**Monitoring of Motor Tracts With Spinal Cord Stimulation**
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*Study Design.* Sensory- and motor-evoked potentials were recorded after high thoracic (T2) epidural electrical stimulation of the spinal cord. Under general anesthesia, twenty-two cats underwent single or repetitive spinal cord stimulation.

*Objectives.* Sensory-evoked potentials were recorded after antidromic activation of the posterior column sensory fibers at lower electrical intensities (<5 V). Motor tract activation was accomplished by recording the ventral root and muscle action potential using single pulse stimulation (>50 V).

*Methods.* Sensory-evoked potentials were recorded from the lumbar spinal cord (n=20), dorsal root (n=80) and peroneal nerve (n=40). Motor-evoked potentials were recorded from the ventral root (n=40) and the hind limb musculature (n=10).

*Results.* The lumbar spinal-evoked response resisted lesioning and showed a minimal change after a spinal cord hemi section. Dorsal rhizotomy abolished the ipsilateral peroneal nerve action potential, indicating antidromic activation of afferent fibers. Motor responses did not change after the dorsal rhizotomy, suggesting involvement of nonsensory pathways.

*Conclusions.* These findings indicate that spinal cord stimulation activates sensory and motor tracts that can be recorded at various sites along the central or the peripheral nervous system.