

## REQUIREMENTS FOR THE PROPERTIES OF SHOES, DEPENDING ON THEIR SPECIFIC PURPOSE AND OPERATING CONDITIONS

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**Abstract:** *this article provides an overview of the literature and sources on the method of developing the design of a rational internal form of everyday shoes, as well as sets out the requirements for the properties of shoes depending on their specific purpose and operating conditions.*

**Keywords:** *dimensional and complete assortment, rational footwear, plantar surface of the foot, insole inserts, operating conditions, hygienic requirements, internal shape of shoes, functional requirements.*

The problem of providing the population with rational shoes has always been in the focus of attention, both shoemakers and doctors, since the non-compliance of shoes with the requirements imposed on them and the lack of necessary properties is one of the main causes of discomfort.

The concept of "rational footwear" is often invested with different content, which is explained by the different requirements imposed on the properties of shoes, depending on their specific purpose and operating conditions.



Fig.1. High-comfort shoes

The rational internal form depends on the following factors:

- anatomical structure of the foot;
- functional changes of the foot in statics and dynamics;
- morphological (age-related, pathological, etc.) changes in the foot; laws of transition from the size and shape of the foot to the internal size and shape of shoes;
- the requirements of modern fashion.

The shoe, as the main equipment for the manufacture of shoes, determines the appearance, shape and dimensions of the inner shape of the future shoes. In order for shoes to meet the necessary comfort requirements when designing the inner shape of shoes, it is important to ensure a scientifically based transition from the shape and size of the foot to the

geometric parameters of a rational shoe, taking into account the anatomical and physiological features of the structure of the foot, its biomechanics.

One of the important tasks facing the shoe industry is to provide the population with comfortable and rational footwear. No less important is preventive footwear, which prevents the development of various types of foot deformities. These shoes, as well as rational ones, are made in mass production conditions, but have their own design features.

Comfortable, comfortable, high-quality shoes that meet the requirements of hygiene, ecology, do not provoke pain and foot diseases are considered rational. The parameters of such shoes must correspond to the conditions of their operation, purpose, season of socks, fashion trends and other factors. Therefore, functional, operational, social, ergonomic and aesthetic requirements for footwear products can be distinguished [3].

The most important requirements are functional. First of all, shoes should fulfill their main task - protecting human feet from cold, overheating, mechanical damage, moisture, dirt and other negative factors.

From the point of view of ergonomics, the product must correspond to the physiological, anthropometric, hygienic and even psychological characteristics of a person. In shape and size, shoes should repeat the parameters of the foot. The foot should not slide, while the product should not squeeze, squeeze the leg, interfere with movement. Shoes should be well fixed on the foot, so as not to create additional stress and the effect of constant retention of the product on the foot. The model should have a good support surface, be flexible and soft, and most importantly - comfortable.

The operational requirements are that the shoes must perform their functions for a certain time. The products must be wear-resistant, durable, retain their shape and serve for a reasonable time without problems, if necessary, they can be easily repaired.

Shoes should have an attractive appearance, conform to fashion trends, be relevant in design, shape, color, decorative finish.

High hygienic requirements are put forward for shoes. The product should create a kind of microclimate for the foot. How comfortable it will be in shoes depends primarily on the material from which the parts are made. The insole that most closely interacts with the foot and fits snugly to it should be made of genuine leather: this detail is designed to absorb sweat well, provide air exchange with the external environment, warm the foot, protecting it from heat loss. Sports shoes intended exclusively for certain activities are not allowed to be worn daily [5].

In the works of V.V. Kostyleva, the principles of creating a rational internal shape of shoes for the elderly have been developed. An improved design of rational shoes has been developed, designed for normal feet, as well as for feet with initial pathology. The shape of the preventive shoe is close in shape and size of the diaphragm part (from the inside in the area of the longitudinal arch) to the shape and size of typical feet, which creates conditions for the correct formation of the foot during work and the active effect of shoes on the musculoskeletal system of the foot [6].

The processes of designing, manufacturing and selection of low-complexity orthopedic shoes were improved, and various designs of low-complexity orthopedic shoes of mass production were also proposed [7].

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