

Researchers tackle neurotrauma caused by car crashes

February 3 2014, by David Stacey

(Medical Xpress)—Researchers at The University of Western Australia are working to limit the spread of serious nerve damage, often caused by car crashes, to minimise disability and enable better recovery.

Associate Professor Lindy Fitzgerald, from UWA's School of Animal Biology, said that following accidents causing injury to a person's central nervous system, the damage spread beyond the area of impact, affecting surrounding nerve tissues.

Professor Fitzgerald is leading a team of UWA researchers investigating the issue of 'spreading' or secondary <u>nerve damage</u>. Supported by the Neurotrauma Research Program of Western Australia (NRP), an initiative funded by the Road Safety Council, the research is also relevant to stroke, experienced by more than 5,000 Western Australians each year.

"When the central nervous system is injured, the damage spreads, involving nerve tissue that survived the original impact," Professor Fitzgerald said. "In the days, weeks and months after injury, cells continue to die and nerve function deteriorates.

"Limiting this 'spreading' damage would help to preserve cells, along with a significant amount of function. In the <u>optic nerve</u>, this could mean the difference between partial sight and complete blindness."

Each year in WA alone, around 600 people suffer severe traumatic brain



injuries and around 50 people are left paralysed by spinal cord injury. Many central nervous system injuries are caused by road crashes.

The researchers have shown that when a nerve is wounded, the ongoing damage is likely due to the spread of excess calcium and oxidative stress in surrounding <u>nerve tissue</u>. By using multiple inhibitors to block <u>excess</u> <u>calcium</u> from entering cells, the damaging oxidation process is reduced, preserving the structure and function of the nerve. The findings were published recently in *Neuropharmacology* and presented at the Australasian Neuroscience Society annual meeting in Adelaide.

"So far we have conducted these studies in the laboratory, but the results may have important implications for the treatment of patients who suffer neurotrauma," Professor Fitzgerald said.

Provided by University of Western Australia

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