

Feedback for the Public Consultation on the Draft Revised Professional capabilities for Osteopathic Practice

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1) Do the draft revised Professional capabilities adequately describe the minimum competencies for safe contemporary osteopathic practice in Australia?

Unfortunately this document isn't yet adequate to ensure that practitioners will be safe. It is generic and high-level; so much so that, apart from less than two pages, from "Description of Osteopathy" through to "Treatment and Management Approaches", it would be possible to do a global change of the words "osteopathy" and "osteopathic" for the word "physiotherapy" and it would apply. Apart from one or two uses of the word "manual therapy", you could also substitute "nursing" or "occupational therapy".

As things stand, nothing actually specifies what should be covered in a course.

The separate document "Accreditation Standards for Osteopathic Courses in Australia" also lacks the specificity to determine what should be in a course, and it refers back to this capabilities document.

This is an issue that may already be affecting patient safety. Universities are under financial pressures to be less specific to particular professions in their education, and there is a move to decrease the length of osteopathic courses.

For example, there is now variation among Australian universities about whether diagnostic imaging is taught. There are at least four areas in which a lack of radiologic skills could be a safety issue for patients:

1) the high level of error rates in reports from radiologists means that their reports cannot be relied on without practitioner input¹;

2) films are normally given to patients while reports are sent to practitioners, which means that patients often bring images to osteopaths which don't have a radiologists report attached, and the patients expect the osteopath to be able to read the images;

3) the radiologist cannot correlate their findings against the patient presentation – only the practitioner can do that; and

4) educating patients about findings, and showing them what is happening on imaging, is an important part of the therapeutic process.

If osteopaths haven't been trained to interpret diagnostic images, they are potentially putting patients at risk in each of these situations.

Radiology is just one example to illustrate the broader point: for the sake of patient safety, there needs to be a document that specifies minimum standards of acceptable levels of knowledge and skills, in a way that is clinically meaningful.

2) Within the draft revised Professional capabilities, do the Key capabilities sufficiently describe the elements required to safely and effectively practice as an osteopath in a range of contexts and situations?

No. You could do a global replacement of the words "osteopathy" and "osteopathic" with the words "diversional therapy" in this section. The document would still make sense, and would be appropriate to that profession. Unless one accepts that diversional therapists are equipped undertake the sort of diagnosis, and provide the same treatments,

that osteopaths perform, then the Key Capabilities are clearly not adequate to establish an acceptable, safe standard. The only way it would be possible to construe that this was the case, would be if everyone knew what “osteopathic practice” actually was. And if it was that well known, and there was that much understanding about it, then this document would be irrelevant.

3) Within the draft revised Professional capabilities, do the Enabling components sufficiently describe the essential and measurable characteristics of threshold competence?

No. The Enabling components rely on circular definitions.

For example: “1.1 Recognise and act within the scope of osteopathic practice, concepts and/or principles, and apply these to patient care” has enabling components that use words like “draw on osteopathic approaches to diagnosis” and “consider assessment findings in the context of osteopathic approaches to diagnosis”.

There is no real standard of practice identified, apart from the need to do things in an “osteopathic” way.

Again, leaving things this high-level is an issue of patient safety.

For example, there is currently, an overseas provider offering a six-month on-line course in osteopathy and a one-year on-line course to be a doctor of osteopathy². There is nothing in this document that is likely to provide enough rigor to determine whether someone with this level of training is equipped to be able to practice in Australia.

4) Is the language and content of the draft revised Professional capabilities clear and appropriate? If not, please explain what changes need to be made.

It needs to be unpacked with a lot more meaningful detail; and the detail then needs to be reviewed and discussed by the profession.

For example, one of the better and more helpful parts is the “evidence-based description of osteopathy”. But even this has words like “”bio-psychosocial” and “holistic”. These need to be defined, or they are in danger of being simply jargon.

5) Is there anything missing that needs to be added to the draft revised Professional capabilities?

Yes. Actual standards relating to clinical practice which are sufficiently specific to enable a determination to be made about whether a course teaches appropriate material to an adequate standard, and whether a given individual has adequate skills to be a safe practitioner.

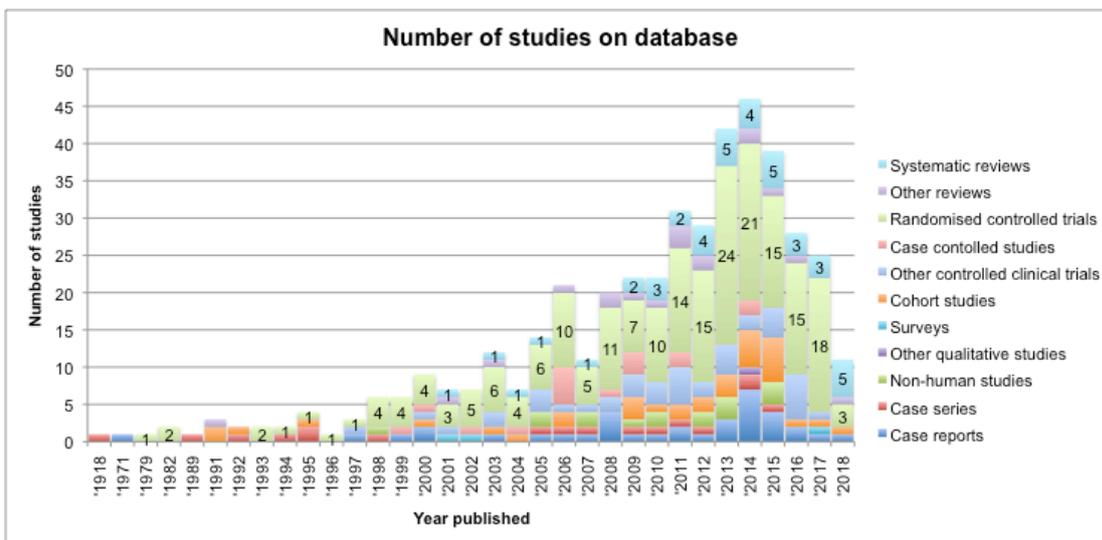
6) Is there any content that needs to be changed or deleted in the draft revised Professional capabilities?

