

PREVENTION AND CORRECTION OF SPINE DEFICIENCIES IN SCHOOL AGED CHILDREN USING PHYSICAL THERAPY METHODS

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ABSTRACT

Purpose: World Health Organization defines health as a good physical, mental and social state. Knowing very well the morpho-functional particularities of each school age group, the physical therapist may solve one of the main tasks of the physical therapy treatment represented by the training and the maintaining of a correct body attitude. When, due to functional or pathological cases, attitude or morphological (structural) deficiencies occur, physical therapy is required to contribute to their correction. This study seeks to highlight the effectiveness of the prophylaxis as a method for early detection, prevention and recovery of physical light deficiencies that occur in school age children. Physical deficiencies are common in early school aged children and their early detection can lead to full functional recovery through well composed physical therapy programs. Prophylaxis programs that have as main component physical exercise help in obtaining a better body tonus even in deficiencies case that require a longer period of time for recovery.

Methods: Following the somatoscopic examination, the results revealed that most of the pupils have a harmonious growing and development and a correct body attitude. Nevertheless some children have light, moderate or accentuated physical and organic disabilities. Besides somatoscopic examination and anthropometric measurements, we also used the lead line exam and the drawing with the dermatographic pencil of the spinous apophysis. Physical deficiencies considered light and in an early stage are represented by global attitude deficiency of the whole body or only a certain segments. Uncorrected in time, light deficiencies get worse and become medium deficiencies. Action of screening is carefully controlled and monitored at the beginning of each school year in conjunction with school environment. For this study the number of children selected through triage performed by school was 20 (10 girls and 10 boys).

Results: The data derived from measuring the following parameters were compared: thoracic perimeters in both complete inspire and expire and the degree of physical disability. There is a difference between postural relaxed body - uncontrolled and the same body in controlled positions. From a biomechanical point of view, the correct orthostatic position is maintained with minimal power and nervous consumption. Regarding the somatic aspect, the accurate posture is characterized by the positioned orientation of the segments corresponding to this function (physiological curvature, upper limbs in a slight flexion). Applying statistics analysis using t test for independent samples, data showed out that after treatment the following parameters had no statistical significance: thoracic perimeters in inspire ($t = 0.22$) and in expire ($t = 0.24$). Also, it was noted that the recovery of the curve ($t = 2.59$) had statistical significance at a significance threshold of $p < 0.05$.

Conclusions: Screening in school aged children is of major importance in detecting and correcting physical deficiencies and parents and children must be aware of the importance of preventive factors that help children in maintaining a right attitude in classroom. Programs to detect and recover any deficiencies must be established by qualified personnel, doctors and physical therapists.

Key words: spine deficiencies, physical therapy, prevention.

Purpose

World Health Organization defines health as a state of good physical, mental and social. We must not forget that health is a prerequisite for active human existence. Health is a precious good that has no exchange value and can be risky because it is never easy and is regaining lost hard. Any work in any disease is a negative factor: it hinders training to youth, adulthood prevents us to work, and in old age does not allow us to enjoy the fruits of labor (T.Sbenghe, 1996). Health maintenance should be an ongoing concern, a problem individual and collective task.

Only man who can make the service a lucid intelligence and a strong will to a healthy body and lively, strong and well trained, is able to handle any kind of efforts and better succeed in life. That is why the major tasks assigned school physical education can not be done without extending the luggage still driving the formation of new habits of children through the motion and directed processing of existing motor qualities (G.Fletcher, 1992). All this demands a continuous physical activity, organized on strictly

scientific basis, taking into account primarily the morpho-functional features of the body in full growth and differentiation of somatic and vegetative development of the individuality of each child.

Kinetotherapist role is primarily one of education and skill improvement in children's correct attitude of the body (M.Cordun, 1999). This must begin with children entering first grade and continue as necessary. So we have to educate the children reflex right attitude and the therapist knows this only to do specific pathways of realization.

Correct attitude formation and preservation of the body, is one of the prophylactic tasks i to schoolchildren of all ages (C, Zaharia, 1994). Concerns for carrying out these tasks before school starts and continues throughout life.

Each individual has a particular physical configuration, resulting from interaction of several factors such as heredity, social environment, physical environment, etc..

