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SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2019 Issue: 12 Volume: 80

Published: 30.12.2019 <http://T-Science.org>

QR – Issue



QR – Article



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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 1)

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.

Language: English

Citation: Blagorodov, A. A., Bordukh, D. O., & Prokhorov, V. T. (2019). About improvement of the union of the orthopedist and producers of corrective means for reduction of pathological deviations of feet at children (message 1). *ISJ Theoretical & Applied Science*, 12 (80), 1-14.

Soi: <http://s-o-i.org/1.1/TAS-12-80-1> **Doi:**  <https://dx.doi.org/10.15863/TAS.2019.12.80.1>

Scopus ASCC: 2000.

Introduction

UDC 685: 74 519.54

The Russian market of children's products for many years shows a positive growth rate of annual turnover, in contrast to the male and female segments of the market. The reasons for this phenomenon, experts call as a natural reluctance of parents to save

on children, forcing them in crisis years to provide, at least, everything necessary, and other natural trends:

- demographic growth;
- increasing requirements for the quality of goods for children;
- growth of incomes of the population;
- raising the awareness of consumers.

Today, more than 24 million children live in Russia, of which the most significant group are

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children under the age of 4 years – about 9 million people. Children aged 5-9 years make up about 8 million, 10-13 years – more than 5 million, and adolescents aged 14-15 years-more than 2 million. Experts note a possible increase in the number of children in the coming years, if the maternal population is maintained. The priority segments, where high growth of domestic production is likely, include: clothes for newborns, functional and bed linen, hosiery, knitwear, shoes for all eight age groups.

For the growth of these segments, an important role is played by: the positive dynamics of the increase in the child population under the age of 4 years „a" very demanding "fast-growing child's body, the natural desire of parents to acquire the best for children, without saving in "difficult times".

Range of children's shoes must focus on customers with different income levels, for this in the production of shoes of different quality leather can be used: expensive, such as a kid or cheaper - such as pork skin chrome-tanned leather, shoes that can be used to "exit", and, come home and take off to the legs of the child rested.

Also, the development of the range should be considered and that the girls in the Southern and North Caucasus Federal District is born more than boys, so that the shoes for girls should be produced at a higher level than the shoes for boys.

If the manufacturers of footwear for children will be guided by considering all anthropometric features, buyers will have the opportunity, depending on their financial situation to give preference to products of a particular price category made taking into account the climatic characteristics of the SFD and North Caucasus Federal District, the generic characteristics of the population of these regions.

One of the most important requirements of the Russians to buy shoes in general and children's in particular - its compliance with the latest fashion trends. Moreover, in recent years it has been expanding not only in the models for the students but also school children and toddlers. And this applies to both products of famous foreign brands, and domestic producers. Of course, there are different price niches on all shoe markets of the world, but especially our Russian, namely:

- First a huge sector of cheap shoes, a relatively small - the average cost and very small - expensive;
- second, no less important feature: a large fork between cheap shoes (up to 9 euros for a couple) and expensive (200 euros per couple). [1-2]

In the first sector work not only firms from South-East Asia, but also Russian wholesalers place their orders in China. Second, average - Russian factories and enterprises in Eastern Europe and Turkey, producing shoes under their own or licensed brands. In the third - world famous manufacturers and even fashion houses. At the junction - a collection of

European production of natural materials, adapted to the Russian market, but at a reasonable price.

Representatives of the most extensive of cheap sector, where a very high level of competition, striving to reduce the cost of its production at the expense of production to cheaper factories, as well as through the use of cheap materials and components.

Main part

It should be noted that now soared to the demands of parents hygienic properties of children's footwear, namely, the use of natural materials for shoe uppers, because many manufacturers of low-cost segment of the market, seeking to reduce the price, use of genuine leather only removable insoles and lining. To stop children stay healthy shoes for children, the sliders should be all thought out to ensure the satisfaction of all the requirements set out in the guests, and in the technical regulations.

If you just think that the growth of the feet, on average completed approximately 18 years of age, you can imagine how important it is to use shoes, corresponding to these regulations. During the leg growth is their transformation: when a child begins to crawl first, then he still remains crooked legs in the shape of the letter "O". With the disappearance curves of the legs, which is caused by growth curves having legs in the form of letter «X», when side knees on the inner side are in contact with each other. Up to about 6 years of age is growing foot small child, while maintaining the shape of «X». Studying walking, the child tends to equalize the body upright and the foot thus subjected to large loads. Feet and legs begin to develop as they begin to have a functional load on the muscles, ligaments and tendons begin to adapt to each other. At a time when a child begins to spontaneously get up, stop must always be free to develop. This also applies to the further stages of development and have older children. Shoes, from the hygienic point of view, must protect the body from cooling and overheating to protect the foot from mechanical damage, to assist the muscles and ligaments to hold the arch of the foot in its normal position, providing a favorable microclimate around the foot, help to maintain the required temperature and humidity conditions for any microclimatic conditions the external environment. Footwear must meet hygiene requirements: be easy, convenient, does not restrict movement, conform to the shape and size of the foot. Then the toes are placed freely and they can move. But it can cause a large amount of strain and foot problems.

The tight and short footwear complicates gait, leg presses, blood circulation, causing pain and over time changes the shape of the foot, it violates the normal growth deforms fingers, promotes the formation of difficult to heal ulcers, and in the cold season - frostbite, enhances sweating. Too loose shoes, too bad. Walking in it quickly tires, and there may be frayed, especially in the field of lifting.

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Dramatically decreases the area of support and stability. The trunk leans back. This deviation in the age when the bones of the pelvis is not fused, causing a change in its form, changes the position of the pelvis, which in the future may affect the generic function. This forms a large lumbar flexion. The foot rolls forward, the fingers are compressed in a narrow wear, the load on the forefoot increases, resulting in a flattening of the arch of the foot develops and finger strain. The high heel shoes is easier to tuck the foot in the ankle joint, it is easy to lose your balance.

