

Some paralyzed patients are up and walking within a day thanks to these revolutionary implants

Four years ago Michel Roccati was involved in a motorcycle accident. He suffered what neurologists call a “complete” spinal-cord injury—he lost all sensation below the site of the damage to his spine and he could no longer move his legs. In December last year, however, the young Italian stood up on the streets of Lausanne, Switzerland, and took a short walk.

Mr. Roccati’s remarkable steps, supported by a wheeled walking frame, were the conclusion of more than a decade of work by Grégoire Courtine, a neuroscientist at the Federal Institute of Technology in Lausanne, and Jocelyne Bloch, a neurosurgeon at Lausanne University Hospital.

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Even after a severe spinal injury, the nerves that control activities such as walking often remain intact below any damaged tissue. In people with paralysis, however, the damaged tissue interrupts or weakens any electrical signals coming from the brain.

Dr. Courtine and Dr. Bloch developed a wafer-thin device with electrodes that could target the dormant nerves.

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The device worked well enough that all three users in the trial were able to stand up and take a few steps almost immediately after they had recovered from the surgery to have it implanted.

[**This is an excerpt. Read the original post here.**](#)