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## **Prognostic factors of whiplash-associated disorders: A systematic review of prospective cohort studies**

**Pain**

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### **FROM ABSTRACT**

We present a systematic review of prospective cohort studies. Our aim was to assess prognostic factors associated with functional recovery of patients with whiplash injuries.

The failure of some patients to recover following whiplash injury has been linked to a number of prognostic factors. However, there is some inconsistency in the literature and there have been no systematic attempts to analyze the level of evidence for prognostic factors in whiplash recovery.

Studies were selected for inclusion following a comprehensive search of MEDLINE, EMBASE, CINAHL, the database of the Dutch Institute of Allied Health Professions up until April 2002 and hand searches of the reference lists of retrieved articles. Studies were selected if the objective was to assess prognostic factors associated with recovery; the design was a prospective cohort study; the study population included at least an identifiable subgroup of patients suffering from a whiplash injury; and the paper was a full report published in English, German, French or Dutch. The methodological quality was independently assessed by two reviewers. A study was considered to be of 'high quality' if it satisfied at least 50% of the maximum available quality score. Two independent reviewers extracted data and the association between prognostic factors and functional recovery was calculated in terms of risk estimates.

Fifty papers reporting on twenty-nine cohorts were included in the review. Twelve cohorts were considered to be of 'high quality'. Because of the heterogeneity of patient selection, type of prognostic factors and outcome measures, no statistical pooling was able to be performed.

Strong evidence was found for high initial pain intensity being an adverse prognostic factor.

There was strong evidence that for older age, female gender, high acute psychological response, angular deformity of the neck, rear-end collision, and compensation not being associated with an adverse prognosis.











