

Research lays foundations for brain damage study

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Researchers at The University of Queensland have made a key step that could eventually offer hope for stroke survivors and other people with brain damage.

The international study, led by researchers at UQ, could help explain a debilitating neurological condition known as unilateral spatial neglect, which commonly occurs after a stroke causing damage to the right side of the brain.

People with this condition become unaware of the left side of their sensory world, making everyday tasks such as eating and dressing almost impossible to perform.

ARC Discovery Early Career Research Fellow Dr Marta Garrido from UQ's Queensland Brain Institute (QBI) said this lack of awareness on the left side, might be caused by an uneven brain network that involves interactions between different brain regions.

"Patients with spatial neglect are impaired in attending to sensory information on the left or the right side of space, but this inability is a lot stronger for objects coming from the left," she said.

"This research has enabled us to establish what happens in a healthy brain, so that we can then further understand exactly what goes on in the brain of someone who is experiencing spatial neglect."

QBI co-investigator and ARC Australian Laureate Fellow Professor Jason Mattingley said the human brain performed many functions in an uneven way.

"We already know that in a healthy brain even basic perception can be lopsided. For example, when we look at others' faces we tend to focus more on the left than the right side," he said.

"Research like this helps us take a key step in understanding some of the puzzling symptoms observed in people following brain damage."

The researchers at QBI collaborated with UQ's School of Psychology, and colleagues from Aarhus University in Denmark, and University College London in the UK.

The study involved recording electrical activity in the brains of healthy adult volunteers using electroencephalography (EEG) while listening to sequences of sounds from the left, right or centre.

The next step for the researchers will be to study how people with [brain damage](#) use the left and right sides of the [brain](#) when perceiving visual objects and sounds.

More information: "Effective Connectivity Reveals Right-Hemisphere Dominance in Audiospatial Perception: Implications for Models of Spatial Neglect." Martin J. Dietz, et al. *The Journal of Neuroscience*, 2 April 2014, 34(14): 5003-5011; [DOI: 10.1523/JNEUROSCI.3765-13.2014](#)

Provided by University of Queensland

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