SCONE

Kreydin et al. developed a non-invasive Spinal Cord Neuromodulator (SCONETM) to reactivate and retrain spinal neural networks with the goal of restoring function in patients with neurological disease, such as spinal cord injury, stroke, and multiple sclerosis [1].

This approach consists of using specific neuromodulatory parameters that transform dysfunctional neural networks of the spinal cord to functionally physiological states. They hypothesized that SCONE engages the automaticity and the feed-forward [2] features intrinsic to spinal neural networks to enable recovery of voluntary control of continence [3]. and voiding [4] [5]

In addition, unlike existing neuromodulation modalities (sacral neuromodulation and tibial) this approach has the unique feature of delivering stimulation to the spinal cord directly without relying on peripheral intervention. Traditionally, non-invasive delivery of an electrical stimulus to deep nervous structures, such as the spinal cord, has been a challenge due to cutaneous discomfort caused by the high current levels required to reach these structures. SCONE circumvents this issue by delivering a combination of multiple frequencies that render high-amplitude waveforms comfortable even in fully able-bodied individuals [6].

The Spinal Cord Neuromodulator (SCONETM) reactivates and retrains spinal neural networks. A case study introduces initial evidence that home-based, self-administered SCONE therapy may be a safe and effective method of delivering this neuromodulation modality and may have the ability to minimize clinic visits, which is especially salient in today's public health environment [7]

[1] , [3]
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