Researchers publish study on nerve cell repair

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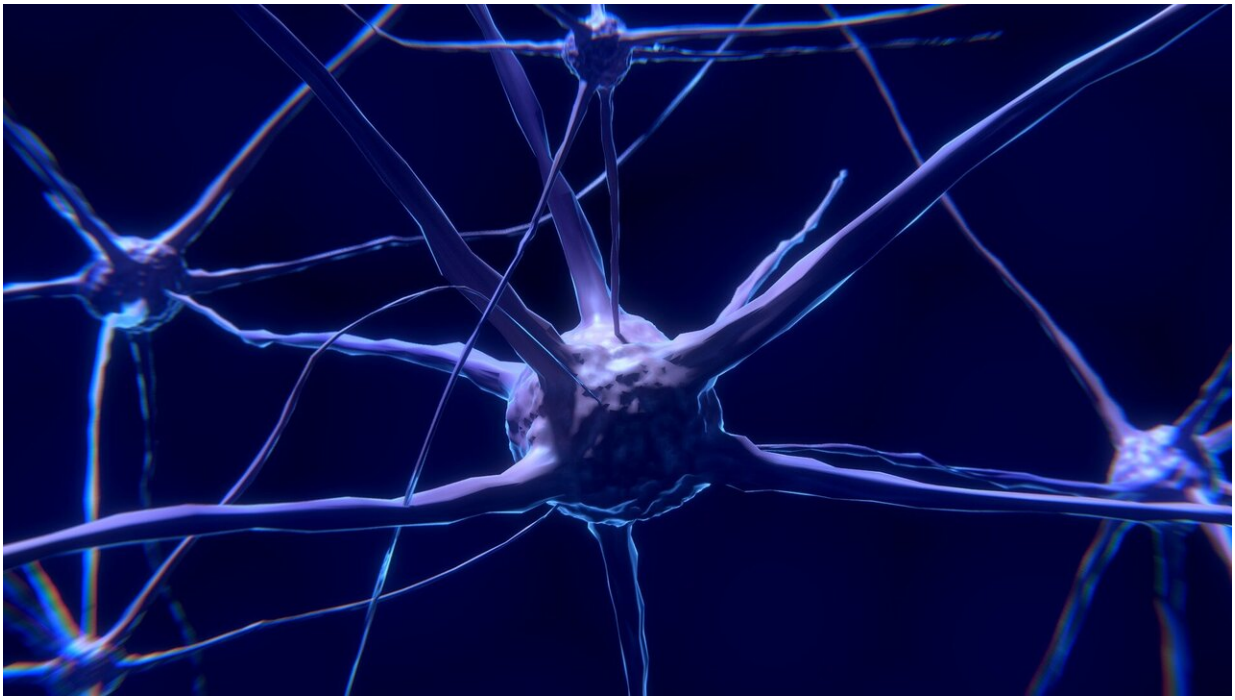

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Researchers from the University of Colorado School of Medicine have identified a new way that cells in the central nervous system regenerate and repair following damage.

In an article published in the current issue of *Nature Neuroscience*, scientists from CU found that precisely-timed motor learning stimulates

cellular processes to improve recovery after damage to oligodendrocytes, cells that are critical for healthy neurologic function throughout life.

The study uses advanced microscopy and mouse models of multiple sclerosis (MS) to evaluate oligodendrocytes and their precursor cells to better understand how they can be harnessed to restore neuronal function following injury.

"Tissue regeneration following injury or disease is a long sought-after goal, particularly in the adult nervous system," said Ethan G. Hughes, Ph.D., assistant professor of Cell and Developmental Biology at the CU School of Medicine and a Boettcher Investigator.

Of particular interest in this study, Hughes and his colleagues found that mature oligodendrocytes are able to contribute to repair of the nervous system by generating new myelin sheaths. Myelin sheaths surround nerve fibers and speed transmission of nerve impulses to and from the brain. Identifying the contribution of mature oligodendrocytes to this process is a breakthrough finding that challenges existing scientific orthodoxy.

Hughes and his colleagues found that behavioral training in mice promoted the regeneration of myelin sheaths from newly formed and mature oligodendrocytes to aid in the repair of damage of the nervous system.

Their findings offer a potential new target for therapeutic interventions for patients with neurologic disability, such as those caused by MS, which is a progressive, degenerative disease that affects the ability of the brain to communicate with the rest of the body.

More information: Clara M. Bacmeister et al, Motor learning promotes remyelination via new and surviving oligodendrocytes, *Nature Neuroscience* (2020). DOI: 10.1038/s41593-020-0637-3

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