The sole should bend well. Rigid difficult walking sole (bending angle is limited, the shoe heel with the heel shrinks), reduces the performance of ankle muscles, legs increases skin temperature and perspiration far as necessary to provide maximum mobility forefoot, so it is necessary to maximize the stability of the heel. The back should be firm, not permitting the foot slip. The back should be protected, tightly cover the heel, to prevent its deformation.

Winter footwear should necessarily keep heat inside. For this purpose use fur, felt, cloth, felts. On cold winter days is not lower than -10 °C students can wear shoes and boots on the porous rubber, insulated with synthetic fur (polyester cotton) or wool or felt pads. In chronic cooling leg spasms of blood vessels and develop serious malnutrition tissue legs due to difficulties in blood flow. During the summer months the most hygienic light outdoor shoes with a wide neckline - sandals, sandals, leather shoes or shoes with leather soles and uppers of textiles and other materials with a porous structure (mat, denim and others.). Such shoes promotes good aeration and rapid evaporation of perspiration due to the circulation of air around the foot (due to the selection of material, but more openwork pattern uppers).

In wet rainy weather comfortable rubber boots or shoes with soles of waterproof materials, rubber, rubber, nylon, etc. However, this shoe has a low air permeability, so wear it is only necessary with insoles, absorbs sweat: felt, woolen, and in summer - from wicker straw or cardboard. Ensure that the lining does not get wet. Footwear that meets hygiene requirements, helps to avoid unpleasant, sometimes painful phenomena. Thus, the shoes should not compress the foot, disrupt the blood-lymph circulation, prevent the natural development of his feet. Before the thumb should be 0.5-1 cm space. Hygiene Requirements for footwear for children and teenagers are made up of the requirements for the design of shoes, due to the peculiarities of the structure of the foot during the growth period, and the materials used for production of shoes. Size, style and rigidity bottom of children's shoes should not hinder the development of the foot.

Stop child at an early age is significantly different from the foot of an adult by the anatomical and physiological structure. For a child's foot is characterized by radial form, in which the maximum

width is marked on the ends of the fingers. The foot becomes a fan-shaped form. Another ratio heel and forefoot: children relatively long rear end (heel), which should be considered when designing footwear. The skeleton of the foot in childhood formed cartilage. Ossification only completed with the end of growth (approximately 21 YG), so stop the child can easily be deformed under the influence of mechanical action. In this regard, qualities such as thickness, flexibility of the sole, shoe weight and thermal insulation properties are subject hygienic norms.

Shoe height standardized depending on its type and kind. The bottom of the shoe (insole, sole, heel) must have optimal performance hardness: resistance (expressed in N / cm) bend along the line connecting the head and the metatarsal bones up to an angle of 25 degrees. "Flexible shoe and must be regulated to gusarikovoy shoe - 7 N / cm, to preschool - 10 N / cm, boy-school shoes - 9-13 N / cm, for maiden school shoes - 8-10 N / cm".

Heel artificially raises the arch of the foot, increasing its spring protects the heel from injuries on the ground, and also increases the durability of shoes. By relying on the unshod foot (without spikes), most of the burden falls on the rearfoot. The lack of heel is permitted only in shoes for infants (booties) until the child can not walk. The shoe with a heel cm 2 the load is distributed evenly between the front and rear foot department. The shoes with a high heel, i.e. greater than 4 cm, a large part of the load falls on the forefoot (at a height of 8-10 cm heel load forefoot 7 times greater than the background section). Therefore, heel height should be no more: for preschoolers - 5-10 mm, for students 8-10 years old - 20 mm, for boys 13-17 years - 30 mm, for girls aged 13-17 to 40 mm. Children's shoes should have a safe and convenient fastening on leg, do not hinder movement. For this purpose, various kinds of fixing of: lacing, "Velcro", straps, zip a zipper, etc. Open shoes without fasteners (such as "boats") is not acceptable for school shoes.. Mass shoe depends on the materials, structure and type of attachment. weight normalized norm shoes.

Currently, virtually no evidence-based planning methodology and changes in the species and the model range of the company based on market conditions, which would be based on the use of regularly conducted market research, market segmentation, positioning it of its products, the comparative competitiveness assessment of the products and similar products of domestic and foreign manufacturers. Domestic science for a number of years engaged in the problem of estimation of competitiveness, but the single methodological approach to its decision no. In particular, there is no scientifically based methodology for assessing the competitiveness of the shoe as a commodity, enabling enterprise-focused and manufacturer to change its assortment policy promptly. In this context, the problem of formation footwear assortment in the

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industry, the most appropriate to the needs and demands of the child population, which was built taking into account the competition in the market and production capacities, are particularly relevant and are both practical and scientific interest. For the revival of the production of children's shoes in the Southern and North Caucasus Federal District is first necessary to create a number of enterprises in the footwear industry following subjects district with a distinct socio-demographic situation and the employment in the republics of Chechnya, Dagestan, Ingushetia, Kalmykia. Newly established enterprises require government support, as own funds do not have enough, and borrowed are not available due to the high interest rates on the loan. It is necessary to solve common tasks in enterprises technological renovation industry, replenish working capital, improve the efficiency of scientific and technical support for the production of the manufacture of high-quality and affordable children's shoes. It is necessary to intensify the work of regional and municipal social welfare by targeting assistance to children and their parents, including many children and single-parent families. We believe that this problem is not only the private sector but also the state, because the trend in oil prices becomes a staunch character, which impairs the economy and not taking measures in the industry can lead to a decline in real annual GDP growth (due to lower level of profitability). This will lead to serious negative consequences in the economy. The positive development of the economy could be no shock if the

government had a "start" aid in the revival of light industry, as Today light industry remains a crisis, which explains unemployment and poor quality of life, especially in small towns, where until 1992 the town-forming necessarily functioned clothing, footwear, etc. light industry. To the place to note that the production volume of light industry only a fifth of today is produced by small businesses. There are paradoxical reasonable expectations on the proposals permits scale with restrictions on the volume of production of small enterprises Chamber of Commerce of the Russian Federation and the Russian Union of industrial enterprises, it is obvious in 2020 will increase significantly after the introduction of that issue volumes of footwear will grow by at least (!) 60-70% of the total production volumes. And again in the above development.

