How helpful is spinal manipulation for low back pain?

Percent decrease in low back pain following just 5 treatment sessions

Data taken from:
Division of Physical Therapy, University of Utah, and Clinical Outcomes Research Scientist, Intermountain Health Care, Salt Lake City, UT 84108, USA.
Spinal manipulation makes exercise over 70% more effective in the treatment of LBP.


Division of Physical Therapy, University of Utah, and Clinical Outcomes Research Scientist, Intermountain Health Care, Salt Lake City, UT 84108, USA.

Study background: Study took place 3/02-3/03. 131 mechanical LBP pts were studied (34 yoa, avg./42% female). Sx duration was 27 days (median duration), avg. pain level was 5.8/10 VAS, Oswestry score was at least 30%, 68% had a hx of LBP. All underwent “lumbar spine segmental mobility testing”: 1) pt prone; 2) Dr setup: contact spinous process of segment to be tested w/ your hypothenar eminence (elbow and wrist extended); 3) LOD: “apply a gentle but firm, anteriorly directed pressure on the spinous process”, repeat at each level, start at L5 and end at L1; 4) test interpretation: “for each spinal segment, mobility was graded as normal, hypomobile, or hypermobile” (judgement was based on what “normal” was expected to be for ea. pt, and what mobility of adjacent segments was); 5) mobility designation: hypomobile – at least 1 hypomobile segment, hypermobile – at least 1 hypermobile segment, normal – no hypo/hypermobile segments, mixed – hypomobile and hypermobile segments. Pts were randomly assigned to 1 of 2 tx groups (tx provided by 14 PT’s at 8 USA clinics, tx period lasted 4 wks): 1) exercise

a) description: (a “low-stress aerobic and lumbar spine strengthening program”): 10 min’s on stationary bike or treadmill, spinal stabilization exercises targeting the lumbar stabilizers (classic abdominal “drawing in” protocols using crunches, side-bridge, cross-crawl, etc.), r/c an exercise booklet (authors don’t say which booklet), rt’d to do home ex’s 1x/day on non-tx days, advised to stay active w/in limits of pain; b) in-office tx frequency - 2x/wk for 1 wk, 1x/wk for 3 wks; 2) spinal manipulation (SMT) + exercise: 1) exercise same as the other group (NOTE: only r/c the pelvic tilt exercise during first 2 tx sessions); b) “supine pelvic tilt range of motion exercise” - 10 rep’s, 3-4x/day; c) “supine side-posture” spinal manipulation (SMT) – see description in indented paragraph below; d) in-office tx frequency - 2x/wk for 1 wk, 1x/wk for 3 wks. Results (after 4 wks): 1) dropout rate: exercise - 7% (4/61), SMT - 3% (2/70); 2) % of pts w/ the following mobility designations: a) normal – 15% (20/131; exercise – 11% (7/61), SMT – 19% (13/70)); b) mixed (both hypermobility & hypomobility) – 2% (3/131; exercise – 3% (2/61), SMT – 1% (1/70)); c) hypomobility – 12% (15/131; exercise – 15% (9/61), SMT – 9% (6/70)); d) hypermobility – 71% (93/131; exercise – 70% (43/61), SMT – 71% (50/70)); 3) % of pts w/ “tx success” (at least 50% improvement on Oswestry): exercise – 36% (22/61), SMT – 63% (44/70; ss superior); 4) % of pts w/ “tx success” (broken down by presence of hypo/hypermobility): a) pts w/ hypomobility: exercise – 26% (11/43), SMT – 74% (37/50; ss superior); b) pts w/ hypermobility: exercise – 78% (7/9), SMT – 17% (1/6; ss inferior); c) normal – data not provided; d) mixed – data not provided. Conclusion: “A greater percentage of subjects in the [SMT+ex] group experienced a successful outcome than subjects in the stabilization exercise intervention.”

Hypomobility vs. hypermobility: Hypomobility = “greater benefit from an intervention including manipulation.” Hypermobility = “more likely to benefit from a stabilization exercise program.” “...the early application of the intervention most likely to result in a rapid, pronounced reduction in disability could result in substantial cost savings.”

