power and endurance performance has been well established for more than two decades. Consequently, standardized laboratory tests of aerobic energy release have been established for some time. Speed acceleration, as a manifestation form complex speed is most important in sport because reflects the concrete possibilities of the athletes to run the distance with maxim speed running. In evidence of athletic speed events is essential for victory and in many branches of sports as football, handball, lawn tennis, rugby, basketball etc., speed of

movement can create large indisputable advantages in certain phases of competitions sports. Speed of movement is in a relationship of interdependence dialectics relative to elementary forms of speed. (I. Baroga, 1984). Thus, the sprint's events, athletics performance achieved depends of times the speed of repetition of cycles but also the full length of step (closely correlated with length feet and forced to push the muscles), fine coordination of muscle activity groups agonist and antagonist. (C. Delecluse, H. Van Coppenolle, E. Willems, M.Van Leemputte, R. Diels, M.Goris, 1995). In terms of physiological, motor acts performed with great speed based on high-repetition speed orders transmitted by nerve muscle effectors. With maximum speed of motion sensitive proprioceptive signals the starting point of the muscle can not intervene in correcting mistakes coordination as feedback mechanisms do not have enough time for it.(I. Dragan, 1989). Resistance requires intensity anaerobic work so great that recovery ATP can be obtained only by creatinfosfat (CP) and anaerobic glicoliza. The duration of an effort is about 1 min., Limit being determined by the accumulation of lactic acid in muscles, which begins to disrupt muscle metabolism, transmission of nerve impulses and restore ATP. W. H. Hegeloch quoted by A. Nicu, 1993, related to the accumulation of ammonia in the blood after an effort anaerobic resistance, the average duration of anaerobic effort lactacid being 47-47 and 11 s. While lactate reached maximum values of 12.98 mmol / l in minutes 3 strength after exhaustive effort, ammonites recorded maximum in minute 3, representing 123.3 micromoles / L. The ratio of ammonium and lactate values at rest was 27.7 and decreased to 9.8 after the first minute, the minimum being reached in the 15th minute, then increase again, reaching after 30 minutes to 12.4. The authors consider that the future belongs to the above determination of serum ammonium, resulting in comprehensive effort towards resistance anaerobic metabolic activation miokinaz-line adenilat deaminase. (A.Nicu, 1993). Until a certain duration of effort (in mind, especially anaerobic capacity), resistance will depend directly on the speed. The maximum speed is the highest level; the work done at speed under maxim can be extended further. As an example: a Sprinter with a result of 10.4 to 100 m flat, will make it easier 6x100 m, every 12 seconds and repeat with a break of 3-4 minutes, than another who has a result of only 11 , 5 sec/100m flat. Such relations are based on indicators and coefficients of resistance (A. Murray, TC. Aitchison, G. Ross, K. Sutherland, I. Watt, D. McLean, S. Grant, 2005). Fartlek means "running the game tempo or "the tempo of the game" in Swedish. Is a form of training that emphasizes continuity effort aerobic nature of this exercise. The difference between this type of training and regular training is that the intensity or speed of running exercise varies, meaning that aerobic and anaerobic systems can be required. Most training takes at least 45 minutes and range from walking briskly to anaerobic sprint. Fartlek training is generally associated with running, but can include almost any kind of exercise, including cycling, rowing and swimming and is a method which develops physical qualities of small athletes (W.Piddle, 2 005, T. Bompa, G. Gregory Haff, 2009.)

Hypothesis

The hypothesis of this longitudinal experiment supposed that Fartlek method contributes to improving the speed and time in 30m and 50m events to athletes aged 12 years.

Methods

Subjects

15 athletes' girls aged 12.07±0.94 of Experiment group and 15 athletes' girls aged 12.86±0.84 of Witness group participated voluntarily in the study. They have 2 years old in athletics practice. A written consent was obtained from the parents before the study. The age, body height and body weight were presented in table no.1. We calculated mean±S and CV% values. Values of CV% are very good for age (years, month) and body height (cm) <10 and good >10 for body weight (kg).

Table 1. Physical characteristics of the subjects

	Experiment group	Witness group
Variables	**mean± S; CV% n= 15 girls**	**mean± S; CV% n= 15 girls**
Age (years, month)	12.07±0.94 CV%-7.78	12.86±0.84 CV%-6.53
Body height (cm)	149.73±6.54 CV%-4.36	148.80±6.04 CV%-4.05
Body weight (kg)	35.2±4.53 CV%-12.86	36.93±3.85 CV%-10.42

Tests: The subjects performed three tests: speed running 30m, (table no.2, 3), 50m(table no.6,7) and running during 2min.(table no. 4, 5) Were registered on time and 30m running time of 2 min was recorded by the distance that the girls ran for 2 min. Running speed on 30m and 50m were registered by 2 photoelectric cells. Between initial test and final test, both groups of subjects were trained for a month.

