



Evidence-Based Musculoskeletal Services in Primary Care

To provide an evidence-based musculoskeletal service, one of the options in a pathway needs to be acupuncture and chiropractic/ osteopathy, as outlined below. There is also an important case for moving services like this out of hospitals and into our communities, where there are a plethora of regulated health professionals to provide the service.

1. Cost-Effectiveness

1.1 Cost-Effectiveness – Acupuncture

It has been demonstrated, particularly in England and Germany, that pain is cost-effectively managed by acupuncture and that the difference in health outcomes gained by patients who received acupuncture against GP care continue to grow at 6 months and 24 months – meaning that cost-savings across the patient group accrue over time.^{1,2,3}

1.2 Cost-Effectiveness – Chiropractic and Osteopathy

In the US, most people have medical insurance; some packages offer chiropractic care, some do not. A four-year study of 1.7 million people with back pain (700,000 with chiropractic cover, 1 million without) showed some remarkable results.⁴

	Without Chiropractic Cover	With Chiropractic Cover
Average cost per back pain episode	\$399	\$289
Plain radiographs per 1,000	22.7	17.5
MRIs per 1,000	68.9	43.2
Low back surgery per 1,000	4.8	3.3
Hospitalisations per 1,000	15.6	9.3

Table 1: Comparative analysis of individuals with and without chiropractic cover.⁴

This study corroborates research conducted in Canada, Australia and several American states, which concludes that chiropractic care is cost-effective for musculoskeletal conditions.

¹ MacPherson H et al. Longer term clinical and economic benefits of offering acupuncture to patients with chronic low back pain. *NHS Health Technology Assessment 2005*; Vol 9: no. 32.

² Linde K et al. The programme for the evaluation of patient care with acupuncture (PEP-Ac) – a project sponsored by ten German social health insurance funds. *Acupunct Med 2006*; 24(Suppl): S25–32.

³ Witt CM et al. Efficacy, effectiveness, safety and costs of acupuncture for chronic pain – results of a large research initiative. *Acupunct Med 2006*; 24: S33–9.

⁴ Legoretta AP et al. Comparative Analysis of Individuals With and Without Chiropractic Coverage. *Archives of Internal Medicine 2004*; 164: 1985–92.

2. Evidence Base

There is good evidence for the effectiveness of acupuncture, chiropractic and osteopathy in musculoskeletal conditions from randomised controlled trials and systematic reviews.

2.1 Acupuncture Efficacy – Knee Osteoarthritis

Recently, the Drug and Therapeutics Bulletin found, after reviewing the evidence, that acupuncture seems an effective alternative to treatments such as NSAIDs for knee osteoarthritis.⁵ The review included four published systematic reviews (see Table 1) of the evidence on acupuncture for knee osteoarthritis.^{6,7,8,9,10}

2.2 Acupuncture Efficacy – Peripheral Joint Osteoarthritis

Another systematic review has evaluated the evidence for the effectiveness of acupuncture in peripheral joint osteoarthritis. It included 18 randomised controlled trials and, overall, ten demonstrated greater pain reduction in acupuncture groups compared with controls. Pooled data showed a significant effect of manual acupuncture compared with sham acupuncture, particularly for knee osteoarthritis.¹¹

2.3 Acupuncture Efficacy – Back and Neck Pain

Also, there have been several systematic reviews of acupuncture for back and neck pain (see Table 2). A meta-analysis of 12 trials of acupuncture for the treatment of back pain pooled data from nine of the trials.¹² The odds ratio of improvement with acupuncture compared with a control intervention was 2.30 and compared to sham acupuncture was 1.37. Acupuncture was shown to be superior to various control interventions, although there was insufficient evidence to state whether it is superior or not to placebo.

2.4 Acupuncture Efficacy – Low Back Pain

Another meta-analysis, a Cochrane review of acupuncture for low back pain found that, when acupuncture is added to other conventional therapies, it relieves pain and improves function better than the conventional therapies alone in patients with chronic low-back pain.¹³ There were only three trials of acupuncture for acute low-back pain. They did not justify firm conclusions, because of small sample sizes and low methodological quality of the studies. It also showed that, for chronic low-back pain there is evidence of pain relief and functional improvement for acupuncture, compared to no treatment or sham therapy immediately after treatment and in the short-term.

⁵ Acupuncture for osteoarthritis of the knee. *DTB* 2007; 45:76-9.