“Supine side-posture” manipulation of the lumbar spine:
(description of the technique being used to manipulate the right lower back)

1) Dr. stands opposite the side to be manipulated:
   - stand on the left side of the pt
2) Pt supine:
   - legs straight
   - hands clasped together behind neck
3) Pt is passively side-bent away from the Dr.
4) Pt’s torso is passively rotated toward Dr.:
   - Dr. places left hand on pt’s right ASIS
   - Dr. uses right hand on back of pt’s right shoulder to rotate pt
5) Thrust description:
   - Dr.’s left hand delivers a “quick posterior and inferior thrust” through the pt’s right ASIS
6) If there was no cavitation:
   - Procedure was tried a 2nd time on the same side
   - If there was still no cavitation, then procedure was tried on opposite side (2x max)
Chiropractic care is nearly 3x as effective as heat for arthritic low back pain.


A hospital-based study of over 200 arthritic low back pain patients has found that chiropractic care + heat is nearly 3x as effective as heat alone.
Efficacy of treating low back pain and dysfunction secondary to osteoarthritis: chiropractic care compared with moist heat alone.


Community Health Institute, Winchester Hospital, Winchester, Mass 01890, USA.

Study background: Study took place 1/01-1/05 at Winchester Hospital Chiropractic Center (Winchester, MA). 252 pts were studied (no age or sex info provided by authors). All had LBP and some form of lumbar arthritis (“arthritis, OA, degenerative joint disease, degenerative disk disease, or facet arthropathy”). They were randomly assigned to 1 of 2 txs (all tx was free of charge; pts were “informed of the two different treatment methods that were under investigation”; both groups attended 20 txs; 2-3 txs/wk for approx. 2 mths): 1) moist heat (hydrocollator): “moist hot pack was applied for 15 minutes at each visit”; 2) moist heat + DC care: “moist hot pack was applied for 15 minutes at each visit”, “flexion-distraction was applied at each visit”, and “spinal manipulation was provided at each visit”.

Results: 1) follow-up rate: heat – 85% (93/109), heat+DC – 87% (124/143); 2) % decrease in pain (0-10 VAS; ss): a) heat: after 5 txs – 7% (from 4.2 to 3.9), after 10 txs – 10% (4.2 to 3.8), after 15 txs – 17% (4.2 to 3.5), after 20 txs – 21% (4.2 to 3.3); b) heat+DC: after 5 txs – 21% (4.2 to 3.3), after 10 txs – 33% (4.2 to 2.8), after 15 txs – 38% (4.2 to 2.6), after 20 txs – 55% (4.2 to 1.9); 3) % increase in lateral flexion: (left lat. flex + right lat flex; measured w/ a J-Tech, dual digital inclinometer; ss): a) heat: after 5 txs – none (20 to 20), after 10 txs – 5% (20 to 21), after 15 txs – 5% (20 to 21), after 20 txs – 10% (20 to 22); b) heat+DC: after 5 txs – 16% (19 to 22), after 10 txs – 37% (19 to 26), after 15 txs – 47% (19 to 28), after 20 txs – 53% (19 to 29); 4) % increase in flexion/extension: (flex + ext; measured w/ a J-Tech, dual digital inclinometer; ss): a) heat: after 5 txs – 2% worse (46 to 45), after 10 txs – none (46 to 46), after 15 txs – none (46 to 46), after 20 txs – 2% (46 to 47); b) heat+DC: after 5 txs – 11% (44 to 49), after 10 txs – 20% (44 to 53), after 15 txs – 27% (44 to 56), after 20 txs – 32% (44 to 58); 5) Oswestry score (ns): a) heat: baseline – 28%, after 5 txs – 28%, after 10 txs – 28%, after 15 txs – 26%, after 20 txs – 26%; b) heat+DC: baseline – 26%, after 5 txs – 24%, after 10 txs – 20%, after 15 txs – 20%, after 20 txs – 18%. Conclusion: “Chiropractic care is more effective than heat treatment alone for pain reduction.” Comments: “There were no adverse events or side effects reported.”
Over 90% of patients with acute neck pain are satisfied with their chiropractic care.

How effective is chiropractic for patients with neck pain?

What percent of acute neck pain patients are satisfied with the results of their chiropractic care?

Data taken from:
Symptomatic outcomes and perceived satisfaction levels of chiropractic patients with a primary diagnosis involving acute neck pain.
Palmer College of Chiropractic West, San Jose, California 95134, USA. michael.haneline@palmer.edu
Symptomatic outcomes and perceived satisfaction levels of chiropractic patients with a primary diagnosis involving acute neck pain.

