

## Is Spinal Manipulation Effective for Back and Neck Pain?

Since pain is considered to be a multidimensional complex interaction of biological, psychological and social dimensions, it is important to remember that there is no one technique or treatment that satisfies all its aspects.

Some comprehensive systematic reviews (considered as the pinnacle of evidence) have not provided clear evidence that spinal manipulation shows clear benefit over placebo (1, 2). However, there are a number of recent reviews that are beginning to build a picture in favour of spinal manipulation for the treatment of back and neck pain (3-7).

### Spinal Manipulation for back pain

- ➡ First-line
- ➡ Effective
- ➡ Safe

Despite historical criticism that the quality of evidence is poor for spinal manipulation, the recent momentum in favour of spinal manipulation as a first line approach with specific reference to back pain is compelling. This is illustrated in several best practice guidelines and high-level expert opinion pieces (6-11). A recent article in *The Lancet*, a prestigious medical journal, recommends spinal manipulation for the treatment of both acute and chronic back pain (10).

Although the body of literature is not as comprehensive for neck pain, similar recent recommendations and reviews advocate spinal manipulation (6, 8).

### Comparative Effectiveness

Whilst there are several treatment approaches for neck and back pain, the research indicates that conservative measures should be utilised ahead of more invasive surgical and pharmaceutical treatments (10).

Commonly prescribed medications are not supported by strong evidence for back and neck pain.

The effectiveness of widely prescribed “first line” drugs such as anti-inflammatory medications (e.g. Diclofenac or Ibuprofen) have yet to be established. Recent substantive systematic reviews fail to highlight compelling benefits over placebo (12). These results are similar for other readily prescribed pain medications such as paracetamol (13). Other routine medical treatments such as steroid injections have yet to demonstrate superior efficacy (14).

A recent trial compared diclofenac to spinal manipulation and found “in a subgroup of patients’ spinal manipulation was significantly better than nonsteroidal anti-inflammatory drug diclofenac and clinically superior to placebo”(15).

Furthermore commonly prescribed drugs and surgeries have well documented side effects and adverse reactions (16).

### Quick Facts Spinal Manipulation

- ➡ Is extensively researched and backed by evidence.
- ➡ Is widely accepted as safe, effective and cost effective.
- ➡ Is a drug free alternative treatment for back and neck pain.

## Safety of Spinal Manipulation

In some cases, spinal manipulation has been viewed as an ineffective procedure that comes with serious potential risks (17, 18). Whilst adverse events have been reported following SM, the research highlights that serious events are extremely rare (18, 19). Risks should also be weighed against the benefits of treatment, and patients should be given the opportunity to choose, based on the information provided to them about potential risk. (18, 20).



### Adverse Events Following Spinal Manipulation

Many important and common treatments carry risks; however, these should be put into context. Spinal manipulation is not risk free. However, whilst serious events are considered very rare, the risks should be disclosed to patients prior to treatment (18).

Serious adverse events following spinal manipulation are rare

The following is a basic overview:

- **Minor events;** usually involve a transient increase in symptoms, generally occurring within 24 hours of treatment. These include muscle soreness, tiredness, nausea, lightheadedness, tingling in the arms. These symptoms usually resolve within 24-48 hours and are reversible (18).
- **Moderate events;** including rib fractures, vertebral fractures and disc injuries. These are usually reversible but cause significant discomfort and distress. These are classified as rare to very rare (1 in 100 000 treatments)(18). Research also tells us that underlying and pre-existing problems are likely present prior to the event occurring - for example, a disc injury was present prior to treatment (21).
- **Major, serious events;** including spinal cord injury, stroke and blood vessel trauma. These are serious and may be irreversible, disabling, and in extremely rare cases, death has been reported (risk range is between 1 in 230 thousand to 1 in 3.8 million).

Research also tells us that underlying and pre-existing problems are likely present prior to the event occurring and symptoms of the injury or disease are present prior to delivery of treatment (18, 21-25).

### Putting this into Context

Let's compare the risks of spinal manipulation with some common medications and medical procedures prescribed for back and neck pain.

#### Medications

- Diclofenac (Voltaren®) Ibuprofen (Brufen®) are common pain-relieving/anti-inflammatory drugs readily prescribed for back and neck pain.
- Side effects and adverse events include kidney failure, heart complications, gastrointestinal bleeds and stroke (27). Some reports from the United States estimate 16 500 deaths annually as a direct consequence of anti-inflammatory medications (26, 27).
- One author suggests that for every \$1 spent on anti-inflammatory medication 0.66c was spent for treating the related adverse events (28).

Many common pain medications and medical procedures have significant risk profiles

## Steroid Injections

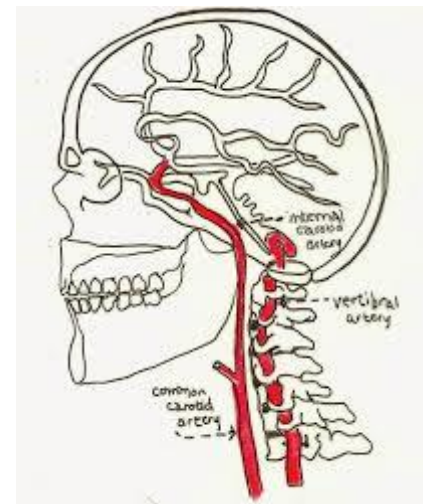
- Epidural corticosteroid injections are a commonly utilised medical intervention for back and neck pain. Whilst considered uncommon, the risks associated with these are significant. (29).
- Severe adverse events for spinal injections include infection, spinal cord injury, blindness, brain bleeds, stroke, cardiac arrest, anaphylaxis and death (29).

## The Stroke Issue

One commonly discussed topic is the risk of a stroke following spinal manipulation of the neck. This has led some to propose a complete ban on neck manipulation (17, 30).

### What is the underlying mechanism?

Studies have linked damage to one of the main arteries in the neck to the development of a type of stroke. Some of these strokes have occurred following spinal manipulation. This type of stroke is a rare event, and this event is infrequently associated with spinal manipulation (1 in 228,050–1,000,000 manipulations (31). The concern raised however is that even though this is a rare event, the consequences could be severe, disabling, and at times life threatening (17, 30).



### What the evidence tells us

Numerous studies have been conducted in large populations to assess the risk of stroke following neck manipulation (22-24, 32). This research demonstrates an association between spinal manipulation of the neck and stroke; however, when these researchers compared this to patients who had recently seen their general practitioner, they found the same association. In other words, strokes were equally associated with chiropractic visits and general practitioner visits (22-25, 32).

### What does this mean?

General practitioners do not perform neck manipulation, but they do consult patients for pain. Therefore, patients will consult either a GP or a manual therapist for pain. The most common symptoms of early onset of stroke are head and neck pain i.e. the symptoms of the event lead to the patient seeking care. This explains an association, not a direct cause and effect relationship (22-24, 32).

“There is no convincing evidence to support a causal link between chiropractic manipulation and stroke” (22)

Further research on this topic has looked at the stress applied to the artery during spinal manipulation, and these authors found that stresses applied during spinal manipulation were lower than those produced during simple range of motion testing (33-35).

### See a practitioner who

- ➡ Specialises and regularly practices spinal manipulation
- ➡ Keeps up to date with the current research
- ➡ Considers your preferences for treatment
- ➡ Is experienced

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