Changes in Physical Capability of 6 and 7 Year Old Students after Applying the Game Approach

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Abstract

The aim of the present research is to establish and compare the changes in the indicators, which give information about the physical development level of 6 and 7 years old students after applying the game approach in the mini basketball education field. This requires the following tasks:

a) To establish the level of the researched indicators of the physical development of 6 and 7 years old students before the experimental impact

b) To trace and compare the changes, which occurred in the examined groups after applying the game approach in the mini basketball education field

c) To establish the rise in the average levels of the examined indicators in the experimental groups after the pedagogical experiment a significant rise in all five of the examined indicators is observed in the three groups.

Keywords: Physical Capability; Students; Basketball; Game Approach

Introduction

The factors which define the motor features are anatomical, physiological, biochemical and pure psychological factors. When it comes to anthropometrical features such as height, weight and other physical signs, only then it can be said that the features are "physical" [1]. The physical features can be called motor when it comes to the central neural regulation mechanism for the movement management. They can be called psychomotor when it comes to the distinction of the quality feature of the motor activity from the perspective of the psychological factors [2]. Depending on the individual approach of different authors towards the definition of the term physical capability, various definitions of its content as well as the terminological variety regarding its explanation-physical preparedness, physical performance, physical readiness and etc. can be traced [3,4].

A lot of contemporary authors think that in the modern stage of the basketball development, organized activities should begin at the age of 6-7 [1]. It is established that by the means of the sport practice children successfully apply the foundation of the basketball game through the so called "baby basketball", whose regulations and equipment, are well-adapted to the anatomical-physiological features of the kids. The aim of the activities is diversification and enrichment of the palette of impact in the process of the child’s motor development in the form of a game, similar to the basketball by the means of the physical education. Thanks to the reinforcement in the last years of the lowest age in the mini basketball - the so called “baby basketball”, it becomes clear that direction of teachers, coaches and of course parents towards the lowering of the age boundary for selection is required. Moreover the anatomy and physiology development as well as the psychological and pedagogical characteristics of the children in the early school age allow that [5].

Purpose of the study

The aim of the current research is to establish and compare the changes in the indicators which give information about the physical capability of 6 and 7 years old students after applying the game approach of mini basketball education. These are the following tasks:

a) To establish the level of the examined indicators regarding the physical capability of 6 and 7 years old students before the experimental influence
b) To trace and compare the changes, which have occurred in the examined groups after applying the game approach of mini basketball education

c) To establish the rise in the average levels of the examined indicators in the experimental groups

**Methods**

Subject of the research are the signs of physical capability of 6 and 7 years old students. Object of the research is the initial mini-basketball education. Contingent of the research are 6 and 7 years old students, divided equally - 15 in each age - who are participating in the mini-basketball activities. The experimental groups take part in mini-basketball education by the means of the game approach. The game forms are picked up purposefully according to the anatomic, physiologic and the psycho-pedagogical features of the students as well as according to the set goals in the education [6,7]. The research is conducted in one school year.

**Mathematical and statistical processing of the data**

The mathematical and the statistical processing of the data from the testing are done on a personal computer with the help of the standard programs SPSS 20.0 and Microsoft Excel. The following mathematical and statistical methods are applied:

- Variational analysis
- Graphical analysis
- Comparative analysis (t-criteria)

**Results**

The results after statistical expertise of the data (Tables 1 & 2). They have been gathered by tests, which give information about the physical capability of 6 and 7 years old students, who are participating in the mini-basketball activities. On Figure 1 the rises of the average levels of the observed indicators of all the groups after the applied influence are shown.

