A research synthesis of therapeutic interventions for whiplash-associated disorder (WAD).

Part 4: Noninvasive interventions for chronic WAD

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CRD summary
The authors concluded that exercise programmes were the most effective noninvasive treatment for patients with chronic whiplash-associated disorder. Questions remained regarding the relative effectiveness of various regimens. Despite the risk that relevant studies were missed and the review may have been prone to language or publication bias, the authors cautious conclusions reflect the limited evidence presented and are probably reliable.

Authors' objectives
To assess the effectiveness of noninvasive interventions initiated during the chronic phase of whiplash-associated disorder.

Searching
EMBASE, PubMed, CINAHL, PsycINFO, Cochrane Central Register of Controlled Trials (CENTRAL) and Web of Science were searched from January 1980 to March 2009 for English-language studies; search terms were reported.

Study selection
Clinical studies that included at least three participants aged at least 18 years of age with whiplash injury and that evaluated the effectiveness of at least one noninvasive intervention for the chronic phase of whiplash-associated disorder were eligible for inclusion. The chronic phase was defined as more than 12 weeks post injury. A motor vehicle collision had to be responsible for whiplash-associated disorder in at least 60% of the study participants or motor vehicle collision-related whiplash patients had to form a distinct or separately analysed group of patients.

Five different noninvasive treatment categories were included: exercise programmes (nine studies); interdisciplinary interventions (nine studies); chiropractic manipulation (one study); pharmacological interventions (one study of melatonin supplementation) and alternative treatments (two studies, one of myofeedback training and one of alternative therapies). Study populations, comparator treatments and duration of whiplash-associated disorder varied. A wide range of outcome measures was used; most studies assessed pain.

The authors did not state how studies were selected for the review.

Assessment of study quality
Study quality was assessed using the PEDro system for RCTs to assign a quality score (maximum 10). Scores of at least 9 were considered excellent quality, 6 to 8 were good quality studies, 4 to 5 were fair quality studies and scores less than 4 were poor quality studies.

Two reviewers independently assessed study quality; discrepancies were resolved through consensus or referral to a third reviewer.

Data extraction
Descriptive data were extracted on outcome measures and results.

The authors did not state how many reviewers extracted data.

Methods of synthesis
The authors conducted a narrative synthesis. Study details were tabulated and grouped by intervention.
Results of the review
Twenty-two studies were included in the review (n=1,251 participants, range three to 214). Twelve RCTs had good overall methodological quality (median PEDro score 6, range 2 to 8). Allocation concealment was applied in four studies, assessor blinding was used in eight, and five studies undertook intention-to-treat analysis.

Exercise programmes (nine studies, n=677; eight RCTs): Over the short term there was some evidence to suggest that exercise programmes were effective in relieving whiplash-related pain.

Interdisciplinary interventions (nine studies, n=367; two RCTs): Two small RCTs provided conflicting results for cognitive-behaviour therapy (CBT). Five of non-RCTs found that interdisciplinary interventions yielded significant benefits. Interventions were diverse.

There was very limited evidence that both manual joint manipulation (one case series) and myofeedback training (one case series) may have provided some benefit. Melatonin supplementation (one RCT) did not appear to be effective.

Authors’ conclusions
Based on the available research, exercise programmes were the most effective noninvasive treatment for patients with chronic whiplash-associated disorder. Many questions remained regarding the relative effectiveness of various exercise regimens.

CRD commentary
The review question was supported by appropriate inclusion criteria. Several electronic databases were searched. The search was restricted to English-language studies and this may have led to language bias. Limited searches were undertaken to identify unpublished studies; some relevant studies may have been missed. Quality assessment was undertaken in duplicate to minimise reviewer error and bias; it was unclear whether such methods were applied to study selection and data extraction. An appropriate checklist was used to assess the quality of RCTs. The authors acknowledged the poor statistical reporting of results across the primary studies and, given these differences, a narrative synthesis was appropriate.

Despite the risk that relevant studies were missed and the review may have been prone to language or publication bias, the authors cautious conclusions reflect the limited evidence presented and are probably reliable.

Implications of the review for practice and research
Practice: The authors stated that interdisciplinary interventions represented a promising advancement for the treatment of whiplash-associated disorder, with a particular emphasis on the use of acceptance-based CBT.

Research: The authors stated that further research was needed to assess the effectiveness of various exercise programmes and interdisciplinary interventions, together with the effectiveness of other treatment regimens. Research was required to assess which interventions were most suited for certain patient characteristics.

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Other publications of related interest

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.