

Back pain

Chiropractic spinal manipulation for back pain

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The effectiveness of chiropractic spinal manipulation for back pain is uncertain

Sports medicine clinicians with varied training include joint mobilisation and manipulation among their therapeutic skills. Examples include chiropractors, physiotherapists, and osteopaths, not to mention the doctors and massage therapists who treat various joint pathologies. Although athletes rarely have osteoporosis, the broad field of sports medicine includes the use of exercise therapies and treatment of the musculoskeletal system in people of all ages. Therefore this leader focuses on the role of chiropractic joint manipulation.

Back pain sufferers from more than 60 countries consult chiropractors.¹ A booklet by the British Chiropractic Association boldly states that "95% of back pain is mechanical in origin, and can be treated by a chiropractor in a primary care setting".² Yet there are many who doubt such promotional statements. A recent, perhaps more sober, assessment of the data reads differently: "43 randomised trials of spinal manipulation for treatment of acute, subacute and chronic low back pain have been published. 30 favoured manipulation over the comparison treatment in at least a subgroup of patients and the other 13 found no significant differences".³ However, these trials used mostly non-chiropractic spinal manipulation. The only systematic review of exclusively chiropractic spinal manipulation concluded that "the available RCTs provided no convincing evidence of the effectiveness of chiropractic for acute or chronic low back pain".⁴ Since the publication of this article, the emerging trial data have not tended to be encouraging. The effectiveness of chiropractic spinal manipulation for back pain is thus at best uncertain. More specifically, for osteoporotic back pain no trial data are available at present. Similarly it is unclear whether this approach is superior to other treatments used for this back pain.⁵ These statements are true regardless of the many national guidelines that seem to suggest the opposite.

"Risk factors are not identifiable, which means that everyone receiving chiropractic treatment is at risk"

If the documented benefit from a treatment is uncertain, any (even a relatively small) risk can weigh heavily. Spinal manipulation, especially the chiropractic variety which often uses relatively high forces (up to about 500 N),⁶ is far from risk-free. About half of all patients will experience transient, mild to moderate problems, mostly local pain, after treatment.⁷ Dramatic complications have also been noted with some degree of regularity.⁸ They mostly relate to cerebrovascular accidents after upper spinal manipulation. Risk factors are not identifiable, which means that everyone receiving chiropractic treatment is at risk.

Estimates of that risk (by chiropractors) vary from 1 in 400 000 to 1 in about 4 million manipulations.⁹ But under-reporting can be as large as 100%,¹⁰ a fact that renders the above estimates nonsensical. In a recent case-control study,⁸ 582 cases of vertebrobasilar accidents were matched with healthy controls. Patients under 45 years of age who had experienced a vertebrobasilar accident were five times more likely than controls to have visited a chiropractor in the preceding week, and five times more likely to have made more than three visits for cervical treatment in the preceding month. There were no significant associations for older patients. For every 100 000 chiropractic patients below the age of 45 years, approximately 1.3 cases of vertebrobasilar accidents attributable to that treatment would be observed within one week of treatment. These data indicate that the incidence of serious complications has previously been underestimated.

Serious complications occur mostly with upper spinal manipulation. However, chiropractors view the spine as a functional entity, thus often manipulating the spine at levels at which "subluxations" are detected regardless of the location of pain. In other words, patients with low back pain often also receive upper spinal manipulation for treatment. One could furthermore argue that manipulation is much safer than other treatment options such as non-steroidal anti-inflammatory drugs.¹ This may well be true, but one needs to point out that the risk-benefit relation, not the absolute risks, must inform therapeutic discussions.

"Osteoporosis should be regarded as a contraindication for chiropractic spinal manipulation"

A special case is the patient suffering from osteoporotic back pain. About 4% of all back pain originates from osteoporosis,¹¹ a figure that increases with age, particularly in women. Plain radiography, as often used by most chiropractors, is unhelpful in diagnosing mild to moderate osteoporosis (or most other causes of back pain). Its use as a diagnostic tool in mechanical back pain is limited because "it does not provide adequate clinically relevant findings".¹¹ Osteoporosis should be regarded as a contraindication for chiropractic spinal manipulation. Yet, in practice, no reliable diagnostic methods are available to chiropractors for identifying osteoporosis, and no threshold values have been determined for people at risk.

The Code of Practice of the General Chiropractic Council determines that "before instituting any examination or treatment, a chiropractor shall ensure that informed consent . . . has been given . . . Informed consent means consent that is given by a person who has been supplied with all the necessary relevant information".¹² This opens a range of important questions. What information do patients find necessary and relevant? Are patients routinely informed about the evidence on effectiveness and safety of chiropractic spinal manipulations? Are they fairly advised about other treatment options? Are they told about the dubious value of radiographs? Are they told that osteoporosis is a contraindication? The sooner the chiropractic profession addresses these issues the better for their patients.

In conclusion, the proven benefit of chiropractic spinal manipulation is far less certain than chiropractors tend to admit and its risks are not negligible. This is true for back pain in general and for osteoporotic back pain in particular.

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..... **COMMENTARY**

This leader identifies the lack of trial data on the safety and efficacy of spinal manipulation for back pain in people with osteoporosis. Although the applied forces in spinal manipulation (high velocity thrust techniques) are high,^{1,2} the forces applied in spinal mobilisation (low velocity techniques), as commonly used by physiotherapists and osteopaths, are much lower (approximate maximum 250 N).^{3–5} As the number of people with osteoporosis increases,

there is an urgent need to assess the safety and efficacy of spinal mobilisation techniques for osteoporotic back pain.

Specifically, there is a need to quantify (a) the forces that will fracture the osteoporotic spine in the direction of typical mobilisation procedures, and (b) the forces that a clinician applies when performing spinal manual therapy. This research will require close collaboration of clinicians with bioengineers.

Professor Ernst clearly describes the problems associated with inadequate measures of bone density by plain radiography, yet this is the conventional method used in chiropractic offices. Although many clinicians still think of osteoporosis as a disease of the frail elderly, clinical experience in Canada suggests that many middle aged adults have compromised bone health and are at high risk of fragility fractures. Dual energy x ray absorptiometry is the optimum diagnostic method for osteoporosis.⁶ Yet many patients seen in British Columbia's provincial Osteoporosis Program are having chiropractic spinal manipulation despite obvious risk factors for osteoporosis. All clinicians, not just physicians, need to recognise the risk factors for osteoporosis and consider the risks and benefits of spinal manipulation for these patients.

Evidence of the therapeutic effects of spinal mobilisation techniques suggests that they can reduce spinal pain,^{3,7–9} stimulate sympathetic nervous system activity,^{8–10} and promote motor activity.⁸ As patients with osteoporosis and back pain could potentially benefit from spinal mobilisation, trials are needed to examine its safety and efficacy in this population.

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