

## **RESEARCH REPORT**

### **Manipulation and low back pain literature search**

#### **LUMBAR MANIPULATION REVIEW ARTICLES:**

**Sran,MM. To treat or not to treat: new evidence for the effectiveness of manual therapy. British journal of sports medicine. 2004 oct; 38 (5):521-5. Review.**  
PMID15388530

This article investigates the apparent inconsistent data yielded by trials comparing spinal manipulative therapy to other standard treatments for low back and neck pain.

Medline, cinahl, embase were searched for randomised trials of spinal manipulative therapy versus other conservative treatments. A full description of the search strategy is given this does not mention any attempt to address publication bias. 13 full papers published in English between 01/01/98 and 31/12/03 were identified.

No methodological scoring system was used but factors influencing quality of these papers were identified. Only one of the identified studies used a control group. Less than 1/3 of studies included a power calculation. Populations of the studies reviewed were shown to be homogeneous.

Article suggests differences in results of trials of manipulation could be due to differences in methodology employed. Methodological variations include treatment techniques and protocols used, dosage (number of sessions, duration of sessions, grade of technique used) and combination therapies (manipulation in conjunction with some other form of treatment).

Positive results for manipulation over other interventions reported in those studies where a clear protocol based on clinical guidelines or expert texts for the manipulative treatment provided was described.

**Nadler,SF. Non pharmacologic management of pain. Journal of American osteopath association 2004 Nov; 104 (11 supp 8): s 6-12 Review**  
PMID:15602035

Descriptive literature review to assist selection of evidence based non pharmacologic treatments for chronic neck and back pain. Manipulation being one of the modalities reviewed.

Method of selecting studies and publication bias was not discussed. No methodological scoring system was used.

Studies reviewed that involved manipulation had mixed outcomes. The authors attribute this to poor study design, execution and poorly quantifiable objective measures.

Article suggests "aggressive treatment" with manipulation in the early stages of a painful episode may be beneficial when it is easier to demonstrate significant results.

**Licciarclone,JC. The unique role of osteopathic physicians in treating patients with low back pain. Journal of American osteopathic association 2004 Nov 104 (11 suppl 8):s13-8. PMID15602036**

Summary of methodological characteristics and results of the 3 major clinical trials of osteopathic manipulative treatment for low back pain that have been conducted in the USA.

No indication of how papers were identified. General methodological considerations are discussed pertaining to any trial of manipulation. No analysis of the specific methodologies employed in the 3 trials reviewed in this article.

Publication bias, missing information and any differences in results between the 3 trials reviewed are not mentioned.

Article concludes that results of the 3 trials reviewed suggest osteopathic manipulation will be beneficial in many low back pain patients.

**Bogduk,N. Management of chronic low back pain. Medical journal of Australia 2004 Jan 19:180(2):79-83 Review**

Manipulation included as part of an evidence review of prevailing approaches to management of chronic low back pain.

No indication given as to how papers were identified or publication bias. Quality assessed using Australian national health and medical research council system for grading evidence.

Manipulation was found to be slightly more effective than sham therapy but not more effective than other forms of care.

### **LUMBAR MANIPULATION TRIALS:**

**Hancock, Maher, Latimer, McLachlan, Cooper, Day, McAuley. Manipulative therapy and/or NSAIDs for acute LBP: design of a RCT. Biomedcentral musculoskeletal disorders 2005 Nov 10;6:57**

<http://www.biomedcentral.com/1471-2474/6/57>

PMID16280089

This is a proposed methodology for a trial not yet conducted.

Australian guidelines currently advocate advice and paracetamol for treatment of a new episode of acute back pain. NSAIDs and/or manipulation are recommended as second line therapy. Aim of this study is to evaluate NSAIDs and/or manipulation as first line therapy.

