RELATIONS BETWEEN CERTAIN MOTOR ABILITIES WITH SPEED RUNNING

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Abstract

On sample of 30 highschool female subjects in Paraćin chronological maturity of seventeen years (± six months), which are included in regular class of physical education, the research has been done with a main goal to determine the relations between some basic-motoric and situation-motoric capabilities (as a predictional system), with the speed of running on short tracks (60 m) as a main criterion variable. For that purpose the following measuring instruments have been applied: 1. For the basic evaluation of motorical abilities: 20 meters short track high start running (M2JV), long jump without running start (MSDM), deep forward bend on the bench (MDPR), squats (MČUĆ), pushups (MSKL), trunk lifting while lying (MDTR), Foot tapping (MTAN). 2. For the evaluation of specific-motoric abilities two examples were included: 300 meters running (M300M) and long jump with running start (MDALJ).3. Measuring instruments for speed evaluation on short track running (criterion variable), is an example for 60 meters high start running (M60M).

All data have been statistically analysed and showed (presented) in few example tables. All basic statistics have been done including all descriptive parameters, and the connection between predictional variables with criterium variable was done through example of regresional analysis. Obtained data results suggested the statistical importance of certain predictional variables with criterion variable, including once who have similar action and energy potential, witch confirmed the main hypothesis H1.

Keywords: physical education, motor tesrs, basic-motoric abilities, situation-motoric abilities, predictor variables, criterion variable, 60 meters high start running, regression analysis

INTRODUCTION

Physical education is a very complex and delicate social activity. It aims to make use of the funds body exercises and specific organizational forms and methods provide for positive transformational forms of some anthropological dimension of students. The basic function of physical education manifests itself in satisfying natural biological needs of children and youth to move, play and creative exploration. Therefore, the main goal of physical education in its broadest form can be defined as building and training complex personality specific means and methods that provide physical education. (Branković, 2001); (Stojiljković, 2003a).

Research interconnectedness of some motor skills and its impact on the efficiency of implementation of specific program content in physical education are an important factor for proper planning, programming and implementation of the teaching process, especially for the determination and selection of children for sport (Stojiljković, 2003b).

As is known basically every body activity are certain basic-motor and motor-specific capabilities that are influenced by different factors can change in a positive or negative direction. Influence of basic and specific motor abilities to result in sprint events was conducted in a very small number of studies, especially in the population of students and high school students. For these reasons, the basic orientation of this study was to determine the influence of basic and common-specific motor skills to develop speed, running in the short term for female high school students (girls).

As mentioned the subject of this study, the relationships between some basic-motor and situational-motor abilities with speed running in the short term as well as in female high school students (in Paracin).

Based on this set of research subjects, derived following objectives:
RELATIONS BETWEEN CERTAIN MOTOR SKILLS AND SPEED OF RUNNING IN THE SHORT TERM FOR FEMALE HIGH SCHOOL STUDENTS.

- To determine the relationship between basic motor skills and speed of running in the short term for female high school students.
- To determine the relation between specific-motor skills and speed of running in the short term for female high school students.
- To determine the level of some motor skills at running speed.

Tasks arising from this case and set research goals are as follows:
- To establish the basic-motor skills among female high school students.
- To establish specific-motor skills among female high school students.
- To measure the running speed in female high school students.
- In the statistical analysis determine relationship between basic and specific-motor skills and speed of running short track women’s high school students.

Based on the subject and objective of this research is set one hypothesis:
H1 - There is a statistically significant relationship between system-specific and basic motor skills (such as system predictors) and running speed in the short term female high school students (as criterion variables)

METHODS
The sample of subjects

The sample is derived from a population of female high school students in Paracin chronological age of 17 years (+ - 6 months) which are at a given time were included in regular physical education and that they complied with all health and other criteria. The sample comprised 30 females. Regardless of the small number of entities, the sample was representative for the studied population.

