

What types of hydrogel fillers best promote functional recovery in nerve regeneration?

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Methods to improve nerve regeneration using nerve conduits filled with hydrogels can differ significantly in their ability to promote functional recovery depending on the porosity of the conduit and the bioactivity of the hydrogel, according to a new study published in *Tissue Engineering, Part A*.

Mindy Ezra, PhD, Jared Bushman, PhD, David Shreiber, PhD, Melitta Schachner, PhD, and Joachim Kohn, PhD, Rutgers, The State University of New Jersey (Piscataway) and Shantou University Medical College

(Shantou, China), compared nerve regeneration in a mouse model of a 5-mm femoral nerve injury using porous or nonporous [conduits](#) containing collagen-only or enhanced collagen fillers. Only one form of enhanced collagen led to significant improvement in a measure of [functional recovery](#). Furthermore, the degree of conduit porosity affected the hydrogels' ability to promote nerve regeneration, concluded the researchers in the article entitled "Porous and Nonporous Nerve Conduits: The Effects of a Hydrogel Luminal Filler With and Without a Neurite-Promoting Moiety."

"Nerve gaps after trauma or extirpative surgery normally require the harvest of sensory nerves elsewhere in the body, with associated morbidity," says Co-Editor-in-Chief Peter C. Johnson, MD, Principal, MedSurgPI, LLC and President and CEO, Scintellix, LLC, Raleigh, NC.

"Progress in the development of synthetic conduits capable of guiding [nerve regeneration](#) - as in this study - have the potential to obviate this need."

More information: Mindy Ezra et al. Porous and Nonporous Nerve Conduits: The Effects of a Hydrogel Luminal Filler With and Without a Neurite-Promoting Moiety, *Tissue Engineering Part A* (2016). [DOI: 10.1089/ten.tea.2015.0354](#)

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