

POSTURAL STATUS MODEL YOUNGER SCHOOL AGE CHILDREN

(Preliminary communication)

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Abstract

The aim of this research is defining the postural status among the children of the younger school age (7-11 years old). The data collected are based on the sample which included 30 children attending handball school "Radnicki" from Belgrade. The research included 15 girls and 15 boys. The postural status was estimated by the clinical method, also known as the somatoscop method, based on the model Radisavljević M. and Radojević J. The conclusions based on the evaluation of the postural status show that the most common deformities are suspended arch of the foot (76,6% in total), winged scapulae (40%) and scoliotic posture (30%). Furthermore, these results show that body deformities are not equally present in both sexes. With girls, the most common deformity is suspended foot, followed by the scoliotic posture, while among the boys suspended foot also appears as the most frequent, but is followed by the kyphotic posture. These data are worrying, and at the same time alarming in pointing out the necessity of conducting the prevention and correction of the postural disorders, as early as during the pre-school age. It is very important to occupy children with recreational doing of some of the basic sports, such as swimming, athletics or gymnastics, because that is how the good conditions for the complete body musculature would be created.

Keywords: *boys, girls, bad body posture, preventive-corrective effect, therapy effect, disorders of the spinal column, disorders of the the chest, disorders of the upper and lower extremities, somatoscop method, teachers, percentages*

INTRODUCTION

Starting school is one of the most important phases in the life of a child. While the pre-school period is characterized by the well known daily rhythm (play-fatigue-rest), starting school changes the social situation and the dominant activity of a child. The dynamics of playing is replaced by the studying. The long static load, stronger pedagogical requests, the decline of motor activity, appearance of the working discipline and psycho-emotional stress, are some of the changes which each child encounters during the everyday activities. During the first months—or the first year, significant number of children develop certain functional and morphological disorders, caused by inappropriate adaptation to already mentioned changes (Kosinac, 2008). Therefore, these changes lead to the loss of the regular body posture, which according to Ilić, represents a biological value of a man, developed through his phylogenetic development (Ilić, 2012).

One of the signs of health problems among children of younger school age is the bad body posture. These

problems could become very serious unless corrected in time. It is very often that these problems are noticed in time. It would be the best if the teachers could notice the very first signs of a bad body posture

The weakness of certain muscle groups, or the whole musculature (which is certainly case when talking about the children), may cause the appearance of the different disorders of the spinal column and the chest, as well as of the upper and lower extremities (Koturović and Jeričević, 1996).

By the permanent and diagnosing of the postural status children, many health problems, body disorders and deformities above all, can be noticed in time, before become serious. That is why it is necessary to conduct, first preventive—and then corrective treatments. The prevention of the postural disorders must be regarded in a wider context, because it is not easy to remove the negative influence the modern way of life. Furthermore, it is necessary to create some new contents and conditions with the function much more complete and in accordance with the true needs of children.

Therefore, it is very important to conduct regular detection of the postural disorders among the children of the younger school age. Systematic checks should be done regularly and in continuity, and even more often with the students in the period of acceleration. This is the matter of great importance, because the early detection opens the possibility for a successful correction (Radisavljević, 2001).

The prevention and correction at this age can be conducted through the various sorts of games and sports. Handball, for example, represents a game which includes almost all natural types of movement. The technique elements with the ball and different kinds of shooting it-can be used for the specific spine mobility, which represents the preventive-corrective influence (Radisavljević, 2001).

METHODS

The postural status is estimated by the method of observation or somatoscopy, based on the clinical list done according to the model of Radisavljević & Radojević (Radisavljevic, 2001).

The aim of this research is to determine both postural status in the boys and girls, and their differences, by checking the condition of certain body segments.

In order to research the postural status in the younger school age children data on the sample of 30 children attending handball school "Radnicki" from Belgrade, were collected. The sample consisted of 15 boys and 15 girls, and the evaluation of the subjects took place on the 10th -and 17th -May, 2012. in Belgrade.

RESULTS AND DISCUSSION

After the evaluation, the results were statistically processed and shown in the tables and then analyzed along with the conclusions-reached.

The results from Table 1. show that the most common disorder in the girls is lowered foot 86.6%. The next most common disorder is the difference between Lawrence's triangles 60%, while the least frequent is the deformity of the winged scapulae 53%.