⁶ Ezzo J et al. Acupuncture for osteoarthritis of the knee: a systematic review. *Arthritis Rheum* 2001; 44: 819–25.

⁷ Markow MJ et al. Acupuncture for the pain management of osteoarthritis of the knee. *Tech Orthop* 2003; 18: 33–6.

⁸ M Manheimer E et al. Meta-analysis: acupuncture for osteoarthritis of the knee. *Ann Intern Med* 2007; 146: 868–77.

⁹ M White A et al. The effectiveness of acupuncture for osteoarthritis of the knee – a systematic review. *Acupunct Med* 2006; 24: S40–8.

¹⁰ M White A et al. Acupuncture treatment for chronic knee pain: a systematic review. *Rheumatology* 2007; doi:10.1093/rheumatology/kel413.

¹¹ Kwon YD et al. Acupuncture for peripheral joint osteoarthritis: a systematic review and meta-analysis. *Rheumatology* 2006;45:1331-7.

¹² Ernst E, White AR. Acupuncture for back pain: a meta-analysis of randomized controlled trials. *Arch Intern Med* 1998;158:2235-41.

¹³ Furlan AD et al. Acupuncture and dry-needling for low back pain. *Cochrane Database of Systematic Reviews* 2005, Issue 1. Art. No.: CD001351. DOI: 10.1002/14651858.CD001351.pub2.

A third systematic review assessed acupuncture's effectiveness for treating low back pain. Thirty-three randomised controlled trials were included. Acupuncture was found to be significantly more effective than sham treatment and no additional treatment for short-term relief of chronic pain. Data were also insufficient for drawing conclusions about acupuncture's short-term effectiveness compared with most other therapies and for acute low back pain.¹⁴

Another systematic review by Cochrane assessed acupuncture for acute, subacute and chronic neck pain.¹⁵ No trials were found for acute or subacute pain, but 10 trials were included for chronic neck pain. For chronic mechanical neck disorders, acupuncture was more effective for pain relief than some types of sham controls, measured immediately post-treatment, and more effective than inactive, sham treatments measured immediately post-treatment and at short-term follow-up. It was also more effective than massage at short-term follow-up. For chronic neck disorders with radicular symptoms, acupuncture was more effective than a wait-list control at short-term follow-up.

2.5 Chiropractic and Osteopathy Efficacy

There have been several randomised controlled trials showing effectiveness with spinal manipulation. One such trial carried out in a primary care osteopathy clinic compared usual GP care and usual GP care plus three sessions of osteopathic spinal manipulation in 201 patients with neck or back pain of 2-12 weeks duration.¹⁶ It found that osteopathy improved short-term physical and longer term psychological outcomes at little extra cost.

The UK BEAM trial¹⁷, funded by the Medical Research Council, reported that spinal manipulation gives the best value for money for back pain when used in conjunction with GP 'best care'. This study also demonstrated low levels of adverse events.

One systematic review has also shown that spinal manipulation reduces low back pain.¹⁸ It included six randomised controlled trials and found that osteopathic manipulative treatment significantly reduced low back pain vs. active treatment, no treatment or placebo control. The pain reductions were seen regardless of whether the trials were performed in the UK or the US, and were seen during short-, immediate- and long-term follow-up.

¹⁴ Manheimer E et al. Meta-analysis: acupuncture for low back pain. *Ann Intern Med* 2005;142:651-63.

¹⁵ Trinh KV et al. Acupuncture for neck disorders. *Cochrane Database Syst Rev* 2006 Jul 19;3:CD004870.

¹⁶ Williams NH et al. Randomized osteopathic manipulation study (ROMANS): pragmatic trial for spinal pain in primary care. *Family Practice* 2003;20:662-9.

¹⁷ UK Beam Team. United Kingdom back pain exercise and manipulation (UK BEAM) randomised trial: effectiveness of physical treatments for back pain in primary care. *BMJ* 2004; doi:10.1136/bmj.38282.669225.AE

¹⁸ Licciardone JC et al. Osteopathic manipulative treatment for low back pain: a systematic review and meta-analysis of randomised controlled trials. *BMC Musculoskeletal Disorders* 2005; 6:43.

