Clarke JA, van Tulder MW, et al. Traction for low-back pain with or without sciatica. Cochrane Database of Systematic Reviews 2007;Issue 2, Article # CD003010.

Design: Systematic review of randomized controlled trials

PICOS:

- Patient population: adults with nonspecific low back pain, acute, subacute, or chronic, with or without sciatica
    - Studies of patients with specific causes of back pain (fracture, tumor, arthritis, osteoporosis) were excluded
- Intervention: Any type of traction (mechanical, manual, computerized, inverted, continuous/intermittent)
- Comparison/control intervention: any type of control group, whether using placebo, sham, no treatment, or other treatments for low back pain
- Outcomes: Four principal primary outcomes were considered
    - Return to work (or days off work)
    - Pain (VAS)
    - Functional status (Oswestry or Roland-Morris)
    - Global measure of overall improvement (proportion of patients recovered, subjective improvement of symptoms)
- Study types: Only randomized controlled trials

Study selection and evaluation:

- Databases included MEDLINE, EMBASE, CINAHL, and the Cochrane Library from inception until updated through October 2006
- Two authors independently selected the trials for inclusion, with consensus reached involving a third author in case of disagreement about inclusion
- Methodological quality was assessed by the commonly used 11 point Cochrane Risk of Bias Tool, incorporating considerations of method of randomization, allocation concealment, attrition rates, blinding, intention-to-treat analysis, similarity at baseline, adequate length of follow-up, and compliance with treatment
    - A score of 6 or more qualified the study as “high quality” for internal validity
- Most studies were too heterogeneous to permit statistical pooling of effect sizes; the authors therefore decided against doing a meta-analysis, and summarized the evidence as
    - Strong: Generally consistent findings in multiple high quality RCTs
    - Moderate: Generally consistent findings in one high quality RCT plus one or more low quality RCTs, or by consistent findings multiple low quality RCTs
    - Limited: Evidence from only one low quality RCT

    - Conflicting: Inconsistent findings in multiple RCTs
    - No evidence: No RCTs
- Because of the limitations on the reporting data, much of which lacked information (such as means, standard deviations, and sample sizes) needed for pooling results, a meta-analysis was not feasible

Results:

- The inclusion criteria were met by 25 studies with 2206 patients
    - 12 studies compared traction to sham traction, to a placebo, or to no therapy
    - 12 studies compared traction to other treatments such as exercises, manipulation, corsets, hydrotherapy, physical therapy, etc)
        - In 5 studies, the comparison treatment was a different form of traction
    - Follow-up times varied across studies; some had more than one length of follow-up
        - 8 were very short-term (one week)
        - 13 had 3 to 5 weeks of follow-up
        - 10 had 9 to 16 weeks of follow-up
        - 4 had at least 6 months of follow-up and 2 had 12 months
    - The quality of most studies was low; only 5 studies were high-quality
        - Blinding of care providers was not feasible for any of the studies, but other failings were common, especially allocation concealment
    - Results presented below are restricted to those from the high-quality studies
    - One group of comparisons focused on studies with a mixed group of LBP patients, some with and some without sciatica
        - 2 high-quality studies compared continuous traction with sham or no treatment, and reported no differences in measures of pain, function, disability, or work absence
        - One high-quality study compared intermittent traction with interferential therapy in chronic LBP; it found no difference between treatments
    - A second group of comparisons focused on studies of patients with predominant sciatica with LBP
        - One high-quality study with low power (only 29 patients) compared traction to sham traction and had no differences between true and sham traction on pain measures, but did not use a valid pain measure (did not have pain VAS, but only improved/unchanged/worse)
        - One high-quality study compared traction to isometric exercises of pelvic floor and abdominal muscles; positive results were reported on a 4 point scale of global improvement after treatment, but there were no differences at the 1 and 3 month follow-up points

Authors' conclusions:

- The main result is that traction is no more effective than placebo, sham, or no treatment
- Although there are conflicting results between RCTs, with some showing and some not showing an effect of traction, the lower quality studies were more likely to show positive results than the higher quality studies
- Due to the lack of high-quality adequately powered trials, there is a lack of strong, consistent evidence regarding the use of traction
- Many of the studies were published in the 1970s and 1980s, before journals began to apply current standards of reporting of RCTs; future RCTs which use these reporting standards may provide higher quality evidence about the effectiveness of traction
- Traction is not recommended for patients with back pain of any duration, whether or not they have sciatica; it is probably not effective

Comments:

- Most of the studies were low quality; even the preponderance of these results did not consistently support the effectiveness of traction
- On page 7, under analysis 2a (traction versus placebo for patients with sciatica), the authors report that only 1 study (Lind 1974) was high-quality; however, Lind 1974 scored only 5 points, which is below the cutoff of 6 points for quality; it also showed implausibly strong results in favor of traction (e.g., 87% of the traction patients globally recovered, and none of the physical therapy patients globally recovered; 100% of the traction patients recovered on straight leg raising, compared to none of the physical therapy patients); this is best seen as a small, low quality study with a high risk of bias
- The abstract states that for studies with a mixture of LBP and sciatica patients, there is strong evidence of no difference in outcomes between traction as a single treatment and sham or no traction; however, in their discussion, they state that due to the low quality of evidence, there is a lack of strong, consistent evidence regarding the effectiveness of traction
- The overall assessment of the evidence for the Division of Workers' Compensation levels of evidence is probably "good" rather than "strong" evidence

Assessment: high quality systematic review of mostly low quality studies, supporting a statement that there is good evidence that traction is not more effective than placebo traction or no treatment in patients with low back pain of any duration, with or without sciatica