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ABOUT IMPROVEMENT OF THE UNION OF THE ORTHOPEDIST AND PRODUCERS OF CORRECTIVE MEANS FOR REDUCTION OF PATHOLOGICAL DEVIATIONS OF FEET AT CHILDREN (MESSAGE 4)

Abstract: *in the article, the authors have developed recommendations for the orthopedist and manufacturers of orthopedic shoes on its correct selection, taking into account pathological abnormalities, to ensure the formation of a healthy foot for the child, excluding the formation of pathological abnormalities. At the same time, the authors substantiate their concern about the reduction of social protection of families in Russia, whose children have pathological abnormalities, to provide them with free service from an orthopedic doctor in regional centers with mandatory payment by social bodies of municipal, regional and Federal branches of government of the costs of manufacturing medical, preventive shoes and corrective products that create comfortable conditions for the child's foot.*

Key words: *valgus, varus, clubfoot, hard side, pronator, oblique, cork, arch layout, beveled heel, lacing, hard heel, hard toe, special soft, hard and metal corrective parts, range of shoes, pathological abnormalities, anthropometry, demand, implementation, competitiveness, demand, financial stability, plantography, rengenography, plaster casts, prosthetics, rehabilitation.*

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Introduction

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the beginning (the first part)

Most of the concerns of parents regarding the flatfoot and curvature are not grounded feet. Development options are numerous and age-leg takes the usual form. Only a competent podiatrist can determine if all is fine with your feet rebenka. Luchshee what you can do for your child is to encourage its locomotor activity and avoid overeating. Keep in mind that the so-called corrective shoes, inserts, arch supports, brace, etc. -.. Are ineffective and will only make your child miserable. Let the magic power of time and growth to do their job.

What kind of shoes should be worn?

- The model should be chosen high-quality, made of genuine leather.
- An ideal variant is a resilient sole with good shock absorption. From stiff, rigid foundations should be abandoned - it prevents the muscles and the joints movable joints when walking - they do not work, gradually relaxing.

Advice for parents: buying shoes for children, bend the sole. The front part of the base must be supple, and back rigid. If you can not squeeze basis - look for another doctor's advice model. Takoy - orthopedists (Figure 1):



Figure 1 - Types of orthopedic shoes for children

- Rubber outsole for corrective shoes is ideal.
- Sock orthopedic shoes should not create a lot of room for your fingers, but should not have pressure.
- Acquire corrective shoes "for growth" prohibited: Shoes should fit snugly around the foot.
- Closed heel is a must, including summer models. Open sandals lead to the fact that when

walking heel begins to move, "fidget", increasing the deformation of the joints. When properly staged heel curvature children missing legs.

- Children who are overweight should wear sandals with closed back.

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Proper children's shoes. We break down stereotypes. Ask the question (Figure 2):



Figure 2 - The right foot of the child

- *What should be the right children's shoes?*
 - *Why do children develop flat feet and how to avoid it?*
 - *Is it true that the first shoes for the baby should be "orthopedic"?*
 - *Should the child go home in a shoe?*
 - *What should be slippers for your child?*
 - *Do I have to children's shoes to be instep*
- (Figure 2)?

A burning topic: too often quite crumbs prescribe orthopedic shoes, and often orthopedic doctors contradict each other. One puts a child in the 2 years flat and guides for orthopedic shoes, the other

says that, well, your baby is completely healthy, and advises the mother to drink motherwort, and child to run, jump and enjoy a carefree childhood. One says that it is necessary in the children's shoes have to be instep, the other totally disagree with this.

How is the child's foot?

We have already examined the report is one that is a stop.

So, the first thing to understand: the child is born with a flat foot. Remember, dear parents, looked like the feet of your children, even when they are not under the table walked.

That's the way (Figure 3):



Figure 3 - General view of the child's foot

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As you can see, the place that would become the longitudinal arch, is now filled with fat. And it is right. After a set - what is this? This spring, where the spring, when we go to pay off the shock and "bomb" the leg joints and spine. And why such a child Spring? After all, he still can not walk. It is logical?

Recall another important point: the arched shape of the arches supported by leg and foot muscles. But muscles are not developed because our baby is not yet walking, not running, not jumping. And when he gets up on its feet and taking its first steps, the fat pad stop very useful to him.

▪ **At first**, it increases the contact area and increases the stability of our child, so he understood that go something turns out well! And do you see, and more feel, and my mother did not have to call, it is possible to reach it. First, along the wall, then short dashes, and now "is a bull, swinging."

▪ **Secondly**, Plantar fat is needed for cushioning, yet there is no full-fledged spring.

This volumetric fat pad is retained in children under 3 years of age and then gradually begins to dissolve. By age 5, looms longitudinal arch, and in 7-10 years we can already see the foot, very similar to adults. A completely stops the formation of man ends around 20-21 years, girls - 2-3 years earlier. This means that at this age there is ossification of the cartilaginous structures of the foot.

But as long as the kid will walk with confidence, it will be a difficult balancing act school. As soon as he gets up on its feet, it relies more on the outer arch of the foot. This is called "setting varus feet." It happens in children approximately 1.5 years (Figure 4).



Figure 4 - Characteristics of the outer body of the child's foot

As soon as the baby learns to walk, he tries to keep his balance, legs wide apart. In maintaining his balance helps just the very fat pad, which we

discussed above, and on which he begins to build. Get some blockage stop inside. This is called setting valgus feet. Here's how it looks (Figure 5):

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Figure 5 - General view of the child's clubfoot

Such a condition is noted, usually 2-4 years. Further, with the strengthening of the musculo-ligamentous apparatus feet, the legs form usually aligned: shin, knee and hip are built on the same line. If normal valgus angle deviation calcaneus 3 years is 5° - 10° , then to 7 years it is 0° - 2° .

Consequently, flat feet are at all children under 5 years old, and installation valgus feet to 4-5 years of age - it is a normal variant.

So if your two-three-year child was diagnosed with "flat feet", you know that everything is going according to plan, and nothing to worry about. And absolutely do not need to run for orthopedic shoes. Well, what if your doctor has prescribed? You - a mother or what? It is better to focus your attention on strengthening the muscles of feet and legs to your child, and you will be all happiness: both parents and child, and his feet. 😊

We return back to the past

In the 60's of last century, the Leningrad Institute of prosthetics staff them. Albrecht conducted the study, which involved about 5,000 children. They evaluated the "maturation" arches of the foot. And look what happened: 2 years flat was detected in 97.6% of children, and it remained only 4% observed in 9 years. Of course, if you undertake this study today, the indicators will be more deplorable, and if Now remove all computers, gadgets, phones that will make children? And adults? Interestingly, while the rope is now sold, or is it a rarity? And today's children know the game "Dodgeball"? A play badminton?

We did not sit at home, especially on weekends. All the time ran, jumped, so that the diagnosis of "abnormalities" in our childhood memory is not delayed.

Abnormalities - clubfoot in children (Figures 6 and 7).

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Figure 6 - Characteristics measurement stop with pathological abnormalities



Figure 7 -Features selection of orthopedic shoes for the feet with pathological abnormalities

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stop child

26 form the foot bones, not counting the sesamoid, connected to each other by means of joints and ligaments. The last stop give a fairly complex shape resembling a spiral or propeller and ensure mobility in three dimensions. And performing shape-keeping functions of the foot 42 facilitates the activity of muscles of the foot and lower leg muscles (Figure 7).

Stops undergo changes throughout a person's life, but the formation of the arch of the foot is the most intensive in the first 7 years. Further critical to maintain the shape and function of the foot will be periods of rapid growth of the child attributable to the high school years, periods of hormonal changes.

Stop in the human body has three biomechanical features: spring, balancing and jogging. When flatfoot affects all the functions of the foot.

Spring function - softening shock when walking, running, jumping. It is possible thanks to the ability of the foot lie prone elastically under load, followed by the acquisition of the original shape. Studies have shown that when fast walking in shoes with hard heel of the parquet floor in the heel acceleration reaches a value of 30 times the acceleration of gravity (g). In people with healthy feet to the lower leg acceleration of 5-6 g, 1 g and all comes to a head. When flatfoot

shocks more rapidly transmitted to the joints of the lower extremities, spine, internal organs, which contributes to the deterioration of conditions for their functioning, micro-traumas, displacements.

Balancing function - regulation of human posture during movement. It is performed by allowing movement in the joints of the foot in three dimensions, and the abundance of receptors in bags and ligaments. Healthy foot sculpture covers uneven support. A person touches an area on which the pass. For flat position of the bones and joints is changed, ligaments deformed. As a result, children suffer from motor coordination, stability.

Jogging - message accelerate the human body during movement. This is the most complicated function of the foot, because it is used and the spring and the ability to balancing. The attenuation of this function is most evident when running, jumping (Figures 9 and 10).

