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# Silk forms 'intimate' brain connection

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Reuters

A brain implant made partly of silk can melt onto the surface of the brain, providing an 'intimate' connection for recording signals, report researchers reported on Sunday.

Tests of their device showed the thin, flexible electrodes recorded signals from a cat's brain more accurately than thicker, stiff devices.

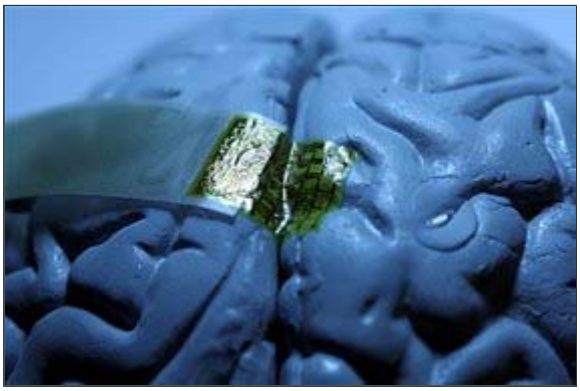
Such devices might help people with epilepsy, spinal cord injuries and even help operate artificial arms and legs, the researchers report in the journal *Nature Materials* (http://www.nature.com/ ) .

John Rogers of the University of Illinois, Urbana (http://illinois.edu/ ) and colleagues at the University of Pennsylvania (http://www.upenn.edu/ ) and Tufts University (http://www.tufts.edu/ ) in Boston made the electrode arrays using protein from silk and thin metal electrodes.

The silk is biocompatible and water-soluble, dissolving into the brain and leaving the electrodes draped over its contours, the researchers report.

The material is also transparent, strong and flexible, and it is possible to control the rate at which it dissolves.

They tested the silk on cats who were anesthetised but whose eyes were functioning. The electrodes recorded the signals from the eyes of the cats as they were shown visual images.



The silk dissolves into the brain, leaving the electrodes draped over its contours, say researchers *(Source: John Rogers )*

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## Broad applications

"These implants have the potential to maximise the contact between electrodes and brain tissue, while minimising damage to the brain," says Dr Walter Koroshetz of the National Institute of Neurological Disorders and Stroke ( http://www.ninds.nih.gov/ ) , part of the National Institutes of Health, which helped fund the study.

"They could provide a platform for a range of devices with applications in epilepsy, spinal cord injuries and other neurological disorders."

For instance, such a sensitive electrode could detect a seizure as it starts and deliver pulses to counter it. Brain signals might be routed to prosthetics for people with spinal cord and other injuries.

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