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THE ROLE OF PHYSICAL TRAINING REGARDING THE KINETICALLY IMPROVEMENT AND RECOVERY TO CHILDREN HAVING PHYSICAL DEFICIENCY, THE FLAT FOOT

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Abstract

The present article describes the notion of the flat foot, the architecture of the foot, the influence of a model-programmer for its recuperation. A lot of attention is given to the analysis of the geometrical modification of the foot before and after the application of the model-programmer. By this analysis way we can observe the real progress registered by individual pupils. Only knowing the medical and biological data of every pupil, the physical education teacher can establish the integration possibilities of the pupil in the process of physical education can decide and apply the most adequate measure for preventing and correcting the physical deficiencies. We are suggesting the conduction of a study on improving the physical deficiency through physical exercises, which is the flat foot. In analyzing the flat foot, we have come to the conclusion that through the application of certain individualized programs, the fallowed parameters have evolved favourably bearing in mind the existence of all the articulate alterations which could have delayed or dragged out the success of the recovery treatment.

Key words: flat foot, recuperation, physical education, prevention, treatment.

Introduction

Knowing the harmonious growth and development of the child and of the young generation has been and still is one of the main concerns of specialists in the field of human and social science.

The changes concerning the body dimensions and proportions of certain corporal segments and height, the changes between the corporal segments in themselves, as well as the changes of figure, proportion and different components of the corporal mass, all of these represent the physical growth and development (E. Duma, 1997).. Since one of the main goals of physical education and sport is the stimulation and provision of a normal growth and a harmonious physical development, the physical education teacher must be truly aware of the essential traits of growth and development, of the factors which condition them, of the laws that govern them and, naturally, of the ways in which they can be influenced, for they are mainly working with one of the most important and determinant factors of the growth and development process, that is movement, respectively physical exercise (E. Duma, 1997).

The physical deficiency represents an alteration from the normal state to what the shape and the functions of the locomotive apparatus are concerned, shape and functions which exert negative influences on the organism and decrease its physical efficiency.

These deviation from the normal state can alter the body's shape and functions totally or just to the level of some regions and segments (C. Baciu, 1981).

N.A. Ionescu has given one of the most complete definitions to the notion of deficiency. Thus, the physical deficiency is considered as: "*any deviation form the normal to what the shape and functions of the organism are concerned, shape and functions which disturb the body's normal growth and harmonious development, alter the exterior aspect, reduce skills and adaptive strength to physical effort and the capacity to productive labour, as well*." These flaws get to remove the deficient from his familial and professional environment only in the most serious cases, creating o series of inferiority complexes towards his healthy and normal-built fellow creatures (N.A. Ionescu, 1964)..

The functional deficiencies are the result of some lack or a hyper function, the result of some imbalance or lack of coordination of the locomotive apparatus. The physical deficiencies of pathological nature are determined by the structural alterations of the elements which compose this apparatus in the first place. The causes for physical deficiencies are numerous and various, reason for which there is no unique criterion of adjustment. The issue of tracking, preventing and correcting the physical deficiencies known to children represents a permanent concern not only for parents but also for the entire faculty in charge with their education and development (N.A. Ionescu, 1971). Along with the medical exams performed in schools in order to establish the health condition and to appreciate the physical growth and development of pupils, it has been found that only a certain part of pupils present a correct body attitude. This is why we

cannot oversee the relatively big percentage of pupils who carry some functional and morphological flaws located at the level of the locomotive apparatus.

We would also like to stress the importance of these deficiencies to what the harmonious development of teenagers and young people is concerned. Noticed in time, correctly followed and guided, the easy and medium deficiencies can be improved. Denying their existence is as a big of a mistake as not correcting them or treating them with callousness. Only knowing the medical and biological data of every pupil, the physical education teacher can establish the integration possibilities of the pupil in the process of physical education can decide and apply the most adequate measure for preventing and correcting the physical deficiencies.

We are suggesting the conduction of a study on improving the physical deficiency through physical exercises, which is the flat foot.

The flat foot represents the most commonly known abnormality of the inferior extremities and is characterized through the collapse of the longitudinal and transversal arch; the disturbance of the sole's statically and dynamical function takes place which can also affect the functioning of some other links of the locomotive apparatus.

From the foot's architecture point of view, the main alterations which lead to the flat foot are:

- the Alcaeus's being deviated into the vague and twisted into the phonation;
- the astragals' head is being deviated down and inside;
- the posterior tars presents a deviation in the equine;
- the ante foot is being deviated in abduction, in supination;
- the plantar arch of the foot becomes more flatten.

This abnormality takes place due to the perpetration of the foot's sustaining forces (muscles, ligaments, and plantar apponevrosis). The alterations in the foot's architecture represent a direct consequence of a ligament hyper laxity, as well as of a hypotonic state, especially of the plant's muscularity. These phenomena can be produced by endocrine, infectious, viral factors. The generalized muscular hypotonic state (which generally accompanies the platypus) in children, can be treated through a protuberant abs, and in adults through the presence of a cifotic attitude (Robanescu, N., 1976).

