

Clinical Image

Exclusive Image Gallery on Human Spinal Cord Regeneration

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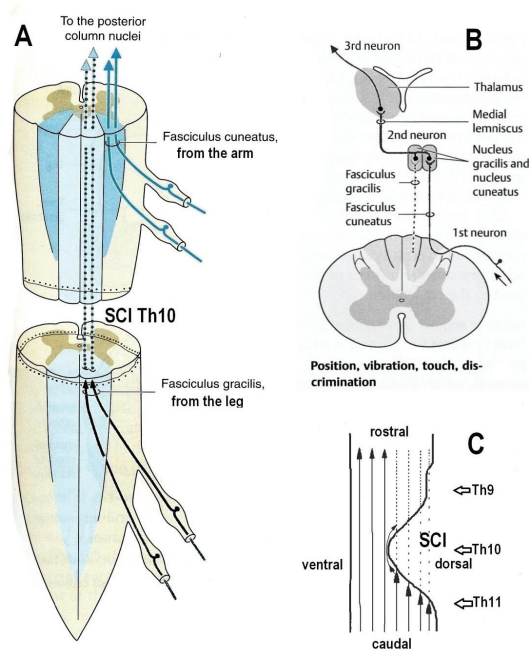
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**Figure 44:** A. Posterior funiculus, containing the posterior columns fasciculus gracilis (medial, afferent fibers from the leg) and fasciculus cuneatus (lateral, afferent fibers from the arm). Afferent fibers sub-serving different sensory modalities traverse the root entry zone and enter the posterior horn (B). The type of myelin changes from peripheral to central, and the myelinating cells are no longer Schwann cells, but rather oligodendrocytes. The spinal cord injury at the level of Th10 is indicated. The afferent fibers from the arm join the cord at cervical levels and lie more laterally and dorsally to the spinal cord injury. The action potentials derived from receptors in muscles, tendons, fasciae, joint capsules and skin are conveyed in the distal processes of pseudo-unipolar neurons in the spinal ganglia. The central processes of the cells, in turn, ascend in the spinal cord and terminate in the nucleus gracilis of the medulla oblongata. The impulses derived from receptors in the leg are conveyed similarly to the caudal spinal cord. But in the spinal cord the central processes are mainly destroyed at the injury site and the action potentials cannot reach the second neurons in the nucleus gracilis of the medulla oblongata (dotted lines) (B). B. Central continuation of posterior column pathways. The posterior column nuclei contain the second neurons of the afferent pathway, which project their axons to the thalamus. Due to the spinal cord injury the second neurons in the nucleus cuneatus are partly de-afferented (dotted line). C. Pictured spinal cord injury site. Soled lines are functional, dotted lines not. To understand the regeneration of the human spinal cord, induced by coordination dynamics therapy, more knowledge of the regeneration in human is needed.

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