Yes. There are three areas that need to be changed.

A change is needed to the two paragraphs below the heading “The Evidence for Osteopathy”

These start with the phrase “there is little high-quality evidence for the effectiveness of osteopathic health care”. This is the repetition of an out-of-date medical myth, which is now demonstrably untrue.

This chart shows the number of different types of studies relevant to osteopathy, by year, that I have collected on a database. It isn’t comprehensive: indeed, there are so many studies that the task of assembling a comprehensive database is probably now impossible for one person. It is indicative of the numbers of study, but the tail-off after 2014 is more of a reflection of the time I have put into updating it, than an actual reflection of decreased rates of publication.

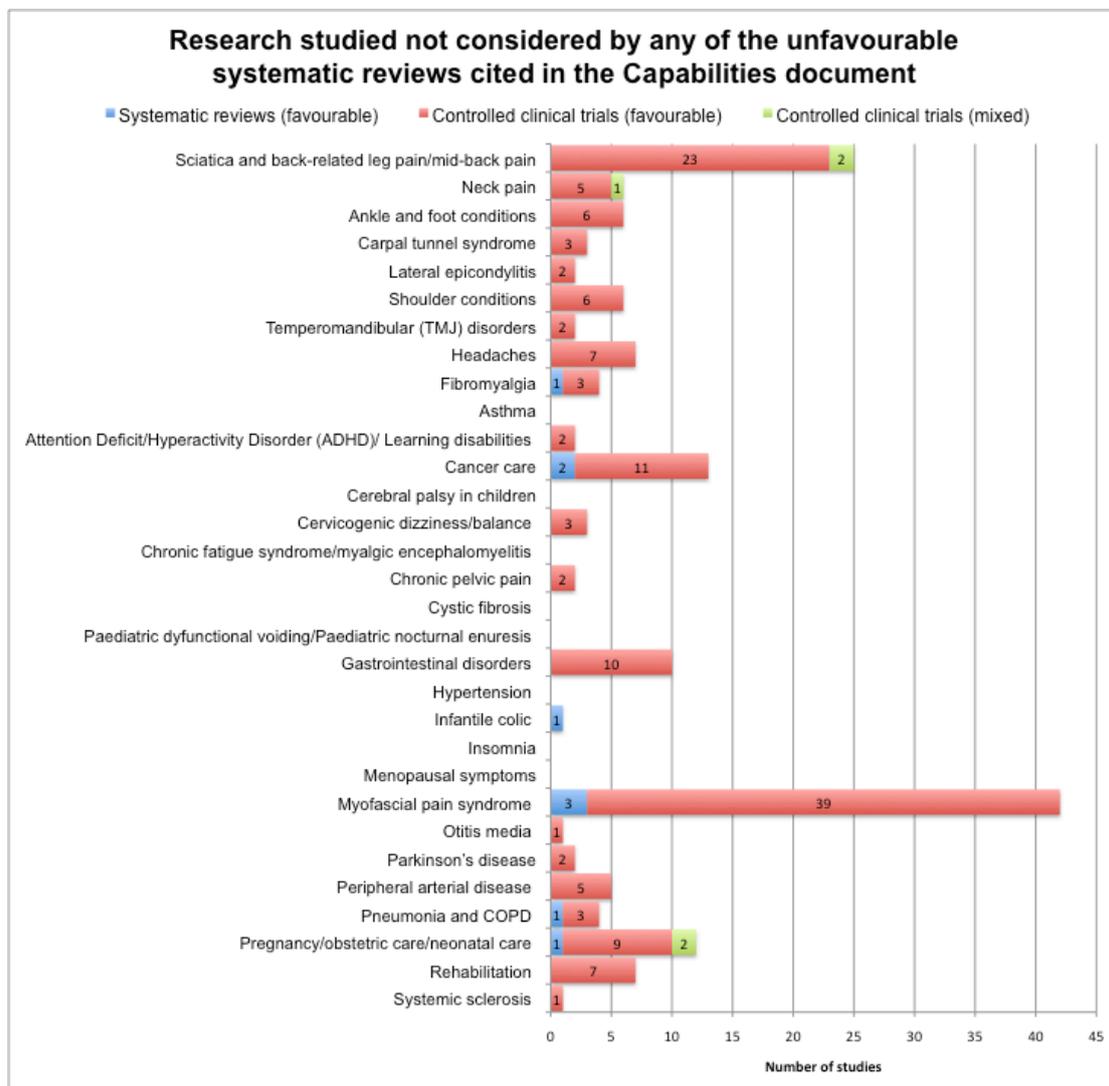


The Capabilities document relies heavily for this assertion on a systematic review by Posadzki and Ernst from 2011³. The most recent study it referenced was from 2010. This review only considered evidence for osteopathic work in musculo-skeletal conditions, and it also excluded studies that included subjects less than 18 years of age. Altogether it located only 16 studies that met its selection criteria, and it made judgments about the quality of these. These selection criteria are very limiting, but even within these limitations, that paper failed to consider at least nine additional randomized controlled trials that were published before it came out, and which were about musculoskeletal work, and which met its selection criteria⁴. In other words, it only looked at 2/3 of the then-available relevant studies, and made a judgment about the quality of the evidence based on these. (There are far more available now.)

In addition to a systematic review into back pain (which did find that osteopathy is effective) and a literature review looking at back pain, otitis media and pneumonia (which also found that it is effective), the Capabilities document makes reference to the UK Evidence report from 2010, and a systematic review updating it from 2014⁵.

