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Determination of the Level of Flatfoot in Children and Its Elimination

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Annotation. According to statistics, congenital flatfoot in children is 3%. But as a result of wearing the wrong, cheap shoes, signs of flat feet are observed in 60-70% of children under 6 years of age. Flat feet abroad can be detected using computer pedometry (photo of footprints). The cost of this technology is much more expensive. A device has been developed that determines the level of flat feet. In the method proposed by us, the child's legs are diagnosed in strain sensitive elements, and the degree of the disease is fully determined.

Keywords: flat foot, support movement system, orthopedic duck, plantar pressure scanner, foot analysis, walking analysis, meter sensors, foot deformation, anatomical step, X-ray examination of the feet.

Introduction part. Today, flatfoot is one of the most common deformations of the musculoskeletal system. In addition, 90% of flatfoot is acquired, and only 5% – occurs through birth defects. The position of the foot reflects the general condition of the whole organism. Therefore, it works in a regular place and can cause many problems in sedentary people. Due to the movement and weakness of the leg muscles, flatfoot develops. Flat foot – in the disease, deformities of the foot occur. Currently, almost half (45%) of adults suffer from the condition.

There are the following types of flat foot disease:

Longitudinal flat leg-the longitudinal arc of the foot is flattened, and the foot touches the ground with almost the entire surface of the footrest, the length of the foot increases;

Transverse flatfoot-while the transverse arch of the foot is flattened, the front part of which rests on the skulls of all FIVE Palm bones, the length of the Toe is the shoulder-shaped spread of the palm bones, the outward deviation of the first finger and the hammer-shaped deformation of the middle finger occurs. [1]

In rare cases, flat feet can be congenital. The disease develops due to disorders in The Shape of the legs.

Signs that appear in flat foot disease in adults and children:

- rapid leg fatigue while walking;
- observation of weight, gravity, swelling in the legs in the evening;
- shoes come to poor quality very quickly and are eaten from the inside;
- wearing high-heeled shoes is difficult (in women), pain and discomfort appear;
- leg width (on a transverse flat leg) or length (on a longitudinal flat leg) increases;
- pain occurs in the thighs, legs, back of the waist.

To determine the methods of treating flat feet, it is recommended to undergo the following examinations:

- full inspection;
- X-ray examination of the legs;
- plantography of the legs.

Flat foot treatment

Only in children can fully cure flatfoot. For adults, it is impossible to completely get rid of the disease. The treatment of the disease is the same for both children and adults. Speaking about treatment methods, it is advisable to say that it is necessary to start treatments with the detection of flatulence. As soon as the first signs of acquired flat feet begin to appear, healing massage, saline healing baths are prescribed. Shoes should of course be supinatory or worn with orthopedic patchwork laid. When talking about shoes in

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general, it is not recommended to walk in only one shoe during the day, it is advisable to replace it once or twice. While taking shoes with multiple supinators presents a problem, the use of a single orthopedic duck in a few simple shoes also ensures a gradual recovery from the disease. In this disease, the surgical method is used in very rare cases. [2]

It should be remembered that flat feet are a disease that can heal for a long time, requiring patience and satisfaction. This disease can be completely cured in children without complications. Even in adults, no complications are observed if treatment is carried out continuously.

There are the following types of treatment:

Figure 1. Methods of treating flat feet.

Main part. Ways of treating flatfoot were considered by using orthopedic patches of the above. The final result was that a flat foot detection device and software would be developed. Through this, an orthopedic patak is prepared on a 3D printer, which is suitable at short intervals.

The first step in treating this disease is to determine the degree of the disease perfectly and completely at the checkpoint. In this regard, we will be helped by a device called the Plantar pressure scanner. [3]

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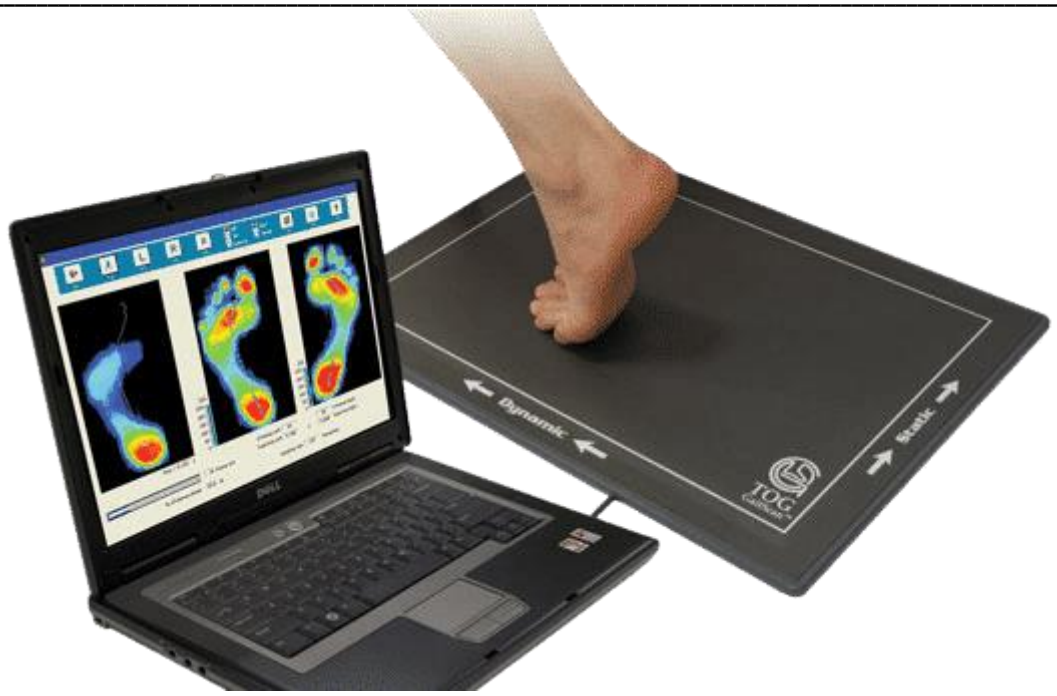

