

# New imaging technique evaluates nerve damage

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A new imaging technique could help doctors and researchers more accurately assess the extent of nerve damage and healing in a live patient. Researchers at Laval University in Québec and Harvard Medical School in Boston aimed lasers at rats' damaged sciatic nerves to create images of the individual neurons' insulating sheath called myelin. Physical trauma, repetitive stress, bacterial infections, genetic mutations, and neurodegenerative disorders such as multiple sclerosis can all cause neurons to lose myelin. The loss slows or halts the nerve's transmission of electrical impulses and can result in symptoms such as numbness, pain, or poor muscle control.

Using their images of neurons, the researchers measured the thickness of the myelin at different locations and times after the rats' sciatic [nerve](#) was damaged. Two weeks after injury the nerve's myelin covering had thinned considerably, but at four weeks the nerve had begun to heal.

Traditionally, researchers could only obtain such myelin measurements by removing the nerve and slicing it into thin layers, a technique whose destructive nature prevented it from being used to evaluate nerve injuries in living patients. The new imaging method, described in the September issue of the Optical Society's (OSA) open-access journal *Biomedical Optics Express*, holds promise as a diagnostic tool for doctors treating [nerve damage](#) or degenerative diseases, the researchers write.

**More information:** "In vivo evaluation of demyelination and remyelination in a nerve crush injury model," Belanger et al., *Biomedical*

*Optics Express*, Volume 2, Issue 9, pp. 2698-2708.

[www.opticsinfobase.org/boe/abs ... cfm?URI=boe-2-9-2698](http://www.opticsinfobase.org/boe/abs/.../cfm?URI=boe-2-9-2698)

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