



## Flat Foot Kinetotherapy, Specific Items Associated With Swimming

### KEYWORDS

recovery, flat foot, physiotherapy, swimming.

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**ABSTRACT** *The combination with other therapeutic means optimizes efficiency of the means used, confirming the modern trend of implementing a complex therapies. Often, physical therapy treatments enhances bleeding, orthopedic surgery, proving that it is an important link in the complex therapy.*

*Swimming can become an excellent means for solving intractable rehabilitation goals, a pleasant option for some individuals going through difficult years of kinesiology dry and boring; opportunity to play with different themes well established under disability; opportunity much faster and pleasant socializing; opportunity competition by enhancing the physical capacity of the individual versus deficient at any given time opportunity for some patients to learn to swim properly in various processes swimming etc.*

### INTRODUCTION

Upper limbs, lower limbs differ in form and structure, as determined by the functions of support and locomotion. Leg length changes from birth to adulthood. At birth, the legs are slightly shorter than those above. It doubles its length in three years, and a tripling in six years, and at 12 years are 4 times longer. Puberty is the period in which differentiation between girls and boys. For girls, they grow faster and stop immediately after puberty and boys, the growth process is extended to segments by adulthood. The growth of the segments, leg and foot, is also differentiated. For girls, the legs remain relatively longer than in boys.

In terms of length, thickness, proportions and position of the lower limbs may be normal or may show changes normally developed numerous and varied. For more accurate shape and position of the lower limbs, is aimed against internal and external contours, the front and rear thereof.

Inequality in length and thickness can be specified measuring thigh and calf perimeters and their length from the anterior superior iliac spine to the lower edge of the tibial or peroneal malleolus.

The foot has a number of features both structurally and functionally. Most foot disorders are disorders of body weight due to compression exerted on the soil. Even if the disease has a different etiology, compression either contributes important contributing factor, whether the aggravating factor.

Common causes deformations producing at this level are likely rickety, traumatic or congenital.

Schematically, foot deformities fall into two groups:

- Deformations related to changes in support:
  - Flat foot;
  - Hollow leg;
  - Varus foot;
  - Valgus foot;
  - Equine foot;
  - Foot talus or calcaneus.
- Deformations about changing the axle leg:
  - Abducted leg - the leg length axis is oriented in wholly or partly, in addition;
  - Leg brought - when the axis is oriented inside.

All these deformations and deviations may meet separately or in various combinations such as:

- Valgus flat foot abducted;
- Standing equine-varus-made.

Flat foot is the most common deficiency that is found in the legs. From the beginning, we must distinguish functional flat foot flat foot pathology. In the first case, the plantar arch yields and flatten under the weight of the body, but it returns to normal idle. If the second foot is consistently flat.

Flat foot can be, congenital, rickety, paralytic or traumatic. In childhood, occurring more frequently congenital flat foot and rickety, but it is notable especially in adolescence, with the advent of the first pain.

In adults, flat feet can be caused overloads within a profession (barbers, cooks, vendors), prolonged immobilization in plaster casts that lead to a weakening of the muscles, obesity, neuro-endocrine, etc.

### Mode for the production

There are many theories that try to explain the formation mechanism of the foot flat. Thus, it is considered by some authors that it is the beginning of a pronation of the calcaneus and a bowing forward and down to astragalus. Other theories assume that the most important factor is the muscle failure.

Widely accepted theory is that it considers that it is a hypermobility ligament and muscle failure, not only in the foot, but also the whole body. Changes that occur in the foot cover both tarsal bones and metatarsal those.

In the tarsus, calcaneus pronation and downward and forward tilting of the talus causes slippage in the scaphoid. In the metatarsus, the foot begins to move in the abduction and allow to increase. Plantar vault collapses and makes contact with the ground. This partial collapse at first, then total goes through several stages:

- First stage - legs vasomotor abnormalities, sweating, cold, correct physiotherapy easily;
- The second stage - plantar vault collapses and pains in the leg after long gone;
- The third stage - develop varicose veins and pain in the foot and ankle, due to arthritic changes;
- The fourth stage - at this stage pains mobilization, walk-

ing is burdened appear muscle contractures, knee and hip osteoarthritis.

Flat foot transverse deformation is very common especially in women. Occurs especially in puberty, the hormonal changes linked and influenced by the general phenomena of growth. Due to insufficient device fetus muscle, transverse arch (above) is collapsing, collapsing metatarsals and scattered foot increasing progressively. This collapse leads to changing relations metatarsals own leg muscles which, instead of plantar flexion of the first phalanx, they become dorsal flexion. Toes take a characteristic "fingers hammer". These changes went causes pain, circulatory disorders.