The latter is a far more serious piece of research than the Posadzki and Ernst (2011) article, but it is still very limited because the most recent article it references is from 2013, it is based on a very narrow definition of “manual therapy” (and therefore the searches it made), and it didn’t use broader search terms like “osteopathy” or “osteopathic” (for reasons it fails to explain).

The following graph shows the topics it considers, and the numbers of relevant studies that it failed to consider:



Its findings are listed in Appendix 1 on page 12, together with references to studies it failed to consider (either because it just missed them, or because they were published after it was) relevant to the topics it looked at: 8 systematic reviews, 165 controlled clinical trials with favourable outcomes, and 8 controlled clinical trials with mixed outcomes.

The Updated evidence report listed a lot of clinical applications, but it also missed a number which also have support in the research literature:

Clinical Application	Number of Systematic Reviews	Number of Controlled Clinical Trials	Number of Cohort Studies
Providing supportive relief for psychological conditions	3	13	2
Reducing hospital length of stay	1	8	1

Clinical Application	Number of Systematic Reviews	Number of Controlled Clinical Trials	Number of Cohort Studies
Reducing infection	2 (plus 2 literature reviews)	3	(plus support for the concept from non-human studies)
Improving health-related quality of life generally	2	9	2 (plus two surveys and one qualitative study)
Reducing lymphedema	2	9	2
Treating sporting injuries	3 (plus 1 literature review)	20	3
Wound healing	2 (plus 1 literature review)	1	
Improving the responsiveness of the autonomic nervous system	2 (plus 1 literature review)	22	
Improving blood-supply and circulation	1	18	1
Altering a range of biochemical markers	1	10	(2 non-human studies)
Improving immune regulation	2 (plus 4 literature reviews)	7	(9 non-human studies)
Improving function of other joints than those mentioned in the Evidence report (knees, hips, wrists, trunk mobility)		9	

The number of studies listed are those that I currently have stored; there are almost certainly more. For reasons of the existing (probably excessive) number of footnotes in this document, only the systematic reviews of this table are included in the footnotes, but the remainder are available from me on request.

It is now probably unrealistic to do a systematic review covering “osteopathy”; let alone the whole of “manual therapy”. It’s a bit like trying to do a comprehensive systematic review of “surgery”. Certainly neither of the reviews cited has managed to find all of the studies that I have, working on my own. And my list is not comprehensive. The systematic reviews do a much better job when they just look at one aspect of the literature.

There are, in fact, altogether **at least 35 systematic reviews** that found that osteopathy or techniques developed by osteopaths were clinically effective. They are footnoted here⁶.

By contrast, the British Medical Journal estimates that just 11% of standard medical treatments have a good evidence base for them⁷. There is therefore no sensible reason whatever for the capabilities document to dismiss the evidence base for osteopathy; rather, it should engage with it.

It is worth noting that the 2014 study didn’t find that there wasn’t evidence for the treatment of these conditions. It found, for nearly all of them, that there is in fact

evidence for them, but that the quality of studies didn't meet the standards they set. It needs to be understood that this is the way the process works, for all medical research. Researchers do studies. Other researchers do systematic reviews, and try to find flaws in them. When they find these flaws, they down-grade the quality of the evidence. So, for example, a study will be rated down for saying that subjects were randomised into different groups, but failing to specify the method of randomisation. This, in turn, means that the next time researchers do a study, if the systematic review was important enough to be taken seriously, the researchers will plug that gap: they will, for example, specify just how they went about randomising subjects. This is an ongoing process, and it means that the quality of research improves over time. It doesn't mean that there is no available research; it means that there are always ways to improve it. But if a review misses studies that were relevant to what it was considering (while purporting to make judgments on the quality of other people's work), or becomes out of date due to further research, then a systematic review is not the most meaningful indication of whether high-quality research exists.

Saying that “there is little high-quality evidence for the effectiveness of osteopathic health care” is, in fact, also an issue of patient safety, when it doesn't actually represent the state of the research. Many of the conditions that osteopathy is able to treat, and that do in fact have high-quality research supporting them, are both challenging and expensive to the health system; and particularly if it tries to deal with them without manual therapy. When this happens, real patients suffer. This isn't just an academic exercise; it's an issue of social importance.

Every week, in clinic, most osteopaths see people who should have come to us sooner, and would have if they had understood what osteopathy is useful for.

If we can't let them know that help is available, when the research, our clinical experience and the clinical logic of what we do all confirm that we can and routinely do assist patients with these and other conditions, then everybody loses out. If we don't expect new entrants into the profession to have an idea of where the research is up to then, again, everybody loses out.

A change is needed to the section under “Diagnostic Approaches”

This section needs to be expanded, because osteopathic diagnosis is unlike most other medical approaches. It seeks to find underlying causes for the presentation of each individual patient, rather than simply giving a label to a condition and applying a treatment of choice to it. This makes osteopathic diagnosis an unusually complex and challenging skill, and this should be reflected in the document.

The search for underlying causes has always been a key feature of osteopathy⁸. With the pressures that the broader medical profession is under (from increased service demands, funding pressures, increased exposure and accountability, and the pressures from trying to keep up to date in a world of exploding knowledge), the wider medical world is becoming increasingly reductionist: in other words, specialists are now more likely to focus on a particular interest area within their specialty. GPs are being actively encouraged to diagnose a known condition and apply a treatment of choice, rather than reason through why an individual is in ill health.

This approach is fine for people with simple, definable conditions, but for those with co-morbidities and complex, chronic conditions (the very conditions that are on the rise) it is not an adequate way of thinking.

