

## ASPECTS OF SCOLIOSIS RECOVERY BY ORTHOSING IN PREPUBERTY

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**Key words:** prepuberty, posture abnormalities, scoliosis, orthosing.

**Abstract:** This article refers to some general aspects regarding the approach of scoliosis recovery programmes aimed at prepubertal children aged between 10-14, by the uses of brace-type orthoses.

**Introduction:** Prepuberty starts in both genders at around 10-11 and lasts for about two years in girls, up to the age of 12-13 and in boys up to 14-15 Moțet D. (2011). The rhythm of growth during prepuberty is characterised by a rapid growth in height without an adequate weight gain, and we shall see what problems this leads to in the global growth and development economy. According to some authors (Littre, Gilbert, Hutniel, Lesne, q.ted by Ionescu A. 1962), adolescence identifies with puberty and lasts from the occurrence of the first puberty signs until the establishment of the individual somatic, organic and psychological traits. Ionescu A.N. (1994) considers that adolescence is an age stage and puberty a set of biological phenomena by which the body transforms developing to a higher stage (adulthood). According to this approach some specialists have divided adolescence into three stages: prepuberty, puberty and post-puberty.

The bone system is developing, the bones are long and thin, muscularity is insufficient, articulations feature high ligament looseness, it favours the lack of stability and implicitly the occurrence of physical functional abnormalities, poor posture, which evolve and are hard to stabilise and correct once they have occurred.

Specialist literature mentions the following abnormal postural attitudes: predominantly kyphotic, lordotic, kypho-lordotic, flat back, scoliotic (asymmetric) and combinations thereof. The studies and research carried out so far have highlighted that the frequency of physical abnormalities in school children is very high. Some of the objective causes triggering and favouring the occurrence of physical abnormalities and implicitly the deviation from the normal physiological morphofunctional status can be as follows: most are caused by *early childhood rickets; the decrease in the acuity of certain analysers; organic*

*diseases, osteoarticular diseases or diseases generally affecting the neuro-mio-arthrokinetic system*

As opposed to deviations on the sagittal plane, which are more difficult to point out, the spine curvature disorders on the frontal plane can easily be observed even if slighter as the normal spine does not feature curvatures on the plane. Frontally there are spinal abnormalities described with one, two or several curvatures, structural and non-structural curvatures with or without vertebral rotations, with or without thoracic proximity twists. Scolioses and kyphoscolioses are part of this category of spinal curvatures.[4,5]

**Material and method:**

From the point of view of the treatment, we must take into account the angle of the scoliosis as it precisely determines the treatment scheme. Stagnara suggests a protocol accepted by most therapists and specialists in the field:

- from 0<sup>0</sup> to 30<sup>0</sup>- kinesiotherapy (exercising );
- from 30<sup>0</sup> to 50<sup>0</sup> - kinesiotherapy and orthosing (brace );
- above 50<sup>0</sup> surgery.

Scoliosis treatment can often become a major problem since in most cases even if it is diagnosed on time, the lack of knowledge about the pathology and the incorrect treatment can lead to complications. We shall specify some aspects encountered in current practice: approaching scoliosis treatment without the proper cooperation among the orthopaedic surgeon, kinesiotherapist, parents, teachers and raising the patient's awareness cannot lead to a successful result. [2]

Jianu M., quotes the famous French orthopaedic surgeons, Carlioz and Seringe in *Scolioza Pediatrică 2010* who textually say “There is no kinesiotherapeutic treatment in evolutive scoliosis. No treatment proved to be effective as no study showed any positive results in scoliosis that proved to be evolutive. In this case Kinesiotherapy is not only useless but what is more, it is harmful as it explains the delay in accessing more effective treatments.” [3]. Thus, shall we say that movement treatment is useless? Not at all. Kinetic treatment and exercising are the main treatment means both for prophylaxis and recovery. All the techniques used in the treatment scheme must start off from a positive diagnosis accompanied by a clinical profile and objective investigations; one must determine the remaining functional capacity, the current condition and the presumptive forecast of the evolution of the condition, then determine the short-and long-term objectives. The recovery treatment is specific to each kind of condition, each patient, being determined based on certain

specific assessment (somatoscopy, anthropometry, joint movement examination, muscular examination, morphofunctional examination etc.)

An increasingly frequent approach in the current practice is orthosing scoliosis irrespective of age, the angle of curvatures, how old the scoliosis is or its aetiology. The harms and damages brought about by this approach negatively influence both the children's growth and their overall health. We do not generalise these aspects but because quite numerous cases have been identified we shall present some personal opinions regarding this issue, namely orthosing scoliosis by braces in prepubertal children.

For the purpose of objectively illustrating this idea, we shall present two cases of bracing, one being positive and one negative. Fig. 1 illustrates a correctly tightened brace.



Fig. 1 brace, front view



Fig. 2 brace, back view

Fig. 3,4 present the relevant X-rays prior to orthosing by braces and after the bracing technique has been applied. As we can notice by comparing the two X-rays, there is no obvious reduction of the curvature.



Fig.3 X-ray without brace

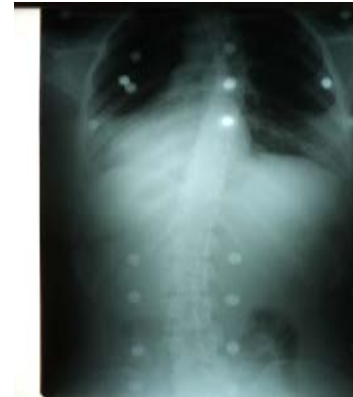


Fig.4 X-ray with brace

In order not to wrong the users of this type of brace, we have intentionally omitted the names and origin of the braces in question however we must note that they have been made by specialist centres.

Figure 5 and 6 illustrate an incorrectly tightened brace model which does not ensure proper stability nor can it correct the scoliosis.



Fig. 5 brace, front view



Fig. 6 brace, back view

### **Results and discussions:**

We can ascertain that orthosing by means of braces in cases of postural abnormalities and scoliosis does not induce and result in a significant correction of the back curvature. The main objective of kinesiotherapeutic recovery treatment by means of orthosing by braces is to preserve the function of the spine but not only.

The use of braces without seeing an orthopaedic surgeon and a kinesiotherapist supervising the recovery programme may lead to progressive and irreversible damages in the neuro-mio-arthrokinetic system since the growth and development processes during prepuberty are accelerated.

### **Conclusions:**

- The use of orthosing by braces in the recovery of scoliosis cannot be used as a technique on its own but rather together with a kinetic programme under the coordination of a multidisciplinary team;
- Not all braces are correctly tightened, and in some cases in type “S” scoliosis they cannot lead to corrections especially in those cases in which the compensation curvature is at the level of the shoulder blades;
- The degree of the curvature and the type of the scoliosis decisively contribute to the recommendations and application of orthosing by braces.

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**ASPECTE ALE RECUPERĂRII PRIN ORTEZARE LA  
SCOLIOZE ÎN PERIOADA PREPUBERTARĂ**

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**Cuvinte cheie:** perpubertate, deficiențe de postură, scolioză, ortezare.

**Abstract:** Prezentul articol, face referire la unele aspecte generale privind abordarea programelor de recuperare ale scoliozelor la copiii de vârstă prepubertară 10-14 ani, prin aplicarea ortezelor de tip corset.