

Helping the body regrow nerves: New strategy for restoring nerve function

August 27 2013, by Miles O'brien



People with paralysis and other physical disabilities are walking again due to the development of a robotic exoskeleton. It is the creation of Homayoon Kazerooni, a robotics engineering professor at the University of California, Berkeley, and his team of researchers. Their work focuses on the control of human-machine systems specific to lower human extremities. Credit: NBC Learn, U.S. Patent and Trademark Office, and National Science Foundation

Combat, cancer and accidents—all can cause devastating nerve injuries. Sometimes, the body heals on its own.

"Your [peripheral nerves](#), the ones in the arms and the face, have an inherent ability to regenerate, but only under ideal circumstances," says

University of Florida biomedical engineer Christine Schmidt.

With support from the National Science Foundation (NSF), Schmidt and her team are working to restore [nerve function](#) when injuries are more complicated. Surgeons can sometimes move a nerve from one part of a patient's body to another. Schmidt has developed a method that grafts cadaver tissue onto the damaged area to act as a [scaffold](#) for nerves to re-grow themselves.

"This medical application has been made possible by developing new [tissue engineering](#) methods and by understanding how cells interact with their surroundings," notes Friedrich Srieenc, director of the Biotechnology, Biochemical and Biomass Engineering program in NSF's Directorate for Engineering.

Schmidt and her team are also looking at other approaches to directly stimulate nerve growth using as building blocks the natural sugar molecules found in the body. That would eliminate the need to transplant tissue. While the ultimate goal in nerve regeneration is reversing paralysis, Schmidt says intermediate successes, such as improving lung or bladder function, can be invaluable to patients and their families.

Provided by National Science Foundation

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