From ancient times, known for another function of the foot, which has no direct relation to biomechanics. Stop - is an area rich in nerve receptors and is an "energy window" of the body. It is known that the cooling stop causes reflex vasoconstriction mucosa of the upper respiratory tract, most pronounced at the nonhardened human. In traditional Oriental medicine believes that through the stack can be accessed anywhere in the body.



Figure 8 - The skeleton of the foot of the child

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Figure 9 - Orthopedic shoes for summer



Figure 10 - Features orthopedic shoes for summer

Main part

Treatment of Mother Nature the most secure, inexpensive and effektivnoe. Segodnya I would like to voice issues such as clubfoot. It is a congenital abnormality, so parents after traumatic orthopedic manipulations hardly improve the condition of their child, give up. However, there are many alternative

techniques that can stop the progression of the pathology. These include the treatment by an osteopath.

talipes(Intoeing)

Kosolapov - a term unknown to official medicine (as opposed to clubfoot). This term is likely to come up with the parents from giving illiterate doctors.

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Under toed in most cases involve parents walking with child stops, turn the socks inside. Since the Russian medicine for this condition have an official name, we

will use the English version intoing for short (intoeing - fingers inside).

Intoing is very common in children, which usually takes place as they grow older.

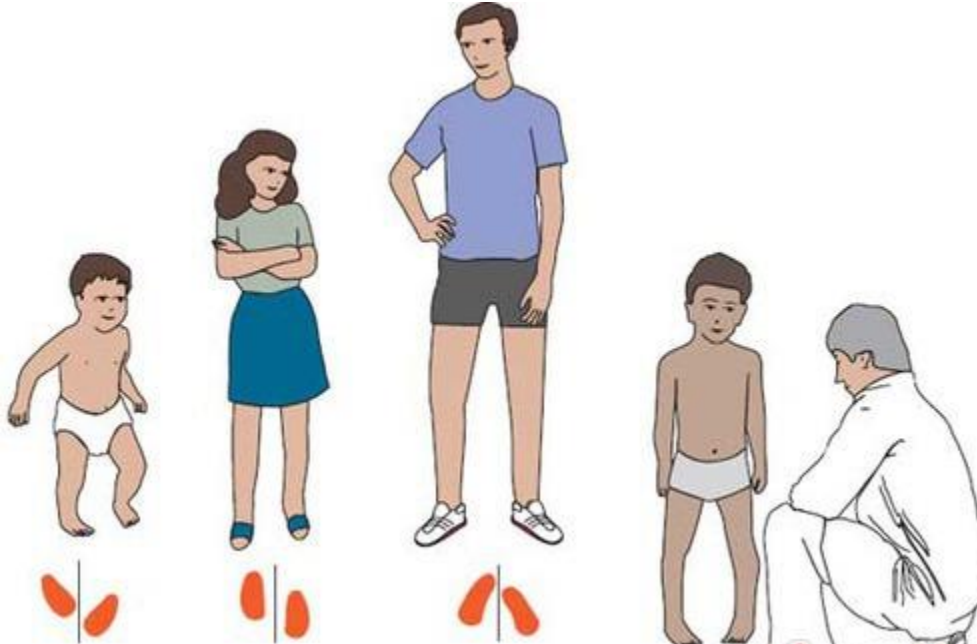


Figure 11 - Effect of age of the child at his particular abnormalities

There are three reasons intoinga that doctor - orthopedist can determine during the inspection:

- the curvature of the foot;
- torsion (twisting) of leg bones;
- torsion of the femur.

the curvature of the foot

The curvature of the foot caused by the position of the fetus within the uterus. Most positional distortions stop pass on their own without treatment within the first months of life. Although in some cases, improve the shape of the foot can last up to three years of age.

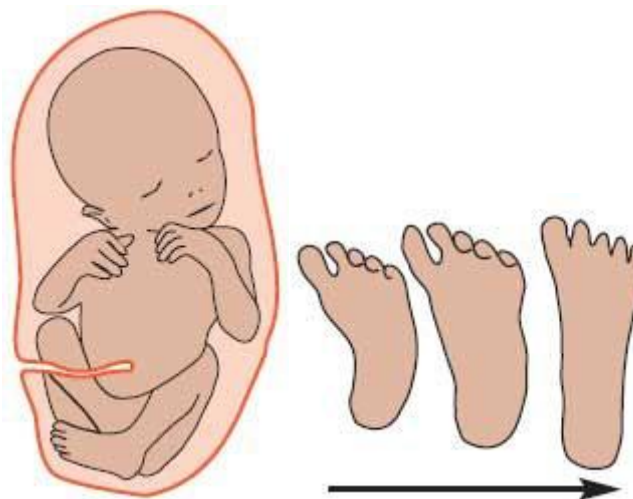


Figure 12 - The reasons for the formation of clubfoot in the fetus in the womb

In rare cases, when the curvature of the foot is strongly expressed, she is slow, rigid stop is necessary

to impose corrective casts. Special shoes do not lead to an improvement in this situation.

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SARS leg bones

SARS shin called twisting leg bones, in this case inwards along its axis. This variant of the norm, and is very common in infants and young children. Orthoses, special exercises, brace or orthopedic shoes are not able to fix the bone twisting, and, in fact, may have adverse effects. Most of the bones of children "straighten" samoostoyatelno, without treatment, in the first years of life.

hip torso

SARS thigh - a twisting of the femur, causing internal rotation (turn) legs and intoing. SARS thigh, usually is the cause of walking with feet turned inward in children aged 5-6 years. In most children, the situation is normalized to 10 years. Inserts in shoes, special orthopedic shoes or brace is not able to reduce hip twisting and correct gait. But they can cause the child discomfort, to make a child feel sick and to break its mobility.

the curvature of the legs (O-rings and X-shaped legs)

During normal growth, the child's legs could take various forms. Since the beginning of walk very often form the O-shaped legs which are independently rectified to two years. Some children 1.5-2 years to form an X-shaped legs (knees knocked together, knocked knees, in English literature). The vast majority of X and O - shaped legs independently

rectified with age for 5-6 years. Inserts in shoes, special orthopedic shoes and exercise do not affect the process of growth of the legs, but can cause the child discomfort and make him feel sick.

Only a competent podiatrist can decide whether there are any irregularities in the growth of the feet of the child or not. The doctor may suspect pathology feet if severe deformation, expressed predominantly on one side or the curvature of the legs can be traced in other family members, especially if most of the relatives have a small growth.

Footwear

People who walk barefoot - have the good foot! Your child needs to be soft, flexible shoe that provides maximum freedom for the normal development of the foot.

Shoe size

Shoes should choose a little more room than the close.

Tough, "orthopedic" shoes are not suitable for the stop, because it limits the movements that are necessary for the development of strength and flexibility of the foot. Feet of a child in need of protection from the cold and injuries by sharp objects, as well as freedom of movement.

The fall of a child can lead to injury. Flat sole, which does not stick to the floor and does not slip best.



Figure 13 - Features toed feet in children

What lies behind the diagnosis of clubfoot?

Clubfoot - is a congenital anomaly of the anatomical structure of the foot joints. The defect affects and influences the functioning of bones and leg muscles, ligaments and tendons. Incorrect anatomy of the body structure is formed in the early stages of pregnancy. Doctors do not fully established the cause of the violation. That completely denies the possibility of the medicine to prevent the formation of clubfoot,

and reduces the effectiveness of the treatment of the feet after the baby is born with this disease.

Externally clubfoot looks like an unusual inversion of the foot inward and slightly downward. With this structure of the little man is very difficult to learn to walk. Fully step on the foot in this position is not possible (see Figure 13).

types of clubfoot

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Congenital clubfoot can be different degrees of severity, have their signs, so in medicine, there are the following division of pathology types:

- typical (yet it is characterized as primary) clubfoot light forms;
- typical clubfoot affecting soft tissue;
- typical clubfoot bone shape;
- atypical (referred to as secondary) neurogenic clubfoot;
- atypical clubfoot amniotic shape;
- Atypical clubfoot, congenital deformity caused by joints;
- secondary clubfoot due to underdevelopment of the tibia.

Because clubfoot - congenital disease, then it affects the occurrence of adverse factors affecting the fetus in the womb. The reasons for clubfoot following:

- malposition, whereby the uterine wall exerting pressure on the stack, and develops an abnormal anatomical structure of the foot;
- the fetus is going wrong tab and muscle development, ligaments, joints, resulting in deformity;
- toxic effects on the child of some medicinal components that the expectant mother can take in early pregnancy;
- insufficient intake in the mother's body and, consequently, lack the fetus vitamins and essential trace elements (Figure 14).



Figure 14 - The effectiveness of the program "Family" to reduce fetal abnormalities of the child in the womb.