The sample of variables

a) Measuring instruments for assessing basic-motor skills are:
- M20V (running on a 20 meter high start)
- MSDM (long jump standing)
- MDPR (deep forward bend on the bench)
- MČUČ (squares)

b) Measuring instruments for assessing specific-motor skills are:
- M300M (running at 300 meters)
- MDALJ (jump to start units)

c) The measuring instrument for assessing the running speed in the short term (criterion variable) is:
- MTR60 (running at 60 meters)

(All basic motor instruments for motor abilities were taken from the monograph Kurelić, et. al., (1975).

Method of data processing

In order to formulate appropriate conclusions shall calculate the following statistical parameters:
1) Descriptive statistics. Results of this study will be placed in a way to obtain information about central and disperzionim parameters for all manifest variables, as follows: mean (MEAN), standard deviation (SD), minimum (MIN) and maximum (MAX) results, as well as a range (RANGE). These statistics will be applied to all manifest variables and specific motor-motor skills and situational-motor skills (running at 60 meters)

2) To establish the connection between predictor variables (and motor-specific motor skills) with the criterion variable (the result of running at 60 meters), regression analysis was performed. for each predictor variable was calculated correlation with the criterion variable (R), the significant correlation (Q R)), partial correlation (PART-R), beta coefficients (beta) and the significance of the beta coefficient (Q).

For the entire system applied predictor variables to calculate the coefficient of determination (DELTA), the coefficient of multiple correlation (RO) and the significance of the whole system variables (Q).

RESULTS AND DISCUSSION

Examination of Table 1, in which the results received predictor variables and basic specific-motor skills, it can be concluded that all the results at intervals of minimal and maximal results (RANGE) always contain three or more standard deviations (SD), on the basis of which it can be concluded considerable

<table>
<thead>
<tr>
<th>Variable</th>
<th>X</th>
<th>SD</th>
<th>MIN</th>
<th>MAX</th>
<th>RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. M20V</td>
<td>38.20</td>
<td>3.92</td>
<td>33.10</td>
<td>48.80</td>
<td>11.70</td>
</tr>
<tr>
<td>2. MSDM</td>
<td>179.60</td>
<td>20.26</td>
<td>138.14</td>
<td>222.26</td>
<td>84.12</td>
</tr>
<tr>
<td>3. MDPR</td>
<td>45.12</td>
<td>6.82</td>
<td>30.27</td>
<td>61.87</td>
<td>36.60</td>
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<tr>
<td>4. MČUČ</td>
<td>31.20</td>
<td>3.51</td>
<td>20.00</td>
<td>40.00</td>
<td>20.00</td>
</tr>
<tr>
<td>5. MSKL</td>
<td>14.90</td>
<td>7.28</td>
<td>5.00</td>
<td>36.00</td>
<td>31.00</td>
</tr>
<tr>
<td>6. MDTR</td>
<td>21.27</td>
<td>3.92</td>
<td>12.00</td>
<td>27.00</td>
<td>15.00</td>
</tr>
<tr>
<td>7. MTAN</td>
<td>33.28</td>
<td>4.40</td>
<td>20.00</td>
<td>44.00</td>
<td>19.00</td>
</tr>
<tr>
<td>8. M300M</td>
<td>553.67</td>
<td>61.14</td>
<td>446.00</td>
<td>690.00</td>
<td>244.00</td>
</tr>
<tr>
<td>9. MDALJ</td>
<td>361.28</td>
<td>53.77</td>
<td>240.00</td>
<td>475.00</td>
<td>235.00</td>
</tr>
<tr>
<td>10. MTR60</td>
<td>10.47</td>
<td>0.424</td>
<td>9.76</td>
<td>11.76</td>
<td>2.00</td>
</tr>
</tbody>
</table>
sensitivity of Applied texts. The test results indicate that it is a nonselective group which is confirmed by a large span between the minimum and maximum results in a larger number of variables expected.

Based on 9 predictor variables (Table 2) explained 85% of variance, running at 60 meters. The coefficient of multiple correlation is very high, and its value is (RO-.92). This coefficient is significant at Q = .000. The highest correlation coefficient with the criterion variable, running at 60 meters with the variable in which the basis of merit of giving maximum initial acceleration own body (20 meters sprint-M20M, jump-start units with MDALJ, jump standing-MSDM) as a result of running on 300 m-M300M. Slightly lower correlation was obtained for taping foot-MTAN, repetitive force abdominal muscles-MDTR and squats-MČUČ.

