

"Nociceptive Afferent Sprouting, Hyperreflexia and Dysautonomia in Spinal Cord Injury"

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Anatomical and physiological plasticity following neural injury is usually considered necessary for recovery of lost functions such as movement. The same plasticity, however, may also underlie the emergence of so-called "positive phenomena" such as spasticity, neuropathic pain, and autonomic dysfunction. In this presentation, we will discuss the plasticity of nociceptive cutaneous afferents in the spinal cord and relate those to changes in a nociceptive reflex and in autonomic function following spinal cord injury. We will demonstrate afferent sprouting in both expected and unexpected sites and relate that to nociceptive hyperreflexia. We will also demonstrate the relationships between pain afferent subtypes and distinct cardiovascular functions, namely blood pressure and heart rate, both before and after spinal cord injury. Finally, we will demonstrate the treatment effects of a two week course of several pain medications on the development of dysautonomia following spinal cord injury.