Clubfoot Treatment methods of classical medicine

The most common method of eliminating congenital clubfoot - gypsum. On infant legs

superimposed plaster boots, fixing a pre-deployed foot in the correct position. For a small child it is quite

Kosolapov in the form of light is adjusted using soft bandages. The general method is similar to gypsum (Figure 15 and 16).

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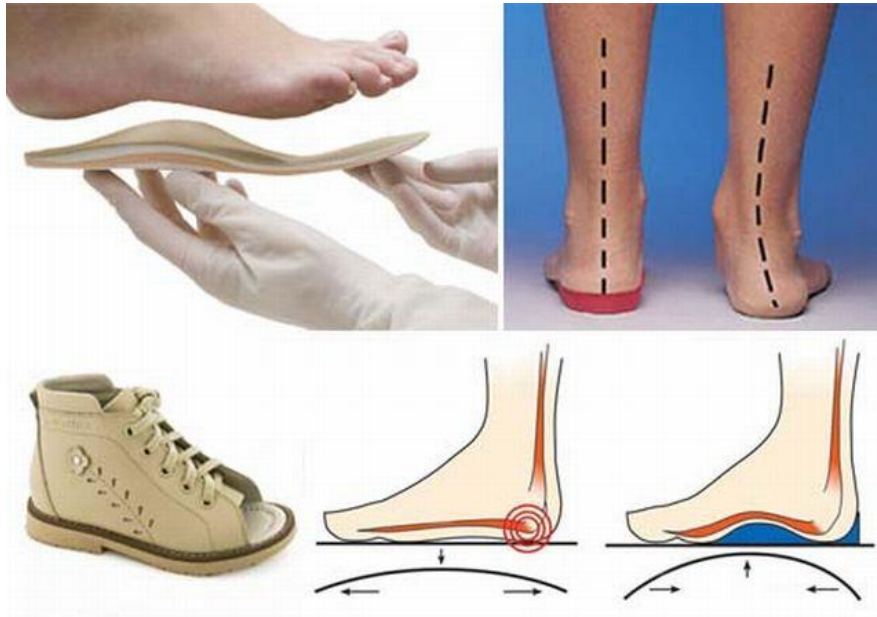


Figure 15 - Preparations for the treatment of clubfoot



Figure 16 - Features fitting of orthopedic insoles for foot with clubfoot

Used to treat clubfoot removable devices - orthoses. It could be a special holder for the foot, and simple shoe inserts.

Also, children prescribed an additional massage and physiotherapy. For parents, it is important to

remember that there comes a time when the correction of clubfoot is no longer resist, and help the child will already be impossible. Therefore, treatment should begin with the very first days after birth (Figure 17).

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Figure 17 - Types of massage to correct clubfoot

Osteopathic practice in dealing with the clubfoot

Osteopath removes the defect clubfoot, setting bones and joints anatomically correct direction. At the same ligaments it comes to the desired position. Manipulation of the leg of the child are carried out carefully and delicately, without gross

During the first week after treatment movable sustavchikov will return to the anatomically correct direction. After this time the result will be obvious.

Treatment by an osteopath can start at any age, but our dear parents, defect correction in the first days of life - the key to the proper development of your child. The earlier treatment is started, the better the chance that the child will get rid of clubfoot can

actively play and run around, and maybe even make a career of the athlete.

Bumps on the feet

All have seen and know what the "bones" of the feet, but very few people know where they come from. Broad array of error in this respect from "salt deposits" to "tumor."

In fact, the "bones" of the feet - this is nothing more than a valgus deviation of the first toe (Hallux valgus). The reason for their appearance - flat and cross the weakness of the foot ligament, leaving the thumb is deflected toward the other toes. To a large extent the development of the disease contributes to the long wearing sharp-nosed shoes with high heels.

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Figure 18 - Cones on the feet of the weakness of the foot ligament



Figure 19 - resectable bump

If your goal - straight fingers, it can not do without surgery. Treatment of this disease can be conservative, that includes:

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Figure 20 - Specifics inspection vrachom - orthopedic patients with a bump on the foot

- abandonment of tight shoes with high heels;
- the use of individual orthopedic insoles;
- exercises for the legs;
- use of corrective interdigital pads and tires, which discharge the first finger.

Use of individual orthopedic insoles did not make fingers "straight", but will provide a more uniform load distribution on the foot, which will help reduce the pain and prevent the progression of the forefoot deformity.

Heel spur



Figure 21 - Plantar aponeurosis

On the plantar side of the foot, under the skin, there is a so-called plantar aponeurosis. This connective tissue formation in the shape of a triangle, the apex of which is attached to the heel bone, and a wide base to the heads of the metatarsal bones. This

aponeurosis as "Teteven", stretched on the longitudinal arch of the foot. Uploshenie these arches leads to the fact that this "Teteven" pererastyagivaetsya mikronadryvy and occur at the point of its attachment to the heel bone.

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Figure 22 - mikronadryv aponeurosis

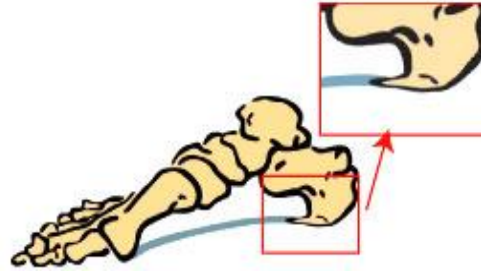


Figure 23 - Location fascia mount

The body is constantly struggling with these nicked, heals them and trying to strengthen a weak spot. This leads to the formation of bone outgrowth on the calcaneus, which is popularly referred to as "heel spur". Spur this hurts when walking the soft tissue around them, which causes pain. Treatment of this disease stems from reasons of its appearance:

- eliminate hyperextension of the plantar aponeurosis through correction of the longitudinal arch; feet.

- unload area of the heel spur, to walking it is not injured soft tissue.

For this purpose, it uses a specially designed model of individual orthopedic insoles, which allows you to make corrections to all the arches of the foot and has a horseshoe-shaped soft heel cushions, heel spurs unload area. (See. "Everything for a comfortable walk")



Figure 24 - Location Feature Spur

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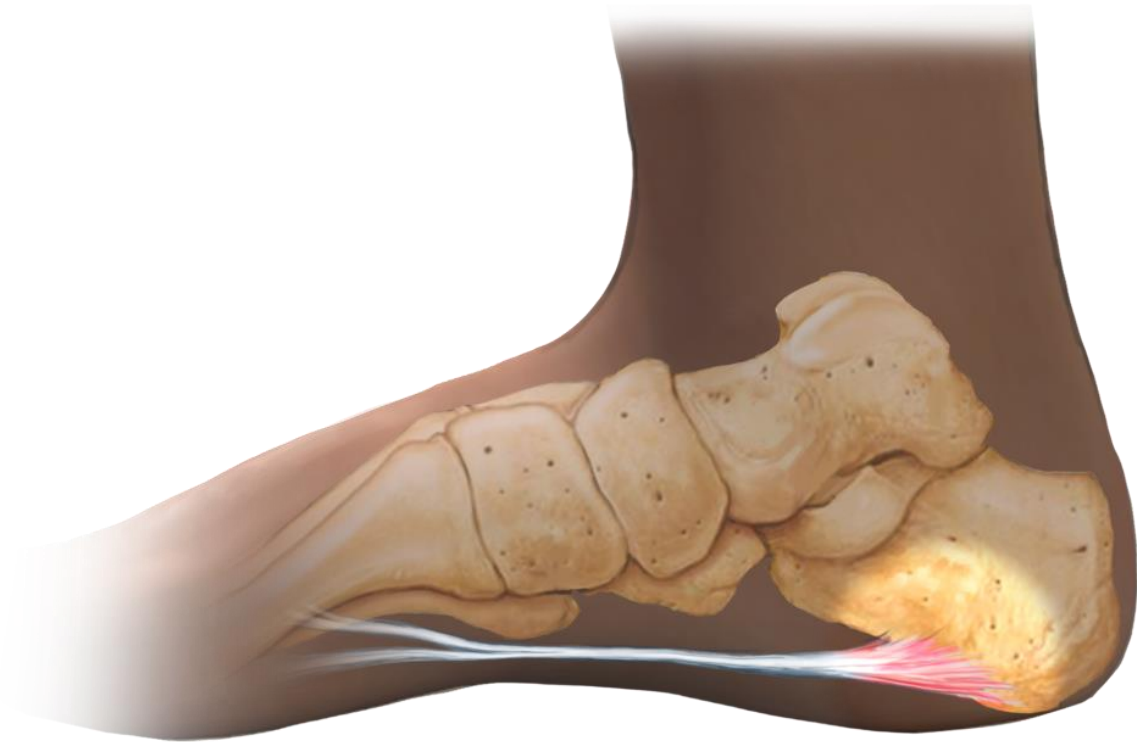


