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Researchers to 'rewire' stroke patients' brains

By Dominic Musgrave

SCIENTISTS at the University of Glasgow are hoping to help people who have had a stroke overcome their physical disabilities by stimulating their brains to 'rewire' themselves.

Doctors and scientists from the Institute of Cardiovascular and Medical Sciences are to carry out the world's first in-human trial of vagus nerve stimulation in stroke patients.

Lead researcher Dr Jesse Dawson, a stroke specialist and clinical senior lecturer in medicine, said: "When the brain is damaged by stroke, important neural connections that control different parts of the body can be damaged which impairs function.

"Evidence from animal studies suggests that vagus nerve stimulation could cause the release of neurotransmitters which help facilitate neural plasticity and help people re-learn how to use their arms after stroke; particularly if stimulation is paired with specific tasks. A slightly different type of vagus nerve stimulation is already successfully used to manage conditions such as depression and epilepsy."

The study, which will be carried out at the Western Infirmary in Glasgow, will recruit 20 patients who suffered a stroke around six months ago and who have been left with poor arm function as a result. Each participant will receive three one-hour sessions of intensive physiotherapy each week for six weeks to help improve their arm function.

Half of the group will also receive an implanted Vivistim device, a vagus nerve stimulator, which connects to the vagus nerve in the neck. When they are receiving physiotherapy to help improve their arm, the device will stimulate the nerve. It is hoped that this will stimulate release of the brain's own chemicals, called neurotransmitters, that will help the brain form new neural connections which might improve the patient's ability to use their arm.

Jesse added: "This study is designed to provide evidence to support whether this is the case after stroke but our primary aim is to assess feasibility of vagus nerve stimulation after stroke. It remains to be seen how much we can improve function, but if we can help people perform even small actions again, like being able to hold a cup of tea, it would greatly improve their quality of life."

A four-year-old boy aims to follow in the footsteps of his hero, Paralympic gold medallist Jonnie Peacock, after being fitted with an Ossur running blade by Dorset Orthopaedic. Rio Woolf, who was born without a tibia, knee or ankle joint, was fitted with a lightweight carbon-fibre blade decorated with his favourite character Fireman Sam.

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