Osteopaths, I will argue, are probably the only health professionals whose profession is steeped in a tradition of thinking from effect back to causes, and who are taught to think about the connections (in terms of fluid flows, connective-tissue attachments, neural connections, communication pathways and balance/force connections), from one part and one system of the body to another, in order to understand the causes of sub-optimum health, and what is needed to restore it.

Diagnosing in this way requires a high-level of anatomic and physiological knowledge, and a high level of conceptual skill. Osteopathic diagnosis includes the diagnosis that all health professionals need to be able to undertake, but that is their starting point rather than their finishing point. For osteopaths, diagnosis is an ongoing process rather than a single event.

This section needs to say more about what diagnosing “osteopathically” actually means.

A changes is needed to the section under “Treatment and Management Approaches”

The section under “Treatment and Management Approaches” needs to be modified. It, also, is not based on the available evidence. The first sentence says that: “The main manual therapy modalities used in osteopathic practice are soft tissue techniques, muscle energy technique, high velocity low amplitude techniques and joint articulation”. It doesn’t cite any references for describing these as the “main” modalities, and doesn’t mention any of the others.

At least three sizable studies found a different, and more extensive, list to this one. These lists are outlined at Appendix 2 on page 21.

In terms of which modalities have the most research, osteopathic techniques are now mentioned in so many studies (remembering that most studies into the manual techniques of physiotherapists and chiropractors involve techniques originally developed from within osteopathy) it is probably not possible to produce a definitive total of the research for any given technique. We can say, however, that there is plenty of research support for a number of osteopathic techniques not listed in the Capabilities document.

This table is indicative rather than definitive:

Osteopathic modality	Number of Systematic Reviews	Number of Controlled Clinical Trials	Number of Cohort Studies
Strain and counter strain	3 (plus three literature reviews)	15	3
Cranial	2 (plus 3 literature reviews)	36	6
Lymphatic	7 (plus 4 literature reviews)	31	4
Myofascial release	3 (plus 1 literature review)	21	5
Visceral	3* (plus 1 literature review)	20	2

(Note that these are studies that list this technique as all or some of the modalities used, rather than studies of those particular modalities in isolation.)

Once again, limiting the modalities that people are taught, to “soft tissue techniques, muscle energy technique, high velocity low amplitude techniques and joint articulation” is potentially an issue of patient safety. Apart from soft-tissue techniques and articulation (which a well-skilled massage therapist should be able to do), the techniques listed are not appropriate to:

- the very young;

* One recent systematic review found that there isn’t enough evidence to support visceral osteopathy. The main problem with it is that it used very narrow search terms, rather than searching on the conditions that visceral osteopathy is typically used to treat. It therefore didn’t find many of the available randomised controlled trials, nor the systematic reviews which had already found in favour of visceral osteopathy before it was written. Guillaud A, Darbois N, Monvoisin R, Pinsault N 2018 Reliability of diagnosis and clinical efficacy of visceral osteopathy: a systematic review. BMC Complement Altern Med Feb 17;18(1):65 <https://www.ncbi.nlm.nih.gov/pubmed/29452579>

- the very old;
- the very sick;
- the very osteoporotic; or, in the case of HVLA;
- people who are frightened by it.

This means that, if people can be called osteopaths while they only have those four modalities available to them, then there is a risk that they will treat people with inappropriate techniques, or be unable to treat them at all. Either way, it can be an issue of patient safety.

7) Are there jurisdiction-specific impacts for practitioners, or governments or other stakeholders that the National Board should be aware of, if these capabilities are adopted?

None that I am aware of.

8) Are there implementation issues the National Board should be aware of?

Yes. If this document remains unchanged, it will be necessary to undertake a separate exercise to greatly strengthen the requirements of the “Accreditation Standards for Osteopathic Courses in Australia”, and to review whatever document is used to determine whether overseas-trained people are qualified to work in Australia (I haven’t looked into this). But it is also clear that the standards relevant to locally trained and overseas trained people should be identical; which is why the Capabilities document is the one that should make the standards specific.

Having different standards for locally-trained and foreign-trained osteopaths is, of course, potentially an issue of discrimination that could be played out through the courts, as well as being potentially an issue of patient-safety. An arbitrary, non-specific standard to be determined on a case-by-case basis could be even riskier.

9) Do you have any other comments on the proposed draft revised Professional capabilities?

I wrote above about the particular diagnostic emphasis of osteopathy. This is what osteopaths really mean when they talk about their “philosophy”.

This is a counter-cultural paradigm within the broader medical community, and so osteopaths need not only to be able to apply it, but to be able to recognise it, recognise its absence, argue for it and, when appropriate, disregard it (and understand what they are doing when they do).

Universities have always been, above everything else, places that teach people how to think. This high-level of education-to-think is in danger of being eroded, as course-lengths are being cut and the number of subjects is being decreased. It needs to be well-described within the Capability document.

Despite the above areas for essential improvement, there are some positive features in this document. The fact that it says that osteopathy deals with “all tissues of the body” (not just the musculo-skeletal system); the fact that it acknowledges that osteopaths should keep enhancing their skills, rather than relying on entry-level qualifications; and the inclusion of “palpatory findings” as part of osteopathic diagnosis, are all positive, and should be retained.

Appendix 1: Detailed analysis of the update to the UK Evidence Report, with lists of research that was not included (either because the search terms were too narrow, or because they were published after 2013).

