

HOW TO FIND PHYSICAL FUNCTIONAL DEFICIENCIES OF THE SPINE DURING ADOLESCENCE AND HOW TO STOP THE EVOLUTIONARY PROCESS BY KINESIOLOGY

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Abstract:

Due to the accelerated process of growth during the pre-puberty regular physical functional deficiencies known find the proper field for the onset and evolution. The muscle - skeletal disorders become more common in the Children and teenagers in schools. If it is not detected in time, will it lead to severe damage of the process of growth and harmonious development of the spine. With minimal effort from the educational factors like family, teachers, teachers in physical education, these deficiencies could be timely detected and corrected by kinesiology.

Introduction

The literature considers the adolescence as an age stage, and the puberty as a complex of biological phenomena that transforms the child in teenager. Pre-puberty period begins around the age of 10 - 11 years, up to 12 – 13 years for girls, and 14-15 years for boys (A. Ionescu).

Particularly this time, there are: rapid increase in height without a corresponding increase in weight, long bones become thin with underdeveloped muscles, joints with high mobility that facilitates installation of the vicious attitudes of the body, increasing the length discrepancy between the segments and organs. Also, there is laxity in the intervertebral joints that leads to deformities of the spine axis.

The endocrine metabolic disturbances occur; somatic growth occurs and stresses the difference between the sexes. The incidence is higher in girls than in boys, having increased folliculin quantity which relax the capsular-ligaments apparatus. In addition to the hormonal factor, there are others predisposing factors: heredity, environmental conditions and physiological conditions, rickets, chronic food poisoning.

The first signs appear in pre-pubertal school age and not in the earlier age. Evolution stops after the period of growth and development.

Therefore during this period of growth is essential to establish appropriate actions regarding the prevention and combating physical deficiencies and distortions. These actions can be implemented by parents, educators, physical education teachers, who are required to ensure proper nutrition of the child, his posture correction in sitting position while learning, and a rational regimen of physical activity and rest.

Material and method

The finding, the diagnosis and the prevention of the physical deficiencies require an interdisciplinary effort by the family doctor, pediatrician, kinesiologist, physical education teacher and the parents, and this is the goal of our research.

Physical functional deficiencies have following characteristics: there are not structural changes of anatomical components; are reducible and often only be corrected by kinesiology.

In developing this work we selected students from 12 classes, from grade

V-VIII as follows:

- class grade v- three classes, total of 72 students;
- Class grade VI - three classes, total of 69 students;
- Class grade vII - three classes of 83elevi;
- –Class grade vIII - three classes of 78 students.

There were made somatoscopic and anthropometric assessments to the students, emphasizing on the evaluation of the spine.

Physical functional assessment includes techniques for evaluation of the functional characteristics of the body, the measurements being carried out between certain anatomical landmarks.

The somatoscopic and the anthropometric assessment is made with a plumb line; the reports are made only by means of vertical and anthropometric symmetry framework, while the assessments are made both vertically and horizontally. There is the examination from the front, from the back and from the sides.

Clinical examination is generally made from pre-school age, 2 times a year by the family doctor, a pediatrician or an orthopedic physician.

The practice of exercises produces beneficial effects on the body in multiple planes: education, morphological-functional, therapeutic and

psycho-social. The prophylactic effects are the result of systematic practice and the right rate of exercises.

After assessing therapeutic plans were drawn up taking into account the type of deficiency, the stage in which is found and of the patient's psycho-somatic characteristics.

Therapist's goals:

- To ensure normal growth and harmonious development;
- Training and maintaining a proper body attitude at rest and during activities;
- Improving alignment of the spine;
- To prevent compensatory deficiencies and control vicious attitudes;
- To ensure the entire body muscle tone;
- To increase overall capacity of effort;
- To increase respiratory capacity.

Kinetic methods indicated to correct physical deficiencies of the spine are:

- Postural education (during office hours and during physical activity);
- Sedative massage(by stimulating contracted and underdeveloped muscles);
- Breathing exercises (train various muscle groups to correct respiratory mechanics);
- Static exercises to increase muscle tone (Niederhoeffler method);
- Dynamic exercises to increase muscle strength and joint mobility (free exercise of upper limbs with lower limbs, objects exercises, exercise machines, resistance exercises, Klapp - method);
- Vojta - method reflex exercises-facility (acting on the deeper muscles of the spine);
- Sports and sports games with remedial effect (swimming, basketball, volleyball).