Figure 2. "Plantar pressure scanner" device.

A Plantar pressure scanner is a computer-aided medical measuring device for recording and analyzing the distribution of plantar pressure while standing and walking. This device detects high pressure points on the soles of the feet while standing or walking. It has the ability to analyze static, dynamic, physical measurement and balance tests with unequal speed and high accuracy. The powerful software of this product allowed specialists to accurately measure and examine any point or area of the soles of the feet. [4]

This device can also be used by doctors and orthopedists when knowing the level of flat feet, providing medical care for it and planning a treatment plan based on the results of a foot examination. For the diagnosis of compression defects, the manufacture of medical insoles, all information for the manufacture of templates is provided by this device. Since the data is stored digitally, patient monitoring is provided by re-measurement at specific periods.

It uses the most modern technology pressure sensors, which work with a long time and accuracy. There are more than 2,200 pressure gauge sensors with standard density and customization. The device provides software and at the same time complete information to meet all diagnostic and therapeutic needs. This provides an opportunity to compare the results of individual tests and better consider the treatment process. [5]

At the design stage, combining the results of this device ensures the production of insoles with a 3D printer.

Sensitive to the high sensitivity of the device, children's feet can be scanned and checked while running or walking. Thanks to a special computer program, two different measurements of a person are made, those at the moment of stopping and moving. As a result, the distribution of pressure in the leg is observed. With the results of the foot analysis, special diapers are produced in accordance with the human foot structure, daily activities and the sport in which they are engaged.

Results and discussions. Orthopedic ducks, which are prepared after computer analysis. After computer analysis, the inner soles produced to ensure the correct and anatomical step of a person, opening the load distribution of the foot, are “orthopedic pataks”. These insoles are specially manufactured taking into account the Post-analysis data of a person. In other words, these insoles, made in contrast to ready-made diapers of standard size, are aimed at the problem of the human foot. It cannot be used by another person with the same shoe size. [6]

We can list situations, inconveniences and diseases that may require orthopedic diapers:

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It is recommended that these orthopedic patches be used in flat foot problems, high base and ankle diseases of the foot, congenital foot problems, shoe problems, occupational foot problems, problems associated with the athlete's feet, pain of other areas of the body without cause (pain in the waist, knees or thighs).

Good insoles are those that are specially designed insoles. The recommended healing resource for you should be convenient for you and not cause any problems. Only then can you effectively overcome the disease at fast opportunities. The importance of foot analysis and walking analysis is all the more important in eliminating the disease faster.

Foot analysis is essential for the health of the steps a person can take for their body. Foot analysis, which is very important to protect our feet, which are our most mobile organ during the day, allows us to prevent foot deformities. With foot analysis, you can prevent or treat heel pain, ankle sprain, movement of the foot in or out, and flat foot. Foot analysis is a program that can be done for anyone over 3 years of age. With foot analyzes carried out in childhood, it is possible to identify current problems very early and start appropriate treatment. [7]

Walking analysis is based on performing the patient on a flat platform equipped with pressure sensors. This task is fully carried out by the above-mentioned “Plantar pressure scanner”. With pressure sensors, the data on the patient's foot panel is displayed on the computer screen as a pressure map on the sole of the foot. In other words, in a way, the patient's trail is removed. In this way, if a person has a print disorder, it will be detected.