One can observe this abnormality frequently in childhood, when the child's congenital and rachitic nature persists. When the child reaches his teen years, the growing pains signal the existence of this abnormality. The collapse of the plantar arch in adulthood is closely linked to the professions which particularly demand this region (barbers, shop assistants, and waiters) or to some diseases which need immobilization on the long term (N. Robanescu, 1976).

This paper intends to demonstrate the positive influence of the proposed recovery program which includes means and exercise complexes of correcting the flat foot. One has emphasized the geometrical parameters of the sole to the pupils engaged in the study, pupils having a physical deficiency, the flat foot, before and after implementing the exercise complex.

To stress the geometrical alterations of the sole to the pupils engaged in the study we have evaluated the following parameters: the length of the left sole (cm), the length of the right sole (cm), the left sole's index (cm), the right sole's index (cm), after Cighin's method as followed $I = \frac{dE}{Ei}$ with a precision up to 0,5cm.

The sole's index represents the proportion between the size of the support part of the sole DE to EI.

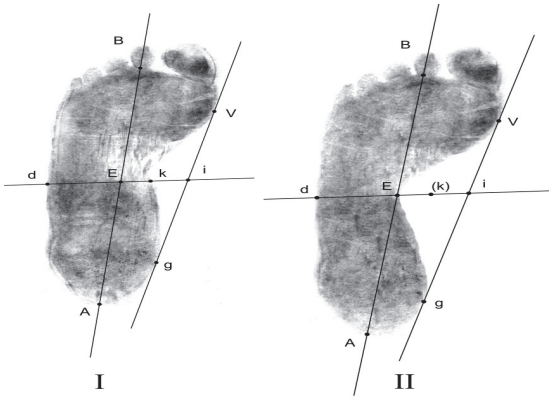
GV – the line that unites the protuberant points of the internal part of the sole;

AB – the line that unites the points from the base of the second toe and the middle of the heel (the longitudinal osia of the sole);

DI – the line that goes through the middle of the AB longitudinal osier.

One considers that:

1. the subject has a pronounced flat sole if the medium sole index is 2,45;
2. if the sole index differs from 0 to 1, then one can say we are in the presence of a normal sole;
3. from 1 to 2 – flat sole and index bigger than 2 – flat sole.



I. Initial testing II. Final testing

One has researched the effects of the therapeutically exercise program on correcting the flat foot to the pupils engaged in the study on a period of a school year with two sessions a week

The premises of the research

1. The pupils have had a heterogeneous component with different characteristics which have been distinguished at the physical education classes as well. During the school year, the pupils are in different stages of development, have different intellectual capacities and present signs of manifestation to the driven capacities and different recovery signs.
2. After the evaluation one has established the objectives and the programs which must be put to

use. The therapeutically exercise program has been elaborated and adapted to the different possibilities of the pupil, to each and one's personal rhythm.

The conjectures of the research

We have considered that the correct and systematic selection and application of the elaborated recovery program will have a positive effect and will determine the correction of the physical deficiency, the flat foot, to the pupils that are engaged in the study.

Organizing and developing the research

The research has been conducted at the "Godri Ferenc" General School from Sf. Gheroghe, to the gymnasium cycle, V-VI grades, and the sample consisting of 40 pupils (18 girls and 12 boys). The main research method was the longitudinal pedagogical experiment which has been conducted with the respective grades. The pupils of each grade have been divided into two groups: a boy one and a girl one. The groups have been made based on the evaluations done in the beginning of the school year.

The physical exercise program

Used methods:

1. Static exercises – are used as corrective and hyper corrective positions derived from just sitting, on your knees, sitting down and lying down. In the beginning one uses corrective exercises from the lying down, sitting down and on your knees – as the most stable and less tiring methods used – and only after one has gathered a sufficient force of the arch one can use exercises from just sitting and walking.

2. Dynamic exercises:

- Inferior extremities exercise executed symmetrical, simultaneously or alternatively – in which concentrically plantar flexion exercises will prevail executed even inside the contraction segment;
- applied exercises: walking on tip toes, walking on the external part, crawling, climbing;
- passive recovery exercises and especially active ones executed as self control through distributing the body weight along the external arch;

Exercise complex for correcting the flat foot

1. Backwards laying down against a wall – bending the knees – the top of the foot leaning on the wall – drawing circles on the wall with the top of the foot.
2. Backwards laying down – alternative bending and stretching of the knees – the top of the feet very well stretched.
3. Onwards laying down – legs on the vertical – the teacher opposing resistance on the sole – concentrically plantar flexion inside the contraction segment.
4. Sitting down with backwards support – spreading the legs, rolling a ball from one foot to the other.
5. Sitting down with backwards support – bending and stretching the knees while maintaining the ball between the soles.
6. Sitting on a chair with the soles leaning on a cane – rolling the cane.
7. Walking on tip toes while holding the arms up in the air – inhaling - recovering - exhaling.
8. Walking on the external part of the feet while holding the arms in the back of the head.
9. Walking on the narrow part of the gymnastics bench while holding a medicinal ball from the lateral.
10. Walking on tip toes with the legs crossed on a line drew on the floor.

