

Brain bypass surgery sparks restoration of lost brain tissue

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Neurosurgeons at the Krembil Neuroscience Centre, Toronto Western Hospital, have for the first time, initiated the restoration of lost brain tissue through brain bypass surgery in patients where blood flow to the brain is impaired by cerebrovascular disease. The study, which involved 29 patients, was published online in the journal Stroke.

In cases where [blood flow](#) is reduced to the brain as a result of diseased blood vessels, patients experience a progressive loss of [brain tissue](#). This loss of tissue, which comprises the [grey matter](#) of the brain, is believed to lead to decreased neurocognitive function (i.e. types of thinking, such as perception, memory, awareness, capacity for judgement) and may hasten the onset of [dementia](#).

At approximately 11 months after patients in the study underwent brain bypass surgery, aimed at restoring blood flow to the brain, researchers observed a 5.1percent increase in the thickness of the brain tissue on MRI scans.

"We were pretty astounded when we saw the results because they were quite unexpected," said Dr. Tymianski. "Our goal with the surgery was to halt further loss of brain tissue due to strokes, so it was remarkable to see the loss was actually reversed."

This is the first surgical treatment which has been shown to restore lost brain tissue. The average age of the patients in the study was 41 years old.

"The re-growth of brain tissue has only been observed in an extremely limited number of circumstances," said Dr. Tymianski. "We consider this so important because one of the most important health issues facing our population is chronic cerebrovascular disease, which leads to neurocognitive impairment and reduces quality of life."

Dr. Michael Tymianski is a [neurosurgeon](#) at the Krembil Neuroscience Centre specializing in neurovascular diseases, Director of the Neurovascular Therapeutics Program at the University Health Network and is a senior scientist at the Toronto Western Research Institute.

The full study is published online in the journal *Stroke*.

Provided by University Health Network

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