Clinical Condition	Findings of the update to the UK Evidence Report	Research they didn't review
Sciatica and back-related leg pain	“The evidence suggests that chiropractic or orthopaedic manipulation may be effective in reducing symptoms of sciatica in adults, however, it is not clear due to the small sample size of the trials, if these manual treatment techniques are more beneficial compared to surgery, McKenzie method, or advice only.”	Since the original UK Evidence report, there have been a further 25 randomised controlled trials into back pain published in peer-reviewed journals, that were not reviewed by the 2014 update (based on an analysis of the article's foot notes). Twenty three of these showed favourable results ⁹ , while 2 showed mixed results (favourable for some outcomes, not for others) ¹⁰ . While not all of these specifically include sciatica, there was no category in the updated report for non-radicular lower back pain, and so these have been included here.
Neck pain	“Inconclusive (favourable) evidence for cervical spinal manipulation/mobilisation alone in treating neck pain (no change from the UK evidence report). Inconclusive (favourable) evidence for manipulation and mobilisation with/without soft tissue treatment (not evaluated in the UK evidence report). The evidence suggests there are similar improvements in the manipulation and/or mobilisation intervention groups compared to active treatment, however, some trials also found no improvement in comparison to a control group.”	Since the original UK Evidence report, there have been a further 6 controlled clinical trials into neck pain which were not reviewed by the 2014 update (based on an analysis of the article's foot notes). Five of these showed favourable results ¹¹ , while the other showed a favourable trend but did not achieve statistical significance ¹² .

Clinical Condition	Findings of the update to the UK Evidence Report	Research they didn't review
Non-specific mid-back pain	“Inconclusive (favourable) evidence (no change from the UK evidence report). It cannot be established from the current evidence whether manual therapy is more effective than non-treatment, placebo, or other treatments for the treatment of non-specific mid-back pain.”	See above under “Sciatica and back-related leg pain”
Ankle and foot conditions	“Inconclusive (favourable) evidence that manipulation, mobilisation, and a muscle energy technique are of benefit in the treatment of ankle sprains (not evaluated in UK evidence report). Inconclusive (favourable) evidence for Kaltenborn-based manual therapy for rehabilitation following ankle fracture (not evaluated in the UK evidence report). Inconclusive (favourable) evidence for hallux abducto valgus that mobilisation/manipulation is more effective in leading to improvements in the intermediate term than night splints (no change from UK evidence report). Inconclusive (favourable) evidence for trigger point therapy in treating plantar fasciitis treatment (no change from the UK evidence report). Inconclusive (favourable) evidence for manual therapy (manipulation/mobilisation) of the ankle and/or foot combined with multimodal or exercise therapy (no change from the UK evidence report) in treating Morton's neuroma, metatarsalgia, hallux limitus/rigidus.”	Since the original UK Evidence report, there have been a further 6 controlled clinical trials into neck pain which were not reviewed by the 2014 update (based on an analysis of the article's foot notes). All of these showed favourable results ¹³ .
Carpal tunnel syndrome	“Inconclusive (favourable) evidence for carpal bone mobilisation and for trigger point therapy in the treatment of carpal tunnel syndrome (no change from the UK evidence report). Inconclusive (unclear) evidence for neurodynamic treatment, soft-tissue mobilisation (with or without Graston instrument), and diversified chiropractic care in the management of carpal tunnel syndrome (not evaluated in the UK evidence report).”	Since the original UK Evidence report, there have been a further 3 controlled clinical trials into carpal tunnel syndrome which were not reviewed by the 2014 update (based on an analysis of the article's foot notes). All of these showed favourable results ¹⁴ .

Clinical Condition	Findings of the update to the UK Evidence Report	Research they didn't review
Lateral epicondylitis	<p>“Inconclusive (non-favourable) evidence was found for the treatment of lateral epicondylitis (tennis elbow) with manipulation alone (no change from the UK evidence report). The reviewed evidence indicated some benefits of manual therapy in reducing symptoms in patients with lateral epicondylitis, when in combination with other treatments (exercise, traditional physiotherapy, local management, standard therapy), when compared to no treatment, or baseline values (within-group change), however, the evidence was still rated inconclusive (favourable) evidence (no change from the UK evidence report). When comparing manual therapy to other treatments (e.g., placebo, phonophoresis, low-energy shockwave therapy, relative rest), there was inconclusive or inconsistent (favourable) evidence (no change from the UK evidence report).”</p>	<p>Since the original UK Evidence report, there have been a further 2 controlled clinical trials into lateral epicondylitis which were not reviewed by the 2014 update (based on an analysis of the article's foot notes). Both of these showed favourable results.</p>
Shoulder conditions	<p>“Moderate (positive) evidence for use of manual therapy combined with exercise in the treatment of rotator cuff disorders (change from inconclusive (favourable) evidence in UK evidence report). Inconclusive (favourable) evidence for the effectiveness of mobilisation with movement (not evaluated in UK evidence report) or osteopathy (Niel-Asher technique) (not evaluated in UK evidence report) or manual therapy with exercise in the treatment of adhesive capsulitis (not evaluated in UK evidence report). Inconclusive (favourable) evidence for the effectiveness of cervical lateral glide mobilisation and/ or high velocity low amplitude manipulation with soft tissue release and exercise in minor neurogenic shoulder pain (not evaluated in the UK evidence report). Moderate (positive) evidence for using myofascial treatments (ischaemic compression, deep friction massage, therapeutic stretch) for soft tissue disorders of the shoulder (not evaluated in the UK evidence report).”</p>	<p>Since the original UK Evidence report, there have been a further 6 controlled clinical trials into shoulder conditions which were not reviewed by the 2014 update (based on an analysis of the article's foot notes). All of these showed favourable results¹⁵.</p>