For some reason, this growth is not systematic? After all, there is the main thing: a vast market (the taxable base for imports of goods and products of light industry increased by 746 million dollars .; loyal customers; power; qualified personnel; competitive Hopefully, the Prime Minister instructed to meet at least part of the reduction in the market volume of the shadow (counterfeit, adulterated and smuggled) products, and domestic shoes find their consumers. In order to create understanding of the market range of footwear SFD and North Caucasus Federal District we have analyzed the range of children second shoe in the trading network of regions of these districts, which is given in Table 1.

Table 1. Structure assortment of children's footwear at prices

Manufacturers of footwear	types of shoes	Price categories, rub.							
		1400	1400-1900	1900 - 2400	2900 - 3400	2900-4400	4900-5400	5900-6300	6800-7500
"Antelope", Moscow	fromandalno-remeshkovye			x					
	Boots					x	x		
	Sport shoes				x				
"Kotofey" Egorievsk, Moscow region	tufli orthopedic				x				
	boots			x	x	x			
	Boots							x	
	Shoes				x	x			
"Thomas", Moscow region	Shoes for small children			x					
	shoes for small children			x					
Bombino ", Moscow	Shoes for teenagers			x					
	Boots teen						x		
	Shoes for teenagers					x			
"Bagheera" g. Voronezh	Shoes						x		
	boots							x	
	Boots								x

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RIL, g. Rostov-on-Don	Sandalno-remeshkovaya		x						
	Gym shoes	x							

Based on the analysis of the range of children's shoes are coming into the trading network, it can be concluded that, in general, for footwear demand is met at the expense of manufacturers in other regions. [3-4]

It is necessary to rehabilitate the production of children's shoes in the shoe factories, located in the regions of the Southern Federal District and SKFYU, as in this case, will be able to fully meet demand and, more importantly, taking into account the anthropometric features stop the children of these regions, and significantly reduce the provocation of pathological deviations and form healthy Lifestyle

The surface should be soft and easily take the shape of the foot. It is desirable to select a product completely from the skin (even sole). The sole new pair should be with the rise in the heel area (heel). Heel height - small, for children's shoes - in the region of 5-10 mm. Rise of the soles has to go somewhere from the middle of the foot. The toe should not be narrow. The new shoes should be comfortable, feel at ease walking. The materials used for sewing, do not cause irritation, allergic reactions. Shoes should not cause pain and rubbing. The elasticity of the sole - the average. The base should easily bend during walking. If a new pair of outsole is thick and does not bend, it is unlikely to be worn between the rigidity of the base change. From generation to generation master shoemakers constantly improve shoe fit the leg. Today shoemakers continue to enjoy this heritage, but the form of the shoe is supported at the expense of a more flexible and lightweight materials.

There is a point of view that the rigid structure only compresses the foot. This misconception leads to the fact that the market can see many models of shoes

that do not provide any protection and support. Under pressure from all shops marketers are more focused on brand value and less - on the quality of the landing leg. Then the doctor - an orthopedic shoemaker and an important pedagogical role: it depends on them whether the child will be comfortable in this shoe. We formulate the design features of shoes for children with abnormalities, namely:

the heel portion

The width of the heel portion as important as the length of the shoe. Ocher Tania, curves, volume - all critical factors landing leg. Strengthen the block in this field helps to semi-rigid heel. Shoes should ideally fitting heel. If the heel of the bonds tookai, the heel will not enter it until the end; if it is too wide, it will move out to the right and left, and shoes - to hang on the leg, deviating from onboard of movement, causing the child discomfort.

the toe

This part of the shoe should not squeeze the foot. On the contrary, well, when the child is able to straighten the fingers and the thumb does not cramped.

the length of the leg and landing

For each particular size manufacturer determines corresponding parameters (length of the shoe, the width of the heel portion, comfort factors). Shoemaker should take into account these features and offer the model that best fit the shape of the child's foot (Figure 1).

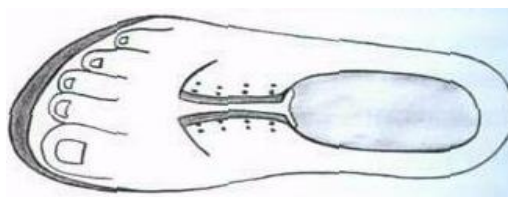


Figure 1 - Characteristics of the foot location in the length of the shoe

length and height

It is necessary to measure the maximum stack length and add to it at least one and a half size (one size equal to 6,66mm) for growth. Standard stopomery used today already account for this stock. If ankle boots reveal too wide, in this case, is not enough to add half the size and one that is 6,66mm.

Parents sometimes give way to the temptation to take the shoes for another size larger, to extend its life. This choice can be justified if the length, calculated from the above formula, falls midway between the two

dimensions. However, one should know when to stop: if the shoes are too large, the stop will be deprived of support from the sides, and on the vamp can be formed pleats that prevent walking - in a shoe child will stumble along, that is him again in this shoe is uncomfortable.

sock rise

If the toe is bent slightly upward, it contributes to the free movement of the foot when walking, prevents the child from falling, making wrinkles less

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noticeable on the ankle and protects the toe shoe from premature wear and tear (Figure 2).

