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To help nerves regrow, first find your machete

13 April 2002 by [Anil Ananthaswamy](#)
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THE dream of regenerating damaged nerves so that people paralysed by spinal injuries can walk again has come a step closer.

Many factors conspire to prevent nerves regrowing after injury, including thick scar tissue that forms around the damaged area, preventing new nerve tissue from pushing through. "It's like being in the jungle you need a machete to make way," says neuroscientist Lars Olson of the Karolinska Institute in Stockholm.

Now Elizabeth Bradbury of King's College London and her colleagues have found such a machetean enzyme from bacteria that can make severed nerves regrow in rats.

The researchers first crushed the rats' spinal cords, leaving them unable to walk normally or navigate a grid of beams. They then treated the damaged nerves with a bacterial enzyme called chondroitinase ABC, which was known to encourage nerve growth in cultures of scarred brain tissue. The enzyme breaks down molecules in the scar tissue that prevent nerve endings getting through.

"After our treatment their walking patterns looked much more normal," says Bradbury. The treated rats were able to cross the grid without slipping. And when the researchers examined their spinal cords, nerves had grown up to 4 millimetres through scar tissue.

Olson says that Bradbury's work adds to an arsenal of promising methods that could one day be used to treat spinal injury. Researchers have already identified other molecules that prevent severed nerves regrowing, as well as chemical tricks to overcome this. And they've coaxed nerves to grow using nerve growth factor proteins.

In another advance, Olson's team has transplanted cells from the peripheral nervous system to form a bridge over which severed nerves can reconnect. "With all of these we can allow ourselves to be a little bit optimistic," says Olson.

Bibliography

1. More at: Nature (vol 416, p 636)



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