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Shoulder muscle strength in paraplegics before and after kayak ergometer  
Training

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**Abstract(en) :**

The purpose was to investigate if shoulder muscle strength in post-rehabilitated persons with spinal cord injury (SCI) was affected by kayak ergometer training and to compare shoulder strength in persons with SCI and able-bodied persons. Ten persons with SCI (7 males and 3 females, injury levels T3-T12) performed 60 min kayak ergometer training three times a week for 10 weeks with progressively increased intensity. Maximal voluntary concentric contractions were performed during six shoulder movements: flexion and extension (range of motion 65 degrees ), abduction and adduction (65 degrees ), and external and internal rotation (60 degrees ), with an angular velocity of 30 degrees s(-1). Position specific strength was assessed at three shoulder angles (at the beginning, middle and end of the range of motion) in the respective movements. Test-retests were performed for all measurements before the training and the mean intraclass correlation coefficient was 0.941 (95% CI 0.928-0.954). There was a main effect of kayak ergometer training with increased shoulder muscle strength after training in persons with SCI. The improvements were independent of shoulder movement, and occurred in the beginning and middle positions. A tendency towards lower shoulder muscle strength was observed in the SCI group compared to a matched reference group of able-bodied persons. Thus, it appears that post-rehabilitated persons with SCI have not managed to fully regain/maintain their shoulder muscle strength on a similar level as that of able-bodied persons, and are able to improve their shoulder muscle strength after a period of kayak ergometer training

**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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