Figure 25 - A variation of the Spurs

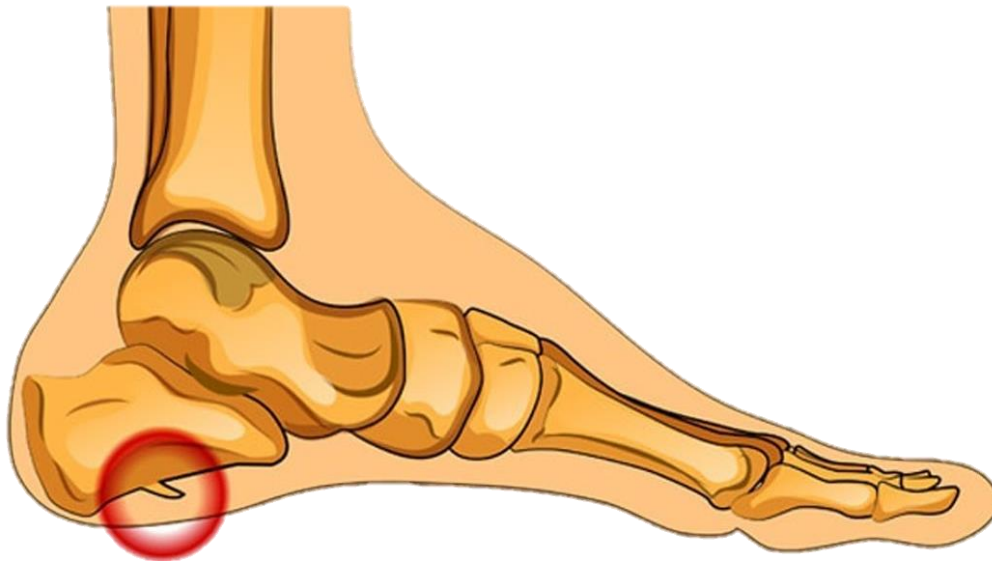


Figure 26 - A variation of the generated spurs

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Figure 27 - resectable spur



Figure 28 - Features of deformation of the heel of the foot

diabetic foot

According to the WHO definition of diabetic foot syndrome (SDS) is an infection, ulcers and / or deep tissue destruction associated with neurological disorders and reduction of blood flow in the main artery of the lower limb of varying severity. With long-term existence of diabetes develop foot deformity with an increase in its transverse dimension, transverse and longitudinal flat feet, an increase in the volume and deformation of the ankle joint. Hammer

strain develops fingers hypertrophy heads of metatarsal bones to form corns (neyroosteartropatiya, Charcot foot). Treatment of diabetic foot syndrome in the first place, conducting an endocrinologist. However, in the treatment for the correction of foot deformities and evolved to improve microcirculation recommended to wear a specially designed individual orthopedic insoles, special shoes designed for diabetics.

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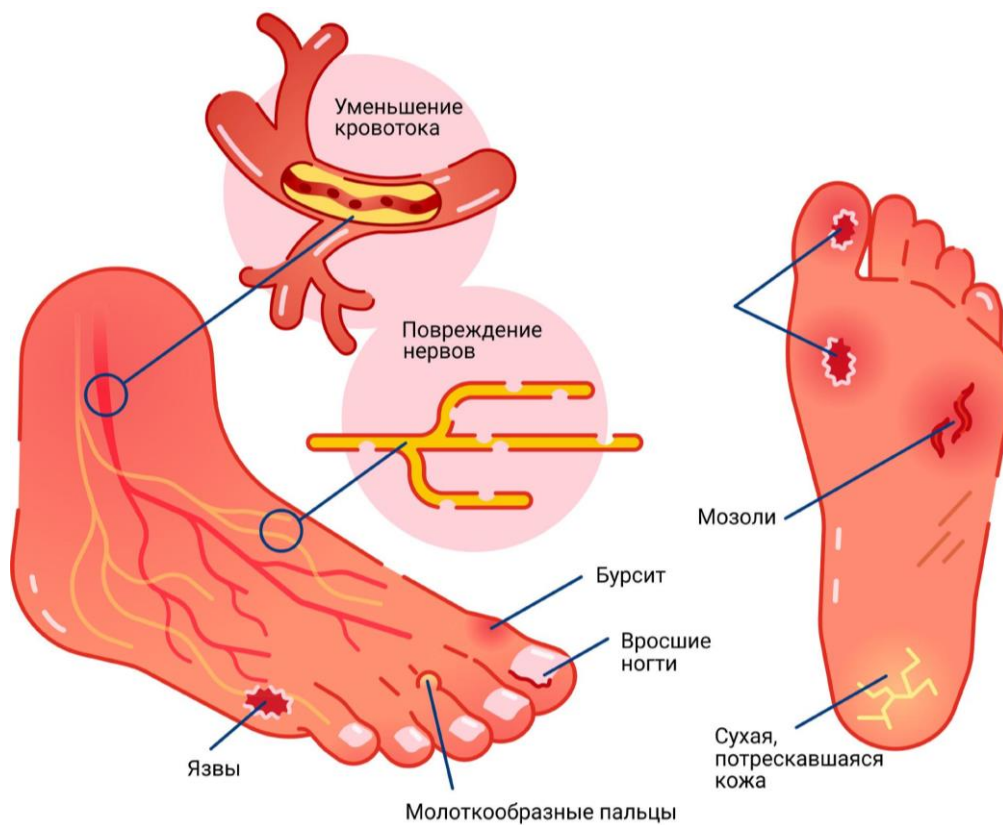


Figure 29 - Diabetic Foot



Figure 30 - The main characteristic of the pathology of diabetic foot

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Figure 31 - Operabelnaya diabetic foot

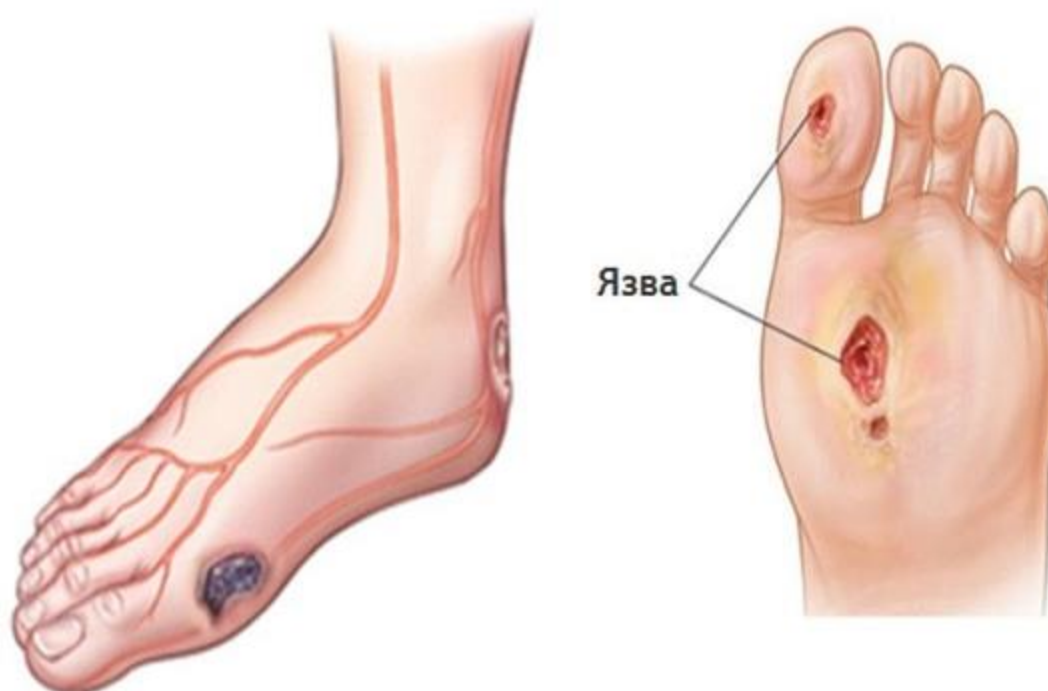


Figure 32 -Raznovidnosti pathology characteristic of diabetic foot

conclusion
Considered asker namely:

- possible preventive measures and corrective products for the restoration of violated functions of life of children;
- Resuscitation dramatically disturbed children living organism functions;
- rehabilitation children deformation stop for cerebral palsy;

- deformity correction arch children with clubfoot corrective products for the restoration of violated children living organism functions;

practical answers to a whole bunch of issues arising from their parents, allowing an informed choice of corrective products for the restoration of the children disturbed functions of vital activity of the organism.

the continuation (second part)

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Introduction

Clubfoot or clubfoot - this arch strain, causing it to change its location and gives it a lot of inconvenience to man, both in terms of pain when walking, and in aesthetic terms. Most parents interested in the reasons why childhood is developing clubfoot.