The values of partial correlations (PART-R) and regression coefficients (beta) may be determined by the result of running the 300 meters (M300M) and result in test squats (MČUČ) have a dominant influence on the prediction of the results of the run n A60 feet, and deep forward bend on the bench (MDPR). The high correlation between running on 300 and 60 meters is certainly due to the identical structure of movement and functional mechanisms.

Test squats not its structure identical motion sprint 60 meters, because the higher correlation can certainly be explained in terms of energy and action features and repetitive, speed and explosive power, which are essential for achieving good results in the criterion variables. Not statistically significant predictive value of variables running at 20 meters is more conditioned statistics (the number of degrees of freedom), but the real reason. Due to the small number of respondents was not possible to determine its partial significance although its percentage contribution to the explanation of the criterion has been relatively high.

CONCLUSIONS

In this paper we checked the influence of some basic and specific motor skills and the speed of female high school students. The study was conducted on a sample of 32 female students of the third year of high school in Niš. Sample predictive variables consisted of nine tests and seven tests of basic motor skills and athletic discipline as 2-specific motor variables. relationships between predictor variables and the variables sprint 60 meters were determined by regression analysis of manifest space. It was found that the system of predictive basic and specific motor skills has a significant share of the forecast results of running the 60-meter (Q = .00), and is thus fully confirmed the hypothesis H1.

Results of regression analysis further showed that the coefficient of multiple correlation between the predictor and criterion variables are high (RO = .92), which means that the result sprint n A60 meters and a set of predictor variables is characterized by 85% common variance. According to the indicators partial correlation and regression coefficients, the result of running at 60 meters depending on the results that female students have made in running the 20 meters, long jump with Pounce, running 300 meters and long jump standing, why should these tests be perfect in upostrebiti system prepares women students.

REFERENCES


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### Table 2. Regression analysis variable 60m at result of basic and specific motor variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>R</th>
<th>Q(R)</th>
<th>PART-R</th>
<th>BETA</th>
<th>Q(BETA)</th>
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<tbody>
<tr>
<td>1. M20V</td>
<td>.76</td>
<td>.00</td>
<td>.25</td>
<td>.14</td>
<td>.20</td>
</tr>
<tr>
<td>2. MSDM</td>
<td>-.65</td>
<td>.00</td>
<td>-.12</td>
<td>-.11</td>
<td>.52</td>
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<td>3. MDPR</td>
<td>-.22</td>
<td>.18</td>
<td>.42</td>
<td>.29</td>
<td>.02</td>
</tr>
<tr>
<td>4. MČUČ</td>
<td>-.52</td>
<td>.00</td>
<td>.64</td>
<td>-.38</td>
<td>.00</td>
</tr>
<tr>
<td>5. MSKL</td>
<td>-.13</td>
<td>.46</td>
<td>.15</td>
<td>.10</td>
<td>.38</td>
</tr>
<tr>
<td>6. MDTR</td>
<td>-.59</td>
<td>.00</td>
<td>-.15</td>
<td>-.07</td>
<td>.45</td>
</tr>
<tr>
<td>7. MTAN</td>
<td>-.62</td>
<td>.00</td>
<td>.16</td>
<td>.09</td>
<td>.43</td>
</tr>
<tr>
<td>8. M300M</td>
<td>.70</td>
<td>.00</td>
<td>.56</td>
<td>.48</td>
<td>.00</td>
</tr>
<tr>
<td>9. MDALJ</td>
<td>-.78</td>
<td>.00</td>
<td>-.19</td>
<td>-.14</td>
<td>.37</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>DELTA</th>
<th>RO</th>
<th>F</th>
<th>Q</th>
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</thead>
<tbody>
<tr>
<td>.851</td>
<td>.922</td>
<td>14.719</td>
<td>.000</td>
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