Clinical Condition	Findings of the update to the UK Evidence Report	Research they didn't review
Temporomandibular (TMJ) disorders	“Results on the comparative effectiveness/ safety of manual therapy for temporomandibular disorders remain inconclusive (favourable) evidence for mobilisation, massage, myofascial or osteopathic manipulation (no change from the UK evidence report).”	Since the original UK Evidence report, there have been a further 2 controlled clinical trials into TMJ conditions which were not reviewed by the 2014 update (based on an analysis of the article's foot notes). Both of these showed favourable results ¹⁶ .
Headaches	“Moderate (positive) evidence for mobilisation techniques in cervicogenic headache (change from in- conclusive (unclear) evidence in the UK evidence report). Inconclusive (non-favourable) evidence for friction massage and trigger points in cervicogenic headache (no change from the UK evidence report). Inconclusive (favourable) evidence for manual therapy (osteopathic care, spinal mobilisation) in treating tension-type headache (not evaluated in the UK evidence report). Inconclusive (unclear) evidence for spinal manipulation in treating tension-type headache (no change from the UK evidence report). Moderate (positive) evidence for manipulation and mobilisation for miscellaneous headache (change from inconclusive (favourable) evidence in the UK evidence report).“	Since the original UK Evidence report, there have been a further 7 controlled clinical trials into headaches which were not reviewed by the 2014 update (based on an analysis of the article's foot notes). All of these showed favourable results ¹⁷ .
Fibromyalgia	“Inconclusive (favourable) evidence for the use of chiropractic spinal manipulation in fibromyalgia (no change from the UK evidence report). Inconclusive (favourable) evidence for effectiveness of cranio-sacral therapy and massage-myofascial release therapy for fibromyalgia”	Since the original UK Evidence report, there have been a further 3 controlled clinical trials into fibromyalgia which were not reviewed by the 2014 update (based on an analysis of the article's foot notes). All of these showed favourable results ¹⁸ . In addition, there has been a systematic review that reported favourable results for a range of different manual techniques ¹⁹ .

Clinical Condition	Findings of the update to the UK Evidence Report	Research they didn't review
Asthma	“Inconclusive (unclear) evidence for use of spinal manipulation in treating asthma (change from moderate (negative) evidence in the UK evidence report). Inconclusive (favourable) evidence for osteopathic manual therapy in treating asthma (no change from UK evidence report). Inconclusive (favourable) evidence for cranio-sacral therapy in treating asthma (not evaluated in the UK evidence report)”	The review probably did not miss any evidence in regard to manual therapy and asthma.
Attention Deficit/Hyperactivity Disorder (ADHD)/ Learning disabilities	“Given the severe methodological limitations of the included studies, there is inconclusive (unclear) evidence regarding the effectiveness of osteopathic treatment for ADHD (not evaluated in the UK evidence report)”	Since the original UK Evidence report, there have been a further 2 controlled clinical trials into learning disabilities which were not reviewed by the 2014 update (based on an analysis of the article's foot notes). Both of these showed favourable results ²⁰ .
Cancer care	“Moderate (positive) evidence for the effectiveness of massage techniques involving manual therapy elements in breast cancer survivors and terminal cancer patients but inconclusive (unclear) evidence for use of chiropractic care for cancer care (not evaluated in the UK evidence report). In some types of cancer such as osteosarcoma, manipulative therapy may have significant adverse effects and was contraindicated.”	Since the original UK Evidence report, there have been a further 2 systematic reviews (one of them a Cochrane review), and a further 11 controlled clinical trials into caring for people with cancer, which were not reviewed by the 2014 update (based on an analysis of the article's foot notes). All of these showed favourable results. ²¹
Cerebral palsy in children	“Inconclusive (unclear) evidence for the effectiveness of osteopathic manual therapy in the treatment of cerebral palsy (not evaluated in the UK evidence report).“	The review probably did not miss any evidence in regard to manual therapy and cerebral palsy in children.
Cervicogenic dizziness/balance	“Inconclusive (favourable) evidence for the effectiveness of manipulation/mobilisation for cervicogenic dizziness (not evaluated in the UK evidence report). Inconclusive (unclear) evidence for diversified chiropractic treatment in the improvement of balance in elderly people (not evaluated in the UK evidence report)”	Since the original UK Evidence report, there have been a further 3 controlled clinical trials into dizziness/balance which were not reviewed by the 2014 update (based on an analysis of the article's foot notes). All of these showed favourable results ²² .

Clinical Condition	Findings of the update to the UK Evidence Report	Research they didn't review
Chronic fatigue syndrome/myalgic encephalomyelitis	"Inconclusive (favourable) evidence for osteopathic manual therapy improving symptoms of myalgic encephalomyelitis (not evaluated in the UK evidence report)."	The review probably did not miss any evidence in regard to manual therapy and chronic fatigue.
Chronic pelvic pain	"Inconclusive (favourable) evidence for the use of osteopathic treatment in female urination disorders (not evaluated in UK evidence report). Inconclusive (favourable) evidence for the use of myofascial therapy in interstitial cystitis/painful bladder syndrome or chronic prostatitis/chronic pelvic pain (not evaluated in the UK evidence report). Inconclusive (favourable) evidence for distension of painful pelvic structures in chronic pelvic pain in women and for osteopathic manual therapy in men with chronic prostatitis/chronic pelvic pain (not evaluated in the UK evidence report)."	Since the original UK Evidence report, there have been a further 2 controlled clinical trials into chronic pelvic pain which were not reviewed by the 2014 update (based on an analysis of the article's foot notes). All of these showed favourable results ²³
Cystic fibrosis	"Inconclusive (unclear) evidence for the use of mobilisations (rib cage and thoracic spine) in patients with cystic fibrosis (not evaluated in the UK evidence report)"	The review probably did not miss any evidence in regard to manual therapy and cystic fibrosis.
Paediatric dysfunctional voiding/Paediatric nocturnal enuresis	"Inconclusive (favourable) evidence for osteopathic manual therapy improving symptoms of paediatric dysfunctional voiding (not evaluated in the UK evidence report)." "Inconclusive (favourable) evidence for spinal manipulation in paediatric nocturnal enuresis (no change from the UK evidence report)."	The review probably did not miss any evidence in regard to pediatric dysfunctional voiding or nocturnal enuresis.
Gastrointestinal disorders	"Inconclusive (unclear) evidence for spinal manipulation for gastrointestinal disorders (not evaluated in the UK evidence report). Inconclusive (favourable) evidence for osteopathic manual therapy for irritable bowel syndrome (not evaluated in the UK evidence report)."	Since the original UK Evidence report, there have been a systematic review and a further 10 controlled clinical trials into gastrointestinal disorders, which were not reviewed by the 2014 update (based on an analysis of the article's foot notes). All of these showed favourable results ²⁴ .