Results and discussions

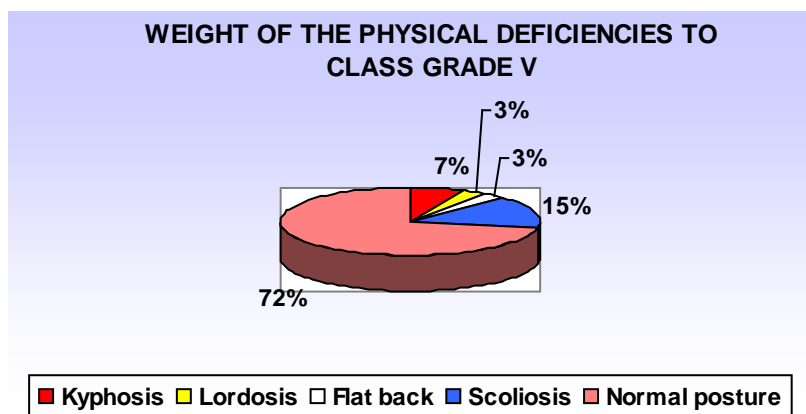
Following assessments in the 12 classes of students it was observed the presence of several functional physical deficiencies on the back and spine. To classes of students tested there were deficiencies of the spine in sagittal plane and frontal plane; deficiencies in two planes to the same student there were not found yet.

As shown in the table most subjects have scoliosis which requires immediate action because scoliosis is a physical disability can lead to further more complicated (especially respiratory, circulatory, digestive, musculoskeletal disorders).

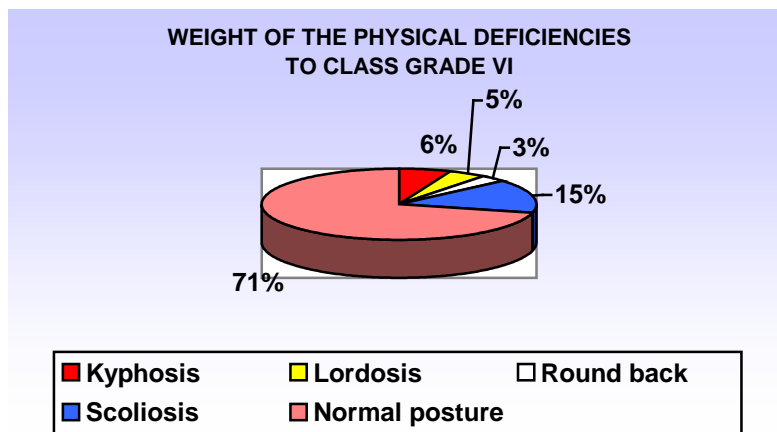
Table no. A physical deficiency rating

Class	kyphosis	lordosis	kyphosis-lordosis	flat back	ound back	coliosis	normal posture
grade v 72 students	5	2	-	2	-	11	52
grade VI 69 students	4	3	-	-	2	13	47
grade VII 83 students	3	2	5	-	-	14	59
grade VIII 78 students	4	-	5	-	1	16	52

