



Relieve Back Pain

Inversion has been shown to temporarily increase intervertebral dimensions and decrease pressure on intervertebral discs, helping the discs to rehydrate with fluids for greater shock absorption. This results in reduced pressure on the nerve roots that exit the spinal column through openings that are controlled by the height of the disc.

The Kane study¹ demonstrated that gravity-facilitated traction produces significant intervertebral separation in the lumbar spine. The study concluded gravity facilitated traction may be an effective modality in the relief of low back pain.

The Nachemson study² measured internal disc pressure (in the 3rd lumbar disc) through a range of activities, including standing, sitting, bending and vertical and supine traction. The study demonstrated that when lying down, there is a residual pressure inside the discs equal to 25% of standing pressure. In a separate test, it indicated that traction equal to 60% of body weight was required to reduce the standing body pressure by 25%, suggesting that the pressure inside the disc could be reduced to at or near zero by applying traction equal to 60% of body weight while in the supine position.

The Nosse study³ found that emg activity (an indicator of muscle pain) declined 35% within the first 10 seconds of inversion. The study also found that inversion increases spinal length, concluding that there seems to be a correlation between a reduction in emg activity and an increase in spinal length.

The Dimberg / Volvo study⁴ evaluated 116 people in a randomized controlled trial that lasted for 12 months. Two training groups and one control group were studied to assess the effect of gravity inversion on pain level and absenteeism due to LBP. Group 1 used inversion for 10 minutes once per day. Group 2 used inversion for 10 minutes twice per day. Group 3 was the control group. After 12 months, the employees in Group 1 and 2 decreased sick days due to back pain by 33%. The average sick days to due back pain fell by 8 days per individual in the treated group. The study concluded that inversion is an efficient and inexpensive way to improve employee health and possibly reduce sick day costs to the employer.

The Sheffield study⁵ evaluated 175 patients who were unable to work due to back pain. After eight inversion treatments, 155 patients were able to return to their jobs full time. The study concluded that the main basis for improvement was the stretching of

¹ Kane, M, et al: Effects of Gravity-facilitated Traction on Intervertebral Dimensions of the Lumbar Spine. Journal of Orthopedic and Sports Phys Ther. 281-288, Mar 85

² Nachemson, A and Elfstrom, G: Intravital Dynamic Pressure Measurements in Lumbar Discs. Scandinavian Journal of Rehab Medicine, supplement, 1970.

³ Nosse, L.: Inverted Spinal Traction. Arch Phys Med Rehabil 59: 367-370, Aug 78.

⁴ Dimberg, L, et al: Effects of gravity-facilitated traction of the lumbar spine in persons with chronic low back pain at the workplace.

⁵ Sheffield, F.: Adaptation of Tilt Table for Lumbar Traction. Arch Phys Med Rehabil 45: 469-472, 1964.



paraspinal vertebral muscles and ligaments and possibly the widening of intervertebral discs. Patients experienced traction in a modified hip flexed position.

Of note were Sheffield's comments on the unsuccessful use of mechanical methods of lumbar traction, including Buck's method, horizontal pelvic traction using weights and pulleys, and a hydraulic apparatus that utilizes a harness while the patient is in a standing position. Sheffield "has used all of these lumbar traction techniques...with only equivocal results." After analyzing results from his gravity-assisted traction table, Sheffield states that "Results, especially in the treatment of nerve-root lumbar conditions, are encouraging..."