MODIFIED PHYSICAL ACTIVITY PROGRAM FOR CHILDREN WITH ASTHMA IN PRIMARY AGE

(Preliminary communication)

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Abstract

The purpose of the study is to research the physical activity of boys with bronchial asthma age 4 - 5 years old, compare it with the physical activity of their healthy peers and to recommend a preliminary weekly physical activity program based on the standards for physical activity appropriate for this age. The statistical research is conducted with parents of boys with asthma and healthy boys 4-5 years old. Parents were surveyed for their children’s physical activity during the past seven days. The survey questionnaire was based on “Short Last 7 days Telephone IPAQ” modified and adapted to the boys preferable sports in Bulgaria. Results are showing insignificant differentiation in the physical activity of healthy children and children suffering from asthma. All results are compatible with the recommended standards for weekly healthy physical activity for this age group. We recommend a plan for physical activity based on the standards for required physical activity for boys at this age and the sports they prefer to do. We also have recommendations for parents and institutions for increasing the children’s physical activity level.

Keywords: asthmatic children, physical development, minimum weekly physical activity program

INTRODUCTION

Anatomic-physiological characteristics of the children in primary age require structured development of the motor and physical fitness level. A number of studies are showing that physical fitness development of the 21 century child’s is preceding the development of the child from the last century. Based on analysis from the 2013/2014 school year of the Regional Capital health inspection organization, most of the children are suffering from pulmonary diseases with allergic etiology – with asthma 17,9%, followed by diseases of the eyes-14,6%, allergic rynithys-13,9%, chronic bronchitis – 6,3%, obesity – 6,5% and pneumonia-5,7%. Those diseases are affecting the physical development of the child. This requires methods for strengthening the child’s organism, to maintain the required optimal physical activity in the children’s weekly regime.

The contemporary approach for the treatment of the bronchial asthma includes a complex of methods directed towards fast recovery after the asthma attacks and the healing and keeping the body in remission period. If in the acute phase of the asthma the primary treatment is the medical one, in the remission period most of the treatments are based on pulmonary rehabilitation – nonspecific, natural physical factors, electrotherapy and physiotherapy which improves the normal condition of the organism. (Петровска (Петровска), 2006). Based on the scientific research of Chandratilleke et al., (2012), Mendes et al. (2010); Turner et al. (2011), being physically active increases the physical fitness of people with asthma without any harmful consequences in the control of the asthma.

Based on Yohannes, & Connolly (2004) there is still minor interest in the pulmonary rehabilitation programs from patients with chronic pulmonary diseases. In the study of Filkova & Stamova (Филкова & Стамова, 2012) which surveyed parents of children with asthma in regards with the place of the physiotherapy as part of the complex of methods of treating the children, it was estimated that only one third of the surveyed parents had
physiotherapy as part of their children’s rehabilitation. After educating the parents toward the positive effect of physical activity on the control of the asthma symptoms and the quality of life, two thirds of the parents confirmed interest in adding physiotherapy in the complex of methods for treatment of asthma and in the non-acute/remission period of their children.

The children suffering from asthma should have the same physical activity as their healthy peers during the remission period because the physical activity stimulates the bone development, increases the capacity of the skeletal muscles and increases the blood supply to the heart. It is evident among people that doing daily physical activity leads toward incensement of their vital capacity, the hematopoiesis is increased, blood supply of the brain is increasing and as a result of that there is an improvement in the thinking, memory, attention, brain function, self-esteem and the mood. Metabolic processes are stimulated and the deposition of fat decreases. The immunity is increasing.

The purpose of our study is to research the physical activity of boys with bronchial asthma age 4-5 years old and to compare their physical activity with the physical activity of their healthy peers and to recommend a program for weekly physical activity based on the standards for physical activity for this age.

METHODS

This is a pilot representative statistic research which was held at a health kindergarten in Varna. Parents of 4-5 years old boys were surveyed in order to analyze the physical activity of boys with asthma and healthy boys at this age. There were 50 boys in total in the kindergarten place. The data are received from 28 parents of 4-5 years old boys with asthma and 15 parents of healthy boys. One of each child’s parents was surveyed. The survey questions were in regards with the boy’s physical activity during the past seven days. Having in mind the influence of the seasons on the capacity for physical activity it should be considered that this first research took place during the months of April and May 2014. A modified „Short Last 7 Days Telephone IPAQ“, questionnaire was used which was adapted to the boys’ sports preferences in Bulgaria from the authors of this study. After gathering the first data a statistic analysis was performed.

RESULTS AND DISCUSSION

The following statistic’s methods were used:

The questions in the survey were directed towards an active physical activity that children did for more than 10 minutes: biking fast, soccer, swimming, walk in the park, other sports or walking to and from the school.