Regarding Table 2. one can notice the similar ratio in the boys, where 66.6% of the subjects had lowered foot. However, 53.3% of boys have *pes planus* (looking

Table 1. Statistical results of the girls' group

| Segment position | GIRLS (15) | | |
|----------------------------------|-------------------------------------|---------|------------|
| | Deviation from normal position | Numbers | Percentage |
| Head position | Slope to one side | | |
| Shoulders position | Raised shoulder | 6 | 40% |
| | Raised scapula | 6 | 40% |
| Scapulae position | Distance from the spine | | |
| | Winged scapulae | 8 | 53,3% |
| Triangles stature (L. triangles) | Difference | 9 | 60% |
| Pelvis | Slope | | |
| Knees position | <i>Genua valga</i> | 3 | 20% |
| | <i>Genua vara</i> | | |
| Achilles tendon Position | Distortion in <i>Pes planus</i> | 6 | 40% |
| | Distortion out <i>Pes excavates</i> | | |
| Cervical curvature | Increased Curvature (kyphosis) | 2 | 13,3% |
| | Reduced Curvature (lordosis) | | |
| Thoracic Curve | Increased Curvature (kyphosis) | 2 | 13,3% |
| | Reduced-flat back | | |
| Lumbar curvature | Increased curvature (lordosis) | 5 | 33,3% |
| Knees position | Hyperextension | | |
| Feet position | <i>Pes planus</i> | 13 | 86,6% |
| | <i>Pes excavates</i> | 1 | 6,6% |
| Chest | <i>Pectus carinatum</i> | | |
| | <i>Pectus excavatum</i> | 2 | 13,3% |

Table 2. Statistical results of the boys' group

| The segment position | BOYS (15) | | |
|--------------------------|-------------------------------------|---------|------------|
| | Deviation from normal position | Numbers | Percentage |
| Head position | Slope to one side | | |
| Shoulders position | Raised shoulder | 3 | 20% |
| Scapulae position - | Raised scapula | 3 | 20% |
| | Distance from the spine | 1 | 6,6% |
| | Winged scapulae | 4 | 26,6% |
| Lawrence's triangles | The difference | 1 | 6,6% |
| Pelvis | Slope | 2 | 13,3% |
| | <i>Genua valga</i> | 1 | 6,6% |
| Knees position | <i>Genua vara</i> | | |
| | | | |
| Achilles tendon position | Distortion in <i>Pes planus</i> | 8 | 53,3% |
| | Distortion out <i>Pes excavates</i> | | |
| Cervical curvature | Increased curvature (kyphosis) | | |
| | Reduced curvature (lordosis) | | |
| Thoracic curve | Increased curvature (kyphosis) | 5 | 33,3% |
| | Reduced-Flat back | | |
| Lumbar curvature | Increased curvature (lordosis) | 2 | 13,3% |
| Knees position | Hyperextension | | |
| Feet position | <i>Pes planus</i> | 10 | 66,6% |
| | <i>Pes excavates</i> | | |
| Chest | <i>Pectus Carinatum</i> | 1 | 6,6% |
| | <i>Pectus Excavatatum</i> | 3 | 20% |

from the back), and the percentage of winged scapulae is significantly lower than in the girls-26.6%. On the other hand, in comparison to the girls, kyphosis is more prevalent -33.3%.

The cumulative results for both sexes show that the lowered foot is the most common disorder-76.6% (23 out of 30 subjects had it), then the *pes planus* (looking from the back) 46.6% (14 subjects had it); winged scapulae were present in 40% of the subjects (12), while the Lawrence's triangles were noticed in with 33.3% (10) of the subjects.