One child in a thousand is born clubfoot. That is a twisted within one or two feet. If you leave everything as is, the baby does not just get up on their feet later the same age. He did not get up as they are. In the clubfoot, the heel is tucked up and his fingers turned inward. The child comes to the outer side of the

foot. And if he goes, stop further deformed, and behind it - the entire leg. This is inconvenient, and most importantly - hurt. Person becomes disabled.

Fortunately, clubfoot treated. There are many ways and one of the most benign - Ponseti method: With gypsum pliable foot baby bounce back just a couple of months. One of the first mastered them Yaroslavl orthopedic Maxim Vavilov in Russia. Now he heads the Russian Association of Ponseti, and in the Yaroslavl region virtually no clumsy children older than six months. K M Vavilov and his colleagues at the clinic "The Constant" going to be treated children from all over Russia, from Belarus and Kazakhstan. Including - in the framework of a joint program with Rusfond.



Figure 1 - Medical examination - orthopedist child after plastering

Main part

Clinic "Constant" takes a residential entrance five-story building. Maxim Vavilov, in a military assembled man with short hair, greets us at the entrance and immediately rushes into the office with his colleagues Gromov Ilya and Ekaterina Solovyova: a half hour operation. Not having anything to figure out we have to eat them in the elevator to the fifth floor, in a small children's department with a playground in the corridor. M Vavilov looks into one another room. And confidence comes in third.

Girl smiling timidly. Mom explains that the baby Eve went gypsum by Ponseti management and toddlers wore medical shoes - brace. These are the shoes with the bar - the people on the street confused them with skateboard, although the wheels are not

there. Once the brace is removed, the left foot began to buckle. A more detailed description of the brace is shown below.

- We did not know that the brace should be worn (even sleep in them) to five or six years - my mother says. - Our orthopedic offered a large operation that leads to a relapse. We decided to go here, to experts. And Eve here two weeks in a cast - pull cords and small operation it is today.

Eve comes anesthesiologist, and we hasten to podiatrists for mobile Vavilov again in the elevator - is now on the third floor, in the operating room. Giving us the sterile trousers and overalls, M Vavilov explains:

- Clubfoot always treated surgically and gypsum, but eventually became more humane methods (Figure

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1). 15 years ago we did toed another operation. Cut through the skin in the ankle area, then ripped the tendons and muscles to release the joint. Fixed with plaster and waited until all zarubtsuyutsya tissue. All were operated ugly scars. Most - painful and inactive

foot. One-third of returning to the operating table with a relapse. Now, after the gypsum by Ponseti management, 98% of patients live without relapse and without surgery. The rest of relapses occur commonly due to errors in wearing the brace.



Figure 2 - The backing unit in the center of the sole

While we were dressed, the little Magpie has fallen asleep on the operating table. There we see the girl did not even sleeping, and its foot: the rest is hidden by green disposable diapers. On the girl's thigh tourniquet so that the blood did not flow. M Vavilov wipes foot large swab soaked in iodine. Foot yellow. The doctor wraps the foot from the toes to the knee with an elastic bandage and holding upright a minute to completely bleed. Unwound, puts on the table. Yellowish leg is now similar to silicone simulator.

Making first a tiny incision is made above the heel, the doctor cuts a matter of seconds the Achilles tendon to lengthen it. This microoperation - achillotomy - not spectacular. Many toed the operation is done under local anesthesia, almost at a reception at the parents (see Figure 2).

Then the doctor makes two of the same bloodless incisions - longer, along the top of the foot. It takes the

needle with a thick blue thread and begins to literally alter the tendon, similar to the white tape. As Dr. Aibolit in the pictures with the bunny. He is to hook needle braids in a tendon-notch and secures it a pair of thread stitches as taught in school to the labor class. Then drags the braid under the skin to another notch and pull out. The foot drags behind a band and immediately rises as expected: at right angles to the tibia. Doctor - Orthopedic sews the tendon is in a new place. And then famously needle pierces through and stop tying thread backing unit in the center of the sole. All takes no more than 15 minutes. It remains to sew up cuts absorbable thread and plastered leg for a couple of months. This is an ordinary operation with furious title: transposition of the distal tendon of the tibialis anterior muscle in the third cuneiform left limb.

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Figure 3 - child's foot examined by a doctor - orthopedic surgery

In complex cases - six years as at ward Rusfond such an operation can not do. The girl was born with several pathologies of the feet, including clubfoot. As she, for example, three toes on each foot. All of this was found in the hospital.

- Clubfoot is visible on the ultrasound even at the twentieth week of pregnancy, - says Mr. Vavilov. - However, in Russia 90% of cases it turns out to be a surprise after birth. But parents better to know in advance what problems they face, find experts and to begin treatment in the first month of life, to his feet immediately develop correctly (see Figure 3).

Girl doctors offered to watch a half a year. But they took the girl to Moscow, where it progipsovali by Ponseti management. In the year and a half eyed blonde with black eyebrows, too, had gone. In the brace she wore all day to five years. Then her left foot was deformed, and not the most conventional way -

because of the defect in the formation of the ankle joint. In addition, the leg was shorter than the right. The girl became difficult to walk. Podiatrist Filatov hospital recommended that the M Vavilov.

- Ten years ago, says M Vavilov, he treated clubfoot, and then it turned out that on the basis of clubfoot come different people: the problems of the lower leg, knee, hip joints. - And now he prefers to treat lower limb - it is efficient. They can treat the girl in stages. Now - just straighten a clubfoot and send home. After two or three months - pull spokes and let it be like six months, that she returned to the hospital with a short flat foot. And only then put the Ilizarov apparatus to stretch the bone. But we can still do it all in one anesthetic to six or seven months old baby girl went with the full support to the corrected foot to beat the time. More precisely, he tries to beat the time.

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Figure 4 - Traumatologist M. Vavilov preparing for surgery

This operation - or rather, several operations in a row - has been delayed for hours. Now orthopedist like a bloodthirsty Barmaley. He has not only a lot of cut - and the skin, and tendons, and muscles - but still too wide shear pieces fibula. Otherwise, stop simply does not rise to the shin. Doctors exchanged short business replicas. But look wildly: one doctor holds baby leg, and the second, with a chisel and a hammer, hammer throwing and bone fragments in the large jar. And then inserts a needle into the drill with screws the buzz it live leg and cutters cut off the ends. And so the four spokes in a row - the length and breadth of the foot. Yes, even jokes, cheering tired colleagues. When the nurse holds Vavilov scissors with very thick blades, he claps long eyelashes, asking her? The Inquisition was moonlighting?

- This is a set of plastic surgeons, - it corresponds to the general joy (Figure 4).

But the twisted foot, which seemed at first we did not like the usual, with a huge corn side, if the second heel, an hour later looks good. Except sticking out of it ends of the spokes and slowly flowing blood. And yet all doctors to sew. And then put the Ilizarov apparatus, which is also the spokes attached to the bone.

- Do you expect breakthroughs in orthopedics? Often I ask M Vavilov. - Anything pogumannee spokes and the Ilizarov apparatus?

- No, - he says. - In the spring, he traveled to Tel Aviv at the conference: saw nothing new, everything is done in good Russian centers. A major breakthrough could be now only in reducing the cost of doroguschih metalwork. Here it will change many lives (Figures 5-7).

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Figure 5 - Detail of the operation in the clinic M Vavilov-



Figure 6 - Detail of the operation in the clinic M Vavilov-

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Figure 7 - Detail of the operation in the clinic M Vavilov

In Russia, many doctors - orthopedic practicing modern methods of treatment, but in district clinics are virtually unable to find.

- The clinic practitioner complains that he has no nurses, no gipsovochnogo cabinet. - And even if I was, would still she did not use the Ponseti method: on gypsum allocated too little time and money. Today they can only observe children with clubfoot, the benefit of the 13,000 they are only two.

That has toed parents once or twice a year to spend on the brace, which cost 10 thousand rubles, and after five years -.. On a special stand on which to stand every day for half an hour. And a doctor. Even in a

good situation, need expert control over the child up to ten years.

The course of treatment by the Ponseti method of clubfoot

Treatment includes 3 stages. The first step - the deformation correction with plaster bandages. Ponseti management is a weekly change casts while gypsum produced gradual correction of deformation deducing foot position to the degree of correction of 10-15 times per week. As a rule, the full correction of a deformed foot, even in difficult situations is achieved in 5-6 casts shifts.

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Figure 8 - The first gypsum foot child

The first gypsum corrected cavus and actuation (Figures 8 and 9). The foot remains in the same plantar flexion. In the second, third and fourth corrected

gypsum cast and varus. The first method element - cavus correction corresponding alignment stops its front portion towards the rear.