Clinical Condition	Findings of the update to the UK Evidence Report	Research they didn't review
Hypertension	"Inconclusive (favourable) evidence for upper cervical NUCCA manipulation for stage 1 hypertension (no change from the UK evidence report). Inconclusive (unclear) evidence for instrument assisted spinal manipulation for hypertension (not evaluated in the UK evidence report). Inconclusive (unclear) evidence for effectiveness of Gonstead full spine chiropractic care or osteopathic manipulative therapy for hypertension (not evaluated in the UK evidence report)"	The review probably did not miss any evidence in regard to manual therapy and hypertension.
Infantile colic	"Inconclusive (favourable) evidence for cranial osteopathic manual therapy in treating infantile colic. Inconclusive (favourable) evidence for spinal manipulation in treating infantile colic (change from moderate (negative) evidence reported in the UK evidence report)."	There has been a subsequent systematic review and meta analysis into infantile colic, which achieved favourable results, although the authors questioned whether a reduction of crying time of one hour a day is clinically significant. (Something which I think most parents would answer with a resounding "yes!") ²⁵
Insomnia	"Inconclusive (unclear) evidence on the benefits of manual therapy in people with primary insomnia (not evaluated in the UK evidence report)."	The review probably did not miss any evidence in regard to insomnia.
Menopausal symptoms	"Inconclusive (favourable) evidence for the effectiveness of combined use of Fox's low force osteopathic techniques and cranial techniques in the treatment of menopausal symptoms (not evaluated in the UK evidence report)."	The review probably did not miss any evidence in regard to menopausal symptoms.
Myofascial pain syndrome	"Inconclusive (favourable) evidence for ischaemic compression (manual or using an Activator instrument) in the deactivation of upper trapezius trigger points (not evaluated in the UK evidence report). Inconclusive (non-favourable) evidence indicating that trigger point release is not as effective as ischaemic compression in deactivating active upper trapezius trigger points and improving associated neck pain (not evaluated in the UK evidence report). Inconclusive (favourable) evidence for an integrated neuromuscular inhibition technique in the management of neck pain with active upper trapezius trigger points (not evaluated in the UK evidence report)."	Since the original UK Evidence report, there have been three systematic reviews which obtained favourable results ²⁶ , a further 39 controlled clinical trials which obtained favourable results ²⁷ , and three clinical trials which obtained mixed results ²⁸ . None of these were reviewed by the 2014 update (based on an analysis of the article's foot notes).

Clinical Condition	Findings of the update to the UK Evidence Report	Research they didn't review
Otitis media	Inconclusive (unclear) evidence for osteopathic manual therapy in treating otitis media (no change from the UK evidence report).	Since the original UK Evidence report, there has been one controlled trial which obtained favourable results regarding otitis media, and which was not reviewed by the 2014 update (based on an analysis of the article's foot notes) ²⁹ .
Parkinson's disease	"Inconclusive (favourable) evidence for the effectiveness of osteopathic manual therapy in Parkinson's disease (not evaluated in the UK evidence report)"	Since the original UK Evidence report, there have been two controlled trials which obtained favourable results regarding gait in Parkinson's disease, and which were not reviewed by the 2014 update (based on an analysis of the article's foot notes) ³⁰
Peripheral arterial disease	"Inconclusive (favourable) evidence for the effectiveness of osteopathic manual therapy in the treatment of intermittent claudication and of myofascial release manual therapy combined with kinesiotherapy in the treatment of venous insufficiency. "	Since the original UK Evidence report, there have been five controlled trials which obtained favourable results regarding peripheral arterial disease, and which were not reviewed by the 2014 update (based on an analysis of the article's foot notes) ³¹
Pneumonia and COPD	"Inconclusive (favourable) evidence for osteopathic manipulative treatment of pneumonia in older adults (no change from the UK evidence report). Inconclusive (favourable) evidence for osteopathic manipulative treatment in patients with COPD (not evaluated in the UK evidence report). "	Since the original UK Evidence report, there has been one systematic review, three controlled trials and two animal studies which obtained favourable results regarding Pneumonia and COPD, and which were not reviewed by the 2014 update (based on an analysis of the article's foot notes) ³²

Clinical Condition	Findings of the update to the UK Evidence Report	Research they didn't review
Pregnancy/obstetric care/neonatal care	“Inconclusive (favourable) evidence for spinal manipulative therapy for back pain during pregnancy (not evaluated in the UK evidence report). Inconclusive (unclear) evidence for manual therapy during labour or delivery (not evaluated in the UK evidence report). Inconclusive (unclear) evidence for manual therapy in the care of preterm infants (not evaluated in the UK evidence report)“	Since the original UK Evidence report, there has been one systematic review and meta analysis which obtained favourable results ³³ , a further 9 controlled clinical trials which obtained favourable results ³⁴ , and 2 clinical trials which obtained mixed results ³⁵ . None of these were reviewed by the 2014 update (based on an analysis of the article's foot notes).
Rehabilitation	“Inconclusive (favourable) evidence for osteopathic manual therapy for surgery rehabilitation (not evaluated in the UK evidence report – except for knee/hip arthroplasty). Inconclusive (unclear) evidence for mobilisation for stroke rehabilitation (not evaluated in the UK evidence report). “	Since the original UK Evidence report, there have been seven controlled trials which obtained favourable results regarding rehabilitation, and which were not reviewed by the 2014 update (based on an analysis of the article's foot notes) ³⁶
Systemic sclerosis	“Inconclusive (unclear) evidence for McMennell joint manipulation used in a complex rehabilitation programme in systemic sclerosis (not evaluated in the UK evidence report).”	Since the original UK Evidence report, there has been one controlled trial which obtained favourable results regarding systemic sclerosis (upper-limb edema and hand function), and which was not reviewed by the 2014 update (based on an analysis of the article's foot notes) ³⁷

