

Health-related quality of life improvements in adult patients with chronic low back pain under low-force chiropractic care: a practice-based study

Abstract

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Background



Chronic Low Back Pain (cLBP) costs the United States over \$100 billion annually. In 2007, the American College of Physicians and the American Pain

Society⁹ published clinical guidelines regarding the diagnosis and treatment of low back pain including seven recommendations. One was "non-pharmacologic therapy with proven benefits" which included spinal manipulation for patients with unresolved chronic low back pain after an initial trial of self-care and medications; but the recommendations were rated as weak due to only moderate quality of the evidence available in current literature.

Primary Study Objective

This study reports pain intensity, general health and functional disability outcomes after 4-weeks of chiropractic care for chronic low back pain (cLBP) patients.

Methods and Design

A prospective case series, nonrandomized, non-controlled, multi-center, practice-based study with chronic low back pain patients entering DNFT chiropractic care for 6 treatments over 4-week period was conducted.

A total of 22 chiropractors were selected, each of whom were personally trained in DNFT methods by Dr Christopher John. All doctors had a minimum of 3 years of clinic practice of DNFT chiropractic and utilized the technique according to DNFT protocol.

Three outcome questionnaires (COOP, MODQ, PI-NRS) were recorded on the first and on the last visits.

Settings and Subjects

22 private chiropractic practices in the USA. 131 adult cLBP patients, 68 males (53.5%), mean age of 46.75 with chief complaints of cLBP (LBP ≥ 3 months) with mean duration of 11 years.

Intervention



Each patient received 6 office visits over a 4 week period with doctors following Directional Non-Force Technique (DNFT) chiropractic protocols.

Each of the new cLBP subjects received the following care plan: 2 visits for the first week, 2 visits for the second week, 1 visit for the third week, and 1 visit for the fourth week. This treatment plan consisted of 6 total visits.

Intervention consisted of analysis and correction of subluxations on each patient visit as per Directional Non-Force Technique chiropractic protocols. The diagnostic part of this protocol consists of a structural challenge immediately followed by the D.N.F.T. Reactive Leg Reflex test.

The challenge is a test consisting of a gentle push or pull of an osseous or soft tissue structure. If the test is positive, it produces a temporary shortening of one leg by approximately ¼ inch.

The corrective part consisted of a DNFT thumb thrust, a directionally specific high velocity low amplitude impulse.



Discussion:

It is theorized that DNFT chiropractic achieved these results through the features of the adjustment protocols.

Directional Non-Force Technique chiropractic defines subluxations as misalignments or imbalances of the vertebral complex that are actively causing nerve irritation. Such misalignments are hypothesized to lead to joint, neurologic, and soft tissue dysfunction that are a result of the altered biomechanics.

Kuslich⁴³ et al identified tissues that can transmit pain to the low back as facet joints, ligaments, muscles, fascia, and intervertebral discs. Both Bogduk and Cavanaugh⁴⁴ et al identified that nerve irritation in lumbar intervertebral discs and lumbar facet joints respectively, can produce low back pain.

Table 2. Pre and Post-care scores on Dartmouth COOP, Modified Oswestry Disability Questionnaire, and Pain Intensity-Numerical Rating Scale (means, with S.D. given in parentheses).

Variable	n	Baseline Mean	Post-care mean	% change	p value from paired-sample t-test
All Cases	131				
COOP (25 points)	130*	13.16 (3.83)	10.52 (3.54)	-20.06%	p = .000
MODQ (50 points)	120*	17.71 (6.70)	8.92 (6.62)	-49.66%	p = .001
PI-NRS (44 points)	128*	18.18 (5.92)	10.60 (6.80)	-41.69%	p = .002

* The number of subjects (n) vary due to missing data. Only data with matching pre and post scores without missing data were used.

Table 3. Modified Oswestry Disability Questionnaire (MODQ) scores at baseline and at 4 weeks for current study and current literature.

