

UDC 616.748-053.2-08(498.31)

THE REEDUCATION OF FLAT FOOT IN A BATCH OF PRESCHOOLERS IN THE COUNTY OF IASI

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Flat foot is called static valgus deformity characterized by a collapse of the vaults of the foot cross and produced by hiperlaxity of the joint and impairment of muscles that maintain compliance. Whilst the structurally normal foot can adequately perform these tasks, deviations from its normal posture can place the foot under excessive stress, often leading to discomfort or pain. The study was performed on 7 subjects who had the footprints analyzed. After applying the physiotherapy program and massage sessions the results were more than improved.

Keywords: ankle, valgus, physiotherapy, prevention.

Introduction. Flat foot is called static valgus deformity characterized by a collapse of the vaults of the foot cross and produced by hiperlaxity of the joint and impairment of muscles that maintain compliance [6, 147-154].

Flat Foot represents often the expression of a generalized muscle hipotonia that at preschoolers manifest through genu valgum and protruding belly and in adolescence through kyphosis [10, 167].

It is characterized by the decrease in the rate of growth in height and weight from 6.5 cm/year for height and the 2 kg for weight. At the age of 6-7 years, lower limb segments are 2.5 times longer than at birth. Maintaining growth in length and thickness alternative of lower limbs. The musculature is poorly developed and asymmetric (develops less muscle force), that's why difficulties arise in support of an effort, be it static or dynamically [3, 52].

In the case of flat foot are two categories of causes: bone and muscle [9, 265-270]. Congenital flat foot develops in intrauterine life, and some of the cases are familial. It sits under the influence of an endogenous factor and generally occurs before birth, but more often the first attempts of the child to walk. The second childhood can occur and other factors such as growth disorders, rahitism or poisoning. Growth disorders are the expression of abnormal growth, especially when the skeletal growth exceeds, before time, physical development and, in particular, that of the muscles. It creates such an imbalance between your height and body weight.

Rahitism is a key element and sometimes intervenes in installing the foot flat. It acts directly on the skeleton, reshaping the bones of the leg (slowly) or indirectly by deformations of the

remote it produces. The inability of the body to turn inorganic phosphorus in organic phosphorus, characteristic of rickets, not just transmission over the bones, but also on the musculoskeletal apparatus [6, 163].

Overweight and obese children as young as 3 years have been found to have flatter feet and generate higher dynamic plantar pressures during walking relative to non-overweight children [5, 45-52].

Whilst the structurally normal foot can adequately perform these tasks, deviations from its normal posture can place the foot under excessive stress, often leading to discomfort or pain [1,77-82].

Means of recovery of the foot flat: prophylactic – has a special importance. The age of first steps, there are some principles of hygiene, which should not be neglected, especially by parents [11, 87-91]. Congenital flat foot must be immediately corrected and treatment must be followed for a long time, because it is not bound by itself.

Methods of treatment in terms of children diagnosed with flat foot are massage and physiotherapy sessions; or in more severe cases, surgical.

Motivation. Preschool age is the period during which the child is at the stage of accelerated growth and as a result, the recovery will be much faster. During this period, the body is predisposed towards distortion. Limb position influences the backbone, the position of the head and neck, the position of the shoulders, torso, pelvis and knee.

Hypotesis. Supposing that an application of an early suitable therapeutic program for preschool patient, we can prevent and treat flat foot and later so it will be able to develop properly.

Material și method. The research subjects were selected from a batch of 20 children, aged 4-5 years, of which 4 girls and 3 boys. The recovery program was conducted in the period 10.06.2016-01.10.2016 with a frequency of two meetings per week, then as a drills should be carried out and at home. The program also includes recovery massage sessions

performed at child's home twice a week, this being an important means in recovering the foot flat.

The severity of the collapse of the vaults planting shall be assessed on the basis of the shape of the foot print [12, 178-182] and considering the fact that the flat foot reductibil calf, median axis makes an angle with the axis of the heel of the butt opened out of more than 10° [2, 78].

Assessment of the developments in flat foot correction and scooped it carried out based on foot prints, which is recommended to be repeated every 3-4 months. Alongside the general appearance of the growing footprint can suggest an improvement or a failure, it is preferable to use a mathematical evaluation of the impact or weight, plantar vaults.