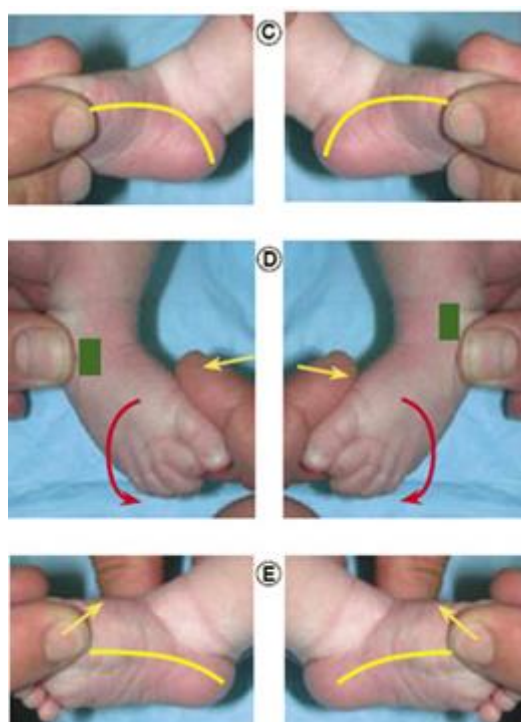


Figure 9 - Cavus foot

Cavus foot (high arch (see. Fig. C, yellow arc) formed due to pronation of the forefoot relative to the rear. Neonates cavus foot always elastic and normalization longitudinal arch requires only supinirovaniya anterior (see. Fig. D and E). That is supiniruet forefoot so that visual inspection of the plantar surface of the foot arch normalization observed. correction of the forefoot relative to the rear

need for effective exhaust stack for driving front correction otde la foot and varus.

Further correction will consist in the abduction of the foot beneath the fixed head of the talus. Note that the correction of clubfoot all components, except for equinus, carried out simultaneously. For the correction you must first correctly identify the location of the head of the talus, it will be the fulcrum for the correction. Make palpation of the ankle the

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thumb and index fingers of the hand - Fig. And with the other hand - Fig. The - fix metatarsus and toes. Use your thumb and index finger - Fig. And - forward to palpate the head of the talus (marked in red), which is located in front of the fork of the ankle joint. Because the navicular (yellow) is offset medially and tuberosity of the bone substantially in contact with the medial malleolus can be palpated convex side of the

head of the talus (red), covered with a skin and only arranged in front of the lateral malleolus. A front portion of the calcaneus (indicated in blue) to be palpated below the talar head. When you move the front part of the foot outwards in the supine hand - Fig. As you feel the navicular move to the head of the talus and calcaneus movement outwards under the head of the talus (Figure 10).

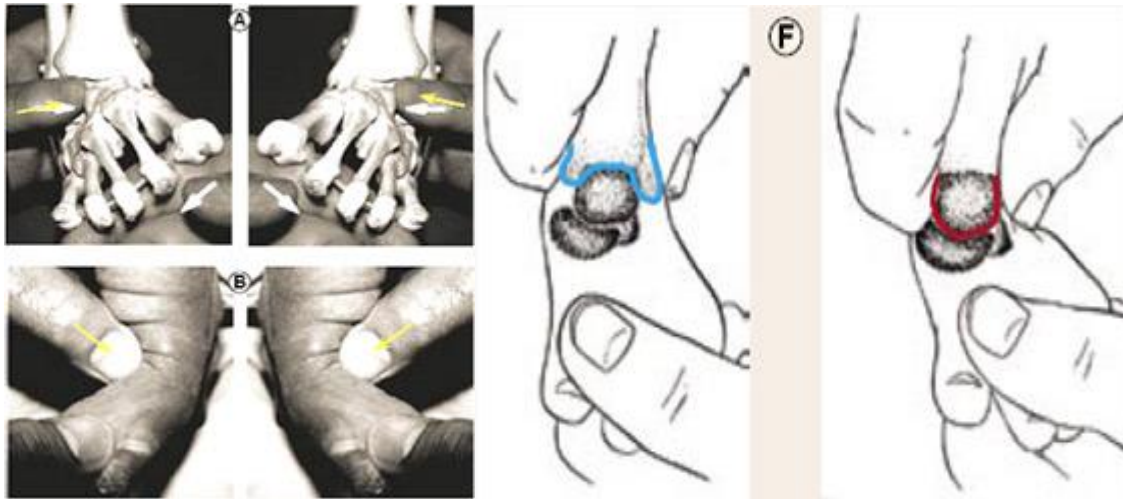


Figure 10 - Polpatsiya ankles

Further stabilized talus. Thumb position at the head of the talus (see. Fig. A, it is indicated by the yellow arrow). Stabilization talus provides a reference point around it rotates the foot outwards. The index finger of the hand holding the head of the talus should be located behind the lateral malleolus. This further stabilizes the ankle at maximum abduction of the foot and helps avoid the tendency for the posterior calcaneal-fibular ligament to shift posteriorly fibula.

Further retraction of supine foot (see. Fig. A) with the stabilization of the pressure of the thumb on the head of the talus (as indicated by the yellow arrow) continues until it starts to not cause inconvenience to the child.

With slight pressure correction hold approximately 60 seconds and then released. In process (see. Fig. B) correction of deformity increases the lateral mobility of the navicular and calcaneus front portion. After the 4th or 5th overlay plaster becomes possible to complete the correction. For a particularly rigid stop need more casts.

In the second, third and fourth gypsum fully corrected varus and adduction of the foot. Determined by palpation of the distance between the tuberosity of the navicular bone and medial malleolus tells us about the degree of correction. When clubfoot corrected, this distance is about 1.5-2 cm, while the navicular covers the front surface of the talar head. At each of gypsum observed improvements.

Equinus, or plantar flexion gradually corrected with the correction of varus and driving. This partial correction due to dorsiflexion of the calcaneus as it set aside for the talus. Until it is corrected varus heel No direct attempt to correct the equinus.

Complete correction cavus, varus driving foot and the heel, a partial correction Equinus insufficient necessary tenotomy Achilles tendon. At very flexible feet equinus may be corrected by additional casting plaster bandage without Achilles tenotomy. However, the operation is shown at doubts.

Second stage: achillotomy

Second, a very important part of the treatment - it achillotomy (Figure 11). In the clubfoot, the Achilles tendon is always shortened, so most of the children in need of extending it. The Ponseti method involves the use of very gentle method of its elongation - closed Achilles tenotomy. In most cases subcutaneous intersection Achilles tendon is performed to complete the correction Equinus - equinus. After surgery, the plaster is applied last for a period of 3-4 weeks. This period is sufficient to grow together with the Achilles tendon needed to correct length.

On average, the total duration of treatment in the cast of 1.5-2 months.

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Figure 11 - Fragment use gentle extension method - closed achillotomy

The third stage: the consolidation of the results

The third part of the treatment - consolidation result. For this purpose, specially designed bus (brace) To avoid deformation of the return. To avoid a relapse, you need to wear a brace on a strictly prescribed by a doctor - orthopedist regime. Cured child should undergo regular screening to 2-5 years.

The effectiveness of the treatment of severe clubfoot by Ponseti management in children is 95%. But relapses occur and after treatment by this method. The most frequent cause relapse is the failure mode being in the brace and the unsatisfactory quality of fixation brace after Achilles tenotomy. According to orthopedists University of Iowa - relapses occur in only 6% of households, closely following requirements lechashego doctors, and more than 80% among families casually related to the doctor's recommendations. Among the causes of relapse, may be an imbalance of leg muscles, in particular, especially the tendon of the tibialis anterior muscle. Therefore, to avoid recurrence, parents need to follow the recommendations of the attending physician. Once I passed the correction rate manipulations and plaster bandages, doctor starts with brace, adjusting the angular characteristics:

- distance from the inner edge of the heel of the shoe to the inner edge of another shoe heel is the distance from one shoulder to the other;
- for continuous use brace usually adapted such: for allocating clubfoot foot is 70 degrees, for a healthy - 40 degrees;
- with bilateral clubfoot retraction is 70 degrees on two sides;
- for clubfoot foot dorsal flexion (bending of the foot in the ankle joint) is usually 5-10 degrees. As

a rule, such a situation corresponds to the position of the foot in the final cast. Flexion in the ankle joint for a healthy foot is optional.

Usage pattern shoe with clubfoot for children up to 6 months and then have differences. Let us consider them in more detail in Tables 1 and 2.

First child wears the brace for 23 hours a day, this period lasts 3-4 months. Further, under the supervision of a physician wearing time is gradually shortened to 18 hours depending on the condition of the stop. In this case, the brace should be used for all types of sleep - it protects the child's psyche. Inculcated the habit, and the child knows what to wear retainers need every day, not indignant over the fact that "today, slept without locks, and tomorrow they have to wear again." After reaching the age of 2 a child, visiting the garden to be no different from their peers in the garden can be without locks. However, the house catches put on necessarily.

