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Review article

THE IMPORTANCE OF POSTURAL STATUS FOR THE HEALTH OF CHILDREN AND YOUTH

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Abstract

Postural disorders occur not just among school children but also among preschoolers, the fact which coincides with critical periods of growth and development that are characteristic for the occurrence of the mentioned disorders. They can be located on all the segments along the spinal column, torso and lower limbs. Good body posture is of great importance for healthy growing of the youngest while poor postural status harmfully influences locomotor system, circulation, as well as respiratory and digestive system. Inadequate position while sitting, standing and walking (as the result of muscular disbalance) causes pain in cervical, thoracic and lumbar part of the spinal column, which later influences the overall quality of life. Surveys and numerous researches of the locomotor system are all aimed at finding the most adequate system of preventive and corrective activities with an emphasis on timely diagnostic of changes.

Keywords: postural status, body posture, health, importance, children and youth

Introduction

The occurrence of postural disorders as well as finding relationships among them and possible causes of their development raises interest of health workers and physical education teachers. Older researches indicated more frequent occurrences of postural disorders among school children. However, newer researches alarm us of more frequent occurrences of poor posture even among preschoolers (Sabo, 2006).

Postural disorders of locomotor system among school children and preschoolers, which have not been recognized and treated in a timely manner, can develop into body deformations that are later difficult to treat (Protić – Gava et al., 2010). That is why it is highly recommended for children to start practising well-designed and professionally-leaded physical activities at an early age.

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The results of researches regarding the occurrence of postural disorders indicate more frequent occurrence of multiple deviations in musculoskeletal system among young-school age children (Protić - Gava et al., 2009a). However, the positive thing is that most of them are on the level of functional stadium which has not yet reached the level of structural changes.

Postural status

The term posture refers to the position of body (Đorđić, 2007) which represents relative position of body segments during rest or during some activity (Demeši-Drljan and Mikov, 2012). Good postural status is conditioned by good muscular-skeleton balance that protects certain structures from injuries and occurrences of progressive deformations (Pavlović, 2009) reagrdless of the position of body (Aleksić-Veljković and Stanković, 2010).

Muscles, which represent the active part of movement apparatus, have the most significant role in the creation and preservation of regular posture. Together with ligament apparatus and articulation system, they confront gravity both during movement and rest (Pavlović, 2009). If the balance is dislocated (in these cases muscles suffer mostly), good body posture suffers as well (Koturović and Jeričević, 1996).

Good and regular relations between all the segments in a body contribute to well-balanced and uninterrupted functioning, and as such result in good body posture. Consequently, good body posture causes muscles to function at their best (Aleksić-Veljković and Stanković, 2010), thus providing optimal position for abdominal and thoracic organs (Pavlović, 2009).

Upright and relaxed posture is characterized by body weight well-balanced on both legs and adequate muscle tension to suppress gravity, while at the same time energy consumption is insignificant. If vertical that goes from common centre of all the segments that burden the articulation goes closer to the centre of that articulation, muscle strain is smaller (Đorđić, 2007).

Physiological curves of the spinal columns stabilize around the 18th month of age or even later, while the curves range between 20º and 35º in thoracic and 15º and 30º in lumbar part (Radisavljević, 2001). Spinal column is curveless in frontal plane (10º deviance is tolerable) and should be without any rotation (Đorđić, 2007). Bone, ligament and muscle structures in a foot play a significant role in the creation and preservation of foot arch (Đorđić, 2007; Radisavljević, 2001). The height of longitudinal arches is determined by the shape of bones and ligament strength (Jovičić, 2007). Deterioration of this unique functional composition of active and passive tensors causes changes in the shape, position and function of a foot (Radisavljević, 2001). Causes of deformations can be of different etiology, but what all of them have in common is disbalance of foot muscles (Lee & Sucato, 2008).