Subjects will be randomised to 4 groups. Placebo NSAIDs + placebo manipulation, active NSAIDs and placebo manipulation, placebo NSAIDs and active manipulation, active NSAIDs and active manipulation. Placebo manipulation will be de-tuned ultrasound

The researcher will be blinded to allocations. As it is not possible to blind the treating physio they will receive specific training to respond identically to all patients. All patients will also receive GP care as defined in Australian guidelines (paracetamol and advice). Validated tools will be used for outcome measures.

Results are due 2007 and may provide evidence to help determine whether manipulation more beneficial when introduced as part of first line management or would be better reserved for those cases not responding to first line management.

**UK BEAM trial team. United Kingdom back pain exercise and manipulation randomised trial: effectiveness of physical treatments for back pain in primary care. BMJ 2004 Dec 11; 329 (7479):1377. Epub 2004 Nov19. PMID15556955**

Pragmatic trial to investigate the effect of adding exercise classes, spinal manipulation delivered in NHS and private premises or manipulation followed by exercise to "best care" in general practice for low back pain. Participants randomised to 6 groups. Best care in general practice, exercise, manipulation in private premises, manipulation in NHS premises, manipulation in private premises followed by exercise and manipulation in NHS premises followed by exercise. Groups were shown to be similar at start of trial.

Receipt of 'basic minimum treatment' in addition to manipulation or exercise achieved in 92% of manipulation group and 63% of exercise group.

1334 subjects recruited to trial 995 (75%) returned final 12 month follow up questionnaire. 255 lost to follow up.

Outcome measures were roland and morris disability questionnaire. Von Korff pain score. Back beliefs score, Fear avoidance beliefs questionnaire, SF36 and EuroQuol at 3 and 12 months.

All groups improved over time. There was no significant difference between manipulation delivered in private or NHS premises.

Exercise improved back function by a small but statistically significant margin at 3 months. It also achieved sustained reductions in disability, pain and adverse beliefs about back pain.

Manipulation improves back function by a small to moderate margin at 3 months and a small but significant margin at 12 months. It also achieves sustained improvements in disability, pain, adverse back beliefs and general physical health.

Combined treatment improves back function by a moderate margin at three months and a small but significant margin at 12 months. The additional benefit of combined treatment over manipulation appears to be much greater improvements in beliefs about back pain and fear avoidance.

The authors raise the question of whether small to moderate clinical benefits are worth the cost of therapy. They point out that due to the large cost of back pain even small differences in clinical outcomes may have large economic effects. This theme is investigated further in a second paper provides an analysis of the economic implications of the UK beam trial findings.

**UK BEAM randomised trial: cost effectiveness of physical treatments for back pain in primary care. BMJ 2004 Dec 11; 329 (7479): 1381 PMID 15556954**

Cost analysis alongside pragmatic RCT.  
Combined treatment had highest therapy costs but lowest subsequent hospital costs over 1 year.

Taking this into account combined treatment cost £125 more than best GP care, exercise £140 and manipulation £195.  
These costs were then combined with QALYS (quality adjusted life years) to assess cost effectiveness for each strategy.

Analysis concludes that spinal manipulation is a cost effective addition to best care for back pain in general practice. Manipulation alone probably gives better value for money than manipulation followed by exercise.

**Geisser, Wiggert, Haig, O'Colwell. A randomised controlled trial of manual therapy and specific adjuvet exercise for chronic low back pain. Clinical journal of pain 2005; 21 (6): 463-470 PMID16215330**

100 subjects were selected with chronic low back pain of more than 3 months duration from Michigan university spine treatment program. Randomised to one of 4 treatment groups. No description of the randomisation procedure is given.

Manual therapy + specific ex  
Sham manual therapy + specific ex  
Manual therapy + non specific ex  
Sham manual therapy + non specific ex

The manual therapy technique investigated in this study was soft tissue mobilisation.

Analysis of any pre treatment differences between groups revealed the sham manual therapy + non specific exercise group to be older.

Groups were assessed for any significant differences in ex compliance and non was found.

It was not possible to blind treating therapist to treatment allocation, therefore the protocol followed for the manual and sham therapies ensured subjects were treated the same. No significant differences were detected between participants perceptions of whether they received 'real' treatment therefore patients were effectively blinded.