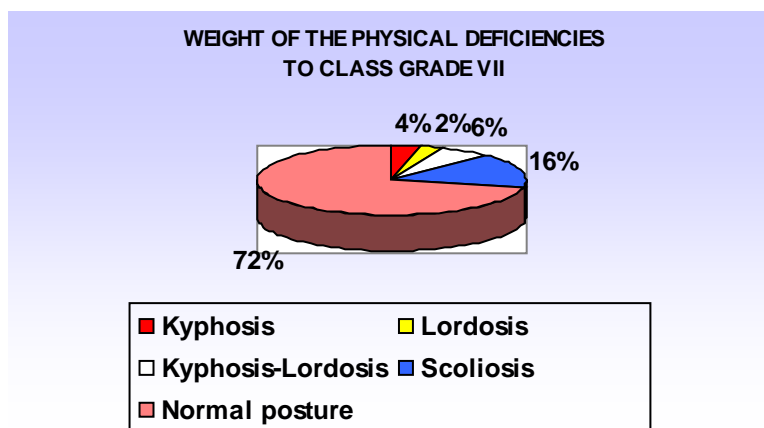
Graphic no.1



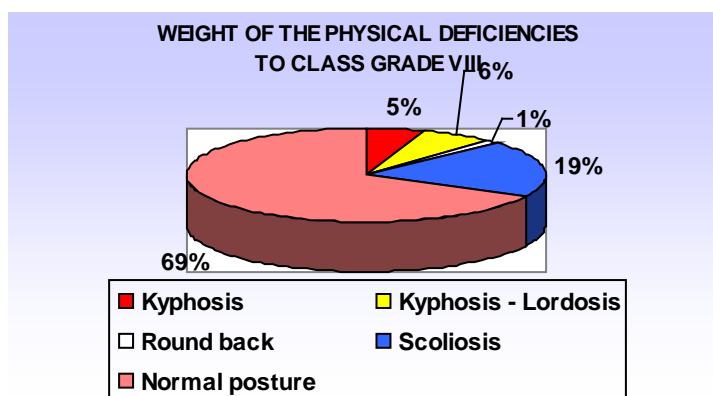
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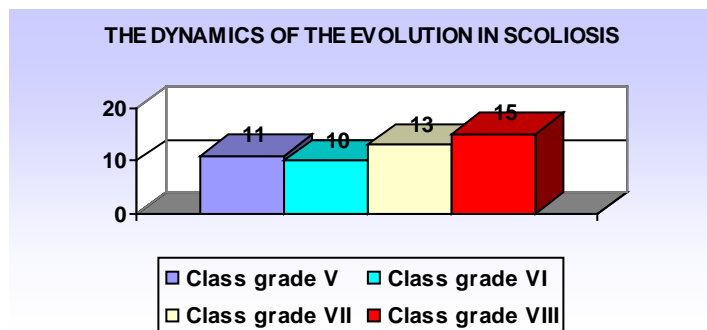
Graphic no.3



Graphic no.4



Graphic no.5



As can be seen in the graph above the number of subjects diagnosed with scoliosis is increasing as increases the seen changes during puberty which require closer monitoring and a corresponding kinetic treatment.

Conclusions

Following conclusions emerge from the study:

- Monitoring by a control specialist (pediatric specialist, kinesiologist) of the child every six months during the growth and development, determines timely finding of possible health problems (functional physical deficiencies).
- Interdisciplinary collaboration and the effort of specialists: teachers, doctors, physiotherapist, kinesiologist and the family, is required to prevent potential problems in time.
- Physical examination (somatoscopic) may be performed by lay persons: teachers, family, by observing behavior in different body positions static and dynamic, any deviation from the physiological axis (asymmetries, inequalities, non-concordances), can cause installation or debut of some deficiencies.
- The performing of physical activity systematically organized under the guidance and supervision of specialists can provide growth and harmonious development and prevention of physical deficiencies or functional pathology.

References

1. Antonescu D. Obrușcu C., Alexan-Correcing Ovezca spine, Bucharest: Medical, 1993;
2. Baciuc C, Musculoskeletal apparatus, Bucharest: Medical, 1981;
3. Birtolon., Exercise and spine, Bucharest, Editura Sport-Turism, 1988;
4. Helena Bridge, Back pain, Bucharest: Corinth, 2004;

5. Cordon Mariana, Normal and pathological body posture, Bucharest: ANEFS, 1999;
6. Jianu M., Clinical and therapeutic protocol in child and adolescent idiopathic scoliosis, Bucharest: Tridon, 2007.
7. A. Ionescu, Remedial Gymnastics, ed.ALL Publishing House, 1999;
8. Mârza Doina, Primary Kinetoprofilaxie Iasi, Tehnopress Publishing, 2005;
9. Zechariah C., Scoliosis, Bucharest: Medical, 1980

Titlu: Cum se pot găsi deficiențele fizice funcționale a coloanei vertebrale în timpul adolescenței și cum se poate opri procesul evolutiv prin kinetoterapie.

Cuvinte cheie: creșterea și dezvoltarea, deficiență fizică funcțională a coloanei vertebrale, profilaxie.

Rezumat: Datorită creșterii accelerate în timpul pre-pubertății normale deficiențele fizice funcționale găsesc câmpul potrivit pentru debut și evoluție. Problemele musculo - scheletice devin mai frecvente la copii și adolescenți în școli. Dacă nu este detectat la timp, ne va duce la daune grave în procesul de creștere și dezvoltare armonioasă a coloanei vertebrale. Cu minim de efort din partea factorilor educaționali cum ar fi familie, profesori, profesori de educație fizică, aceste lacune ar putea fi rapid detectate și corectate de kinetoterapie.

Titre: Comment trouver physique carences fonctionnelle du rachis pendant l'adolescence et comment arrêter le processus évolutif par kinesiology.

Mots-clés: croissance et le développement, physique déficiences fonctionnelles de la colonne vertébrale, la prophylaxie.

Résumé: En raison de l'accélération du processus de croissance au cours de la pré-puberté physique régulière déficiences fonctionnelles connues de trouver le champ approprié pour l'apparition et l'évolution. Les troubles musculo - squelettiques devenir plus fréquente chez les enfants et adolescents dans les écoles. Si elle n'est pas détectée à temps, va nous conduire à de graves dommages du processus de croissance et de développement harmonieux de la colonne vertébrale. Avec un minimum d'effort les facteurs éducatifs comme la famille, les enseignants, les enseignants en éducation physique, ces lacunes pourraient être rapidement détectées et corrigées par la kinésiologie.