

Researcher finds natural hydrogel helps heal spinal cord

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Research led by a scientist at the Barrow Neurological Institute at St. Joseph's Hospital and Medical Center has shown injecting biomaterial gel into a spinal cord injury site provides significantly improved healing. The project that also included researchers from Purdue University and Arizona State University indicates that a "practical path" to treatment may be found for spinal injury patients.

The research led by the Mark Preul, MD of Barrow and Alyssa Panitch, PhD of Purdue was published in the *Journal of Neurosurgery*. Their study found that injection of an engineered hydrogel made up mainly of hyaluronic acid (a naturally-occurring body substance) into the spinal cord injury site decreases scarring and promotes a realignment of the spinal cord fibers around the injury site.

The hyaluronic acid which forms a scaffold-like configuration may help to structurally stabilize the spinal cord injury site. Tracing of cells in the brain stem after injury showed much higher levels in the [hydrogel](#) treated animals compared to animals which did not receive the treatment, and approached nearly normal levels. Treated animals had higher functional scores than non-treated animals.

The work was presented at the Annual Meeting of the American Association of Neurological Surgeons in San Diego where it won the Synthes Prize for Spine Research.

"[Spinal cord](#) injury is devastating to civilian and military populations -

especially to the young. There has been little progress toward paradigms of regeneration and few results that show real, sustained functional recovery," says Dr. Preul. "We've been so pre-occupied with regeneration, but that is a highly complicated and difficult to define goal. This project is a synergy of neurosurgeons and bioengineers that attempts repair of the SCI lesion cavity using a tissue-engineering biomaterials approach."

Dr. Preul says his team's goal is to find ways to structurally allow the body to better heal itself. "In this project we did not add anything to the hyaluronic acid. It may be that adding growth factors or cells into the gel matrix may allow even better results."

Although clinical trials are likely years off, Dr. Preul says these results show "we may be on a practical path that can give hope to the many people who suffer this sort of injury."

Source: St. Joseph's Hospital and Medical Center

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