

Multiple sclerosis patients could benefit from brain boost

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Demyelination by MS. The CD68 colored tissue shows several macrophages in the area of the lesion. Original scale 1:100. Credit: [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/) Marvin 101/Wikipedia

Multiple sclerosis patients could one day benefit from treatments that boost their brain function, a study suggests.

Increasing the activity of neurons could be beneficial in people with the disease, researchers say. It could stimulate the production of a substance that protects nerve fibres.

The finding could pave the way for new treatments, researchers say. Multiple sclerosis affects the brain and [spinal cord](#) and can cause problems with balance, movement and vision.

Information in the brain is transmitted along [nerve fibres](#) known as axons. A material - called myelin - forms a layer around axons, which keeps them healthy and helps speed up the transfer of information.

Damage to myelin contributes to diseases of the brain such as [multiple sclerosis](#).

Until now, it was not known how brain activity controls production of myelin by specialist cells, researchers say.

Researchers examined how changes in the activity of neurons affects how much myelin is produced in the brains of zebrafish. Decreased brain function reduced the amount of myelin made, while production was increased by around 40 per cent when the [neuronal activity](#) of fish was increased, the team says.

Before they can develop new therapies, the team says it needs to learn more about how [brain function](#) controls the complex processes by which axons are coated with myelin.

The study, published in the journal *Nature Neuroscience*, was funded by The Wellcome Trust, the Biotechnology and Biological Sciences Research Council, and the Lister Research Prize.

Dr David Lyons, of the University of Edinburgh's Centre for

Neuroregeneration, who led the study, said: "We have a long way to go before we fully understand how our [brain activity](#) regulates myelin production, but the fact that this is even something that the brain can do is a good news story. We are hopeful that one day in the future we may be able to translate this type of discovery to help treat disease and to maintain a healthy nervous system through life."

Dr Emma Gray, Head of Biomedical Research at the MS Society, said: "The more we learn about how myelin production happens in the brain, the more chance we have of developing effective and targeted therapies to repair [myelin](#) in people with MS."

More information: Synaptic vesicle release regulates myelin sheath number of individual oligodendrocytes in vivo, [DOI: 10.1038/nn.3991](#)

Provided by University of Edinburgh

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