Physical configuration includes the following three elements:

- Body attitude

- Increased body
- Body development

Body attitude should not be confused with the degree of development of it. From this perspective people are tall, short, robust or less robust, they are not elements of growth and attitude but that features such constitutional issues (Dumitru, D., 1984).

Only understand the position of the body attitude as a result of the relationship between body and segments as a function of manifestation and projection into space.

Deviations from a normal attitude we call poor attitude: they may be of some parts or whole body.

Correct deficiencies and attitudes to specific evidence, it is not corrected by specific evidence they are considered disabilities themselves, meaning that there have been changes in the muscle groups and joints of the bones due to certain causes (Nica, S.,1998). The study seeks to highlight prophylaxis effectiveness as a method of early detection, prevention and recovery of natural light deficiency occurring in children of school age. Light physical deficiencies are common in the school-age children, their early detection can lead to full functional recovery, kinetic programs well composed.

Methods

Aim is to demonstrate the effectiveness of the prophylactic method early detection, prevention and recovery of natural light deficiency occurring in children of school age.

The exam somatoscopic found that most of the pupils have a smooth growth and a correct attitude of the body and some has some physical disabilities and organic light-grade, medium or high. Outside somatoscopic examination and anthropometric measurements were used to exam wire drawing with pencil lead and the spinous eyeliner. Physical deficiencies considered light in early study, consisting of overall poor attitude of the whole body or only certain segments. Physical deficiencies considered light in early study, consisting of overall poor attitude of the whole body or only certain segments. To specific functional test their physical deficiencies are corrected this level, which confirms that have not yet occurred structural changes (muscle, joint, bone) and the poor attitude that is due to disruption of the body reflex right attitude or only certain segments. Deficiencies in specific functional test environments partially corrected or not corrected for that in their case occurred structural changes that do not allow the segment to recover the deficiency or right attitude, as is the case with physical deficiencies easy.

Educational effects of corrective exercises are felt both by reflex training and right attitude of the body segments, and by educating the ability to perform as fairly static and dynamic exercises. This is possible because the cortex plasticity and it is important to note that educational effects are achieved and maintained only with the conscious participation of the deficiency. The action to correct physical deficiencies we rely on the multiple effects of corrective exercises that have an

impact as shown on body stature, bodily functions and deficiencies, items on which the body maintain proper attitude. Exercises to tone muscles elected body that provides the force necessary to maintain the correct attitude rebuilt segments and act on the nervous system that made recovery and maintaining the correct attitude deliberately poor segments. Failure of one of these pregnancies result in substantial movement of the remedial effects of exercise in structure, year corrective action consists of static and dynamic. State action is either a positive or a static exercise (isometrics). This position can be correct only when the correct attitude is a mark of poor segments. Failure to one of these tasks substantially decrease the remedial effects of exercise. Structure, year corrective action consists of static and dynamic. State action is either a positive or a static exercise (isometrics). This position can be corrected only when the marking is a normal attitude of the body correctly when it is done by a recovery in the correct attitude and poor segments when recovery is beyond the proper attitude segments.

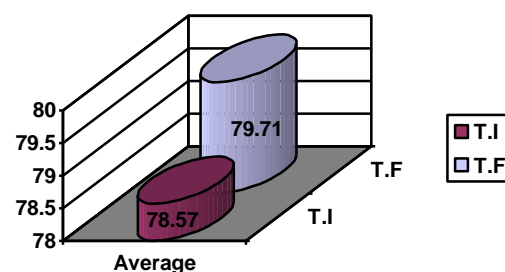
Uncorrected at the time, mild deficiencies worsen, turning into medium deficiencies. Action is carefully screening the beginning of each school year in conjunction with your school. Children selected from triage performed by medical school, there were 20 (10 girls and 10 boys).