The standards for this age group are as follows:
At least an hour (60min) of physical activity or more every day – tourism, skateboarding, rollerblading, biking, walking to and from the school.
An hour or more daily – moderate or vigorous aerobic physical activity – fitness games including running, jumping, karate, basketball, swimming, and gymnastics.
At least 3 times per week – vigorous activities.
At least 3 times per week activities which steel the muscles and the bones – games like “Tug a war”, modified push-ups, gymnastics.

The results are demonstrating insignificant differentiation in the physical activity level of healthy and sick children.

Clinically healthy 5 years old boys play soccer during the week and during the weekend with the same - 50% Load. Among sick children an insignificant difference is estimated 46,15% during the week and 53,87% during the weekend. There is insignificant differentiation between the physical activities measured as number of times that a child plays too. A healthy child plays average of 1,22 times while a sick one plays 0,85 times (Table 1. and 2).

<table>
<thead>
<tr>
<th>Children</th>
<th>Average values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy children</td>
<td>1,22</td>
</tr>
<tr>
<td>Sick children</td>
<td>0,85</td>
</tr>
</tbody>
</table>

There is insignificant differentiation in the average quantity of time for games which is 33 minutes for healthy boys and 26,29 minutes for sick boys and it is below the standards for physical activity for this age.

<table>
<thead>
<tr>
<th>Children</th>
<th>Average values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy children</td>
<td>33</td>
</tr>
<tr>
<td>Sick children</td>
<td>26,92</td>
</tr>
</tbody>
</table>

The results for 4 year old boys are similar.
All results are significantly below the described standards for physical activity for this age which is to show that there is a need for a long term educational work with not only parents but also the administrative authorities of the children’s institutions.

The healthy physical activity transfers the motion in a healthy tool.

The precise dose of the amount of the physical activity is a required condition which improves the health. Most often a moderate physical activity is used. It is based on two main factors – the amount of the work and its intensity. Based on the current study we have prepared an example program for a weekly physical activity. The program includes 460 minutes of physical activity which leads to solidification the muscles, bones and increases the aerobic capacity of the children.

We have selected recommendations for increasing the children’s physical activity in two basic groups: par-
ents and institutions which are responsible for the raising and educating the children in this age group. The parents can help with increasing their child’s interest towards physical activities. It is their responsibility to arrange and plan their child’s physical activity by creating a schedule, including their children’s preferred physical activities. They can arrange sports uniforms and equipment. They can take them to places where their children can be active like parks, stadiums, basketball courts and to help them to try new activities. Parents can provide safety equipment as helmets; wrist and knee supporters and they can guarantee that the activity is suitable for their age.

To help increasing the health of children that are part of kindergarten it is necessary that the medical personnel require information about a regular medical checkup from the child’s general physician in regards with their health. It is very important that part of the school classes involve games and exercises that improve children’s physical fitness. The administration of the kindergarten places is to arrange sport games and games in the parks and mountains. The sports facilities should be equipped properly and the outdoor playground areas should be covered with soft floor toward trauma prevention. The children with obesity and spine deformations should be included in programs for physiotherapy with qualified physiotherapists. It is also required that the administration of the kindergartens is to arrange optimal desks based on the children’s height as part of a prophylactic for spine deformities.

CONCLUSION

The results are demonstrating insignificant differentiation of the physical activity of healthy and diseased children but all results are below the described standards for recommended physical activity for this age. It is evident that there is a need for a long term systematic educatio-}

**Table 3. An example program for a minimum weekly physical activity.**

<table>
<thead>
<tr>
<th>One of the following activities based on the child’s preference</th>
<th>Day of the week</th>
<th>Boys 4 and 5 years old</th>
<th>Intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soccer, Basketball, Track and field</td>
<td>Monday to Friday</td>
<td>3</td>
<td>40</td>
</tr>
<tr>
<td>Swimming, Water polo, martial arts, gymnastics, tennis</td>
<td>Monday to Friday</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>Biking, rollerblading, skateboarding, riding a scooter, walking</td>
<td>Saturday and Sunday</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>Walking to and from kindergarten, walking in the park, playing on the playground</td>
<td>Monday to Friday</td>
<td>2</td>
<td>40</td>
</tr>
</tbody>
</table>

tional work with the parents. To meet the purpose of this study, an introductory program, based on the children’s sport preferences and the standards for physical activity for this age in Bulgaria, is recommended. Recommendations for increasing the physical activity of children are formulated for parents and administrative organizations. The expected results will be constant improvement of the physical activity. Creating a habit for being physical active at very young age will help to decrease the negative consequences of the decreased physical activity and will help with the prevention of chronic diseases and as a result, as well as the quality of life will be improved.

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