



# CONNECT

## Robotic exoskeletons

### Background

The Swiss medical technology company Myoswiss focuses on developing technologically advanced approaches to help people with mobility impairments realise their full potential and rise above themselves through motivation and support. The young company was founded in 2017 and uses soft robotics to develop a new generation of exoskeletons.

### Human machine through robotic exoskeletons

The freedom to move without restrictions is by no means a matter of course. Accidents and diseases such as multiple sclerosis can lead to severe impairments. Patients with the chronic inflammatory disease sometimes experience severe mobility restrictions due to individual, relapsing courses.

Around 2.8 million people worldwide are diagnosed with multiple sclerosis. The neurological disease usually appears in sufferers between the ages of 20 and 40. Typical symptoms are numbness or persistent tingling in the limbs, as well as visual disturbances. Patients are also confronted with gait and balance disorders and, in severe cases, even paralysis.

Robotic exoskeletons are now to be used increasingly in the treatment of mobility impairments as well as paralysis. Of course, they can also be used for other diseases that cause these symptoms in their course. The disadvantage of conventional exoskeletons is the weight that has to be carried by patients. However, they can help even paraplegic patients to stand and walk again.

The company MyoSwiss AG is revolutionising this approach once again by developing a lighter and softer construct that can be worn by sufferers as a kind of suit. The suit consists of a drive unit which, together with the battery, is located in a kind of backpack on the back and represents the motors for activating the tendons. Two knee orthoses with sensors help to transmit the power generated by the drive unit to the legs. Passive components such as hip straps and foot lifters make it easier for the user to move the hip, knee and ankle joints. A sensor cable helps transmit the data back to the drive unit. The Myosuit also comes with a charger and remote control.

The Myosuit supports those affected by muscle weakness by stabilising lower extremities and relieving the patient by reducing the amount of force required. With sensors on the knee and hip joints, the suit is able to predict movements and support them with individual calibration and reactions. The suit is also characterised by its relatively light weight of just 5 kg.



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However, therapy using the Myosuit is conditional on the patient still having some residual muscle function in the legs, as movement is only supported and not completely taken over. Therapeutically, it is suitable for strength training, gait training as well as balance training to regain mobility. The Myosuit can not only be used as a therapy assistant, but also in leisure time.

The associated Myosense programme can also be used to record and visually display training data so that training progress can be tracked. In addition, training sessions can be prepared and thus the training of the patients can be designed individually and varied.

Robotic exoskeletons are experiencing a high level of enthusiasm in other industries besides medical technology. For example, robotic assistance systems are also being integrated into daily work processes in care, logistics and construction to prevent postural damage caused by overloading and to minimise the risk of accidents and injuries in the workplace. In the military sector, too, robotic exoskeletons are intended to contribute to increased performance and safety.

Are you interested in robotic exoskeletons or the topic of innovative robotic wearables? At your request, we would be happy to put you in touch with a company. We have already researched for you and compiled a selection of innovative international companies. arcoro CONNECT connects people and companies - personally and directly.

COMPANY	LOCATION	WEBSITE	FIELD OF EXPERTISE
Myoswiss AG	Swiss	<a href="https://myo.swiss/">https://myo.swiss/</a>	Wearable robotics
Wearable robotics srl - Kinetek	Italy	<a href="http://www.wearable-robotics.com/kinetek/">http://www.wearable-robotics.com/kinetek/</a>	Wearable robotics
German Bionic Systems GmbH	Germany	<a href="https://www.germanbionic.com/">https://www.germanbionic.com/</a>	Wearable robotics
Ekso Bionics Inc	USA (CA)	<a href="https://eksobionics.com/">https://eksobionics.com/</a>	Wearable robotics
Fourier Intelligence International Pte. Ltd.	Singapur	<a href="https://www.fftai.com/">https://www.fftai.com/</a>	Wearable robotics
Able Human motion sl	Spain	<a href="https://www.ablehuman-motion.com/">https://www.ablehuman-motion.com/</a>	Wearable robotics
Keeogo	Canada	<a href="https://keeogo.com/">https://keeogo.com/</a>	Wearable robotics
Rex Bionics Ltd	Australia	<a href="https://www.rexbionics.com/">https://www.rexbionics.com/</a>	Wearable robotics
ReWalk Robotics GmbH	Deutschland	<a href="https://rewalk.com/de/">https://rewalk.com/de/</a>	Wearable robotics

Visionary characters, experienced scientists and strong opinion leaders - we have done the research for you. Would you like more information? We will be happy to connect you!



INDUSTRY EXPERT	JOB POSITION	FIELD OF EXPERTISE
Brock Laschowski	Head of the ExoNet research project at the University of Waterloo	Robotic wearables
Jaime E. Duarte	Co-Founder & CEO of Myoswiss	Robotic wearables
Larry Jasinski	CEO & Managing Director of ReWalk Robotics	Robotic wearables

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