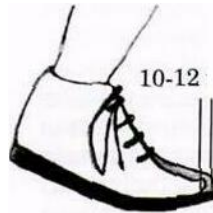


Fig. 2- Feature forming the toe of the shoe

feet of the entrance to the shoes

The hole should be large enough that the foot belonged to shoes without effort. The task much easier if unlace the boot to the very end, to undo all the buckles buckle and velcro so. N.

The following 28-gauge cut legs led shoes difficult entry into the shoes; boots Derby, on the other hand, the hole is wide enough, then there is a choice for parents, taking into account the child's feelings.

fastener system

fastener system must reliably fix the heel to the foot does not slide forward, and fingers are not pressing.

If the shoe lace, tension should be evenly distributed over the entire length, and enough clearance between bertsami provide a good tension. Buying shoes with Velcro, make sure that the mounting quality and sufficiently robust.

If the shoe is held on the leg buckles, tension is unlikely to be sufficiently accurate. Foresee the location of the perforations in the strap is not always possible. locking system shoe corresponding rules correspond exactly coverage insteps. If the shoe fixing lifting the foot, this is a serious mine and a high probability that a child in a shoe is uncomfortable.

socks

Recommended socks made of natural fibers. Avoid thick and coarse socks with a high content of synthetic fibers, which do not allow the foot to breathe and increases the volume of the foot. It is also important to make sure that the seam and the front of the nose will not rub the fingers. Finally, if the socks are great, they will gather in the folds.

lining

Ideally, the lining must be genuine, unground skin (foot close contact with the leather lining is a comfort factor), applications and decorative stitching - soft to the touch. Assembly joints should not occur in the painful areas (joints, ankle and foot rise). Flannel lining the top of the tibia prevents injury to sensitive areas of the foot bottom quarter of the feet, and under the tongue - softens the pressure attributable to the rise.

boot raznashivanie

First of all, make sure that the assembly seams will not chafe baby foot. To soften the skin, stretch it to the opposite sides of the thumb, especially strongly pressing the heel. When it comes to shoes, stretch straps.

New shoes recommended shoe initially for short periods before starting to wear it regularly.

raznashivanie near the ankle

If the shoe is low, bend the upper part of the tibia outward with your fingertips to the edge of the leg is not broken; for models with high bertsami uses a special horn.

Characteristic parts of footwear

Vamp - top part covering the lower part of the lifting and fingers.

Ankle boots - the top part, which covers the heel on the side and comes to lacing.

Tongue - piece, located under the lacing.

Backdrop - semi-rigid tab at the back of the shoe, between the leather upper and lining. Its function - to keep back part of the foot to walk the line and not allow the heel of the shoe to sink (see Figure 3).



Figure 3 - Characterization parts uppers

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Toe
Rigid insert between the leather upper and lining, which protects the fingers from shock and prevents the shoe to deform.

backcloth

Semi-rigid part, reinforcing the heel, which is inserted between the leather upper and lining. Fixes foot movement on the axis and does not wrinkle and sag shoe toe cap and backdrop arrangement shown in Figure 4.



Figure 4 - Location Features toe cap and a backdrop on board

gelenok
Rigid insert in the insole part that starts at the heel and ends approximately one centimeter in front of the beams line (she imagines crosses the foot at its widest part, at the junction with the fingers metatarsal). Gelenok attached to the bottom of the shoe the necessary rigidity and protects it from deformation. Place one hand on the front half of the sole, and the other for the heel of children's shoes and start to twist them in opposite directions - good gelenok resists this torsion, and practically does not change its original position.

Gelenok contributes to the fact that the transverse fold kotoroya formed on the block while walking, is just above the transverse crease of the sole, follows the curve of the foot. The back of the shoe naturally follows the foot movement. This helps her move forward and provide comfort to the child.

insole

Basic (vtachnoy)-piece insole made of leather or other material on which the foot rests. It absorbs the natural moisture and adopts the shape of the track.

Removable, (hygienic) footbed

Hygienic insole. It should be fine. Superimposed on vtachnoy. Recommended unpolished leather. Laying of a synthetic film leads to overheating of the foot and is not suitable for the manufacture of footwear for children.

orthoses and vkloanoya insole

If the shoe for children is offered with a fairly thick removable insoles, then replacing it with orthosis. or, in other words, orthopedic insole, saved her leg landing parameters corresponding to the selected size (which can not be said about the shoes with thin insoles). shoe depth will remain unchanged, the heel portion is still perfectly fitting heel. For the physician, podiatrist removable insoles can serve as a template in the selection brace. When the question arises about the need to use child orthopedic shoes.

thick

Thick rubber provides good dynamics during walking. The surface of the sole should be embossed so that the child is not slipped (Figure 5)

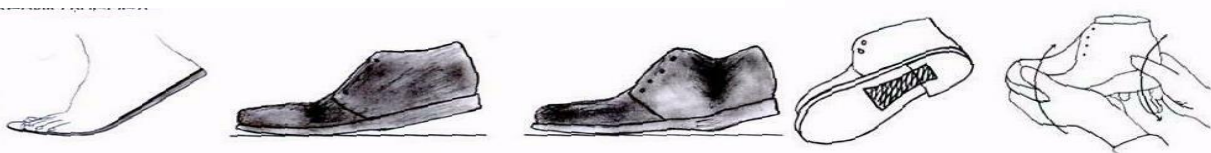


Figure 5 - particular location intermediate and bottom major parts of shoes

Characteristic of the modern models of shoes for children and their assessment to ensure comfort

Mary Jane

Mary Jane - children's shoes with a plunging neckline and a strap whose length can be adjusted in the field of lifting. This holds good shoes heel (Figure 6).