Condition	Systematic review	Year	Number of RCTs	Outcome
Knee osteoarthritis:	Ezzo et al ¹¹	2001	Seven	Acupuncture is more effective than waiting list control for pain and function. Acupuncture is more effective than sham acupuncture for pain, but the evidence is inconclusive for function.
	Markow et al ¹²	2003	Five	Acupuncture reduces pain in knee osteoarthritis.
	Manheimer et al ¹³	2007	Eleven	Acupuncture vs. waiting list control groups: short-term improvements in pain and function. Acupuncture vs. usual care control groups: short- and long-term improvements for pain and function. Acupuncture vs. sham acupuncture: short- and long-term improvements in pain and function.
	White et al ^{14, 15}	2006/ 2007	Thirteen	Real acupuncture vs. sham acupuncture: a moderate effect size of 0.4 for pain, which is indirectly comparable to the effect size of 0.32 for NSAIDs vs. placebo. Real acupuncture vs. usual care (i.e. oral analgesics, NSAIDs): a large effect size for pain of 0.80. Function is also significantly improved with real acupuncture cf. sham acupuncture and usual care.
Peripheral osteoarthritis:	Kwon et al ¹⁶	2006	Eighteen	Acupuncture results in greater pain reduction than control treatments.
Back pain:	Ernst et al ¹⁷	1998	Twelve	Acupuncture is superior to various control interventions, but there is insufficient evidence to state whether it is superior or not to placebo.
	Furlan et al ¹⁸	2005	Thirty-Five	Acupuncture and dry-needling may be useful adjuncts to other therapies for chronic low-back pain.
	Mannheimer et al ¹⁹	2005	Thirty-Three	Acupuncture effectively relieves chronic low back pain.
	Trinh et al ²⁰	2006	Ten	Acupuncture relieves pain better than some sham treatments, inactive treatments and a waiting list control, measured at the end of the treatment.

Table 2: Summary of systematic reviews of acupuncture for osteoarthritis and back pain

3. Clinical Safety

Prospective surveys have established that the risk of serious injury or infection from acupuncture by a trained practitioner is very low.^{19,20,21} In one survey of 34,000 acupuncture treatments, traditional acupuncturists recorded 10,920 mild transient reactions occurring in 5,136 treatments (i.e. about 15% of the total treatments).¹⁵ However, the most common transient reactions were “feeling relaxed” (11.9% of treatments) and “feeling energised” (6.6%). Local reactions at the site of needling included bleeding (0.4%), superficial bruising (1.7%) and pain (1.2%). Temporary worsening of existing symptoms after treatment was experienced after 2.8% of treatments, 86% of which were followed by a net improvement. Evidence from 12 prospective studies of more than a million treatments suggests the risk of a serious adverse event (e.g. pneumothorax, injury to the CNS, hepatitis B infection) with acupuncture is estimated to be 5 per million treatments.²²

The most serious potential risks with manipulation are stroke due to compression of one of the arteries leading to the brain and spinal cord injury due to compression of a nerve in the spine. These events are extremely rare. More common (occurring in up to 50 per cent) but less serious side effects with chiropractic and osteopathy include mild pain or discomfort at the site of manipulation, mild headaches or tiredness. These usually disappear within 24 hours of the treatment.

4. Conclusion

Including acupuncture, osteopathy and chiropractic as a care pathway option for patients with musculoskeletal problems could help your PCT in the following ways:

- Increased patient choice
- Improved health
- Reduced visits to GPs
- Reduced medication costs
- Reduced referrals to secondary care
- Appointments available in evenings and at weekends
- Services delivered close to people's homes
- Reducing local health inequalities

There is considerable local expertise in these fields and many motivated people who would like to see this service made available to all people, not just those who can afford to use these services privately.

Authors: Get Well Camden – a consortium of complementary medicine practitioners and providers working in the Borough of Camden. We represent the private, public, education and third sector. Working in association with Get Well UK, the award-winning social enterprise committed to making evidence-based complementary therapies available to NHS patients.

¹⁹ MacPherson H et al. The York acupuncture safety study: prospective survey of 34,000 treatments by traditional acupuncturists. *BMJ* 2001; 323 486–7.

²⁰ Vincent C. The safety of acupuncture. *BMJ* 2001; 323: 467–8.

²¹ White A et al. Adverse events following acupuncture: prospective survey of 32,000 consultations with doctors and physiotherapists. *BMJ* 2001; 323: 485–6.

²² White A. A cumulative review of the range and incidence of significant adverse events associated with acupuncture. *Acupunct Med* 2004; 22: 122–33.