

Neurorehabilitation: achieving recovery after neural injuries

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A variety of neurological conditions can lead to disability, pain, and a decline in quality of life. As the American population ages, the prevalence of neurological disability will increase due to conditions such as stroke and Alzheimer's disease. Recent data show that about 800,000 strokes occur annually in the United States and someone dies of a stroke every four minutes.¹ Stroke survivors have to contend with outcomes ranging from mild impairments to total dependence. In the younger population, there is an epidemic of concussion related to sports. Every year about 182,000 football players sustain at least one concussion, primarily in youth (99,000) and high school (80,000) programs, or about 1 in 30 youth players and 1 in 14 high school players. Brain damage at this early stage of life has adverse effects for a long time.²

My perspective on neurological disability is that of a rehabilitation medicine specialist and medical director of the Southern New England Rehabilitation Center (SNERC) and the Sargent Rehabilitation Center (SRC). SNERC follows Medicare criteria for acute inpatient rehabilitation (medical stability, ability to tolerate three hours of therapy/day, goals and potential for progress, etc.); the center treats adults with neurological conditions including strokes, brain injuries, spinal cord injuries, Parkinson's disease, and multiple sclerosis. SRC is an outpatient facility that treats these conditions, especially stroke and brain injuries, as well as a variety of pediatric neurological problems (developmental delay, autism, learning disabilities, etc.).

This issue of the *Rhode Island Medical Journal* focuses on neurorehabilitation. In the first article, Marilyn Serra (a speech language pathologist by training and the president of SRC) and I discuss the pathophysiology of and rehabilitation after sports concussions. The second article is by Amanda Dragga, a speech language pathologist at SNERC, who describes treatments for speech, swallow, and cognitive problems after a stroke. As a clinician and faculty member

of the Orthopedic Surgery department at Brown University, I often collaborate with the orthopedic residents. Therefore, I'm pleased that some of these surgeons-in-training have contributed articles on orthopedic complications during neurorehabilitation. For instance, orthopedic surgeons can help with procedures such as tendon lengthening for spasticity when conservative measures are not working. In some cases, heterotopic ossification after a brain or spinal cord injury may require surgical intervention, so collaboration with orthopedic surgeons is important in neurorehabilitation. Back pain and radiculopathy are common conditions in the outpatient setting, but on occasion there can be concomitant conditions such as ruptured hamstring tendons, as described in a case report.

During the difficult process of neurorehabilitation, I admire my patients, their families, and their clinical team as they contend with challenging disabilities. Inpatient facilities such as the Southern New England Rehabilitation Center and outpatient centers such as Sargent Rehabilitation Center offer a therapeutic haven for people with disabilities who wish to improve their independence and quality of life.

References

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2. Dompier TP, Kerr ZY, Marshall SW, et al. Incidence of concussion during practice and games in youth, high school, and collegiate American football players. *JAMA Pediatr*. doi:10.1001/jamapediatrics.2015.0210 (accessed 5/9/15).

Guest Editor

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