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Figure 6 - shoes with a plunging neckline and straps

ballet shoes

Ballet - Dance Shoes made of fabric, with a hard toe, which is held on the leg ribbons entwined ankle. The popular interpretation of this model is made mostly of a thin elastic skin, with a flat sole and a small heel. This shoe is very flexible and does not provide any support to the foot, cut-out, in boats, deep vamp is short and only go to the bottom of the paw. Ballet shoes are held on the leg due to tension in the longitudinal direction, because of which are gussed under the skin vamp fingers. [5-6]

Ballerinas perfectly fit a foot, but do not give her any support and impact protection. The structure of the shoe emphasizes the lightness and flexibility, which is why strengthening the details typical of other types of children's shoes, ballet flats available - in fact they take over some of the basic elements from the classic boats. Of course, the ballerina in pastel colors look great with multi-colored summer dresses, but children should not constantly wear them, except for special occasions (see Figure 7).



Figure 7 - Features such as dance shoes "ballerinas"

boots

Models with high bertsami, cover your ankles, provide good support and securely fix the kid's leg, boots are a great option for children up to size 26 to ensure his comfort (Figure 8 a).

shoes

Some models of shoes can rub the foot in the ankle area. In such cases, the upper edge of tibia must first stretch (Figure 8 -b).

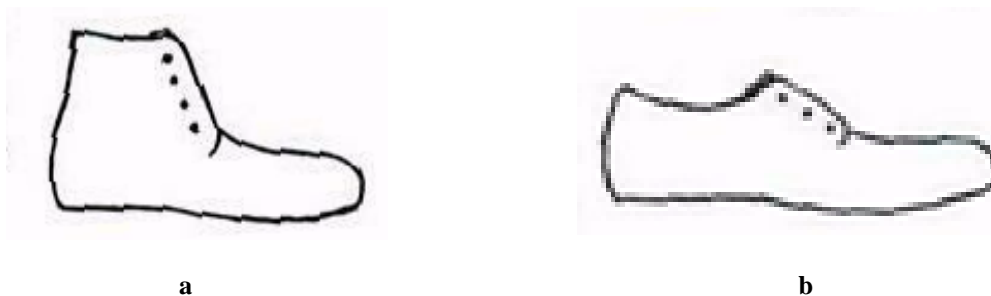


Figure 8 - Features boots and oxfords for dityey

Derby

Cut Derby bertsami their configuration and a wide entrance to the shoes makes them an ideal model for children. These shoes are well captures the foot in the heel area.

velobotinki

The base of the tongue is very low, at the level of the fingers. Support in the arch area is rather weak. At the same time the heel is fixed securely enough (Figure 9).



Figure 9 - Features velobotinok

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Boats with cherespodomnym Strap
The strap fixes the leg in the rise (Figure 10 - a).

pumps with bracelets



a

Bracelet securely locks the foot in the heel part.
However, it can rub the foot in the ankle area. Often, when walking shoes significantly behind on the sides of the foot (figure 10 - b).



B

Figure 10 - Features such as shoes Boats "with cherespodomnym strap" and "bracelet"

moccasins

Cut moccasins is not suitable for children's feet. These shoes kakihlibo devoid of elements that would adjust the tension in the lift area to secure the heel, causing the child discomfort.

sandals

summer can not do without this shoe. Sandals for the little heel should be closed in order to ensure at least minimal support and sock-tough enough to protect your fingers.

The cut and the structure of sandals should be well thought out: the support and protection of the foot are the main priority, and the location of the holes must be taken into account is the designer and an orthopedic doctor.

As yet to choose shoes for the baby? It would seem easy - buy the shoes or sandals bright with a beautiful buckle and - run, baby! But the aesthetic requirements for children's shoes should not obscure the rational criteria for its evaluation. Parents who pay attention only to the visual appeal slippers, risk to reward your child is not one dozen problems in later life. In the first years of life the bones and ligaments are still very fragile and easily deformed by incorrectly matched shoes or lack of exercise, but also their hobbies desire to prevent such deviations feet in children is not always justified there is a happy medium.

Almost all children are born into the world with healthy legs. The task of parents - to prevent that in the future due to the care of an illiterate kid or - incorrectly matched shoes of a child appeared with foot problems. To do this, you need to understand the laws of child development and take them into account when choosing footwear.

Approximately 6-9 months is a sharp jump in the development of the child: he begins to master the movement in the vertical position. These movements are very important, because they contribute to the development of speech understanding and active voice of the child, as well as the orientation of the train in the world.

By the 8th month of the child generally appear transitional movement for independent walking: kid gets up, sits down, sits, turns, shifts from one foot to the other.

Then to the 10 months he mastered moving forward with the support (better if it's my mother's hands, not man-made devices such as "walkers"), and in 11 months, a normal child takes its first independent steps.

In its first year of birth of the child should be able to go through 3-5 meters without support, overcoming small obstacles in the form of scattered toys and invented zavlekalochek parents.

Speaking of normal development, it should be borne in mind that the normal in 25% of children walking begins too early, and at 20% - there is a delay. And yet, if the child is too soon began to walk, it is often at increased motor excitability, or does not move on their own to 12 months, and at the same time quite phlegmatic and has an increased body weight, you should consult your pediatrician.

Important conditions for normal development of the walk are:

- Creating the appropriate environment: the presence in the space of a plurality of support points; the ability to move without the risk of damaging expensive polishing or mother's favorite vase; the presence of objects of interest to stimulate walking, for example, moving toys, etc..

- Hard top for your walk (it should not be a carpet or mattress).

- Daily complex gym and massage before a night swim.

- Active participation in training walking adult hands. Any skill (sitting, standing, trampling) need to patiently teach, sometimes spending a lot of time and effort. And, after all, remember that warm hands will not just help to learn something, but also contributes to a healthy psyche of the little man, and tender affection to his parents.