On the footprint plot a longitudinal line which marks the axis of the foot (A) and a second score, tangential, internal planting limits vaults (B). At the apex level curvature plot planting is a horizontal line (C), which will highlight in relation to median axis distance in millimeters from the edge of the external side of the leg-up to the level of maximum curvature of planting, keystone of the arch vaults planting up to the edge of its internal side.

Plantar vault is considered normal when the values of the distances A and B are equal, appreciable by supplying an index therefore close to the value of 1. When the ratio tends toward underunitary values, the foot is considered varus foot, and when it tends toward overunitary values, it means valgus foot (flatfoot).

The program included: plantar massage 2-3 times a day, 5-10 min. Passive mobilization of the foot, corrective exercises for toning muscles affected, rehabilitation. Programul a cuprins: masaj plantar de 2-3 ori pe zi, a cate 5-10 min. Mobilizari pasive ale piciorului, exercitii corective pentru tonifierea musculaturii afectate, walking rehabilitation [8, 138].

In table 1 are shown the values of the two measurements for the left foot and in table 2 the

Table 1

Subject's "A" initial and final values for left leg

Subjects	"A" initial value for left leg (mm)	"A" final value for left leg (mm)
RS	22	22
RT	46	45
TP	25	25
IA	27	26
RM	24	25
AB	35	35
SV	31	30

Table 2

Subject's "B" initial and final values for left leg

Subjects	"B" initial value for left leg (mm)	"B" final value for left leg (mm)
RS	25	25
RT	7	5
TP	27	26
IA	22	21
RM	28	27
AB	31	30
SV	26	26

Table 3

Subject's "A" initial and final values for right leg

Subjects	"A" initial value for right leg (mm)	"A" final value for right leg (mm)
RS	23	23
RT	30	29
TP	23	23
IA	21	20
RM	33	32
AB	41	40
SV	28	28

Table 4

Subject's "B" initial and final values for right leg

Subjects	"B" initial value for right leg (mm)	"B" final value for right leg (mm)
RS	26	26
RT	32	31
TP	24	23
IA	32	31
RM	21	20
AB	29	27
SV	29	28

ones for the right foot. Also you can see the original values, as well as the final results following the therapeutic plan conducted with patients.

After all the calculations, the plantar index values have emerged as are presented in the following table.

Table 5

Initial and final values for plantar index in both feet

Subjects	Initial plantar index for left foot (mm)	Final plantar index for left foot (mm)	Initial plantar index for right foot (mm)	Final plantar index for right foot (mm)
RS	0.88	0.88	0.884615	0.884615
RT	1.022222	9	0.9375	0.935484
TP	1	0.961538	0.958333	1
IA	1.038462	1.238095	0.65625	0.645161
RM	0.96	0.925926	1.571429	1.6
AB	1	1.166667	1.413793	1.481481
SV	1.033333	1.153846	0.965517	1

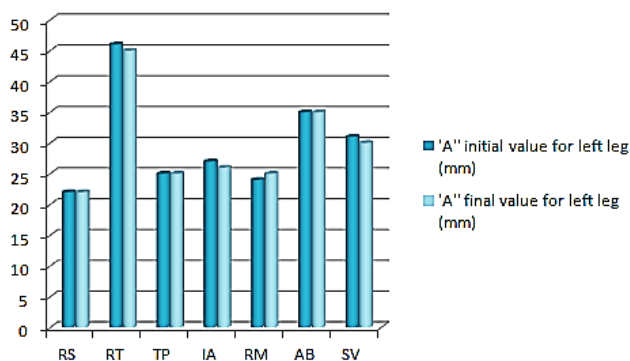


Fig. 1. Graphical representation of subject's "A" initial and final values for left leg

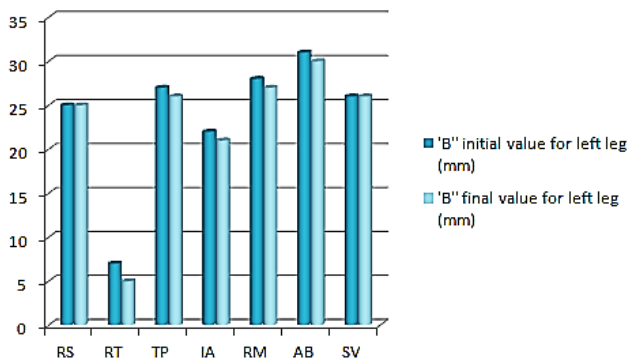


Fig. 2. Graphical representation of subject's "B" initial and final values for left leg

