Impact of Participation in Physical Education Courses on Anthropometric Characteristics of Children

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Abstract: This study was carried out to determine the impact of physical education courses (PEC) on some certain motor characteristics of primary education students. Some of 138 students who regularly participated in PE courses on voluntary basis for 2 hours a week were called as the PEC+ group while those who did not do so are called as the PEC- group. The participating subjects were measured for their anthropometric values. For comparison, the independent t test was used. The study has revealed higher values in body height, shoulder width, chest and hip circumference as well as upper arm and lower leg length in PEC+ group in the 1st grade students; in age, thigh circumference and bust height in PEC+ group and in belly, knee and ankle circumference in PEC- group in the 2nd grade students; and in thigh and ankle circumference as well as forearm and lower leg length in PEC+ group and in upper arm and upper leg length in PEC- group 3rd grade students. These differences were statistically significant. As a conclusion, we suggest that providing and maintaining the motor skills of children, which is one of the basic aims of physical education courses, relies on the frequency of these courses a week.

Key words: Physical Education, Primary Education, Anthropometrics

INTRODUCTION

Even though our country has young population, she cannot achieve the desired success in the international sports organizations. Important parts of the sportsmen who have been successful in the international organizations are the ones who have been educated in other countries and came to our country for different reasons. The reason why there is a lack of top-level sportsmen in the country is because experts in the field have not transferred enough information and have not performed enough practice programs for the children who are in primary schools [1].

Physical education is a process where a person intentionally participates to physical movements in order to achieve physical, emotional, social and mental changes in his/her behavior in accordance with the aim of physical education [2]. Physical education is the supplementary and inseparable part of the public education and it is very much important for achieving children’s physical developments in accordance with the principle of wholeness of the organism, movement skill development, nerve muscle coordination development end personal and social coherence [3-5].

There are some studies claim that the physical education lessons that in the primary schools’ syllabus, have not been successful to achieve the pre-set goals [6, 7] on the other hand, some studies claim that the pre-set goals have been achieved [8, 9].

In order sportsmen, who are in individual and team sports, to exhibit their physical, physiologic and motor skills they need to have an appropriate physical structure [10]. For all kinds of sports achieving high level performance depends upon many factors. The most important of them is physical fitness. Physical fitness is the most important criteria to exhibit physiologic capacity. Unless the physical structure matches to the relevant sports branch, it is not possible to exhibit full performance [11].

There are many studies on children and youngsters that examine the changes that occur by sports performance and body structure through development
and maturation. In these studies it is mentioned that growing-up affects the performance and development differently [12, 13].

The relationship between development and motor skills performance usually depends upon anthropometric factors and it has been accepted as an important element in performance. Anthropometry is the term describing combination of the old Greek words of “anthropos” and “meter” (human and measurement). In general terms it is a systematic technique that uses reliable, valid and scientifically accepted measurements for sizing and classification of human body’s physical features. In another words, it is a technique that determines the human body’s physical measurements. Anthropometric measurements are currently regarded as the most important measurement criteria for the body composition [14-16].

This study has been performed to determine the effects of physical education lessons on the children’s, who are in 1st, 2nd and 3rd classes (7, 8 and 9 years old) in primary schools, anthropometric features.

**MATERIALS AND METHODS**

One hundred and thirty eight male students from 1st, 2nd and 3rd classes in primary schools voluntarily participated to this study; 40 from 1st class (PEC+ n= 19 PEC- n=21), 51 from 2nd class (PEC + n=26, PEC – n=25) and 47 students from 3rd class (PEC + n=23, PEC - n=24). Those students who participated in the lessons regularly for 2 hours weekly were grouped as PEC+ and those students who did not participate in the lessons regularly were grouped as PEC.

In this study, height, weight, round measures, bust height, upper arm, forearm, upper leg and lower leg height were measured for the voluntarily participating students [14, 17].