- The ability of the child to stand on the basis of the whole foot, without support, with feet should be parallel to each other; the ability to go forward on the whole foot and understanding of the child the word "go" "and" sit ", which is achieved by frequent repetition.

Another important condition for the development of walking shoes is.

It should protect the foot from damage, provide a favorable microclimate for the foot correspond to the

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anatomical and physiological characteristics of the child's foot.

The sole should be flexible and responsive in order to keep the foot could make the same movements as when walking barefoot. In general, it is very helpful to give the child to run barefoot, thus strengthening ligaments and muscles of little feet.

Do not wear shoes for children before the start go for a walk. Hereinafter, for the correct setting of the foot the shoe should be chosen with a strong backdrop, tightly holding the heel and protects it from skidding sideways and eversion.

The optimum height of the heel for a preschooler - 5-10 mm. Heel artificially raises the arch of the foot, and therefore increases its properties with springs; moreover, it protects the heel from the bruises of the soil and increases the durability of the shoe. [7-8]

The toe shoe must necessarily be wider than the heel, i.e. in toe shoes should be spacious. Narrow shoes can lead to foot deformities, to circulatory problems in this area.

When choosing a shoe size, you should also keep in mind that too large shoes is often the cause of abrasions on the feet skin.

Be sure to pay attention to the presence in the instep shoes.

The basic measure of size - length of the foot, which is determined by the distance between the most projecting point of the heel and the end of the longest finger. Unit - 1 mm. The difference between the numbers - 5 mm. Rules provides for the release of children's shoes are three kinds of fullness within each size.

It is also not recommended to take the shoes "in focus."

Light and soft, good shoes should be attached to the leg by means of all kinds of buckles, straps, laces to regulate the rise shoe. It is better if they are made of natural materials that provide the best performance and breathability ventiliruemosti vnutriobuvnogo space.

So, choosing baby shoes, you must:

- give preference to leather shoes with a wide nose section, adjustable buckles and a small heel;
- pay attention to the completeness and shoe size (between the big toe and the toe shoes should be a gap of about 1 cm);

- to try on shoes should be standing on both feet. Measure the length of the foot of the child must be at least once every three months.

All these parental care will be rewarded with a healthy musculoskeletal system of the foot of the child.

For those children who already have foot problems, we recommend the use of corrective anatomical insoles and a special set of exercises. The earlier such treatment is begun, the better the chance of a good result. It is only important to choose the right doctor - orthopedist and strictly follow its recommendations.

How to measure the child's foot to determine the size

At home, standing under load, on paper, circle child stack and measure the length of the foot from the heel to the 1-th finger, adding + 5 mm. According to the table to find your size, suitable only shoe shoe "Perseus": (table 2)

Table 2 - Methods of determining the length of the foot child

Shoe size "Perseus"	+ Foot length of 5 mm (cm)	Shoe size "Perseus"	Foot length plus 5 mm
17	11.5 cm	27	18.0 cm
eighteen	12.0 cm	28	18.5 cm
nineteen	12.5 cm	29	19.0 cm
twenty	13.5 cm	thirty	19.5 cm
21	14.0 cm	31	20.5 cm
22	14.5 cm	32	21.5 cm
23	15.0 cm	33	22.0 cm

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24	15.5 cm	34	22.5 cm
25	16.5 cm	35	23.0 cm
26	17.0 cm	36	24.0 cm

In addition to size, children's feet are sketchy and volume.

In the production of shoes, "Perseus" to consider individual fullness:

1st fullness - a narrow foot, 2nd fullness - wide foot high-rise that ensures that the natural proportions of the shoe the foot [9-10]

Do not forget that children's shoes, in contrast to the adult, should have a broad nose piece and adjustable mounting on foot (laces or straps).

So in the period of intensive growth of the organism - in 3 and 6 months, 1, 3 and 5 years - the differentiation of the shape and structure of bones. Fragile bone apparatus, United still too extensible cords and weak muscles cause significant fluctuations in the height of the longitudinal arch of the foot under load. This contributes to the static foot deformities, which can lead to breakdown of statics and kinematics. Children this age are walking in the period of study there are conditions for the development of ploskovalgusnoy deformation as to increase the area of support and retain the body in balance child straddle, relying on the internal parts of the foot. The widespread opinion that flat feet in children under 6 years of age is a physiological and does not require correction is not entirely correct. It is up to 5-6 years, when it is not closed in terms of ossification easier to correct or prevent the development of deformation of the feet and form the correct gait.

The fact that children up to three years is not flat feet - not true. It may be congenital or may result from dysfunction of the central nervous and endocrine systems, due to infections and a host of other reasons. The most harmful - not pain and strain, and their consequences - disruption of the entire musculoskeletal system, including the spine. Curvature of the spine in a child can be avoided or at least to stop its development, if the time to begin treatment. The foot is formed to 5 years of age. The earlier found flat, the easier it is to cure. After five years of his life to do this is difficult. But by starting treatment, it is possible to improve the condition of the foot, flat feet to stop the development and conduct prevention of spinal deformities. It should show the child orthopedist, who quickly tired of walking and asking for a hand.

Pay attention to the heel of the child: whether it is vertical, not zapalivaetsya whether in one direction or another. From an early age, the entire period of

intensive growth of the organism - in 3 and 6 months, 1, 3 and 5 years - it is necessary to visit a podiatrist. Self-treat the child is not necessary. Massage, physical therapy, corrective devices (orthotics), therapeutic exercises prescribed by a doctor, which takes into account the age, severity of disease, and also considers the root cause of flat feet. As for the orthopedic insoles, they should be made strictly individually, taking into account the anatomical, physiological, and static and dynamic functions of the child's foot. Children's shoes should be with a small heel, hard, and spring backdrop individual arch support - a sort of "stones" and "cones" underfoot. Only instep spring type will provide the correct formation of the arch.

