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**SOMATOSCOPIC EVALUATION OF PRE-PUBERTAL CHILDREN FOR THE  
PURPOSE OF ESTABLISHING SPINE DEFICIENCIES**

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**Abstract.** *The current situation regarding the state of health, and here we can refer to the functional impairment of the spine of pre-pubertal age children, is superficially approached from the prevention point of view.*

*Global or partial physical deficiencies, as well as the vicious positions of the body, could be favorably influenced by the use of physical exercises as an associated means of kinesiotherapy.*

*Currently, the problem of somato-functional growth and development of pre-pubertal children, related to the existing postural hygiene programs, is in a deficient situation, favoring the installation of vicious postural attitudes, which cause complications in the spine such as functional physical deficiencies.*

**Keywords:** *pre-pubertal, somatoscopic evaluation, functional impairment.*

**Introduction.** The analysis of the specialized literature carried out so far revealed that the frequency of physical deficiencies among school-aged children is very high. Some of the objective causes that trigger and favor the occurrence of physical deficiencies and implicitly the deviation from normal physiological morphological status, can be the following: the most common ones are caused by *rickets in childhood, the decreased accuracy of some analyzers; organic diseases; osteoarticular diseases* [3, 4, 8]. In the pre-pubertal and especially puberty age, when growth bone processes are faster, grow more in length and less in thickness, so the height is the one that stands out, and stabilizer muscles are weak, the structural malalignment abnormalities of the locomotor apparatus are more likely to appear. The structure of the skeletal system at this age is in a forming process, the bones are long and thin,

the muscular development is low, the joints are in a state of accentuated ligament laxity which favors the lack of stability and implicitly the appearance of the functional physical deficiencies, the vicious posture attitudes, that once installed have an evolutionary trend and are difficult to stabilize or correct.

Besides these structural and functional mismatches, sometimes there are imbalances in the relationships between the segments or even the organs, long and thin arms, pectus carinatum and pectus excavatum, all these being accompanied by functional or psychological disorders.

The dynamics of growth and development during this period, namely the puberty, comes with a complex of specific changes that are not always controlled and hence the appearance of various posture or even functional maladies. Hypotonia can be considered a pathogenic factor of the static and dynamic disorders of the

locomotor system; this hypotonia generates joint laxity and negatively influences the ability of voluntary control and reflex control of skeletal muscles [5].

Nowadays, the concern regarding somato-functional development and development of pre-pubertal children in relation to existing postural hygiene programs is in a poor condition, favoring the installation of vicious postural attitudes, which causes physical-functional deficiencies of the spine. The most serious segmental deficiencies, the most important in terms of the consequences and complications that can be reached are those of the spine, (kyphosis, lordosis, scoliosis and their combinations).

The purpose of the research is to study aspects of child growth and development during the pre-pubertal period and to highlight vicious bodily attitudes.

The research objectives were to analyze the methodical-scientific literature regarding the prevention of vicious attitudes of the spine; the somatoscopic evaluation of pre-pubertal age children; establishing vicious attitudes and spine definitions.

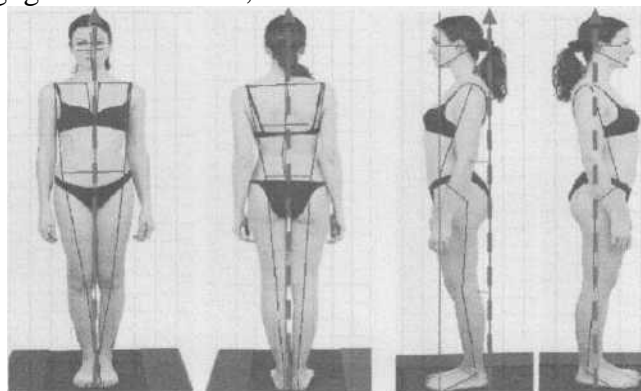
Methods of research: analysis of specialized literature; pedagogical observation;

somatoscopic method; the statistical-mathematical method.