Experiment group subjects during 4 weeks trained 4 practices per week, (Constanta, 2009, april):

Fartlek to hill

-20 min preparatory part

-10 min easy running

- 2 race x 3 x 500m running speed to hill 85% intensity, revert back to valley by easy running between running speed 85% and between races running more easily no hill, no valley during 5 min.

-10 min easily run and 5 min stretching.

Witness group subjects during 4 weeks trained 4 practices per week normal athletics practice with game sport to end of training.

Statistical Analysis

All data are expressed as mean ± standard deviation (s). Data were verified for normality of distribution. "t" test student dependent and independent

between groups tests initial and final tests for find the significant difference or insignificant difference between tests.

Pearson's product-moment correlations coefficients were used to explore the relationships between time of 30m speed running and distance running during 2min, statistical significance was set to p< 0.05. Between time of 50m speed running and distance running during 2min statistical insignificance was set to p>0.05.

Results and discuss

In tables 2 and 3 show times are obtained from subjects in 30m standing start event. Numerical value of t shows a significantly different from one p<0.025 for "t" *student test* (n-1) between initial and final tests and significantly different p<0.005 for t student (n-2), for final testing between groups experiment and witness.

Table no2. Speed running 30m standing start -initial testing

Initial testing mean± S; n= 15 girls			
Para-metric	**Exper iment group**	t dependent tests (n-1) 0.85*	**Witness group**
30m	5.11±0.55		5.28±0.58

*insignificantly different p.>0.05

Table no. 3. Speed running 30m standing start -final testing

Final testing mean± S; n= 15 girls			
Para metric	**Experi ment group**	t dependent tests(n-1) 2.321*	**Witness group**
30m	4.7±0.55		5.18±0.58
t	Indepen dent (n-2)	tests	3.610**

*significantly different p<0.025
** significantly different p<0.005

In tables 4 and 5 show distance are obtained from subjects in distance running 2 min event. Numerical value of "t" *student test* shows a significantly different from one p<0.025 for t (n-1) between initial and final tests and significantly different p<0.005 for t student (n-2), for final testing between groups experiment and witness.

Table no. 4. Distance running during 2 min

Initial testing mean± S; n= 15 girls			
Para-metric	**Experiment group**	t dependent tests (n-1) 1.81*	**Witness group**
Distance running during 2 min	561m±3.55		529±4.58

- significantly different p<0.05

Table no. 5. Distance running during 2 min

Final testing mean± S; n= 15 girls			
Para-metric	**Experiment group**	t dependent tests(n-1) 2.531*	**Witness group**
Distance running during 2 min	589m±3.55		541±4.58
t	Independent (n-2)	tests	3.610**

*significantly different p<0.025
** significantly different p<0.005

In tables 6 and 7 show times are obtained from subjects in 50m standing start event. Numerical value of "t" *student test* shows a insignificantly different from p>0.05 for t (n-1) between initial and final tests and also insignificantly to p>0.05 for t student (n-2), for final testing between groups experiment and witness.

Table. no 6. Speed running 50m standing start -initial testing

Initial testing mean± S; n= 15 girls			
Para metric	**Experiment group**	t dependent tests(n-1) 0.96*	**Witness group**
50m	9.21±0.46		9.29±0.69

*significantly different p.>0, 05

Table no 7. Speed running 50m standing start -final testing

Final testing mean± S; n= 15 girls			
Parametric	Experiment group	t dependent tests	Witness group
50m	9.01±0.55	1.03*	9.17±0.58
t	Independent (n-2)	tests	1.510*

*insignificantly different p.>0, 05

For Pearson correlation "r" there were significant and inverse relationships between 30m speed running and distance running 2 min event, r=-0.57, p<0.05 and insignificat between 50m speed running and distance running 2 min event (table no.8).

Table no. 8.Values for Pearson's Correlation- r - final tests - girls

mean± S; n= 15 girls		
Parametric Final testing	Experiment group Correlation Pearson r	Witness group Correlation Pearson r
30m/distance running 2 min	4.7±0.55 589m±3.55 r=-0.57*	5.18±0.58 541±4.58 r=0.41**
50/ distance running 2min	9.01±0.55 589m±3.55 r=0.39**	9.17±0.58 541±4.58 r=0. 14**

*significant and inverse relationships between 30m and distance running 2min, p<0.05
**insignificant p>0.05

Conclusions

Hypothesis was not confirmed in all. Significant progress has obtained evidence of only speed running of 30m event. Method of Fartlek to hill positively influenced running the test speed of 30 m distance, while not contributed to the speed of distance of 50m race to girls of 12years old. Therefore method Fartlek may also be considered as possible predictor factor speed running on event 30m sprint.

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