Growth and development of any child follows the same rhythmic pattern which is marked by certain so-called "growth crises" (Kosinac, 2006). The first and second year of life represent the years when children experience intensive growth and as such these years are referred to as the first critical period when rapid motor growth happens (upright position). In their seventh year of age (second critical period) when they start school, children are exposed to more physical challenges (carrying heavy school bag, sitting for longer period of time). Third critical period is the age of puberty when children experience rapid growth. This period is followed by intensive secretion of reproductive glands and closure of certain cartilago epiphysialis of long skeleton bones (Demeši-Drljan and Mikov, 2012).

One of the primary preconditions for the occurrence of poor body posture, which is consequently followed by disorders along the spinal column, is lack of movement. School environ-

ment represent a "fertile ground" for the occurence and development of certain postural disorders (Medojević and Jakšić, 2007). In order to prove their claim that children who start school have much less physical activity than younger children, these authors cite Vuković (1999) who claims that children who start school have 50 % less physical activity than preschoolers. Đorđić (2007) quotes Cardon (2004) who says that children spend 97 % of their school time sitting.

Weakness and inadequate development of musculoskeletal system are caused by lack or smaller number of physical activities which than results in the development of poor postural habits among the youngest (Demeši-Drljan and Mikov, 2012). Repeated and long-lasting activities effecting the spinal column in certain positions create poor habits regarding body posture. The result is the occurrence of many different forms of postural disorders. Tired muscular system finds the best position to rest in the shortest time possible. However, due to disbalance it experiences, it causes inadequate postural status (Medojević and Jakšić, 2007). What follows is the shortening or weakening of a certain muscular system which then causes muscle disbalance that represents the main cause of the occurrence and development of body deformations (Đokić and Stojanović, 2010). After primary changes on muscles, changes on ligament apparatus and then on skeleton also occur, which means that poor body posture actually represents the first phase of certain deformations.

Obesity also represents a base for the development of certain deformations among children, especially for the occurrence and development of lower limbs deformations - "X" shape legs (Paušić, 2007) and flat feet (Protić-Gava, Krneta and Romanov, 2011).

Cooperation – parents, teachers, doctors – key to success in the prevention of postural disorders

Cooperation between health facilities, preschool and school institutions, sport clubs and family is of great importance in the school education system, where the main task is to teach youth about the importance of good body posture for their health and overall quality of life. Physical education teachers in educational and sport institutions can contribute significantly when the recognition of postural disorders, the prevention of poor body posture and mild forms of body deformations are in question. The role of family in raising consciousness regarding healthy life habits and the importance of organized forms of physical activities is of great significance for the prevention of any kind of disorder. Basic information and knowledge of the development of disorders and deformations can contribute to their prevention.

Continuous, adequately chosen, and controlled physical activity represents an efficient

tool that can influence growth and development of children as well as the creation and preservation of body status. In this sense, parents have great responsibility to motivate and encourage their children to take part in different forms of physical activities. Adequate and precisely planned physical activity positively influences the process of development, corrects postural disorders and deformations and develops positive motor skills (Grabara & Hadzik, 2009a, prema Krneta, Protić-Gava, Vuković and Šćepanović, 2012).

Since parents and physical education teachers are those who children spend most of their time with and who follow children's growth and development, they are the ones who, if they recognize any type of postural disorder, should react and initiate treatment.

Instead of conclusion

The task of physical education teachers is to influence the adoption of good body posture as well as to recognize functional changes of the postural status and foot status while medical facilities should be in charge of diagnostics and treatment of structural changes (deformations).

The importance of timely recognition of postural disorders results in a smaller number of children with poor body posture. Starting to teach children different forms of physical activities at an early age has preventive and corrective effects on growth and development, especially in the critical periods of growth.

Having in mind the etiology of the occurrences of postural disorders and basic principles of preventive work, application of adequate techniques can prevent further progression of already existing disorders and enable complete recovery. Adequate choice of physical activities can make growth and development easier by improving the immunity, correcting postural disorders and developing positive motor skills. Integration of compensative activities in everyday teaching of physical education can greatly help and influence the creation of good body posture.

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