

# Treatment of whiplash associated disorders

Akademisk avhandling

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Avhandlingen baseras på följande arbeten:

- I. Seferiadis A, Rosenfeld M, Gunnarsson R. **A review of treatment interventions in whiplash-associated disorders.** Eur Spine J. 2004 Aug;13(5):387-97.
- II. Rosenfeld M, Seferiadis A, Carlsson J, Gunnarsson R. **Active intervention in patients with whiplash-associated disorders improves long-term prognosis: a randomized controlled clinical trial.** Spine (Phila Pa 1976). 2003 Nov 15;28(22):2491-8.
- III. Seferiadis A, Ohlin P, Billhult A, Gunnarsson R. **Basic body awareness therapy superior to exercise therapy for patients with chronic whiplash-associated disorders: a randomized controlled clinical trial.** *Manuscript.*
- IV. Seferiadis A, Ohlin P, Billhult A, Gunnarsson R. **Applying the fear-avoidance model to patients with chronic whiplash associated disorders: a cross-sectional study.** *Manuscript.*



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# Treatment of whiplash associated disorders

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## **Abstract:**

Whiplash injuries seem to have a substantial impact on health. Half the affected patients have persistent pain and disability and significant costs are incurred to society, mainly due to inability to return to work. The pathophysiology of the condition is largely unknown and there has been much debate on how whiplash-associated disorders (WAD) should be treated. In this dissertation, the treatment of acute and chronic WAD has been elucidated.

- The evidence basis of many commonly used treatments for patients suffering from WAD, both in the acute and chronic state was analyzed in a systematic literature review. Twenty-six randomized controlled trials (RCT) were identified through computer-assisted search of the databases Medline (from 1962 to May 2003), CINAHL (1960 to 2003), Embase (1976 to 2003) and Psycinfo (1960 to 2003) and manual check of the reference lists of relevant studies. Based on the degrees of evidence and the practical obstacles the following treatments can be recommended: Early physical activity in acute WAD, combination of cognitive behavioral therapy with physical therapy interventions and coordination exercise therapy in chronic WAD.
- The long-term (3-year) efficacy of active intervention (early mobilization with/without McKenzie treatment) in patients with acute WAD compared with standard intervention (information brochure recommending initial rest and slow resumption of activity) and the effect of early versus delayed initiation of intervention was studied in an RCT. The active intervention was more effective in reducing pain intensity, sick leave and retaining/regaining total range of motion than the standard intervention.
- The effectiveness of 10 weeks of twice-weekly, 90-minute sessions of either Exercise Therapy (general conditioning, coordination, strengthening of deep cervical flexors, stretching and relaxation) or Basic Body Awareness Therapy (training comfortable posture and use of the body, balance and relaxation during movement) for patients with chronic WAD was compared in an RCT. Basic Body Awareness Therapy resulted in slightly better effects on the physical functioning, social functioning and bodily pain domains of SF-36 and on pain frequency compared to Exercise Therapy at three months.
- The applicability of the fear avoidance model of chronic pain (FAM) in patients with WAD and the inclusion of a measure of guarded movement in the model were studied in a cross-sectional trial. Statistically significant correlations between all measures of the FAM were found and these measures explained part of each other's variance. Applying the FAM of chronic pain to patients suffering from chronic WAD appears valid.

**Key words:** whiplash-associated disorders, systematic review, randomized controlled trial, McKenzie method, fear-avoidance, chronic pain, exercise therapy, basic body awareness,

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