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Apple Cart

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Is Traction Effective in Treating Neck and Back Pains? The jury is still out.

The concept of using traction in treating back pain is believed to have been around in ancient Greece, as early as the 2nd century AD, with illustrations often depicting individuals hanging upside from their feet.

Today while not done in the same manner, traction remains a popular treatment modality for the management of spinal complaints. It is common for patients to attend physiotherapy clinics requesting traction, doctors to refer patients suggesting that the individual may benefit from a course of traction, and hospital-based physiotherapy sessions to consist of weekly sessions of mechanical traction.

Despite its continual use in clinical practice, research into traction over the last 20 years has failed to produce any conclusive evidence of its effectiveness in the management of spinal complaints. This has mainly been due to the poor study designs of most of these studies.

Which clients can traction be used on?

Traction is used to treat a whole host of spinal conditions including disc herniation, degenerative disc disease, nerve impingement and hypomobile facet joints of the neck and lower back.

There are three desired physiological effects of traction.

The first and primary theory behind utilising traction arises from the notion that applying an axial pulling force through the spine, causes distraction of the vertebral bodies and thus increases the vertebral foramen, thereby reducing the compression of surrounding nerve, discs, neural tissue and blood vessels (Chiu et al, 2011). An increase in height and area of the intevertebral foramina, of the cervicle spine were demonstrated through radiographic analysis in studies by (Liu et al, 2008).

The second desired effect of traction has been suggested to serve a role in reducing the muscle spasm often associated with spinal conditions, and increase blood circulation to the affected region of the spine (Chiu et al, 2011).

The third effect is the traction force applied is believed to stimulate the large afferent A-beta fibers (mechanoreceptors) of the muscle and spinal joints.This presynaptically reduce the transmission of pain at a given spinal level (Chiu et al, 2011 and Graham et al, 2006).

The evidence for traction

Randomized controlled trials (RCTs) have found minimal to no benefits of traction in the treatment of neck and low pain.

In a RCT in 1985 Zylbergold and Piper, compared 100 patients with neck pain receiving, static traction, intermittent traction, manual traction and no traction. In this study all patients significantly improved in all outcome measures, but those receiving intermittent traction showed the greatest improvements in pain, cervicle flexion and rotation. A limitation of this study remains the fact that all the participants improved suggesting a degree of natural recovery.

Types of Traction

Selecting the appropriate traction technique solely depends on the patient's physical condition, the individual's tolerance, and the spinal level(s) to be treated. Traction can be manual or mechanical and applied as a continuous force or intermittently.

Manual

Manual cervical therapeutic traction is carried out by the therapist. The therapist supports the patient's head whilst applying a gentle, stable, and controlled distraction force.

Manual lumbar traction involves a lot more effort on the therapists part as the intention is to distract almost half of the patient's body's weight. The therapist may pull at the ankles, drape the patient's legs over the therapist's shoulders or utilise a pelvic belt with straps to achieve the required distraction force. Again the therapist may decide to position the patient in the aggravating postures over a neutral posture.

Mechanical

A cervical mechanical traction device consists of a head halter with a pulley system that applies the axial force that a therapist prescribes as necessary. Home traction devices have also meant that patients once advised by the therapist regarding the weights and duration of traction treatment are able to apply traction themselves.

Mechanical lumbar traction may incorporate the use of a motorized split-traction table. The patient is secured to the end of the table and placed in a pelvic harness.

A systematic review in 2006, compared the effects of traction (continuous and intermittent traction) with or in combination of other treatments in reducing pain and increasing function in a population of mechanical neck pain patients. The review consisted of 10 studies (nine of which were deemed as low quality) conducted between the 60s to 2004 and concluded that there was no evidence to support the use of continuous traction but favored intermittent traction; although the evidence was reported to be inconclusive (Graham et al, 2006)

The Cochrane review in 2008 that looked at 7 RCTs (n=958), that compared traction alone or in combination with other treatment modalities versus a control or a placebo found no significant differences between the experimental group and control in outcome measures assessing pain, function, disability, global perceived effect, patient satisfaction, and quality of life measures.

More recently a randomised controlled study in 2010 comparing the efficacy of intermittent traction twice a week over a 6 week period in chronic neck pain patients to a control group (receiving infrared treatment) found no significant differences in outcome measures such as the Modified Northwick park neck pain questionnaires, Visual numerical pain scores and cervicle active range of movement. Outcome measures were assessed at baseline, 6 weeks and at a 12 week follow up period. The study involved a sample of 79 patients between the ages of 22 -70 and therefore quite representable of a normal neck pain population (Chiu et al, 2011).

This was consistent with previous studies that found no significant differences between group differences in terms of disability score and self-reported pain (Borman et al, 2008, Moffett et al, 1990, and Young et al, 2009)

Similar findings have also been demonstrated in studies assessing traction and low back pain.

To overcome the methodological shortcomings of the above studies, a 1995 RCT was conducted where high-dosage of traction was compared with sham traction in 151 patients with at least six weeks of non-specific low back pain. In conclusion the authors of the RCT reported no benefits in the use of traction in the treatment of low back pain (Beurskens et al 1995).

In agreement with the above, a systematic review in 2003 reported inconclusive findings into the benefit of traction in treating low back pain, of RCTs (between 1996-2001); mainly due to poor methodological studies and the limited application of clinical parameters used in clinical practice (Harte et al 2003)

For acute to chronic low back pain, the Cochrane review in 2007 investigated 25 RCTs (n=2206; 1045 receiving traction) that compared traction to other treatments, sham traction, no treatment and placebo. Five trials were considered high quality. The results reported no statistically significant difference in outcomes between traction as a single treatment and placebo, sham or no treatment; moderate evidence that traction as a single treatment is no more effective than other treatments and limited evidence of no significant difference in outcomes between a standard physical therapy program with or without continuous traction.

For patients with symptoms of sciatica (with acute, sub-acute or chronic pain), there was moderate evidence for the use of continuous or intermittent traction compared to placebo, sham or no treatment, and limited evidence for light versus normal force traction.

Clinical implications and future research

Traction is certainly not a treatment modality that should be used in isolation as the research supporting its benefits and use is somewhat flawed and inconclusive.

Future research looking at traction ought to consider its use for specific conditions such as traction for treating cervical nerve impingement, physiologically this would make more sense over the use of traction for a rotated or hypomobile facet joints. This may have been demonstrated with the Cochrane review that found moderate evidence for the use of traction with sciatica patients.

Clinically for some patients traction is clearly beneficial, therefore more research into traction should look to distinguish between symptom pattern, disease diagnosis, duration, type of traction; and ought to be carried out to the highest methodological standards before recommendations can be made.
Studies of late are generally leaning to a combined approach of exercise therapy, education, joint mobilisation and manipulations as being the most effective method of treating neck pain (Binder 2007) and low back pain (Airaksinen et al 2006).

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