

PRESS RELEASE

A portable technological solution to improve the rehabilitation of hospitalised patients

- *The Tekniker technology centre and the Biodonostia Institute of Healthcare Research have jointly designed and developed an innovative prototype of a device for the speedy recovery of physical strength in hospitalised patients.*
- *Thanks to this equipment, bed-ridden patients will be able exercise their lower limbs to counteract functional impairments resulting from hospitalisation and recover quicker.*
- *The tool has been funded by the Basque Government and will undergo clinical tests at the Donostia clinical hospital.*

[Eibar, December 13, 2022] – The hospitalisation of frail patients, such as the elderly, can result in up to 5% loss of strength for each day of bed rest. To manage the functional deterioration resulting from hospitalisation, the **Tekniker** technology centre has designed, together with the **Biodonostia Health Research Institute**, the prototype of a portable device that aims to improve rehabilitation among hospitalised patients.

It's an electromechanical rehabilitation system developed entirely by Tekniker from start to finish that will soon be tested in clinical trials at the Donostia University Hospital, a health centre that collaborates in the project funded by the Basque Government.

The technology centre, an organisation with extensive experience in the development of advanced technologies for the medical sector, has contributed its design and development capabilities to deliver a fully functional prototype.

The device has been equipped with mechanical and electronic solutions embedded in a single unit and also addresses aspects related to ergonomics, use and handling. Researchers have optimised the engineering solution to deliver a unit that is portable -light and easy to use – as well as economically competitive to facilitate future industrialisation and marketing actions.

The equipment has been designed to speed up recovery and functionality to allow hospitalised patients to improve their quality of life and the quality of their healthcare. To this end, it allows strength training of the lower limbs to be performed in bed using a novel technique.

Jesús Alonso, a researcher and coordinator in charge of health projects at Tekniker states that “several studies carried out on an international scale have shown how important early mobilisation is for bed-ridden patients. The aim of our solution is to avoid and prevent functional impairments in bed-ridden patients and to reduce functional loss in those cases in which it is already present”.

Patent application

Tekniker and BIOEF (the Basque Foundation of Healthcare Innovation & Research) have filed a patent application for this device that features mechanical and electronic technologies and meets all the requirements stipulated by the hospital in terms of ergonomics, safety, ease of use and operation.

Thanks to this device, patients will be able to exercise and continuously improve their physical strength. Moreover, settings can be changed whenever necessary and real-time parameters of physical activity can be obtained.

The Tekniker expert also says that “nowadays, information is presented to the patient and the healthcare professional via a display installed on the device, although it will eventually be possible to develop a mobile app to monitor and exploit data”.

As contact parts can be easily accessed, the device can be sterilised and used by other people in hospital environments.

Although, for the time being, the prototype will only be used in the hospital setting, researchers have pointed out that these applications could also be useful for patients treated at other types of facilities or even at home. Alonso concludes by saying that “generally speaking, anybody bed-ridden for an extensive period of time will definitely benefit from this solution”.

Thanks to the funding provided by the Basque Government under the aid programme for healthcare research and development projects, it is expected that the team will be able to initiate industrialisation and marketing actions in 2024.

More about Tekniker

Tekniker is a technology centre specialised in advanced manufacturing, surface engineering and materials and production ICTs. Its mission is to further growth and wellbeing via R&D&i for society at large by enhancing the competitiveness of its industrial fabric in a sustainable manner. Tekniker is a member of the Basque Research and Technology Alliance (BRTA).

More information:

GUK ▶ Unai Macias

unai@guk.eus | Tel. 690 212 067