

Paralysed man can feed himself after scientists link brain to arm

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A quadriplegic man has regained the ability to pick up objects and feed himself after scientists linked his brain to his arm. The breakthrough, which involved creating a "brain-computer interface" to bypass his damaged spine, raised hopes that paralysed people worldwide might one day be enabled to perform basic tasks, researchers said.

Bill Kochevar, 56, who is paralysed from the shoulders down, was able to pick up and drink from a mug, take a dry sponge and scratch the side of his nose, and feed himself mashed potato for the first time in a decade. "It was amazing because I thought about moving my arm, and it did," he said. "That's pretty cool. I get to be the first one in the world to do it."

Surgeons in Cleveland, Ohio, placed sensors in his brain to monitor which signals it sent when Mr Kochevar watched his arm being moved mechanically and imagined that he was controlling it himself. They implanted electrodes in his arm and hand to control



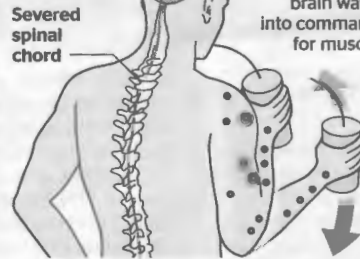
Bill Kochevar's brain signals were monitored as his arm was moved

muscles and a computer program translated the brain signals into commands for them.

Similar technologies have previously relied on patients making facial movements or using eye tracking to control prostheses, making it difficult to perform multi-joint movements, such as those needed to pick up objects. Mr Kochevar, who was injured in a cycling

How it works

- 1 Electrodes implanted into motor cortex to read brain waves
- 2 Muscle stimulating electrodes are implanted in arm
- 3 Software translates brain waves into commands for muscles



accident during a 150-mile charity ride, said: "People have to do stuff for me that I can't do myself. They have to turn me every two hours; if I want water they have to give me water. This research has enhanced my ability to be able to do things.

"I'm still wired every time I do something... I ate a pretzel, I drank water. It really got good when one day they had

some mashed potatoes. Lo and behold, I was able to eat the mashed potatoes really well!"

His doctor had described the new technology as "a little Star Trek" but Mr Kochevar was keen to participate. He said: "I'm always wanting them to do more... It means so much to me to be able to do something that is going to benefit a lot of people down the road."

The research, published today in *The Lancet*, is the first report of results for the technology, currently only available for experimental use in America. Dr Bolu Ajiboye, of Case Western Reserve University, lead author of the study, said: "With further development, we believe the technology could give more accurate control, allowing a wider range of actions, which could begin to transform the lives of people living with paralysis."

The Spinal Injuries Association said: "Although this research is a positive move forwards, we recommend injured people receive the news cautiously. The research is still at an early stage."

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