

# Neuro signals study gives new insight into brain disorders

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Research into how the brain transmits messages to other parts of the body could improve understanding of disorders such as epilepsy, dementia, multiple sclerosis and stroke.

Provided by University of Edinburgh

Scientists at the University of Edinburgh have identified a protein crucial for maintaining the health and function of the segment of nerve fibres that controls transmission of messages within the brain.

The study, published in the journal *Neuron*, could help direct research into neurodegenerative disorders, in which [electrical impulses](#) from the brain are disrupted. This can lead to inability to control movement, causing muscles to waste away.

Professor Peter Brophy, Director of the University of Edinburgh's Centre for Neuroregeneration, said: "Knowing more about how signals in the brain work will help us better understand neurodegenerative disorders and why, when these illnesses strike, the brain can no longer send signals to parts of the body."

The [brain](#) works like an electrical circuit, sending impulses along nerve fibres in the same way that current is sent through wires.

These fibres can measure up to a metre, but the area covered by the segment of nerve that controls transmission of messages is no bigger than the width of a human hair.

Dr Matthew Nolan, of the University's Centre for Integrative Physiology, said: "At any moment tens of thousands of electrical impulses are transmitting messages between [nerve cells](#) in our brains. Identifying proteins that are critical for the precise initiation of these impulses will help unravel the complexities of how brains work and may lead to new insights into how brains evolved."

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