Results

They compared data from measuring the following parameters: perimeter of the chest in inspiration, chest perimeter in expiration and the degree of physical disability and have obtained the following values:

Table no. 1 - Evolution of chest perimeter in inspiration

| | Chest perimeter inspiration | |
|----------------|-----------------------------|-------|
| | T.I. | T.F. |
| Average | 78,57 | 79,71 |
| σ | 7,59 | 7,2 |
| Min. | 70 | 72 |
| Max. | 93 | 93,5 |
| C.V. | 9.66 | 9.03 |

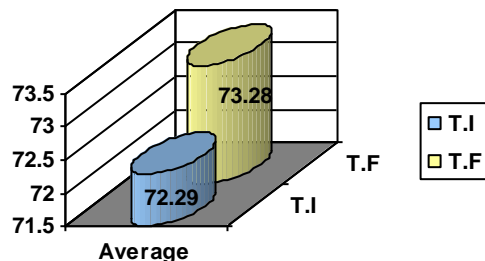


Graph no. 1 - Evolution of chest perimeter in inspiration

Table no. 2 - Evolution of chest perimeter in expiration

| Expiration chest perimeter | |
|----------------------------|--|
|----------------------------|--|

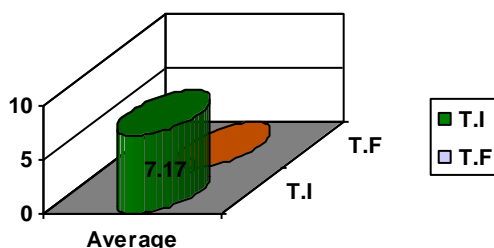
| | T.I. | T.F. |
|----------------|-------|-------|
| Average | 72,29 | 73,28 |
| σ | 7,57 | 7,46 |
| Min. | 65 | 66 |
| Max. | 88 | 88,5 |
| C.V. | 10.47 | 10.16 |



Graph no. 2 - Evolution of chest perimeter in expiration

Table no.3 – Evolution of physical disabilities

| | Physical disabilities | |
|----------------|-----------------------|------|
| | T.I. | T.F. |
| Average | 7,17 | 0 |
| σ | 7,32 | 0 |
| Min. | 1,1 | 0 |
| Max. | 15 | 0 |
| C.V. | 102.80 | 0 |



Graph no. 3 - Development of physical disabilities

Positions and movements normal, natural body is a product of nervous system, manifested by musculoskeletal and is an infinity of forms.

Passive elements (bones, joints, and articulation tissues) and assets (nerves, muscles) involved in performing the maintenance positions and movements require energy directly proportional to internal and external forces that oppose the maintenance positions and movements to achieve.

The study positions and body movements, be they related to the bearing surface and gravitational axis or the imaginary planes, which meets the frontal or sagittal body axis craniofacial times. Findings must not be made by comparing normal subjects with template models, given that the body with normal and harmonic indices of growth and development may legally

somatic infinite and their typological patterns is arbitrary.

The concept of harmonious development, in addition to report segments, always including mental component that occurs outside the "natural attitude." Natural attitude is therefore a function of the musculoskeletal and nervous system is driven by the infinity of positions and movements that continually doubles mental activity of the individual. Standing, a normal body growth and development generally corresponds to a global position and its a normal segmental.

Orthostatic body position is possible by skeletal muscle contraction, the contraction is performed under control of the nervous system.

Standing has highlighted an increase in metabolism compared to the supine. This increase is due to increased volume and intensity of muscle contractions necessary to maintain standing body segments. If standing uncontrolled (natural position) metabolism is increased by 22% compared to supine, the position-controlled energy consumption increase over the amount mentioned.

There is a difference between positional aspect of the body relaxed - the same body in uncontrolled and controlled positions.

Consider legally correct biomechanical position is maintained hypotension with minimal power consumption and nervous, and in part somatic, the correct orientation of the segments corresponding positional function (behind the physiological curves, upper limbs in slight flexion).

| | Chest perimeter inspiration | Chest perimeter in expiration | Physical disabilities |
|----------|-----------------------------|-------------------------------|-----------------------|
| | T.I.-T.F. | T.I.-T.F. | T.I.-T.F. |
| t | 0,22 | 0,24 | 2,59 |
| p | - | - | <0,05 |

Table no. 4 - The statistical significance of differences in environments inspired chest perimeter, thoracic perimeter in expiration and physical disabilities.

Using statistical-mathematical analysis found that after treatment the following parameters were not statistically significant, chest perimeter in the chest in inspiration and expiration perimeter, while the recovery curve (amplitude and examination lead wire) had a threshold for statistical significance $p < 0.05$.

Discussion and conclusion

Screening school age children is of paramount importance in detecting and correcting physical deficiencies and should be aware of parents and children the importance of preventive factors that help children correct attitude in the bank.

Programs to detect and recover any deficiency must be made by qualified personnel, doctor and physiotherapist respectively.

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