Appendix 2: Evidence for Including a Wider Range of Modalities

Licciardone et al (2014) found the following in a multi-centre study involving 668 patient visits: “Cranial (1070 [14.5%]), myofascial release (1009 [13.7%]), muscle energy (1001 [13.6%]), and counterstrain (980 [13.3%]) techniques were most commonly used, accounting for more than one-half of the OMT provided. Pediatric patients were more likely than adults to receive OMT within the head (adjusted odds ratio [OR], 9.53; 95% CI, 1.28-71.14). Geriatric patients were more likely than adults to receive a structural examination (adjusted OR, 1.83; 95% CI, 1.09-3.07) and OMT (adjusted OR, 1.62; 1.02-2.59) within the lower extremity.”³⁸

Langenau et al (2012) found that in the Comprehensive Osteopathic Medical Licensing Examination-USA Level 2-Performance Evaluation, 4757 students used the following techniques: “10,471 myofascial/soft tissue (43.3%), 3942 muscle energy (16.3%), 1676 sinus drainage (6.9%), 1476 inhibition (6.1%), 1221 fascial release (5.0%), 1171 rib raising (4.8%), 918 lymphatic (3.8%), and 866 counterstrain (3.6%). A few students (<0.01%) used high-velocity, low-amplitude (HVLA), a technique that is prohibited from use on the COMLEX-USA Level 2-PE because of the potential hazard of repeatedly treating a standardized patient with thrust technique to the same segment in a given day. Additional techniques included functional, facilitated positional release, balanced ligamentous tension, and visceral. Use of techniques also varied according to the clinical presentation of the standardized patient (ie, cardiovascular, respiratory, neuromusculoskeletal, gastrointestinal, or other) and chronicity (ie, acute or chronic).”³⁹

In 2003 Johnson and Kurtz, in a survey of 955 osteopaths, developed the following list of most-used modalities⁴⁰:

Osteopathic Manipulative Treatment Techniques	Mean (SD)
Soft tissue	3.97 (1.08)
High-velocity low-amplitude thrust	3.73 (1.28)
Muscle energy	3.65 (1.21)
Counterstrain	3.07 (1.28)
Myofascial/integrated neuromuscular release	2.94 (1.42)
Articulatory	2.82 (1.47)
Lymphatic	2.55 (1.16)
Functional	2.51 (1.31)
Fascial ligamentous release	2.43 (1.29)
Facilitated positional release	2.31 (1.21)
Cranial	1.80 (1.23)

¹ Brady AP, 2017 Error and discrepancy in radiology: inevitable or avoidable? *Insights Imaging* Feb; 8(1): 171–182 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5265198/>

² <http://www.numss.com>

³ Posadzki P, Ernst E 2011 Osteopathy for musculoskeletal pain patients: a systematic review of randomized controlled trials. *Clin Rheumatol* Feb;30(2):285-91

⁴ **Nine pre-2011 randomised controlled trials into musculoskeletal conditions, not including children, which were not considered by the Posadzki and Ernst (2011) review:**

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⁵ Clar C, Tsertsvadze A, Court R, Hundt GL, Clarke A, Sutcliffe P 2014 Clinical effectiveness of manual therapy for the management of musculoskeletal and non-musculoskeletal conditions: systematic review and update of UK evidence report. *Chiropr Man Therap* Mar 28;22(1):12 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3997823/>

⁶ **Systematic reviews**

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<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3364062/>
- ⁷ <http://clinicalevidence.bmj.com/x/set/static/cms/efficacy-categorisations.html>
- ⁸ “I want it understood that I look upon the treating of effects as being as unwarranted as it would be for the fireman of a city to fight the smoke and pay no attention to the cause that produces it.”
 —AT Still, the founder of Osteopathy, in *Osteopathy Research and Practice*
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¹⁰ **Two post 2009 controlled trials into back pain which showed mixed results and which were not considered by the 2014 update:**

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¹¹ **Five post 2009 controlled trials into neck pain, which showed favourable results and which were not considered by the 2014 update:**

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¹² One post 2009 controlled trials into neck pain, which showed a favourable trend but did not achieve statistical significance, and which was not considered by the 2014 update:

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¹³ Two post 2009 controlled trials into neck pain, which showed favourable results and which were not considered by the 2014 update:

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¹⁴ Three post 2009 controlled trials into carpal tunnel syndrome, which showed favourable results and which were not considered by the 2014 update:

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¹⁵ Six post 2009 controlled trials into shoulder conditions, which showed favourable results and which were not considered by the 2014 update:

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¹⁷ Seven post 2009 controlled trials into headaches, which showed favourable results and which were not considered by the 2014 update:

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¹⁹ One systematic review and meta analysis that showed favourable results for a range of manual techniques in fibromyalgia.

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²⁰ Two post 2009 controlled trials into learning disabilities, which showed favourable results and which were not considered by the 2014 update:

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²¹ Two post 2009 systematic reviews and four controlled clinical trials into caring for people with cancer, which showed favourable results and which were not considered by the 2014 update:

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²⁴ One post 2009 systematic review and 10 controlled trials into gastrointestinal disorders, which showed favourable results and which were not considered by the 2014 update:

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²⁷ **Thirty nine controlled clinical trials which obtained favourable results regarding myofascial pain**

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