

Spinal Cord Stimulation Delivers Improved Arm Function

Preclinical Data Published in Nature Neuroscience Show Potential for ONWARD's ARC^{IM} Therapy to Restore Movement in Hands and Arms after Spinal Cord Injury

EINDHOVEN, the Netherlands & LAUSANNE, Switzerland—June 30, 2022--ONWARD Medical N.V. (Euronext: ONWD), the medical technology company creating innovative therapies to restore movement, independence, and health in people with spinal cord injury, today announces a [Nature Neuroscience publication](#) showing the potential for ONWARD's ARC^{IM} Therapy to restore movement and function in hands and arms after spinal cord injury.

Regaining hand and arm function is the highest priority for many people with cervical spinal cord injury. Even mild functional deficits in hand and arm function lead to significantly reduced independence and quality of life. It has historically been challenging to develop new therapies for hand and arm function because their movements are complex and multidimensional. Researchers in today's Nature Neuroscience publication investigated a potentially more effective approach to improving motor control of the upper limbs after spinal cord injury – an implantable neurostimulation system that modulates the spinal cord region involved in controlling hand and arm function. This preclinical data showed that precise electrical stimulation targeting relevant spinal cord segments enhanced muscle activation and strength, and facilitated more efficient hand and arm movements.

"We are preparing to launch our transcutaneous ARC^{EX} Therapy to restore hand and arm function in 2023," said Dave Marver, CEO of ONWARD. "The findings from this Nature Neuroscience publication suggest there may also be a role for implanted ARC^{IM} Therapy to help people with spinal cord injury regain arm and hand function. Indeed, the greater precision and 24/7 availability of implanted ARC^{IM} Therapy may offer meaningful support for activities of daily living."

"Small improvements in hand and arm function offer large benefits in independence and quality of life. Current approaches such as functional electrical stimulation (FES) induce fatigue and fail to sustain the three-dimensional movements required for activities of daily life", said Grégoire Courtine, professor at EPFL and co-author of the Nature Neuroscience paper. "We look forward to studying this approach in humans within the next several months and working with ONWARD to potentially commercialize this important therapy."

As part of its suite of intellectual property agreements with EPFL, ONWARD has the rights to develop and commercialize cervical spinal cord stimulation therapy to improve hand and arm function in people with spinal cord injury.

The publication features preclinical research performed by neuroscientists at [EPFL](#), [University of Fribourg](#), and [University of Pittsburgh](#). The research initiative was sponsored by the [Wyss Foundation](#), [ONWARD](#), the [Bertarelli Foundation](#), the [Swiss National Science Foundation](#), and the [European Union's Horizon 2020 program](#).

To learn more about ONWARD's ARC Therapy and the company's vision to restore movement, independence, and health in people with spinal cord injury, please visit [ONWD.com](#).

About ONWARD

ONWARD is a medical technology company creating innovative therapies to restore movement, independence, and health in people with spinal cord injuries. ONWARD's work builds on more than a decade of basic science and preclinical research conducted at the world's leading neuroscience laboratories. ONWARD's ARC Therapy, which can be delivered by implantable (ARC^{IM}) or external (ARC^{EX}) systems, is designed to deliver targeted, programmed spinal-cord stimulation to restore movement and other functions in people with spinal cord injury, ultimately improving their quality of life. ONWARD has received three Breakthrough Device Designations from the FDA encompassing both ARC^{IM} and ARC^{EX}. The company's first FDA pivotal trial, called Up-LIFT, completed enrollment in December 2021 with 65 subjects worldwide. The company completed its first-in-human use of its ARC^{IM} neurostimulator in May 2022.

ONWARD is headquartered at the High Tech Campus in Eindhoven, the Netherlands. It maintains an office in Lausanne, Switzerland, and has a growing U.S. presence in Boston, Massachusetts, USA. For additional information about the company, please visit [ONWD.com](https://onwd.com). To access our 2022 Financial Calendar, please visit [IR.ONWD.com](https://ir.onwd.com).

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