**RESEARCH HYPOTHESIS**

Rectification foot by using specific processes swimming involves a harmonious combination of their specific methods and land physical therapy. In this case we emit assumption on which we try to demonstrate that rehabilitation programs physiotherapist flat foot, are very effective if they are associated with specific structures swimming, being much stronger this from childhood.

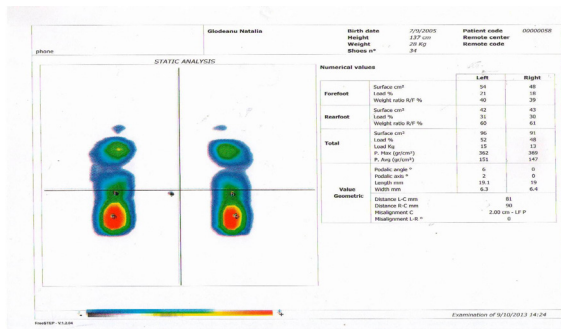
**Physical therapy goals:**

- toning and muscle shortening planting;
- combating leg muscle contraction in standing and walking;
- training reflex correct alignment of the foot on the ground;
- improving blood circulation and limiting in this segment.

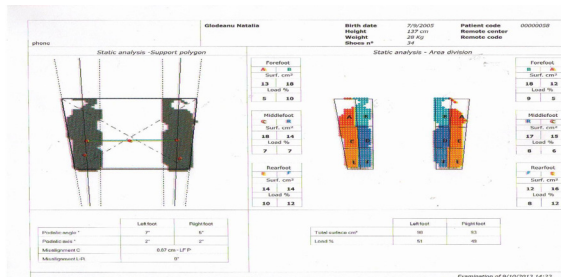
**RESEARCH CONTENT**

The subject to recovery program combined nine years old female, was diagnosed with bilateral valgus flat foot (bilateral medial compartment overload retro medial and anteroposterior; support metatarsal head I), twist of the easy attitude basin determines distinct values for the previous pressure on both feet - pressing the left more than the right, the center of gravity positioned slightly rear and left side.

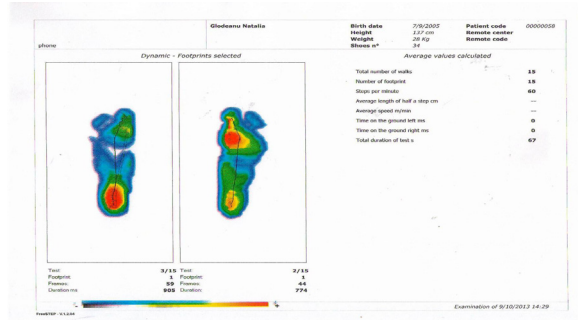
On examination there were no abnormal postural balance, but there is a postural asymmetry cervical and lumbar spine, and to the dynamic found that turnover is on the inner side of the foot, left more than right.



**Figure 1**  
Static analysis



**Figure 2**  
Static analysis/Support polygon



**Figure 3**  
Dynamic analysis

Treatment was applied in the first session of 30 minutes and then extending to an hour/session, the exercises were performed on the dried first, and then the specific swim for 3 months.

Basin where the recovery took place does not have special equipment or water recovery specific aids, being specifically targeted pool leisure activity in Bucharest and there is no specific location appropriate therapeutic swimming. The teaching materials were used as optimum situation to improve appropriate interdisciplinary rehabilitation treatment.

**Structures used dry exercises:**

**a) static exercise:**

- posture and hypercorrection derived sitting on knees, sitting and lying. Corrective exercises are used to start sleeping positions, sitting and knees-as the most stable and less tiring and only after getting a sufficient fortification vault planting, use exercises sitting position and went;

**b) dynamic exercise:**

- lower limb exercises performed simultaneously or alternatively-they will prevail flexion exercises. Interested in planting concentric contraction performed within the segment;
- applied corrective exercises such as walking exercises (on tiptoe, on the outside), crawling, climbing;
- passive recovery exercises and active especially in the form of the self-control to distribute body weight along the outer arc.

**Structures and specific preparatory exercises swimming:**

Each session is varies from 10 to 15 minutes to one hour. Exercise performed in this method are based on the same techniques as those on land, taking into account, however, the principles and benefits of aquatic life because the weight on the feet is almost non-existent (the gravitational force does not act directly) and recovery is made easier thanks to this specific environment due to water discharge. However, the fact that the water is warm, the tissues are more sensitive to effort, movement is much easier, and effort is greatly diminished.

