



Increasing the Understanding of Spinal Cord Injury

Part of Shriners Hospitals for Children's mission is to provide care for children with spinal cord injury, which is a very complex and challenging medical problem.

The spinal cord is the bundle of nerves that runs inside the backbone, or the vertebral column. Nerves from this bundle, which are distributed throughout the body, control voluntary actions – such as moving one's arm or leg – and involuntary actions – such as food digestion or breathing. Spinal cord injury (SCI) results in paralysis of the limbs affected, as well as partial or complete disruption of involuntary actions, depending on the point and extent of breakage.

So far, it has not been possible for doctors to repair a broken spinal cord. However, researchers at Shriners Hospitals for Children are making progress in developing approaches to repair and regenerate spinal cord.

Current research projects in that field include efforts to define molecules and interactions involved in spinal cord function and regeneration, and investigations to gain understanding of the molecules and processes that promote cell migration, tissue development and regeneration. Migration of a body's repair cells to sites of injury is essential for wound healing after SCI.

Shriners Hospitals for Children is committed to providing expert rehabilitative care to its patients with SCI. However, being able to offer the best care is dependent on accurate assessment and diagnosis. In pediatric SCI, determining the exact level and extent of injury has been difficult because of the lack of pediatric-based tools. For example, researchers have found that age 5 may be the youngest age children are developmentally able to understand the current standard test instructions, which were designed for adults, and older children do not react



Shriners Hospitals for Children is participating in several research projects that will lead to better treatment and understanding of spinal cord injury (SCI).

well to some aspects of the test, such as the pin-prick to determine sensitivity to sharpness. Consequently, researchers at Shriners Hospitals for Children are working on establishing assessment guidelines applicable to children with SCI who are as young as 3 months old.

The new guidelines for conducting neurological evaluations of children with SCI that will be generated by this study should help professionals with determining reasonable predictions or expectations, setting goals and evaluating children with SCI.

The effects of spinal cord injuries last a lifetime, and researchers at Shriners Hospitals for Children are dedicated to improving long-term outcomes for patients with SCI. Examples of research in this area include a study to determine the importance of support from caregivers and the community in improving quality of life, and identifying and measuring long-term quality of life outcome factors for this population.

Currently, Shriners Hospitals for Children is funding approximately 20 research studies involving different aspects of SCI. Researchers at Shriners Hospitals for Children share their expertise through academic affiliations at noteworthy nearby academic and medical institutions and by providing opportunities for post-doctoral researchers.

The emphasis on research and education is proof of Shriners Hospitals for Children's total commitment to determining, as well as providing, the best care for children with SCI.

The Shriners Hospitals for Children health care system depends on donations to fund all its programs, including research. For information on ways you can support this effort, please visit www.donate2SHC.org.

For more information about Shriners Hospitals for Children, please visit www.shrinershospitals.org.