At first, the kids wearing the brace feel not very good, bad sleep and crying more than usual. Restrictions on freedom of movement, thin-skinned skin after plastering a negative impact on their health. All this should not be a reason for your concern. First, children can take analgesics, sedatives. To get used to new shoes baby two days later. It is important that parents do not give up, and waited when the child gets used. If there is a strong reddening, should consult your doctor. In addition, you should consult with your doctor if the child sleeps restlessly in the brace for more than 3 nights.

Flavoring products for deformity correction of children's feet

Bracing

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Bracing - this strap-lock for removing the foot from the shoe, special shoes with clubfoot. And it can be used only after the clubfoot has fully corrected manipulations and plaster bandages (Figure 12 - 17).

Clubfoot relapse up to 4 years of age against the backdrop of rapid growth is possible even after successful correction. To date, the brace - the most simple and reliable method of preventing relapse. Consistently observing usage patterns brace can prevent relapse in 90% of children. Wearing a brace, as a rule, does not prevent the development of the child. This convinced the parents, when a child learns to crawl and even stand up (depending on age). The task of parents - the right to wear the brace.

Bracing for clumsy: features of wearing and caring

Please note that the shoes with such a device - this is no ordinary walking shoes. Rigid and fixed base

brace designed for therapeutic use. It does not allow the foot to move the usual way from heel to toe. sole materials are such that on some surfaces lead to slip boots. Therefore, wearing only shoes without the strap will not provide a therapeutic effect. A child should always wear shoes with metal lath.

Fixators combined with the majority of car seats and strollers. Choosing a highchair, correlate its width to the width of locks, it was not necessary every time take smb. Shoes off before boarding a child in it.

Screws that shoes are attached to a metal bar, you need to check 2 times a month - sometimes it is necessary to tighten them. Remember! Small items of orthopedic shoes separate from the metal strap clamps are dangerous for the baby!

Clamps are made by different manufacturers. Are proven brace "Bear" ("Bear" also offers orthopedic shoes). Clips can also be manufactured according to individual orders (Figure).



Figure 12 - Bracing for deformity correction stop ditey after adjusting them to conduct surgery in a clinic M. Vavilov operation

Table 1 - Monitoring of patients with clubfoot to 6 months

| number | destination | After operation | | | | | | | | | | | | | | | | | | | | |
|--------|----------------------------------|-----------------|---|---|-------------|---|---|---|---|--------|---|---|---|---|-------|----|---|----|---|---|---|------|
| | | days | | | of the week | | | | | months | | | | | years | | | | | | | |
| | | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 5 | 2 | 3 | 4 | 5 | 6 | 1 | 1½ | 2 | 2½ | 3 | 4 | 5 | 6-15 |
| 1 | The exalted position of the stop | x | x | x | | | | | | | | | | | | | | | | | | |

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| | | |
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| GIF (Australia) = 0.564 | ESJI (KZ) = 8.716 | IBI (India) = 4.260 |
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| number | destination | After operation | | | | | | | | | | | | | | | | | | | | |
|--------|--|-----------------|---|---|-------------|---|---|----|----|--------|----|----|----|----|--------------|-------|---|----|---|---|---|------|
| | | days | | | of the week | | | | | months | | | | | | years | | | | | | |
| | | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 5 | 2 | 3 | 4 | 5 | 6 | 1 | 1½ | 2 | 2½ | 3 | 4 | 5 | 6-15 |
| 2 | Analgesics, sedatives (for anxiety) | x | x | | | | | | | | | | | | | | | | | | | |
| 3 | control examination | | x | | | | x | | x | | | x | | x | x | x | x | x | x | x | x | x |
| 4 | If it is impossible to appear for examination - to send the photo by e-stop. mail: info@ponseti.ru | | | | | | | x | | | x | | x | x | x | x | x | x | x | x | x | x |
| 5 | Removing plaster | | | | | | x | | | | | | | | | | | | | | | |
| 6 | Wearing the brace (hours per day) | | | | | | | 23 | 23 | 23 | 23 | 23 | 20 | 18 | during sleep | | | | | | | |
| 7 | Control X-ray stop | | | | | | | | | | | | | | x | | | | | | | |

Table 2 - Monitoring of the patients with clubfoot older than 6 months

| number | destination | After operation | | | | | | | | | | | | | | | | | | | | |
|--------|--|-----------------|---|---|-------------|---|---|----|----|--------|----|----|----|--------------|---|-------|---|----|---|---|---|------|
| | | days | | | of the week | | | | | months | | | | | | years | | | | | | |
| | | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 5 | 2 | 3 | 4 | 5 | 6 | 1 | 1½ | 2 | 2½ | 3 | 4 | 5 | 6-15 |
| 1 | The exalted position of the stop | x | x | x | | | | | | | | | | | | | | | | | | |
| 2 | Analgesics, sedatives (for anxiety) | x | x | | | | | | | | | | | | | | | | | | | |
| 3 | control examination | | x | | | | x | | | x | | | x | x | x | x | x | x | x | x | x | x |
| 4 | If it is impossible to appear for examination - to send the photo by e-stop. mail: info@ponseti.ru | | | | | | | | | | x | | x | x | x | x | x | x | x | x | x | x |
| 5 | Removing plaster | | | | | | x | | | | | | | | | | | | | | | |
| 6 | Wearing the brace (hours per day) | | | | | | | 23 | 23 | 23 | 20 | 18 | 18 | during sleep | | | | | | | | |
| 7 | Control X-ray stop | | | | | | | | | | | | | | x | | | | | | | |

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Figure 13 - a fragment Brace



Figure 14 - Correct use of the brace scheme

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Figure 15 - Features of use of the brace to correct various cases of clubfoot stop children

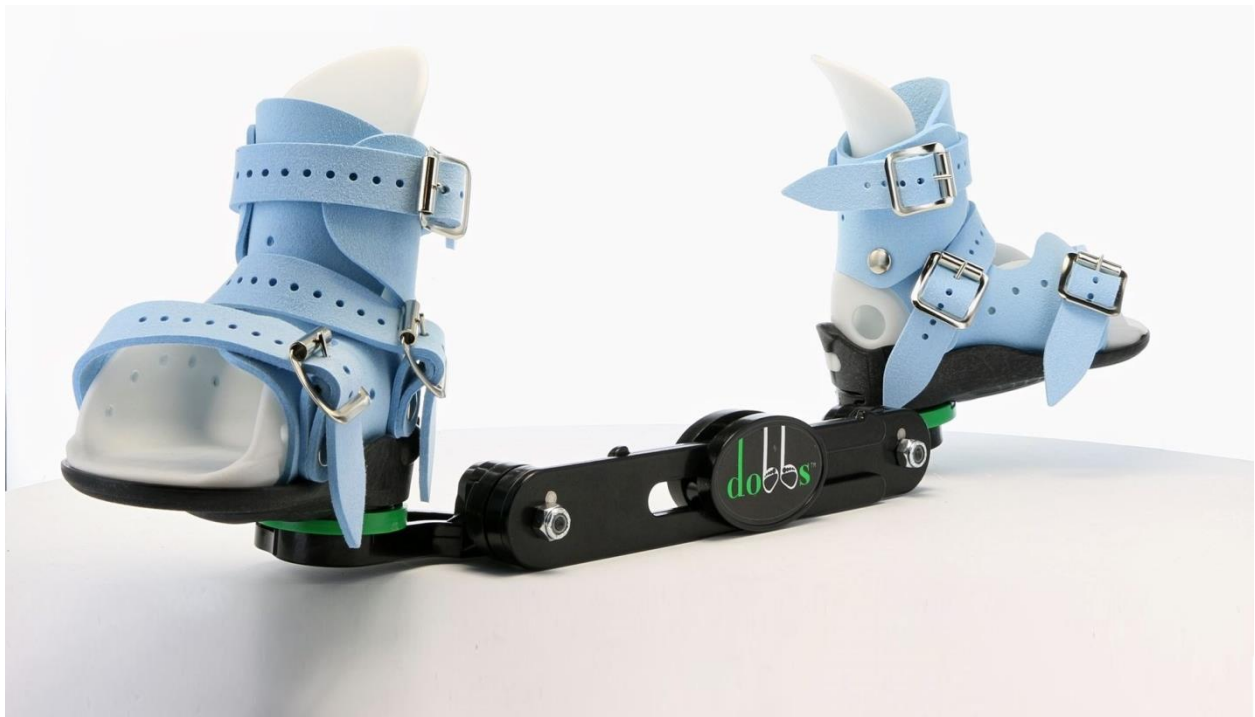


Figure 16 - Arrangement of clamps stop children in the brace

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Figure 17 - Detail of fixing the corrective product on the brace

What is intoing?