How to fix a flat? Visually, the inner surface of the stack will have an angle directed to the opposite foot (> <). In other words, do not try to put the child in the extreme (classic) position of choreography, as long as these joints do not get stronger. At the beginning of the "Teach" heel be vertical and the foot, "feel" comfortably on the outside. Initially, it is necessary to properly form the outer arch of the foot. He is just the guarantor of the proper formation of the rest.

Flatfoot and clubfoot today one of the most common defects are closely interrelated. Flat without giving can be found, without bringing the flat feet - are the exception rather than the rule. Needless cast contributes dip in the heel. And it is - an indicator of flatfoot.

And yet, one is very, very important detail, which we have already spoken. It is necessary to correctly choose the shoes, and then refine it themselves.

Exercise is of course a huge stimulant proper formation of the foot, but no matter how much you do not make them, the number of repetitions is - drop in the bucket compared to the number of steps in the "wrong" shoes, which our kids are doing during the day.

Judge for yourself. Normative range of motion on the foot pod for the day stay in preschool educational institution (DOW) (required in sandals!):

- 3 years - 9000 - 9500 movements
- 4 years - 10,000 - 10,500
- 5 years - 11,000 - 12,000
- 6 years - 13000 - 13500
- 7 years - 14,000 - 15,000

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What? ... For comparison, we adults you do about 5000 at a rate of 10,000 movements in den. Vyhod one:

1. Organize a useful game
2. shod with the "right" shoes.
3. Return to the rope.

How to modify the shoes

Try to find shoes with solid soles or low heels. The problem is not so much the spikes (even "pin" can be useful), but in its form and location, and most importantly in the absence of support under the base of the fifth metatarsal, which plays a major role in shaping the arches of the foot. (This bone on the outside of the foot, approximately in the middle). Podoshva should not be wide. The smaller it appears beyond the top, especially the heel, the better. What parents need to realize or master - shoemakers, engaged in the production of orthopedic footwear. [11]

1. Cut away the heel angle 5-10°. Remove blockage constructive shoes.

2. Determine the cut angle (α) and make the cut from the base to the top or near the top edge of the sole (depending on its structure). It helps the muscles to take the foot.

3. Fillet outer side of the front portion of the sole and the remaining part of the heel. For smooth rolling and forming the outer arch of the foot.

4. Glue the insert under the heel (from the middle at an angle 25-30°). For the formation of domestic and cross vaults by twisting of the forefoot in relation to the rear.

5. Glue the box under the metatarsal heads 2-4 (2-4 bases under the toes). For the formation of the transverse arch and training of the thumb. Note: for the reduced foot top horizontal, flat and allotted to - convex. 3-5mm thicker inserts, depending on the age and the degree of flattening of the foot.

And now, what can you say about the top of the shoe friends, co-workers? I am sure, in this case, we will be more verbose.

Believe me, children who are not yet interested in (at least 6 years old) dressed fashion that you will present them well. Harder another. It is very hard psychologically, "spoil" a new thing, bought their own money! Especially when someone, as such there appear, from the family regularly releases to your e phrase "nonsense to be engaged, it would be better done", "All go and nothing," "All the same, it will not work", etc.

You have to choose. Either you "mess up" shoes, or it will cripple your children and legs! However, there is another way - to organize (not to be confused with orthopedic) production of physiological footwear. In our opinion - the most reasonable solution. But not all the strength.

Life Saving handiwork of drowning! Modify, shoes, develop physiological movements and you will

see great results. Many models of shoes, of course, will not be allowed to perform all of our recommendations. Shoes just fall apart. Take at least a part of it. It will still work!

We will not paint the physiological problems due to the limitations of our mobility with your toes. Say one. Related walled and narrow space of the shoe, they contribute to the formation of defects of the foot, instead of its direct purpose - to stimulate its proper development.

Sumptuously! Almost ideal form of shoe uppers. Pay attention to children's Gym shoes. Just beautiful! It remains only to remove the joint from the outside and a little change pyatochku. But even in this form, they are much more useful and modern sandals cheshek. And it might help to correct clubfoot and flatfoot in children. Theoretically it is possible. Main identify the root cause of the defect. Then it will be easier to pick up a package of measures for correction.

Now the problem of the prevention and correction of deviations in the health of pre-school children has become particularly relevant. This is primarily due to the large number of preschool children (84.9%) with different health deviations [12]. In this regard, it is increasing the value of the organization of the preventive and corrective orientation directly in the conditions of preschool educational institution (DOW), where the child is an almost daily basis, and where, consequently, it is possible to ensure timely and regular exposure. However, according to RB Sterkin and Y. Korkino current system of rehabilitation of children in preschool practically not formed. Marked dissociation of the medical and teaching staff in the provision of correctional help to children, there is clearly a lack of awareness of teachers and parents in the corrective and preventive development issues, education and training of children. [12] Despite the declaration of the traditional importance of early detection and correction of deficiencies in mental and physical development of children, correctional and pedagogical activity has not become a priority in the actual practice of the education system, although it should be regarded as a mandatory component of the state standard of education. [12] During the organization of the preventive and corrective direction in a preschool special attention should be paid to the prevention and correction of violations of the musculoskeletal system (postural defects, flat feet), because they have the largest share of from the functional abnormalities. In particular, of the study found that 67.3% of children of the senior preschool age have flat feet. [13] Flat feet is considered as a violation of the functions of the foot, which is outwardly manifested in the deletion of the arches of the foot, which is caused by weakening of the muscles and ligaments stretch it [13]. Other authors under the flat-footed understand the deformation of the foot, is to reduce the height of its arches in conjunction with

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pronation contracture supinationnoy heels and forefoot. As a result, the medial edge of the foot is lowered, it pathologically ligaments stretched, the position of the bone; muscle-insoles, which play an important role in maintaining the arch of the foot, weaken and atrophy [13].