The somatoscopic and anthropometric assessment made for the monitoring of growth and physical development in pre-pubertal age children in order to prevent the occurrence of functional spinal functional deficiencies is mandatory.

The position in which the assessment is carried out is: motionless, with the relaxed shoulders, the upper limbs by the body, the palms at the prono-supine intermediate position, slightly bent fingers, horizontal position of the chin, looking ahead, close heels, peaks at about 45°. [2] In the experiment of selection of the nominated children to perform the experimental programme, it was proceeded to elaborate and implement somatoscopic observation cards, with the purpose of identifying the possible physical attitudes or functional deficiencies of the body posture and especially those of the spine.

In order to do this, a set of front, back and profile human body panels were developed, in which the anthropometric points and markings used in the evaluation process were outlined [6,7]: Picture 1.



*Pic. 1. Pannels, somatoscopic analysis [9]*

The implementation of the somatoscopic observation method on an extended sample of 500 pre-pubertal aged pupils (11 to 13 years old), VI and VII class pupils, girls and boys, was one of the important points of our study,

together with the questioning of those involved in managing their growth and development process.

The results obtained after carrying out the observations are presented in Table 1.

**Table 1. List with deficiencies found at children aged between 11 to 13 years  
(n = 500)**

Vicious attitudes cases discovered	VI class girls No. of cases of deficiency discovered	VII class girls No. of cases of deficiency discovered	VI class boys No. of cases of deficiency discovered	VII class boys No. of cases of deficiency discovered	Total no./percent of vicious attitudes cases discovered
Cifotic attitude	12	9	7	5	33-6,6%
Lordosis attitude	5	6	6	4	21-4,2%
Flat back syndrome	2	3	2	3	10-2%
Scoliotic attitude	14	12	7	8	41-8,2%
Cifo-scoliosis attitude	3	4	1	2	10-2%
Total number of cases	36	34	23	22	115-23%

The data obtained from the scientific study carried out on postural deficiencies found, indicate that out of the total number of subjects observed (500), 115 develop a vicious postural attitude of the spine, which represents 23% - practically one in five children develops a vicious postural attitude.

Of the total number of vicious attitudes cases discovered, the scoliotic ones are highlighted by 8,2% and the cifotic ones by 6,6%, exceeding the percentage of 50% of all the cases of deficiency found. As a deficient attitude, lordosis is represented by 4,2% and the flat back syndrome and cifo-scoliosis by 2% each. Scoliosis is by far the most common type of vicious postural attitude of the spine, followed by kyphosis and their combinations. We will specify that the large number of scoliotic attitudes found - 41, representing 8,2% of the observed subjects, is alarmingly high because a scoliosis at this age is almost impossible to be managed, once installed, it has an accelerated evolutionary trend due to the physiological changes that the body is developing at this age. In the same context, we will specify that the functional spinal deficiencies installed at this age, being evolutionary, cannot be corrected by classical

methods; therefore the prophylactic method is the best approach.

The fact that, after carrying out some somatoscopic observations there is a 23% (out of a total of 500 observations) of children aged 11 to 13 years who develop vicious postural attitudes of the spine, requires a scientific approach of the phenomenon, as the complications that can arise with these posture deficiencies can affect and damage the growth and development process during this period.

**Results.** The implementation of the somatoscopic observation method on an extended sample of 500 pre-pubertal aged pupils (11 to 13 years old), represented one of the important points of the scientific study.

The data obtained from the scientific study carried out on postural deficiencies found, indicate that out of the total number of subjects observed (500), 115 develop a vicious postural attitude of the spine, which represents 23% - practically one in five children develops a vicious postural attitude.

**Conclusions.** Based on the study, a somatoscopic evaluation mechanism has been developed which has been transposed into a quantifiable measuring instrument, ensuring a degree of increased objectivity. As a result of

the evaluation, a sample group of children was established, that later underwent a programme

of physical regeneration and recovery of the body posture.

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