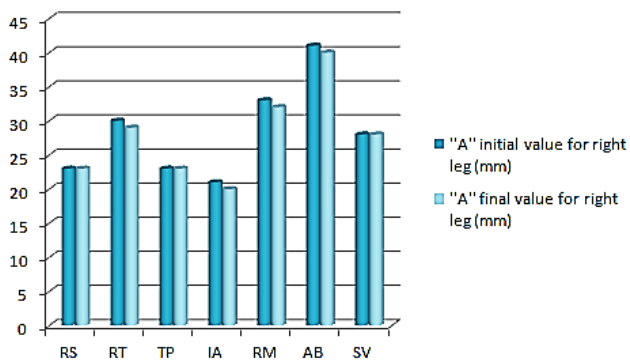


Fig. 3. Graphical representation of subject's "A" initial and final values for right leg

Conclusions. From the desire of parents to see their children walking, there is a tendency to encourage them to get up as soon as possible. The child should not be forced out of its stride-crawling before trying himself to stand up and maintain the position.

It is also advisable that when older (around the age of 4-5 years) to be allowed to run around and play barefoot on the ground; small irregularities of soil, contributing to the formation of the vault and feeding them through muscle contraction continues planting. In this way, he will develop a good plantar vault and a beautiful shape of the feet.

During the 2 and a half months in which we have conducted the therapeutic program with the seven subjects, arrived at results which confirm the initial hypothesis, namely: we believe that if we apply a therapeutic program, appropriate for the patient, we can prevent and treat flatfoot and later the child will be able to develop correctly. Early detection of health problems faced by an individual, whether adult or child, informing him about these issues and successful in creating awareness, increases the efficiency and benefit of prophylactic measures (hygiene measures, physiotherapy, massages).

This also decreases the severity of the condition and trends in the negative, which later will be able to ameliorate, or fix only through surgical treatment.

The choice of footwear that provide better support and stability of the foot will lead to an improvement in comfort, safety and to daily child performance. Physical culture and sports, applied methodically and under medical supervision,

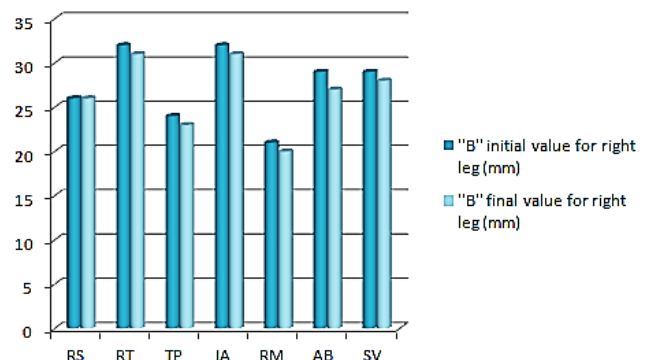


Fig. 4. Graphical representation of subject's "B" initial and final values for right leg

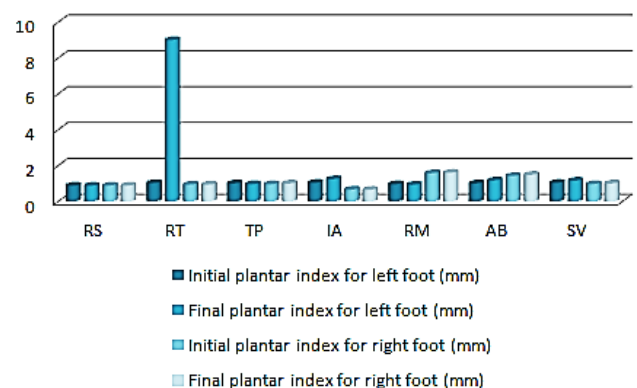


Fig. 5. Graphical representation of the initial and final values for plantar index in both feet

should be regarded as means of preventing first order of flat foot. Gymnastics will be, on the one hand, a stimulant and a powerful help of the harmonious development of the whole body, and on the other hand will tone the muscles of the leg.

The child may also complain of pain in the soles of the feet, ankles and calves and thighs in. At these signs can add circulation disorders at the level of the ankles and feet, with the appearance

of swelling [13, 93]. To prevent pain and other symptoms, we recommend avoiding physical fatigue and your support with the help of orthopedic devices [7, 120].

Symptomatic forms of flexible flatfoot should be treated with activity modification, stretching exercises performed under physical therapist guidance, and orthoses. If the response is not satisfactory, surgical intervention can be considered. [4, 98-106].

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