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Effectiveness of Spinal Manipulation in the Treatment of Non-Musculoskeletal Disorders: A Systematic Review

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Introduction

Spinal manipulation (SM) is defined as a “high velocity, low amplitude thrust” applied to a spinal segment.¹ Many professions promote the use of adjunctive treatments such as SM for the management of non-musculoskeletal disorders.^{1,2,3,4} There is high-quality literature supporting the use of SM for a variety of musculoskeletal disorders, such as low back pain,³ shoulder pain,^{2,4} and cervical spine range of motion and pain.¹ However, there is little evidence supporting its use for non-musculoskeletal conditions. The majority of peer-reviewed publications regarding the efficacy of SM in the treatment of non-musculoskeletal disorders are case studies, retrospective studies and feasibility studies.^{5,6} The conditions addressed range from gastrointestinal disorders such as fecal incontinence⁵ to neurological disorders such as Tourette syndrome.⁶ Although these studies report significant improvements following SM, it is important to note that the outcomes are mainly self-reported and lack randomization and/or a control group.^{4,5} Thus, the effectiveness of SM for the treatment of non-musculoskeletal conditions is not known due limited evidence-based support. The purpose of this study was to systematically review available literature regarding the effectiveness of spinal manipulation for the treatment of non-musculoskeletal disorders.

Methods

Pubmed, PEDro, Index to Chiropractic Literature, CINAHL and Cochrane were searched between March and April 2014 for “non-musculoskeletal,” “manipulation,” and “chiropractic” combined with “visceral,” “treatment,” “pulmonary,” “spinal,” and “endocrine.” In order to assess methodological quality, three raters applied the 10-point PEDro scale to randomized controlled trials (RCTs) meeting inclusion criteria. Studies scoring 9-10 were deemed to be of “excellent” methodological quality, studies scoring 7-8 were deemed “good” quality and studies scoring 5-6 were deemed “fair” quality. Studies scoring below 4 were deemed “poor” quality.

Results

Study	Intervention by Group	Results
Balon et al (1998) ⁷ Pedro=8/10 n=80	20-36 treatments over 4 months <i>Active Treatment:</i> SM in prone, side-lying, and supine in conjunction with ST therapy <i>Simulated Treatment:</i> STM, gentle palpation, and low-amplitude, low-velocity impulses applied to spine, paraspinal muscles, and shoulders in prone, side-lying, and supine.	Morning and evening PEF: Small, non-significant increases in both treatment groups. Self-reported symptoms and use of oral corticosteroids: Decreased in both groups with no significant differences between groups Quality of life: Increased in both groups above MCID with no significant differences between groups.
Bronfort et al (2001) ⁸ Pedro=6/10 n=36	20 treatments over 3 months with 1 year follow-up <i>Active Treatment:</i> SM and manipulation of sacroiliac joints with aid of table with drop mechanism. <i>Sham Treatment:</i> Light manual contact administered to the spine with no thrust but with use of drop mechanism to produce a rapid, momentary change in position.	Quality of Life Score: Significant improvement in active treatment group from baseline, with the activity scale showing the most change. Asthma Severity Rating: Significant reductions in active treatment group from baseline.
Engel et al (2013) ⁹ Pedro=7/10 n=14	8 treatments, 2x/week over 1 month <i>ST:</i> Gentle massage to posterior chest wall <i>ST + SM:</i> The above+ SM of thoracic intervertebral, costovertebral, and costotransverse joints <i>ST + SM + Ex:</i> The above + continuous walking on level surface for 6 minutes	FVC: Significant increase in ST +SM + Ex group 6MWT: Significant increase in distance in ST +SM and ST +SM + Ex groups Dyspnea score: Significant increase in distance in ST +SM and ST +SM + Ex groups
Olafsdottir et al (2001) ¹⁰ Pedro=8/10 n=86	3 treatments over an 8 day period <i>Treatment group:</i> Light finger-tip pressure to areas of spinal dysfunction <i>Control group:</i> Infant held by nurse for the approximate same time of treatment group	Both groups showed reduction in number of crying hours No significant difference in parent reported symptom score, although treatment group showed non-significant improvement over control group

PEF, peak expiratory flow; MCID, minimally clinically important difference; ST, soft tissue therapy; SM, spinal manipulation; Ex, exercise; FVC, forced vital capacity; 6MWT, six minute walk test

Conclusion

There were significant improvements in some outcome measures for individuals with asthma and COPD.^{8,9} However, the applicability of these results is limited by the poor methodological design of the studies. This makes it impossible to attribute improvement to SM alone. Therefore, there is no conclusive evidence that supports the use of SM as a treatment for non-musculoskeletal disorders.

Relevance

Current literature supports the use of SM to treat musculoskeletal disorders.^{1,2,3,4} Although the evidence supporting the use of SM to treat non-musculoskeletal conditions is insufficient, some practitioners use SM as an adjunctive treatment for non-musculoskeletal disorders. It is imperative to investigate the possible benefits of SM in order to provide evidence based treatment to individuals with non-musculoskeletal conditions. If it is found to be effective, SM may offer a conservative option for conditions such as asthma. This review illuminates the need for higher quality research when examining the effect of SM on non-musculoskeletal disorders.

References

1. Flynn T, Wainner R, Whitman J, Childs J. The immediate effect of thoracic spine manipulation on cervical range of motion and pain in patients with a primary complaint of neck pain- A technical note. Orthopaedic Division Review 2007; 31-36.
2. Boyles R, Ritland B, Moore J, et al. The short-term effects of thoracic spine thrust manipulation on patients with shoulder impingement syndrome. Manual Therapy 2009; 14: 3775-380.
3. Childs J, Fritz J, Flynn T, et al. A clinical prediction rule to identify patients with low back pain most likely to benefit from spinal manipulation: A validation study. Annals of Internal Medicine 2004; 141: 920-931
4. Bergman G, Winters J, Groener K, et al. Manipulative therapy in addition to usual medical care for patients with shoulder dysfunction and pain. Annals of Internal Medicine 2004; 141: 432-440.
5. Barber V, Ring T. Encopresis: A case study of the response of pediatric fecal incontinence while under chiropractic care. Topics in Clinical Chiropractic 2002; 9: 68-72.
6. Martinez D, Marashi A. Chiropractic manipulation, functional neurologic and nutritional management for the reduction for tourette syndrome symptoms in a 27 year old woman. Topics in Integrative Health Care 2011; 2
7. Balon J, Aker PD, Crowther ER, Danielson C, Cox PG, O'Shaughnessy, et al. A comparison of active and simulated chiropractic manipulation as adjunctive treatment for childhood asthma. The New England Journal of Medicine 1998; 339: 1013-1020.
8. Bronfort G, Evans RL, Kubic P, Filkin P. Chronic pediatric asthma and chiropractic spinal manipulation: A prospective clinical series and randomized clinical pilot study. Journal of Manipulative and Physiological Therapeutics 2001; 24: 369-377.
9. Engel RM, Vemulapad SR, Beath K. Short-term effects of a course of manual therapy and exercise in people with moderate chronic obstructive pulmonary disease: A preliminary clinical trial. Journal of Manipulative and Physiological Therapeutics 2013; 36: 490-496.
10. Olafsdottir E, Forshei S, Fluge G, Markestad T. Randomised controlled trial of infantile colic treated with chiropractic spinal manipulation. Archives of Disease in Childhood 2001; 84: 138-141.