Non completers were more likely to be male, receiving compensation, had higher reported pain and disability levels therefore study findings may not be generalised to this subgroup.

A number of validated assessment tools were used to measure pain and disability.

Study concludes manual therapy with specific exercise gives significant improvements in pain. No significant improvements in disability observed. Therefore reduction in pain does not necessarily lead to change in function.

Sham manipulation and specific ex group showed significant increase in disability.

No support that manual therapy alone beneficial.

Further research recommended into the effect of combining manual therapy with exercise.

Study concludes that manual therapy and specific exercise alone may be beneficial in a sub group CLBP population believed to be heterogeneous. Manual therapy and specific ex may be beneficial aspects of multidisciplinary treatment which has been shown to be efficacious.

**Frost, Lamb, Doll, Carver, Stewart- Brown. Randomised controlled trial of physiotherapy compared with advice for low back pain. BMJ 2004; 329:708 (25 sept)**

<http://bmj.bmjournals.com/cgi/content/full/329/7468/708>

Patients with mild to moderate low back pain were randomised to an advice group or a physiotherapy group. The advice group received a 1 hour advice session from a physiotherapist. The therapy group were assessed and treated as judged to be appropriate by a physiotherapist on up to 5 subsequent occasions. This was not specifically a trial of manipulation but is relevant as a large proportion of patients in the therapy group received manual therapy treatments. Both groups received a copy of the back book.

Some patients randomised to the advice group subsequently received further treatment. Reasons for this were the patients being unhappy with advice

only, the treating physio deeming it unethical to withhold further treatment for example due to increased pain or the GP referred for more treatment.

There was a 30% drop out rate at 12 months but few differences between completers and non completers. Many LBP trials report high drop out rates, an important consideration when designing low back pain trials. Outcome measures were Oswestry disability index, Roland and Morris and SF36 and patient perceived benefit on a 0-10 scale all at 2, 6 and 12 months

The authors conclude that routine physio for mild to moderate low back pain is no more effective than a session with a physiotherapist that includes advice and suggest these findings challenge the traditional model of physiotherapy. However patient perception of benefit was in conflict with validated outcome measures and the clinical significance of this is recommended for further investigation

**Chiradjant, Maher, Latimer, Stepkovitch. Efficacy of “therapist-selected” versus “randomly selected” mobilisation techniques for the treatment of low back pain: A randomised controlled trial. Australian journal of physiotherapy 2003 49:233-241**

<http://apa.advsol.com.au/physio%5Fand%5Fhealth/home.cfm?CFID=722887&CFTOKEN=18110621>

Subjects suffering non specific low back pain were randomly assigned to therapist selected group and randomly assigned group. In the therapist selected group the mobilisation technique used to treat the patient was selected by the treating physiotherapist based on examination findings. In the randomly assigned group patients were treated with a randomly selected manual therapy technique.

This was an assessment of treatment effects on the day. There was no long term follow up. This study therefore only investigated any differing effects from one single treatment.

The researcher and patients were blinded to treatment allocation. It was is not possible to blind the treating physiotherapist.

Outcome measures were current pain intensity measured on 0-10 scale, active range of movement and global perceived effect on an 11 point scale.

A significantly greater increase in range of right lateral flexion was found when therapist selected technique was given to subjects whose most painful movements were extension and right lateral flexion. Significantly greater increase in left lumbar lateral flexion range was recorded when therapist selected technique was used on subjects whose most painful movement direction was right lateral flexion. An additional finding was that better outcomes were achieved when mobilisation applied to lower lumbar levels (L4-5)

Primary analysis indicated no difference between therapist selected and randomly selected mobilisation techniques. This is contrary to clinical recommendations in manual therapy texts. Authors suggest these findings may be due to homogenous sample of patients with non specific low back pain and that recommend further research into the effect of specific treatment techniques with heterogeneous samples of low back pain patients.

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