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

FATIH HAZAR¹, Assist. Professor PhD, GEVAT CECILIA², Professor PhD
¹Adnan Menderes University, Aydin, TURKEY
²Ovidius University of Constanta, Romania, Faculty of Physical Education and Sport

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.

Objective
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 were 12.07±0.94, CV%=7.78, 149.73±4.54 CV%=-4.36, 128.50±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 (means). 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 (n=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 (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.

Keywords: athletics, children, fartlek method, speed running, training.
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. Baraga, 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 maximum 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>
<thead>
<tr>
<th>Variables</th>
<th>Experiment group</th>
<th>Witness group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years, month)</td>
<td>12.07±0.94</td>
<td>12.86±0.84</td>
</tr>
<tr>
<td>Body height (cm)</td>
<td>149.73±6.54</td>
<td>148.80±6.04</td>
</tr>
<tr>
<td>Body weight (kg)</td>
<td>35.2±5.33</td>
<td>36.93±3.85</td>
</tr>
</tbody>
</table>

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 no.2. Speed running 30m standing start

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Initial testing means S; n= 15 girls</th>
<th>Witness group</th>
</tr>
</thead>
<tbody>
<tr>
<td>30m</td>
<td>5.11±0.55 (n-1) 0.81* 5.29±0.58</td>
<td></td>
</tr>
</tbody>
</table>

*insignificantly different p>0.05

In tables 4 and 5 show times 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 also insignificantly to p>0.05 for t student (n-2), for final testing between groups experiment and witness.

**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 no.4. Distance running during 2 min

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Initial testing means S; n= 15 girls</th>
<th>Witness group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance running during 2 min</td>
<td>561±3.55</td>
<td>529±4.56</td>
</tr>
</tbody>
</table>

*significantly different p<0.05

Table no.5. Distance running during 2 min

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Final testing means S; n= 15 girls</th>
<th>Witness group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance running during 2 min</td>
<td>539±3.55</td>
<td>541±4.58</td>
</tr>
</tbody>
</table>

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

In tables 6 and 7 show times 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 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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Initial testing means S; n= 15 girls</th>
<th>Witness group</th>
</tr>
</thead>
<tbody>
<tr>
<td>50m</td>
<td>9.2±0.46 0.56* 9.29±0.69</td>
<td></td>
</tr>
</tbody>
</table>

*significantly different p>0.05

Table no.7. Speed running 50m standing start

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Final testing means S; n= 15 girls</th>
<th>Witness group</th>
</tr>
</thead>
<tbody>
<tr>
<td>50m</td>
<td>9.2±0.46 0.56* 9.29±0.69</td>
<td></td>
</tr>
</tbody>
</table>

*significantly 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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Experiment group</th>
<th>Witness group</th>
<th>( r )</th>
</tr>
</thead>
<tbody>
<tr>
<td>30m distance running</td>
<td>9.01±0.55</td>
<td>9.17±0.58</td>
<td>0.57*</td>
</tr>
<tr>
<td>2 min</td>
<td>9.01±0.55</td>
<td>9.17±0.58</td>
<td>0.14**</td>
</tr>
</tbody>
</table>

*insignificantly different \( p>0.05 \)

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 30m distance, while not contributed to the speed of distance of 50m race to girls of 12 years old. Therefore method Fartlek may also be considered as possible predictor factor speed running on event 30m sprint.

REFERENCES

BAROGA, L., 1984, *Educaerea calităților motrice combine*, Edit Sport Turism, Bucuresti, 80-87


DELECLUSE, C., COPPENOLLE, H. VAN, WILLEMS, E., LEEMPUTTE, M.VAN, DIELS, R., GORIS, M., 1995, *The purpose of this study is to analyze the effect of high-