Palmer College of Chiropractic West, San Jose, California 95134, USA. michael.haneline@palmer.edu

Study background (retrospective survey): 115 DC pts (64% female/40 yoa, avg.) from 7 different DC practices (in San Diego, Fayetteville, Pocatello, and Salt Lake City) were invited to participate in a survey. All sought care for acute neck pain 1 yr previously. All such pts were invited to participate. They were queried (via telephone) by a staffer from their DC’s office (pts were assured that their responses would be confidential and that their DC would not know what they said). They were asked 14 different questions regarding pre/post-tx pain levels, satisfaction with care, etc. Results: 1) response rate – 82% (94/115); 2) general: a) pain d/t trauma – 59% of pts (55/94; % of trauma pts who were in MVA – 84%, or 46/55); b) avg. # of visits – 25; 3) avg. change in pain (0-10 NPRS): a) at end of tx – 75% better (from 7.6/10 to 1.9); b) currently (at time of telephone survey) – 79% better (7.6 to 1.6); 4) satisfaction rate of pts – 94% (“very satisfied” – 70%, “satisfied” – 24%, “somewhat satisfied” – 5%, “somewhat dissatisfied” – 1%); 5) % of pts who would choose chiropractic care again for neck pain – 86% (% who responded “definitely would” or “very likely”; range was 50% - 100%). Conclusion: “Patients with acute neck pain involved in this study seemed to be satisfied with chiropractic...” “...the treatment for patients with acute neck pain by chiropractic methods may be beneficial.” Comments: what tx did pts typically receive? SMT – 100%, modalities – 94% (physiological therapeutics – 40%, exercise – 13%, etc.).
Are medical physicians adequately trained in musculoskeletal medicine?

What percent of MD's (at a teaching hospital) fail a "basic competency" test in musculoskeletal medicine?

48%

Data taken from:
University of Hawaii and Tripler Army Medical Center, Honolulu 96859, USA. ematzki@aol.com
Adequacy of education in musculoskeletal medicine.


University of Hawaii and Tripler Army Medical Center, Honolulu 96859, USA. ematzki@aol.com

**Background:** A 1998 study of first-year medical residents found that 82% failed a test in "basic competency" in musculoskeletal medicine (The adequacy of medical school education in musculoskeletal medicine. Freedman KB, Bernstein J. J Bone Joint Surg Am 1998 Oct;80(10):1421-7. University of Pennsylvania School of Medicine, Philadelphia, USA). How would more experienced MD's do on the same test? **Study background:** 334 subjects were studied - 113 medical students (65% finishing fourth-year rotations), 167 residents, and 54 staff doctors. Specialties of the residents/staff doctors: internal medicine – 20%, orthopedics – 18%, pediatrics – 18%, og/gyn – 15%, surgery – 9%, other – 20%. All took a 25-item “cognitive examination” on musculoskeletal medicine (test was “renamed a ‘cognitive examination’ to better reflect the depth of knowledge that it was able to test.”): ea. correctly-answered question was worth a total of 1 point, score = # of pts divided by 25, participants had 1 hour to take the test, passing score = 73%.

**Results:** 1) overall failure rate - “Seventy-nine percent of the participants failed the basic musculoskeletal cognitive examination”; 2) avg. score - 57%; 3) failure rates broken down by group: medical students – 95% failed (49% avg. score), residents – 79% failed (58% avg. score), staff doctors – 48% failed (70% avg. score; NOTE: 41% of the staff doctors were orthopods.

**Conclusion:** "Improvements in education in musculoskeletal medicine should be pursued in all medical schools and residency training programs."

**Examples of the test questions:**

“A 25-year-old male is involved in a motor-vehicle accident. His left limb is in a position of flexion at the knee and hip, with internal rotation and adduction of the hip. What is the most likely diagnosis?”
- hip dislocation (35% answered correctly)

“A patient comes to the office complaining of low-back pain that wakes him up from sleep. What two diagnoses are you concerned about?”
- tumor and infection (33% answered correctly)

“What muscle(s) control(s) external rotation of the humerus with the arm at the side?”
- infraspinatus or teres minor accepted (full credit for rotator cuff)(28% answered correctly)

“A patient has a disc herniation pressing on the fifth lumbar nerve root. How is motor function of the fifth lumbar nerve root tested?”
- dorsiflexion of the great toe (toe extensors also accepted)(20% answered correctly)

“What muscle(s) is/are involved in lateral epicondylitis (tennis elbow)?”
- wrist extensors (full credit for any wrist extensor – extensor carpi radialis brevis, extensor carpi radialis longus, extensor digitorum communis)(18% answered correctly)
A single chiropractic treatment improves reaction time by nearly 10%.