The foot is the support body foundation, so it is natural that a violation of this foundation is necessarily reflected in the formation of the growing organism. Changing the shape of the foot, not only causes a decrease in its functionality, but also, more importantly, changes the position of the pelvis and spine. This adversely affects the function of the latter and, consequently, posture and general condition of the child. Insufficient development of the muscles and ligaments stop adversely affects the development of many movements in children, leading to a decrease in motor activity and can become a serious obstacle to many sports. Thus, strengthening of the musculoskeletal system, and in particular the foot, is of great importance to eliminate abnormalities.

It is interesting to note that the formation of the right arch of the foot in children, as well as the prevention and correction of functional impairment

attached great importance to the national traditions of education. For example, in the preparation of the child to the development of skills and pryamostoyaniya walk to strengthen the muscles of the foot has been taken lightly poshlepyvat on the soles of his feet, saying various ditties jokes fragments of the tales.

And although much of today is lost for centuries selected by the invaluable experience of folk pedagogy, such pestushki, nursery rhymes, rhymes, so-called small folklore genres, reflect the tradition and philosophy of its creators, they were right and justified.

At preschool age, the foot is in a stage of intensive development, its formation is not yet complete, so any adverse external influences may lead to the occurrence of certain functional disorders. However, in this age period the body of children distinguished by high plasticity, so it is relatively easy to suspend the development of flatfoot or edit ego by strengthening the muscles and ligaments of the foot.

Successful prevention and correction of flat feet are possible based on the integrated use of all means of physical education: hygiene, natural and health factors and exercise Table 3.

Table 3 - Prevention and correction of flat feet in children by means of physical education

Means of physical education	patterns of use
hygiene factors	Health shoes and the right of its selection in accordance with the purpose. Hygienic washing of the feet with cool water before going to bed, after walking barefoot, etc.
Natural-health factors	Walking barefoot on natural dirt track (grass, sand, gravel, etc.), Equipped on group sites in the warmer months, on the artificial dirt track (boxes of washed river pebbles) in the cold season. Tempering procedures to stop (salt track, wiping feet, Contrast pouring down, "Riga" method, intensive quenching stop) in accordance with the individual characteristics of children and the absence of contraindications, if medical control
physical exercise	Special complexes of exercises to strengthen the muscles of the foot and lower leg, and the formation of the arches of the foot. A special feature is the use of imaginative exercises names ("Kittens", "Ducklings", "Funny Zoo" and other exercises with objects (hoop, ball, rope). One set for two weeks forgets and runs in the classroom for physical education, and the next two weeks is included in the content of the morning exercises. The next four weeks is used another set. Then for another two weeks in the gym after a nap repeated previous complex.

conclusion

Work on the prevention and correction of flat feet in children in preschool should be carried out systematically. It includes an annual diagnosis of the arches of the foot in children, creating fully develop sports and recreational environment, providing the recommended motor mode, hygienic conditions and the proper organization of physical education and valeological education, namely:

- ❖ Annual diagnostics of the arches of the foot in preschool children should be carried out by medical personnel DOW using objective methods. On the basis of the diagnostic results generated recommendations on the use of physical education for the prevention and correction of foot deformities.

With children who have identified functional failure stop, or flat, should be carried out individual work, including physical therapy sessions:

- ❖ Creating fully develop physical culture medium that provides for the availability of equipment and inventory which promote muscles of the foot and tibia, and have a positive influence on the formation of arches of the foot (ribbed and inclined board, beveled surface gymnastic wall, rope ladders, hoops, balls, rope, massage mats, gymnastic sticks, gymnastic mats, bicycles, pedal which have a tapered roller for forming the arch of the foot, special tr nazhery). It is necessary to provide children with the possibility of using such equipment. Furthermore, during the warm season should be possible systematic

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use natural health factors, such as on group equip natural ground track sections (sand, pebbles, small gravel and the like).

❖ The successful solution of the tasks properly improving physical training possible on the basis of joint activity of the teaching staff of educational institutions and parents. To attract parents to participate actively in the work of preventive and remedial focus, you can use various forms of communication with the family: parents' meetings, thematic consultations, educational conversation, open doors, open classes in physical education, stands (corners) for parents-advancing folders etc. This will ensure continuity in the development and training of a child in a preschool and family, as well as raise the awareness of parents in the corrective and preventive parenting issues:

❖ The preservation and strengthening of health of the younger generation should be allocated to a special place valeological education rights. One of his tasks - forming the necessary knowledge and skills on the use of physical education, and in particular the hygiene factors, the natural forces of nature, exercise in the prevention of various diseases and functional disorders. In this connection, it is expedient in the course of employment on valeology pay attention to

the study of the topic "Structure and function of the foot. Prevention and correction of flat feet."

❖ Submitted a list of prevention work and correction, flat feet, providing comprehensive utilization of physical education, are effective and can achieve a significant reduction in the number of children with foot deformities. On the importance of preventive footwear we have said, and it is an axiom. The effectiveness of corrective components will be discussed in Part 2. Let our children will easily come to life!

Unfortunately, this expectation would be possible if domestic manufacturers would be interested in the production of the entire range of shoes for eight age and sex groups in sufficient quantities, which is now completely absent and there is an acute shortage in all groups. Municipal, regional and Federal authorities together with producers should sit down at one round table and agree among themselves on the measure of responsibility of everyone for the current situation with ensuring children fit and in accordance with the full-growth assortment – I really want to believe that such a reasonable decision will happen and our children will cease to acquire chronic foot diseases, remaining disabled for many years due to the fault of these structures. This shouldn't happen.

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