Study	N	P value	Baseline MODQ	4-week MODQ	Net Change	Net Change %	Number of Adjustments
Current Study †	120	0	17.72	8.92	-8.8	49.66%	6
Haas et al.[14] § †	527	0	19.25*	10.95*	-8.3	43.12%	missing
McMorland & Suter [22] ‡ †	14	no sig.	27.1	21.73	-5.37	19.80%	12
Zaproudina et al.[11] ¶	59	0.069	9.95*	6.15*	-3.8	38.19%	3 to 5
Giles & Muller [23] ¶	25	0.01	12*	6* (9 wks)	-6	50%	18

* Converted to 50 points scale
 § Chronic pain was defined as a current episode 7 weeks or longer
 † Used Modified or Revised Oswestry Disability Questionnaire
 ¶ Used Original Oswestry Disability Questionnaire
 ‡ Chronic pain was defined at > 6 months



Conclusion:

This study supports the few other studies in current literature suggesting that chiropractic care can improve cLBP by decreasing pain intensity and functional disability while improving overall health.

D.N.F.T. chiropractic care achieved these results with 6 adjustments.

The study is not without limitations that can be addressed with a study design with RCT.

Future RCT studies with D.N.F.T. chiropractic care against a number of different modalities and placebo would be desirable to confirm these findings.

Table 1. Demographic and baseline characteristics for study group with Dartmouth COOP, Modified Oswestry Disability Questionnaire, and Pain Intensity Numerical Rating Scale (means, with S.D. given in parentheses).

Variable	n*	Mean (standard deviation)
All Cases	131	
Gender	127	
Male (%)	68 (53.5%)	
Age (Years)	130	46.75 (15.83)
Patient Weight (lbs)	125	175.39 (41.87)
Patient Height (ins)	125	67.5 (4.02)
cLBP Duration (months)	120	132.08
Weeks of Care	131	3.19 (0.56)
COOP (25 points)	130	13.16 (3.83)
Modified Oswestry (50 points)	120	17.72 (6.70)
PI-NRS (44 points)	128	18.18 (5.92)

* The number of subjects (n) vary due to missing data c

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References

- Chou R, Loeser JD, Owens DK, Rosenquist RW, Atlas SJ, Baisden J, Carragee EJ, Grabis M, Murphy DR, Resnick DK, Stanos SP, Shaffer WO, Wall EM; American Pain Society Low Back Pain Guideline Panel. Interventional therapies, surgery, and interdisciplinary rehabilitation for low back pain: an evidence-based clinical practice guideline from the American Pain Society. *Spine*. 2009 May 1;34(10):1066-77.
- Zaproudina N, Hietikko T, Hänninen OO, Airaksinen O. Effectiveness of traditional bone setting in treating chronic low back pain: a randomised pilot trial. *Complement Ther Med*. 2009 Jan;17(1):23-8.
- Haas M, Goldberg B, Aickin M, Ganger B, Attwood M. A practice-based study of patients with acute and chronic low back pain attending primary care and chiropractic physicians: two-week to 48-month follow-up. *J Manipulative Physiol Ther*. 2004 Mar-Apr;27(3):160-9.
- McMorland G, Suter E. Chiropractic management of mechanical neck and low-back pain: a retrospective, outcome-based analysis. *J Manipulative Physiol Ther*. 2000;23(5):307-311.
- Giles L, Muller R. Chronic spine pain: a randomized clinical trial comparing medication, acupuncture, and spinal manipulation. *Spine*. 2003;28(14):1490-1503.
- Kuslich SD, Ulstrom CL, Michael CJ. The tissue origin of low back pain and sciatica: A report of pain response to tissue stimulation during operation on the lumbar spine using local anesthesia. *Orthop Clin North Am* 1991; 22:181-187.
- Bogduk N. The lumbar disc and low back pain. *Neurosurg Clin N Am*. 1991 Oct;2(4):791-806.