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Dynamic trunk stability is improved in paraplegics following kayak ergometer training.

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Abstract(en) :

The purpose of the study was to assess whether postural stability in persons with spinal cord injury (SCI) could be affected by training. Ten post-rehabilitated persons with thoracic SCI performed 30 sessions of kayak ergometer training during a 10-week period. The ergometer was modified with a balance module adjustable in the medio-lateral direction. Before and after the training period, horizontal support-surface translations were presented randomly, either in the forward or backward direction, or to the side, while subjects sat in their own wheelchairs. The platform perturbation consisted of an unpredictable initial acceleration, followed by a constant-velocity phase and a predictable deceleration. Markers were applied on the trunk and movement data were recorded in 3D. Four kinematic responses of trunk angular and linear displacement were investigated. In general, postural stability was improved after training with smaller rotational and linear displacements of the trunk observed during both predictable and unpredictable translations in all directions. Thus, the training was able to improve the ability of persons with long-standing SCI to maintain an upright sitting posture in response to externally generated balance perturbations, which should imply an increased capacity to master similar challenges to balance in everyday life.

In thesis:

[Bjerkefors, Anna. Performance and trainability in paraplegics: motor function, shoulder muscle strength and sitting balance before and after kayak ergometer training. 2006.](#)

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