Comparing the results of both boys and girls, it can be noticed that the head posture of both sexes was graded as normal. The difference between the height of shoulders and scapulae is more common in the girls 40%, comparing to 20% in the boys. The scapulae distance from the spine is normal for both groups. Girls exhibit higher percentage of the winged blades-53.3%, while the boys exhibit 26.6%. The difference between the Lawrence's triangles is more evident in the girls-60%, comparing to 6.6% in the boys. The pelvic slope, looking from the side, is not evident in girls,

while boys exhibit this deformity, but in a small percent 13.3%. *Genua valga* is evident in the 20% of the girls, and 6.6% of the boys, while *genua vara* is not evident in either of the groups. However, *pes planus* is more common in the boys 53.3% comparing to 40% in the girls, while *pes excavatus* is not evident in either of the groups

Increased kyphosis and lordosis in the cervical curvature is evident only in the girls-13.3%. Thoracic kyphosis is evident in the 13.3% of girls, while its frequency is much higher in the boys-33.3%. There is a reversed situation with the lumbar curvature-in-creased curvature (lordosis) is evident in the 33.3% of the girls, while the presence of this deformity in the boys is significantly less frequent-13.3%. The knees hyperextension does not exist in either of the groups. *Pes planus* is more evident in the girls-86.6%, comparing to 66.6% in the boys. *Pes excavatus* is not evident in either of the groups. Only one boy had *Pectus carinatum*, which is about 6.6%. On the other hand, *pectus excavatum* is more frequent-it appears in 20% of the boys and 13.3% of the girls.

All these comparative analyses were given in Table

Table 3. Percentage ratio between the results of boys and girls

| <i>The segment position</i> | BOYS & GIRLS | | |
|-----------------------------|---------------------------------------|------------------------|-------------------------|
| | <i>Deviation from normal position</i> | <i>Percentage BOYS</i> | <i>Percentage GIRLS</i> |
| Head position | Slope to one side | 0% | 0% |
| Shoulders position | Raised shoulder | 20% | 40% |
| Scapulae position | Raised scapula | 20% | 40% |
| | Distance from the spine | 6,6% | 0% |
| | Winged scapulae | 26,6% | 53,3% |
| Lawrence's triangles | The difference | 6,6% | 60% |
| Pelvis | Slope | 13,3% | 0% |
| Knees position | <i>Genua valga</i> | 6,6% | 20% |
| | <i>Genua vara</i> | 0% | 0% |
| Achilles tendon position | Distortion in <i>Pes planus</i> | 53,3% | 40% |
| | Distortion out <i>Pes excavates</i> | 0% | 0% |
| Cervical curvature | Increased curvature (kyphosis) | 0% | 13,3% |
| | Reduced curvature (lordosis) | 0% | 0% |
| Thoracic curve | Increased curvature (kyphosis) | 33,3% | 13,3% |
| | Reduced-Flat back | 0% | 0% |
| Lumbar curvature | Increased curvature (lordosis) | 13,3% | 33,3% |
| Knees position | Hyperextension | 0% | 0% |
| Feet position | <i>Pes planus</i> | 66,6% | 86,6% |
| | <i>Pes excavates</i> | 0% | 6,6% |
| Chest | <i>Pectus Carinatum</i> | 6,6% | 0% |
| | <i>Pectus Excavatum</i> | 20% | 13,3% |

3, where all the deviations from the regular posture can be seen.

CONCLUSION

One frequently poses the question how to solve these health problems which can cause some serious consequences in the older age.

The prevention of the postural and body disorders should be conducted as early as the pre-school age.

When dealing with the younger school age children they should be guided towards improving their functional and physical abilities, first through games, and later through sport games. Professionally applied and correctly chosen games and sport games can have significant preventive and corrective effect. They can be used to remove certain milder forms of body deformities.

It should be emphasized that, just like games and sport games, certain sport disciplines can have significant preventive-corrective and therapeutic effect. In that context, the most important are sport gymnastics,

rhythmic gymnastics and swimming (Radisavljević, 2001).

It is also very important that the athletics and gymnastics are as much as possible contained in the P.E. classes. There is no reason to avoid them, because they do not demand a lot of financial investing (running, for example). If they are not included in the classes, various body deformities which demand medical treatment, will appear. Furthermore, it would be beneficial to include additional classes of corrective gymnastics, especially at this age.

Modern way of life is most responsible for the generally bad health in children. Inadequate sitting position at schools in front of the computer or television additionally causes the appearance of the over-weight, hypertension and various postural disorders. With the hypokinetic syndrome added to the list, we perceive the true picture of the causes of the results.

In that line, one of the solutions are could be P.E. classes with the pre-arranged concepts of the plan,

program and concept. Thus, Physical Education would represent the main way of prevention and the guarantee of the safe and adequate development.

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