STEPPING RESTORATION IN CHRONICALLY SPINALIZED RATS BY TREADMILL TRAINING

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The investigation is devoted to the ways of the locomotor rehabilitation after spinal cord trauma. Stepping restoration by treadmill training was investigated in spinalized rats by behavioral and histological methods.

Adult female Sprague-Dawley rats were treated with the complete spinal cord lesion at the Th 9-10 level. The rats were trained to realize stepping movement on the treadmill starting next day after the injury during 8 weeks. Control animals were not. Motor activity, restoration of the hindlimbs movements and weight bearing were tested weekly. Eight weeks after the injury the rats were euthanatized, spinal cord was fixed and prepared for the light microscopy investigation.

It was revealed that treadmill training increased the motor activity of the rats after the complete spinal cord lesion, induced the locomotor movements of the hindlimbs and preserved the available motoneurons in the distal part of the spinal cord. Weight bearing by the hindlimbs was occurred on the running treadmill ribbon after training to realize stepping cycle.

Its supposed that the ability of the distal isolated part of the spinal cord to realize locomotor movements was carried out by the central pattern generator (CPG) localized in the lumbar thickening of the spinal cord. Treadmill training can start the CPG through the afferent system.

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