Intoeing (from the English «in» - Inwardly, «toe» - toe) - is an English term, not having so short as analog in Russian language. In domestic medicine this phenomenon is often called the reduced forefoot (CSPs), in the people - "Clumsy" (not to be confused with the clubfoot).

If in a standing position to look at your feet from top to bottom, then most people will see that they are directed either straight ahead or slightly curved outwards. However, in some cases, the arch of the foot inward toward each other, and this phenomenon is called "intoing". This violation is very common among young children, and in most cases it is itself corrected on its own over time. Only a small percentage of children remains a problem and requires treatment.

What causes intoinga?

There are three main reasons intoinga in healthy children: given stop, the inner torsion tibia and femur excessive eversion.

What is a given stop?

stop Present - this curvature, which is best seen when viewed from the child's feet. This violation is noticeable even in infants, and it occurs in the womb because of the pressure on the foot of the fetus. At the same time, in 9 out of 10 children born to a given foot, as they grow older the problem solved itself.

What is the inner torsion shin?

Internal torso twisting tibia called the tibia, linking the knee and ankle. As a rule, parents are discovering the violation, when the child begins to walk. It is understood that a small torsion in infants is the norm, and in the first year of life it is usually equalized. However, in some cases, this alignment is not sufficient to ensure that the foot when walking facing forward or slightly outward. These children intoing persists up to 6-8 years, because it is before the age of the bones of the legs continue to be straightened.

What is excessive eversion of the femur?

Excessive inversion - is the internal femoral torsion. It is worth noting that all children are born with a mild form of the disorder, but it usually occurs between the ages of 2-4 years after the child begins to walk confidently. During early childhood, the violation may be exacerbated.

How is intoing?

intoinga Treatment depends on the cause of its occurrence.

The above stop

A doctor can teach you special massage to stretch the child's foot and its gradual straightening. If the bend is too strong or if the massage does not work, assigned superimposition on the foot brackets or bus.

Doctors are still arguing about the optimal age for laying orthopedic appliances, but still most of them converge in the opinion that the presence of uncorrected curvature of 4-6 months to start treatment

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should be at this age, and it must end even before as the child begins to walk confidently. If even after correcting the child's feet are slightly crooked, it will not prevent him to run and play, and in general this condition is not accompanied by painful sensations. Only a strong curvature can create problems with the selection of shoes, which is the main reason for the use of tires and staples.

In this case, the bracket and corrective shoes alone are ineffective. But there is a treatment option that combines the orthopedic rod with shoes, which together are putting pressure on the foot, causing it to straighten. The disadvantages of this method are the relatively high cost and the reluctance of children to wear pretty uncomfortable and bulky structure. That is why many doctors do not recommend to treat the inner torso tibia in young children. Firstly, most people eventually she corrected on its own. Second, even if this does not happen, the doctors and scientists still have not established any connection untreated torsion shin with the development of arthritis or the inability to run and jump.

In rare cases, the main problem is the appearance of the curvature. In this case, the solution is surgery in which the bones are cut and turned inside out, and the foot is straight. However, in practice such an operation was made only a very small number of people, and the possibility of its implementation should be very carefully and discussed in detail with your doctor.

Excessive eversion of the femur

As a rule, excessive eversion femur runs itself. Most children stop rectified by the time they reach 6-8 years of age. staples or orthopedic footwear is usually ineffective in fighting this cause intoinga, and only in very rare cases with very pronounced curvature child needs surgery. However, again, the surgery method is considered only in the most severe cases.

How dangerous intoing?

Intoing usually does not cause any complications, even if it does not pass by itself. The only real and quite common problem is the difficulty in the selection of shoes, due to the curvature of the foot. It is this aspect and makes many parents resort to the help of doctors. Contrary to the mistaken belief intoing does not cause arthritis and clumsiness.

In extremely rare cases, the curvature of the tibia or femur is so serious that it really affects the child's appearance and requires surgical treatment.

Orthopedic orthosis - a external device curative and preventive effect which is intended to modify the functional and structural indicators and skeletal neuromuscular system (Figure 18 - 23). This definition, which offers Wikipedia. So, what is this brace? Simply put, this medical product necessary for unloading and support of patients, injured, operated joints or limbs.

The term refers to several types of orthosis devices:

- corsets;
- Washer;
- bandages;
- Special shoes and night splints at heel spur;
- Orthopedic insoles.

They are worn with unstable ligaments, after injuries and operations during active exercise, in diseases of the musculoskeletal system. The need for fixation and unloading of the joints (ligaments) can occur in the following cases:

- Paresis or paralysis (including post stroke state);
- Predisposition to the appearance or presence of contractures (including cases of CP);
- Congenital diseases of the musculoskeletal system.

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Figure 18 - Basic functions orthopedic ortreza

Functional products depends on its purpose. The main tasks that perform different types of orthoses. It should be borne in mind that one bandage or corset may have just two or three functions:

- fixing a certain area in the right position, its stabilization and unloading;
- recovery of locomotor function after limb and tissue damage (expansion, fractures, contusions, sprains and subluxation) or of surgical interventions;

- correct defects caused by congenital or acquired deformities of the musculoskeletal system (a kyphosis, scoliosis);
- prevention of spinal injuries and joints during intense exercise (sports strength training, active work of his hands, long driving);
- pain syndrome, which causes chronic diseases (arthrosis, arthritis, osteochondrosis, spondylosis and many others).

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Figure 19 - Classification of modern orthoses

All modern orthoses can be divided into three groups in terms of their purpose:

- dorsal (cervical collars, thoracic and lumbosacral braces, recliners, prenatal and postnatal female bandages and the like);
- orthoses upper limb (arm locks, wrist supports, elbow pads, orthopedic napalniki etc.);
- products for lower extremities (hip and ankle supports, knee pads, orthopedic insoles, shoe clips).

Medical devices of this type are prepared and the individual:

- ready and braces are made in factories in a wide dimensional range;

- customized orthoses produced according to the order in orthopedic casts workshop with the damaged portion.

According to the fixing level (degree of hardness) the following types of products:

- hard - immobilizers. A distinctive feature of this category - plate and metal ribs. They restrict movement and fix the joint in the correct position. As part of the technical equipment of the presence of metal and plastic fasteners, straps and fasteners, hinges, magnets, removable pelota. The purpose of wearing - the protection of the weak, the sick limbs from damage and subsequent deformations. Such products are used and during the postoperative recovery to normal accretion of bones;

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Figure 20 - Semi-rigid brace

- semi - the most popular and extensive group of orthoses in which there are many subtypes. They vary in shape and design details. Almost all are equipped with plastic or metal stiffeners. The articles

may have straps, buckles, Velcro fasteners, and other options for establishing the desired tension level. Possible functions: elimination of pain syndromes, unloading joints, injury prevention, treatment of diseases of the musculoskeletal system;



Figure 21 - Soft brace

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• soft orthoses - is bandages of stretch fabrics or wool, designed to relieve pain, reduce inflammation. Some models perform massage or

warming function, accelerating the recovery and kupiruya pain. They are useful for the prevention and the treatment of minor injuries.



Figure 22 - Soft brace of wool or elastic fabrics

Criteria for selecting the device-orthosis

If you are at the initial stage of the selection brace, do not rush. There are lots of criteria to help you find the best option.

Recommendations doctor - orthopedist

Modern orthosis for the back, knee, elbow or any other joint can perform a variety of functions. Its capabilities are directly dependent on the shape and structure, so these parameters should be determined by the expert.

Sign up for a consultation with an orthopedic traumatologist or (depending on the nature disease). Tell the doctor that you want to wear a brace. Clearly describe its purpose.

• If you need to stop pain syndromes, maybe you fit elastic belts. The absence of stiffeners gives

more freedom and ease. This is perfect for everyday wear.

• If necessary, support the joints and soft tissues in the right position you will register more rigid model. The degree of fixation depends on the specific requirements. The doctor will determine how many plates and stiffeners required.

• If you have problems with the skin, this item should also be discussed with a specialist. It is advisable to consult a dermatologist. After inspecting it determines whether it is possible to wear a brace in your case.

Record all of the recommendations of doctors, not to forget the important parameters of a suitable model. This information will come in handy when shopping.

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Figure 23 - corrective products for the correction of scoliosis

The size of the orthosis

To the medical device properly fulfill its function, it must sit on the figure. To achieve this, heeding some yardsticks, using soft tailor centimeter. measuring point depends on the type of orthosis:

- dorsal (different parts of the spine) - chest circumference, waist and lower back;
- neck - circumference of the neck;
- knee - foot circumference at two levels: 15 cm above and below the center of the patella;
- shoulder - chest girth under the armpits, arm circumference of the shoulder;

- elbow - arm circumference in the elbow joint.

conclusion

Remember that manufacturers use their own dimensional grid. Therefore, marking with the same Latin letters can not guarantee that in front of you are two models are identical in size. Always read the specifications and see dimensional grid.

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