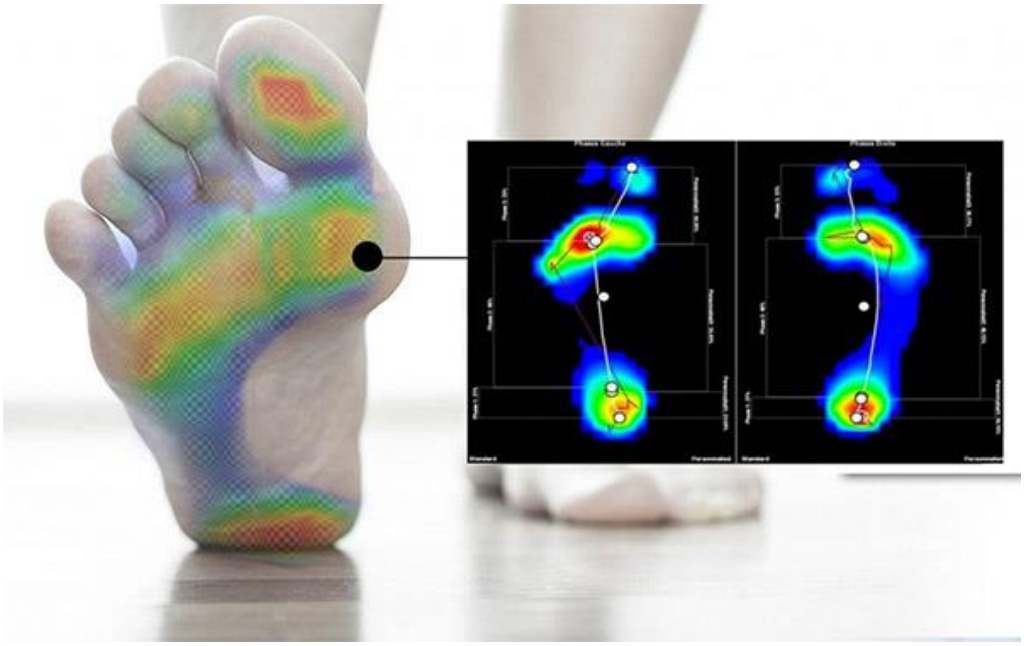

Figure 3. Foot analysis and appearance of walking analysis.

According to the degree of pressure disorders, Special Orthopedic patches should be given. There are many mass-produced orthopedic Ducks on the market. However, this is not very useful, since they do not correspond at all to the shape of the human legs and the degree of disease. The best solution is to use personalized insoles. [8]

Literature analysis and methodology. Many researchers have conducted research to determine the extent of flat foot disease. There are several data and manuals on devices that determine the degree of flat foot disease. This literature included the latest experiments, methods and guidelines in the field of automated new technologies.

For example, literature [1] is an important guide that supports faster production and installation of automated new technologies. The book outlines best practices, techniques and guidelines in the field of automated technology.

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Literature [2] also provides information on automated technologies to improve human living conditions. The book highlights the new technology automation created, the control of automated technologies in the labaratory, features and good practices.

In literature [3], however, information is given about the basic device in the operation of the apparatus, which determines the level of flat feet. But there are no methods for continuous connection of hardware to a 3D printer. The book outlines practical training and guidance on the principle of operation of the Tenzo sensitive element.

Literature [4] shows information about the structure and principle of operation of the device in the jarajon to determine the level of flatfoot. Practical instructions on how to determine the degree of the disease through the image of the footprint are given.

Literature [5] whereas flat foot disease is associated with ways to eliminate painless, hassle-free disease from patients, the definitions of methodologies and experiments in the creation and use of automated technologies are presented.

These literature are important resources to help create and use new automated technology. By using them, you can effectively study the processes of implementation and management of automated new technologies.

Conclusion. It is of great importance to correctly and perfectly determine the level of foot analysis (flat footedness) in adults and children. With foot analysis, we aim to: identify and treat areas of excessive pressure, such as coughing; detect disorders such as walking, pressing; eliminate the disease with personalized diapers; identify ankle-related disorders and disorders. It should be remembered that flat feet are a disease that can heal for a long time, requiring patience and satisfaction. This disease can be completely cured in children. Even in adults, no complications are observed if treatment is carried out continuously.

References

1. Yusupbekov N.R., Muhamedov B.I., G‘ulomov Sh.M. Texnologik jarayonlarni boshqarish sistemalari. - T.: „O‘qituvchi“, 1997. — 704 b.
2. Artikov A. A., Musayev A . K . , Yunusov I.I. Texnologik jarayonlarni boshqarish tizimi: — T.: 2002.
3. Гуселевич А. В. Медитсинский справочник тренера. М. ФиС. 1981.
4. Harrison’s Principles of Internal Medicine-19th Edition – 2015
5. Гордиенко А.В. Госпитальная терапия, Санкт-Петербург.: СпецЛит., 2016, 533 С. Учебник.
6. Yusupbekov, N. R., & Yusupov, A. A. (2020). Review and comparative analysis of modern devices for level gauging in checking system and industrial processing control. International Journal of Advanced Science and Technology, 29(9), 5370-5380.
7. Yusupov, A., & Gulhayo, A. (2023). Analysis of the Efficiency of the Cold Air-Conditioning System on the Quality Indicators of Grain Products. Texas Journal of Engineering and Technology, 19, 56-61.
8. Mannobjonov B. Z., & Mashrabov Sh. D. (2022). Using Android Mobile Application for Controlling Green House. Texas Journal of Engineering and Texnology 2770-4491.