<table>
<thead>
<tr>
<th>Parameters Indicators</th>
<th>Start – End Examination</th>
<th>X</th>
<th>σ</th>
<th>V%</th>
<th>As</th>
<th>Ex</th>
<th>d</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long jump with two legs (cm)</td>
<td>I</td>
<td>121.87</td>
<td>12.03</td>
<td>11.56</td>
<td>0.67</td>
<td>0.73</td>
<td>-24</td>
<td>-37</td>
<td>0.01</td>
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<tr>
<td></td>
<td>II</td>
<td>127.07</td>
<td>11.24</td>
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<td></td>
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<td></td>
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<td>127 07</td>
<td>11.24</td>
<td>11.56</td>
<td>0.67</td>
<td>0.73</td>
<td>-24</td>
<td>-37</td>
<td>0.01</td>
</tr>
<tr>
<td>Vertical jump with two legs (cm)</td>
<td>I</td>
<td>182.13</td>
<td>13.49</td>
<td>7.07</td>
<td>-0.50</td>
<td>0.16</td>
<td>0.73</td>
<td>-0.05</td>
<td>0.01</td>
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<tr>
<td></td>
<td>II</td>
<td>212.31</td>
<td>23.69</td>
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<td>212.31</td>
<td>23.69</td>
<td>7.07</td>
<td>-0.50</td>
<td>0.16</td>
<td>0.73</td>
<td>-0.05</td>
<td>0.01</td>
</tr>
<tr>
<td>10m sprint (high start) (s)</td>
<td>I</td>
<td>2.98</td>
<td>0.19</td>
<td>6.13</td>
<td>-0.46</td>
<td>-0.52</td>
<td>-1.3</td>
<td>-2.2</td>
<td>0.01</td>
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<tr>
<td></td>
<td>II</td>
<td>2.67</td>
<td>0.21</td>
<td></td>
<td></td>
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<td>2.67</td>
<td>0.21</td>
<td>6.13</td>
<td>-0.46</td>
<td>-0.52</td>
<td>-1.3</td>
<td>-2.2</td>
<td>0.01</td>
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<tr>
<td>Solid ball throwing - 1kg (cm)</td>
<td>I</td>
<td>364</td>
<td>99.11</td>
<td>24.30</td>
<td>0.63</td>
<td>0.89</td>
<td>1.17</td>
<td>1.96</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>379</td>
<td>101.16</td>
<td></td>
<td></td>
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<td>379</td>
<td>101.16</td>
<td>24.30</td>
<td>0.63</td>
<td>0.89</td>
<td>1.17</td>
<td>1.96</td>
<td>0.01</td>
</tr>
<tr>
<td>Depth of the slope (cm)</td>
<td>I</td>
<td>96.07</td>
<td>7.5</td>
<td>7.49</td>
<td>-0.28</td>
<td>-0.18</td>
<td>-1.49</td>
<td>-1.36</td>
<td>0.01</td>
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<tr>
<td></td>
<td>II</td>
<td>98.27</td>
<td>7.43</td>
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</tbody>
</table>

The explosiveness of the lower limbs has been established with the “long jump with two legs” test. Both the experimental groups have improved their explosiveness, which can be affirmed by the average values of the indicator after the experimental closure. The rise (d) of the average values of the 6 year olds is d=5.20cm and d=4.36cm for the 7 year olds. It is backed up by high authenticity - P<0.01 (Tables 1 & 2 and Figure 1). The values of the variation coefficient V fluctuate between 6.13% and
of the sign for both the experimental groups in the beginning by a high statistical authenticity - P<0.01. A normal distribution by the 7 year olds (Figure 1). The rise in both extracts is backed up indicator grows up by 14.87 cm and a 21.6 cm growth is observed in the end of the experiment the average value of the 6 year olds’ examin-

ed through the "solid ball throwing (1 kg)" test. After approach education. The explosiveness of the upper limbs is experimental groups are due to the mini basketball game and in the end of the experiment is observed - As = 0.89, Ex = 1.96 (6 year olds) and As = -0.78, Ex = -0.38 (7 year olds) (Tables 1 & 2).

After the end of the experimental influence, the acceptable homogeneity of this indicator in both the examined groups is maintained. It characterizes the speed and strength features of the students. The “depth of the slope” test is informative about the condition of the flexibility. It is well known that flexibility is genetically transferred and is individual. It is approximately easily teachable but also quickly lost. The observed extracts show homogeneity regarding the variation coefficient before the experiment e <10%, normal distribution of the sign and symmetry (Tables 1 & 2). The significant increase of indicators average value proves a good selection of means and methods for influence in the experimental groups regarding the development of the depth of the slope.

Tables 1 & 2 display that the 6 years old have increased the average values of the “depth of the slope” from 96.07 cm and 98.27 cm and the 7 years old from 97.53 cm to 101.93. The rise by the 6 years old is 2.20 cm and 4.40 by the 7 years old and are both confirmed with a statistical authenticity P<0.01 (Tables 1 & 2 and Figure 1). It can be claimed that in the end of the experiment the symmetry and the height of the distribution curve for this indicator is within the boundaries of the ordinary for both the experimental groups and they remain homogeneous.

Conclusion

a) After the end of the pedagogical experiment a significant rise in all five of the examined indicators for physical capability is observed. This is due to the fact that a planned and aimed mini basketball education process by the means of a game approach was conducted. It is only logical that in the end of the reviewed period better results were expected.

b) Our research shows that after the experimental influence the groups maintain their homogeneity in all of the physical capability indicators.

c) The distribution of the observed indicators in both groups remains normal and symmetrical after the experimental period.

d) The experimental method by the means of a game approach should be integrated in the practice, through which the specialized sport literature will be enriched and the work of the pedagogues and the sport specialists will be boosted.

References


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