The results of the research

The results of the measurements which present the evolution of the sole's geometrical alterations are displayed in the 1 and 2 tables.

Comparatively analyzing the initial and the final results of the sole's geometrical alterations to the pupils engaged in the study we have noticed positive results in correcting the physical deficiency, the flat foot.

Table 1

The comparative analysis on the sole's parameters to the pupils engaged in the study

Number of the group	Testing	Group I Initial Testing n=18	Group I Final Testing n=18	t	P
1.	The length of the left sole (cm)	22,74±0,15	22,48±0,14	1,86	>0,05
2.	The length of the right sole (cm)	23,03 ±0,16	22,30±0,15	0,56	>0,05
3.	The left sole index (cm)	2,41 ±0,36	2,38±0,31	0,42	>0,05
4.	The right sole index (cm)	2,49 ±0,38	2,47±0,33	0,48	>0,05

Table 2

The comparative analysis on the sole's parameters to the pupils engaged in the study

Nr. d/o	Testing	Group II Initial Testing n=12	Group II Final Testing n=12	t	P
1.	The length of the left sole (cm)	23,11±0,13	22,86±0,11	2,11	<0,05

2.	The length of the right sole (cm)	23,15±0,14	22,88±0,12	2,12	<0,05
3.	The left sole index (cm)	2,22±0,28	1,59±0,23	2,08	<0,05
4.	The right sole index (cm)	2,27±0,27	1,61±0,25	2,09	<0,05

Conclusion

The positive effects of the means and the exercise complexes conducted in the case study mentioned above allow the emphasis on the fallowing aspects:

- Fallowing the alteration results of the pupils' sole index from the first group, we have noticed that the pupils engaged in the study can be framed in the

The forming of normal sole at puberty age is not possible, but obtaining the attenuation of the sole index, at the 1,5 parameter, represents a considerable improvement of the foot's state and respectively the confirmation of the conjectures of the research.

The exercise program applied in collaboration with the school's kinetic therapist which has consisted of associating physical exercises with kinetic patterns have lead to a sure method of recovering the sole's parameters.

In analyzing the flat foot, we have come to the conclusion that through the application of certain individualized programs, the fallowed parameters have evolved favourably bearing in mind the existence of all the articulate alterations which could have delayed or dragged out the success of the recovery treatment.

The conclusions one has reached, as well as the confirmation of the research conjectures can become valid arguments in supporting the application of prophylactic, therapeutically and recovery programs to the inferior extremities level.

category of those with less pronounced bilateral flat foot.

- The pupils form the second group to whom the sole index has reached 1, 59+/-0, 23, respectively 1, 61+/-0, 25 can be framed in the category of those with flatten sole.

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LIMBS UTILIZATION PREFERENCE EFFECT ON TRUNK MUSCLES MAXIMAL ISOMETRIC STRENGTH PRODUCTION IN ROMANIAN SPORTSWOMEN

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Abstract

Straton Alexandru, Deliu Dan, Gidu Diana. Limbs utilization preference effect on trunk muscles maximal isometric strength production in Romanian sportswomen.

Background: Most problems encountered at the level of vertebral column in sportswomen is generated by asymetrical movements at the level of the trunk directly linked by preferential utilization of either superior or inferior limbs in sports training and competition.

Aims: The aim of this study is to determine the effect of limbs utilization preference on trunk muscles maximal isometric strength production in Romanian sportswomen.

Methods: This study used 15 Romanian sportswomen, white caucasian, divided in 5 handball players, 5 soccer players, 5 track and field athletes (triple jump). Body height was estimated with an error of 0,5cm. and body weight was evaluated with a calibrated digital scale (Exacta, Germany), with an error of 0.25 kilograms. The body fat percentage was estimate using a bioelectric impedance method (Omron BF-306). Maximal isometric strength of the lumbar/thoracic column was measured with special machines in all three planes – flexion with David F130 Lumbar/Thoracic Flexion at 30º angle and extension with David F110 Lumbar/Thoracic Extension at 30º angle, in sagittal plane – right lateral flexion and left lateral flexion with David F150 Lumbar/Thoracic Lateral Flexion at 0º angle, in frontal plane – right lateral rotation and left lateral rotation with David F120 Lumbar/Thoracic Rotation at -30º angle, in transversal plane.