

Revolutionising rehabilitation for independent living

ABLE HUMAN MOTION



A life-changing injury

In 2015, Iván was diagnosed with spinal cord injury (SCI) after removal of a tumour in his spine. He was left unable to walk and in a wheelchair. His SCI meant leaving his job, changing home and, devastatingly, no longer being able to play football with his son.

ABLE Human Motion set out to design an exoskeleton that would better meet the needs of people like Iván.

Creating people-centred innovation

In addition to providing funding and business skills support, EIT Health's partner network helped ABLE Human Motion to meet and work with people living with SCI, such as Iván, as well as build a consortium of leading partners.

Iván became so interested in ABLE Human Motion that he became a shareholder. Together Iván, ABLE Human Motion and the partners are collaborating to further develop and clinically validate the ABLE Human Motion exoskeleton both in the hospital and homecare setting.

Co-creating to improve lives

With support from EIT Health, ABLE Human Motion has been successful in raising private funding to develop their exoskeleton – something that would have been difficult to achieve otherwise.

Eventually, ABLE Human Motion aims to provide solutions for people with other mobility impairments and neurological conditions.

Each year, **up to 930,000 people worldwide** suffer a life-changing spinal cord injury.⁶

"Working with EIT Health has brought us quality and credibility, they have provided us with knowledge and access to best-in-class experts from all over the healthcare value chain."

– **Alfons Carnicero, Co-founder and CEO, ABLE Human Motion**

"The work I'm doing with ABLE Human Motion has given me the hope that together we can find a solution to improve the SCI population's quality of life."

– **Iván Camps, living with Spinal Cord Injury since 2015**

「spotlight」

The story of ABLE Human Motion

SCI may be caused by an accident or biological condition such as disease, infection or tumour.¹ SCI often leaves people paralysed, which can mean a loss of freedom, as people find it difficult to do things they previously could such as walk, stand and climb stairs.² Paralysis can cause considerable stress in daily life with some people forced to leave their job and move home. In fact, the global unemployment rate is more than 60%¹ and depression and anxiety disorders are common, affecting around a third of those living with SCI.³

Exoskeletons are wearable devices designed to support people living with disabilities to stand up and move around, leading to increased independence.⁴ They work by detecting when the person displays an intention to move. But current exoskeletons are expensive (ranging from \$67,000 – \$160,000⁵) and can weigh about 20 to 25kg, meaning they are not widely available for people to use in their everyday lives.⁴ In most cases, a wheelchair is currently the only option.

Alfons Carnicero is Co-founder and CEO of ABLE Human Motion. He realised the only way to create an exoskeleton that truly addresses this unmet need was to work directly with people living with SCI. However, the processes of both co-creation and starting a business were new to him and his team of engineers.

EIT Health offered ABLE Human Motion vital funding and business support to get them started. Through EIT Health, ABLE Human Motion was connected with expert clinicians with extensive experience helping paraplegic individuals. With this support, ABLE Human Motion were able to confidently involve people living with SCI in each stage of development. Every new feature and component they create is tested and validated by people living with SCI.

This process has enabled ABLE Human Motion to develop an exoskeleton that is designed to empower those living with SCI. The exoskeleton can be attached to the user directly from a wheelchair, allowing the user to stand up and walk with independence, with future functionality planned to enable the user to climb stairs and ramps. By focusing on a specific group of people who have limited movement in the hip, ABLE Human Motion has been able to design an exoskeleton that is lighter, easier to use and more affordable than currently available solutions.

The team is working on clinically validating and certifying the exoskeleton as a medical device, to bring their solution to patients across Europe.



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