For determining the age of the volunteers identification card information was taken into consideration. Heights were measured by meter and recorded as cm, weights were measured by electronic scale and recorded as kg, rounds and heights measurements were done by rigid hand cupped tape measures and recorded as cm. Before taking the measurements, the necessary approvals were taken from the school administration and custodians / parents.

Measurements were repeated 3 times and the average of these 3 was calculated and recorded as final measurements. For analyzing the data SPSS package program was used. In order to determine that the data showed normal distribution One-Sample Kolmogorov-Smirnov test was used. Results of measurements were presented as mean and standard deviation. For the comparison of the groups independent t test was used and P < 0.05 was accepted as meaningful value.

**RESULTS AND DISCUSSION**

In our findings, it was discovered that changes are not only dependent on the physical activities performed in the physical education lessons but also it depends on the age factor. The meaningful changes especially in height measurements were observed in an ascending manner in 1st and 2nd and 3rd class students (Table 1). Koçak and Kartal [7] concluded that the physical education lessons and activities performed by primary schools children dont provide meaningful and desired progress to the children’s physical development. This study supports our findings.

Sınmaoğlu and Çoknaz [18] examined 172 students from Bolu city center and 156 students from Cologne city center in Euro fit test battery and found that those students from Cologne city center are more successful in physical capabilities. This difference was due to the reason that those students’ physical education lessons and leisure time activities, both from qualitative and quantitative approach, were much better.

Bayrakdar and Saygılı [19] examined the female students who were 7 -11 years old, in terms of physical activity levels and body compositions and found out that their physical activity level comparing to the other countries is lower. It has been pointed out that the other countries children are accustomed to physical activities much more at early ages and in our country the number of weekly physical education lesson hours with regard to physical activities are low.

Tanyeri [20] stressed on the importance of playing and physical education in terms of child’s development and he also expressed that the education given in primary schools is very important. In the present study, results showed that there are differences between the children who are participating physical activities and the children who are not. One study has examined the male and female children between 7-11 years old who stay in foster homes and tried to found out the effects of recreation activities. At the end of the study it was discovered that those recreation activities lower the body fat rate of the children [21].
<table>
<thead>
<tr>
<th>Variables</th>
<th>Group</th>
<th>Mean</th>
<th>S₀</th>
<th>t</th>
<th>p</th>
<th>Mean</th>
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<th>Mean</th>
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<th>p</th>
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<td>Age (year)</td>
<td>PEC+</td>
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<td>0.22</td>
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<td>0.620</td>
<td>8.50</td>
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<td>0.346</td>
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<td>9.33</td>
<td>0.48</td>
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<tr>
<td>Height (cm)</td>
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<td>4.77</td>
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<td>129.23</td>
<td>4.99</td>
<td>1.032</td>
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<td>5.73</td>
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<td></td>
<td></td>
<td>126.74</td>
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<td></td>
<td></td>
<td>133.07</td>
<td>5.03</td>
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<tr>
<td>Body weight (kg)</td>
<td>PEC+</td>
<td>23.94</td>
<td>3.43</td>
<td>1.001</td>
<td>0.323</td>
<td>26.92</td>
<td>5.62</td>
<td>-0.173</td>
<td>0.864</td>
<td>30.33</td>
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*p<0.05, **p<0.01

These results have shown that performance of regular physical activities contributes to children’s physiologic, sociologic and motor skills developments as well as physical features.
Table 3: Length Measures of the Investigated Subjects

<table>
<thead>
<tr>
<th>Variables</th>
<th>Group</th>
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<td>Bust height</td>
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<td>3.95</td>
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<td>2.85</td>
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*p<0.05, **p<0.01

CONCLUSIONS

The major factor for physical development and movement capabilities depend upon the frequency of physical education lessons that child participates and depend upon the qualified instructors. The main reasons why the physical education lessons are not successful are the lack of branch instructors, lack of sports facilities and the lack of sports equipments that prevents programs to be implemented [7].

REFERENCES