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 hyperlaxity 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 hyperlaxity of the joint and impairment of muscles that maintain compliance [6, 147-154].

Flat Foot represents often the expression of a generalized muscle hypotonia 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 dur-
ing walking relative to non-overweight children
[5, 45-52].

Whilst the structurally normal foot can ade-
quately 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: prophylac-
tic – 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 diag-
osed with flat foot are massage and physiothera-
py sessions; or in more severe cases, surgical.

Motivation. Preschoolar age is the period dur-
ing 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 a
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 plant-
ing 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
but open outed over more than 10° [2, 78].

Assessment of the developments in flat foot
 correction and scoped 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 foot print 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 hori-
zontal 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, appre-
ciable by supplying an index therefore close to the
value of 1. When the ratio tends toward underuni-
tar values, the foot is considered varus foot, and
when it tends toward overunitar 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 mus-
cles affected, rehabilitation. Programul a cuprins:
masaj plantar de 2-3 ori pe zi, o cate 5-10 min.
Mobilizari pasive ale piciorului, exercitii corectiv-
 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

| 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                  |

| 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                  |

| 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                  |

| 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

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Initial plantar index for left foot (mm)</th>
<th>Final plantar index for left foot (mm)</th>
<th>Initial plantar index for right foot (mm)</th>
<th>Final plantar index for right foot (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS</td>
<td>0.88</td>
<td>0.88</td>
<td>0.884615</td>
<td>0.884615</td>
</tr>
<tr>
<td>RT</td>
<td>1.022222</td>
<td>9</td>
<td>0.9375</td>
<td>0.935484</td>
</tr>
<tr>
<td>TP</td>
<td>1</td>
<td>0.961538</td>
<td>0.958333</td>
<td>1</td>
</tr>
<tr>
<td>IA</td>
<td>1.038462</td>
<td>1.238095</td>
<td>0.65625</td>
<td>0.645161</td>
</tr>
<tr>
<td>RM</td>
<td>0.96</td>
<td>0.925026</td>
<td>1.571429</td>
<td>1.6</td>
</tr>
<tr>
<td>AB</td>
<td>1</td>
<td>1.166667</td>
<td>1.413793</td>
<td>1.481481</td>
</tr>
<tr>
<td>SV</td>
<td>1.033333</td>
<td>1.153846</td>
<td>0.965117</td>
<td>1</td>
</tr>
</tbody>
</table>

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,
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].

References:
7. Motet Dumitru, Kinetoterapia în beneficiul copilului – Corectarea deficiențelor fizice la copii, Editura Semne, București, pag, 120.