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Clinical expert opinion on the Pedikom computerised sole examination and individual orthotic insole manufacturing system

The Pedikom orthotic insole is the product of the Orthopaedic Manufacturing and Services Kft (1194 Budapest, Nagyenyed u. 5).

The Pedikom system is a Computer Aided Design (CAD) system which enables orthotic insoles to be easily and simply designed and made. The system is based on software in which the insoles can be designed. For this there is associated sole examination equipment, where an image of the sole is recorded. This is forwarded to the central insole manufacturing workshop.

The Pedikom system consists of three parts:

- a podoscope,
- a computer and software,
- the system forwarding the necessary data for manufacture.

The podoscope is an examination device equipped with a video camera which allows an impression of the patient's sole to be seen. The video camera gives a map of the sole's pressure points viewed from below and enters this signal together with a datasheet in the memory of the computer, where the signal is digitised and the program processes it.

Completing a datasheet is part of the examination, on which complaints, visible deformities and comments of the examining person are recorded in addition to the patient's personal details.

The computer stores the datasheet together with the pressure-point map in its memory. For a check-up the datasheet and pressure map can be retrieved from the database, enabling a comparison of the earlier and current conditions.

When an insole is ordered, the information is put on disc and sent to the central laboratory. Here, based on the information and with the aid of an editing program, qualified orthopaedic technicians design the individual orthotic insole. First a structural plan of the precise positions and sizes of the modules is drawn up. The insole is then made according to the plan in the assembly workshop and covered in real leather. The modules are made of high-density foam rubber. The modules are positioned according to the pressure-point map, taking into account the degree of the deformation, age and body weight.

Thus every insole is individual, and in many cases the insoles are different for the left and right feet.

When ready, the insole is sent to the examination centre or, if so desired, posted to a given address.

We began clinical examination in March 1995 and to date 1,396 insoles have been made. The prototype was made in the Sports Surgical Out-patient Department of the Institute for Sports Health and the orthotic insole was supplied by Pedikom Orthopaedics Manufacturing and Services Kft.

The material and structure of the insole give the wearer a comfortable feeling. The high-density foam rubber modules are covered in real leather, which absorbs the foot's dampness and provides natural ventilation. The insoles are flexible and not more than 2.5 mm thick, allowing them to be worn in any type of shoe either for formal or casual wear.

A significant number of static foot disorders can be treated with an orthosis, and this orthotic insole is highly suitable for this purpose.

At the check-up examination an objective picture is gained of the improvement or perhaps deterioration of the foot's condition. Allergic reactions in wearers of the insole have not been perceived.

The manufacturers give a 12-month guarantee on the insole.  
For some highly active sportsmen, the insole wore out within a year.

Occurrence of rectifications to the insole:

Shortening the length of the insole;  
Reducing its width;  
Reducing the height of the longitudinal raiser;  
Increasing the height of the heel raiser.

There was no contraindication which would exclude the use of the insole. People with sensitive skin tolerate the insole well.

### Summary

The product is suitable for use in Hungarian health care. With this method precise, individual orthotic insoles can be quickly made as the video camera in the podoscope forwards the pressure map of the sole to the computer.

The digitised image appears immediately on the monitor. The computer displays the various pressure points in different colours, making the pressure map highly suitable for fast, accurate and far more objective diagnostics than hereto. The degree of the fall of the transversal and longitudinal arches can be defined exactly. The colour image on the screen also gives the patient an impressive image of the changes in the sole and in many cases of the need to wear the orthotic insole.

The insole is classified as a therapeutic aid from a medical point-of-view.

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signed  
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