- sitting on the edge of the pool, feet in water and "play" back legs tensing right quadriceps (3 sets of 10-12 repetitions each, executed slowly to the full extent of the knee);
- support water "wave break" or the pool, legs, back crawl and butterfly (3 sets of 20 repetitions each);
- walking in the water along the edge of the pool lifting right knee to chest and exaggerating the step size in water, with emphasis on flexion and extension of the foot, using a stick float, it straddles the patient with the support hand on the pelvis or breaststroke arm movement running symmetrical or asymmetrical (4-6 laps);
- recommend the following exercises after ankle is not swollen and do not hurt, will become the basic exercises

performed at the beginning of breaks at the end of the basin, with some recovery diving and then pauses as small;

- dynamic exercises executed at the pool, ditch "wave break" floating on the chest, feet movements crawl process, emphasizing the extent of the peaks and inward orientation;
- rear foot support trench process with large peaks and sloping feet inside, standing crawl with or without cork;
- rear legs with or without cork, cork foot butterfly;
- swimming in the process full crawl, back, butterfly, breast-stroke, swimming mixed;
- exercises start in all technical processes;
- back exercises in all four processes swimming sports.

For kinetic assistance to be effective, the practitioner must follow a number of principles. They are subordinate to the basic principle, valid any conservative or radical forms of therapy, it's the principle of Hippocrates, father of medicine, in the form dictum "Primum non nocere!", meaning, "First do no harm!". This requires proper training, theoretical and practical, methodical, a physiotherapist.

Also, he must be in constant dialogue with the patient, which will be advised to inform the effects of the applied therapy.

For safety tolerance, the therapist will follow mimics his patients because many of them hoping for a quick and complete healing, bear intense pain. But, these triggers defensive reactions whose treatment will be much more difficult by the complexity and duration.

The physical therapist must work in collaboration with physicians, specialty mental disorder patient that you care and psychologist. Only an interdisciplinary approach, the team has a problem so complex as kinetic therapy in general and in particular, can provide good results and thus professional satisfaction.

Flat foot treatment is prophylactic and curative determined by causes that produced the collapse canopy planting. If flat foot is congenital, using specially made orthopedic footwear.

For flat foot rickety, if the child has not started to go, it is better to delay as much as starts. If the child began to walk, it is better to go heeled boots, orthopedic, or barefoot on gravel to stimulate muscle contraction rhythmic planting. It is also advisable to use applicative exercises - walking tips to stimulate circulation (on sand, grass, rocks).

Proper corrective treatment processes and uses conservative methods. Orthopedic treatment is the use of media or planting supporters aimed to restore normal axis of the foot and arch support. The supporters must be made individually, as a pre-cast in plaster, to be light, do not take up much room in the shoe and does not interfere.

Treatment through physiotherapy includes a series of exercises aimed at toning muscles planting movement stabilize the ankle, foot axes recovery. The massage are used as aids to boost circulation and increase trophic tissues.

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implementing a complex therapies. Often, physical therapy treatments enhances bleeding, orthopedic surgery, proving that it is an important link in the complex therapy.

Continue treatment until full recovery is a difficult principle to understand for many patients, it is considered recovered when finding somatic healing. This, however, should be continued until a complete recovery, which includes functional cure. In no other medical specialty discontinuation regressive effects not so obvious as in kinesiology.

The principle of self-employment is required. The patient must repeat and outside meetings of the recovery room, methodical processes (isometric contractions), or exercise techniques known and recommended by the therapist.

Contemporary Psycho sees in optimizing the educational process and principles to determine the topic to warn individual within their own recovery process.

## CONCLUSIONS

After analyzing the dynamics of subjects, it can be seen that the results were recorded according to the degree and type of physical impairments that, the precocity of diagnosis and correction program started as a practicing consistency and recovery subjects meeting.

The subject had a very positive development. It was recorded in back scoliosis and bilateral flat foot. These results were supported by the precocity of establishing the correct treatment, the age of the subject (growing period), and the consistency with which he participated in meetings correction.

After applying the correct program complex was obtained curvature correction and to the scoliotic and alignment of body segments; backbone resumed shaft position disappeared asymmetries shoulder and pelvis, and shoulder position brought and shoulder blades and resumed normal position, correct the remoteness column.

There were significant increases in most anthropometric measurements: size and diameter biacromial highlights the position shoulder, transverse diameter, thoracic perimeter is the value of the positive influences on components thoracic and interdependence between them and the position vicious spine.

Align column in its normal axis is highlighted and height values and bust, from the initial to final measurements. There have been increases in the diameter bitrohanterian perimeter abdominal, gluteal and mobility.

Also, the overall attitude of the body (static and dynamic) improved bilateral flat foot was corrected 35-40%, and the subject has learned to swim, along with participation in the program correctly.

Next computerized examination to be conducted in February 2014.

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