DIASHOE
DIGITAL EDUCATION FOR DIABETIC FOOT CONTROL

ERASMUS+ DIASHOE

Digital Education For Diabetic Foot Control

(Ref: 2020-1-PT01-KA202-078687)

WORLD DIABETES DAY 2022

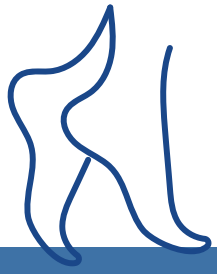
EDUCATION TO PROTECT TOMORROW!

Today, 14th November, it is **World Diabetes Day** and our Erasmus+ DiaSHOE partners fully embrace and support the 2022 campaign of the International Diabetes Federation.

As you know, one of the key goals of the project is to create specific educational opportunities for the different group of people involved in regularly Diabetic Foot Control (DFC), namely footwear designers, shop assistants but also diabetic patients and their families. In 2022, the partners could accelerate the development of the expected intellectual outputs (IO), i.e. the development of three educational packages addressed to footwear technicians, shoe-shop clerks and health professionals, and diabetic patients respectively.

The first activities linked to the educational package for footwear technicians (IO1) were launched during the first in-person transnational meeting held in Elda in April 2022 and, six months later, the curriculum is already publicly available for all interested parties.

Now, following the second in-person meeting held in Iasi (Romania) in September 2022, the partners are already advancing with the other two curricula, expected to enter in the piloting phase very soon. During both meetings, the project impact was also assessed, and partners acknowledged the positive feedback received from the participants so far.



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In this issue of our newsletter, INESCOP will illustrate the outcomes of the training programme aimed at footwear experts. Then, in view of the upcoming courses, TUIASI will offer an overview on the best wearable devices available on the market aimed at diabetic foot monitoring.

We wish you a pleasant reading in this special day, and we invite all of you, may you be directly affected by the consequences of diabetes or involved as a caregiver, to never stop informing yourself on the cutting-edged possibilities to improve the quality of life of diabetic patients!

A case of success for DiaSHOE: the piloting of the training programme aimed at footwear experts *(By INESCOP)*

The DiaSHOE project rises from the need of addressing the relationship between footwear and diabetic foot control. The diabetic foot requires more care than a healthy one; therefore, the properties of footwear adapted to the functional needs of the diabetic patient are stricter than in conventional footwear.

In this framework, the project partners are now delivering the first educational package for their first target-group: footwear technicians, designers and product managers. This package aims at building the adequate skills to formulate manufacturing strategies to create footwear products that are both fashionable and well-suited to the needs of people living with diabetes.

The first educational package is made up by a training programme developed by the project partners and available online at Losglobos in 7 different languages (Czech, English, German, Polish, Portuguese, Romanian and Spanish). The programme consists of 6 units dealing with the issue at stake in the project – the diabetic foot – and providing guidance to manufacturers in the production of footwear for people living with diabetes.

In the Erasmus+ DiaSHOE project, stakeholders play a key role in the development and implementation of the educational packages. For this reason, the training programme has been piloted by over 100 footwear experts, who provided their feedback on its usefulness after completing it.

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The results of the feedback obtained from the piloting revealed that:

- The training programme helped participants understand the diabetic foot and how footwear can prevent complications;
- Participants would recommend the training programme to both other companies already producing footwear for diabetic patients and other companies who intend to start producing this type of product;
- The results of the project could be transferred or replicated in third countries given the high participation of experts from other countries outside the consortium, such as Ecuador, Peru, Bolivia and Moldova.

All in all, the project partners can conclude the development of this first educational package with a positive feeling thanks to the encouraging feedback obtained in the piloting. Many participants congratulated the consortium for sharing their knowledge and trying to improve the life quality of people living with diabetes.

If you are a footwear technician, designer or product manager, do not hesitate to create an account on Losglobos, follow the course and provide us your feedback!

Focus: Wearable devices for monitoring diabetic foot *(By TUIASI)*

Through its prophylactic role, footwear for people with diabetes differs from ordinary footwear both structurally and by the physical-mechanical and chemical characteristics of the materials that are part of it. As a result, footwear must offer great comfort through hygiene, interior volume, flexibility, low weight, as well as ensure stability while walking.

A wearable device should:

- Continuously monitors patients;
- Register the skin's temperature, pressure, and other foot health-related data;
- Send data that will help guide and modify treatment plans;
- Monitor the changes in the patient's feet;
- Alert the patient/ the family/the doctor in case of important changes.

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In the last years, there was sensible improvement in smart devices for monitoring diabetic foot. We have selected for you several devices designed to meet the above criteria.

SurroSense Rx

The SurroSense Rx®, a smart insole system, was developed by sensor-based, advanced wound-care product manufacturer Orpyx Medical Technologies Inc in Canada and tested by the Manchester Metropolitan team.

- The shoe inserts are equipped with eight sensors developed to monitor and measure pressure points around the sole.
- An early warning system powered by a smart shoe insole can help prevent the re-emergence of diabetes-related foot ulcers, leading to complications such as amputation.
- Data was fed wirelessly to a companion smartwatch. Whenever a dangerous amount of pressure is detected, an audio-visual vibrating alert is sent to the watch to encourage the wearer to make immediate adjustments and reduce the pressure on that specific area of the affected foot.

SurroSense Rx. Source: https://www.mmu.ac.uk/news-and-events/news/story/11053/

Sensor Sole - InForMed Project

Within InForMed project, CMST laboratory at UGent and Holst Center, together with the Belgian company Rsscan, developed a smart shoe for athletes and diabetics.

- The sole is equipped with 900 sensors and measures the pressure distribution during walking or running.

Sensor Sole - InForMed Project. Source: https://www.imec-int.com/en/imec-magazine/imec-magazine-july-2018/a-smart-shoe-for-athletes-and-diabetics

- This new development has unique features, such as a large number of sensors in the sole, high measuring frequency, and thin and pliable electronics.

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Bonbouton's Smart Insole

Stevens Institute of Technology and Bonbouton have developed a graphene sensing system that detects early signs of foot ulcers in diabetic people.

The smart insole can be inserted into a shoe to monitor the foot health of a diabetic person. The collected data are sent to an application that can be accessed by the patient and shared with the healthcare provider.

Smart Insole. Source: https://tectales.com/wearables-sensors/smart-insole-monitors-foot-health-for-diabetic-patients.html

E-vone Shoe

E-vone shoe. Credit: E-vone. Source: https://www.nanalyze.com/2019/02/smart-shoes-digitally-connected/

The French startup E-vone has designed a connected shoe with a falling alert system.

- Using the built-in sensors, the shoes can detect "abnormal" movements, such as a fall or slip, and trigger a pre-programmed alarm.
- With its GPS, the E-vone shoes can send geolocation to the nominated family member or friend registered by the user.
- A vibration in the soles will serve as a notification to inform the user that help is on the way.

Find out more information on the products presented in this article in the links below!

https://www.mmu.ac.uk/news-and-events/news/story/11053/

https://rsscan.com/a-smart-shoe-for-sports-people-and-diabetic-patients/

https://tectales.com/wearables-sensors/smart-insole-monitors-foot-health-for-diabetic-patients.html

SNEEK PEAK

In the next issue, that will arrive quite soon, we will go deeper into IO2, the educational package for shoe-shop clerks and health professionals. Meanwhile, do not miss out any news on the project! Keep following our activity on the project website and social media, do not hesitate to contact the consortium for any information!

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KA2 - Cooperation for innovation and the exchange of good practices
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