The effect of chiropractic adjustments on movement time: a pilot study using Fitts Law.
Essence of Wellness Chiropractic Center, Eaton, Ohio 45320, USA. drdean@essenceofwellness.com

Study background: 10 established DC pts who responded to an in-office invitation were studied (60% female/33 yoa, avg.). All had been tx'd at least 4x previously w/ Diversified technique. None had balance disorders or trauma in last 6 mths. Their sx at time of study consisted of mild LBP for 5 pts and no sx for 5 pts. All underwent full-spine postural assessment & palpation to determine dysfunction locations. Then, all underwent “movement time” testing: 1) subjects used a mouse to move a cursor on a computer screen from a circle on one side of the screen to a circle on the other side as fast and as accurately as possible; they practiced at baseline for approx. 15 min's until the “learning effect” was exhausted; 2) movement time was then recorded: a) pre-tx - did 256 trials (took about 10 min's); b) post-tx - did 128 trials (took about 5 min's). They were randomly assigned to 1 of 2 tx groups: 1) SMT (Diversified): “adjustments were delivered in an attempt to correct any or all of the spinal subluxations...” side-posture for L/S, bilateral thenar for T/S, supine rotary for C/S; 2) no tx: rested supine for approx. 4 min's. Results (% improvement in movement time): no tx - 1.7% (from 2.18851s to 2.15947), SMT - 9.2% (2.17060 to 1.98796; ss superior to no tx). Conclusion: “The results of this study demonstrated a significant improvement in movement time with chiropractic care.” “A single session of chiropractic care was shown to significantly improve the MT...” Comments: “...chiropractic adjustments may benefit motor performance beyond the effects of learning or practice.” “...even minor changes in MT could have important implications for athletic endeavors.”
A single chiropractic treatment decreases neck pain by over 60%, on average.

Patients with nocturia (frequent night urination) improve 68% with chiropractic care.

- Journal of Chiropractic Medicine 2006;5(3):88-91
A case series of reduced urinary incontinence in elderly patients following chiropractic manipulation.

Logan College of Chiropractic, Chesterfield, MO 63017.

Study background (a retrospective case series): 13 pts w/ urinary incontinence were studied (66 yoa, avg./54% male). Their primary complaint was not nocturia - LBP was most common presenting complaint (11/13 pts). All had nocturia as a secondary complaint - 5 yr hx, avg. All were tx'd for 1-8 wks w/ the Pro-Adjuster (no other tx was provided): 1) description of the Pro-Adjuster: “The Pro-Adjuster is a computerized analysis and treatment instrument that provides gentle Chiropractic care” (similar to a computerized Activator); 2) description of tx used in this study: a) routine Pro-Adjuster procedure; b) Pro-Basic technique; b) “Pro-ANS (autonomic nervous system) technique” - contact was 1" under coccyx, LOD was “upward into the sacral plexus and ganglion of Impar”, frequency = 4 Hz at a 15-20 pound force setting, tx took approx. 30s. Results (% change in night urination): 68% decrease (from 3.8x/night to 1.2;ss). Conclusion: “The Pro-Adjuster treatment program seemed to reduce nocturia in patients with urinary incontinence.” Product info: www.pro-adjuster.us, 877-942-4284, company is located in McMurray, Pennsylvania.
Over 95% of patients with neck pain are satisfied with their chiropractic care.


Patient satisfaction after just 3 chiropractic treatments for neck pain is 99% (with nearly half of all patients "recovered" by that time).
Nearly 50% of chiropractic neck pain patients will "recover" in just 3 treatments.


Forty-eight percent of chiropractic neck pain patients will be "completely better" or "much improved" within their first 3 treatments.
The benefits outweigh the risks for patients undergoing chiropractic care for neck pain: a prospective, multicenter, cohort study.


Institute for Research in Extramural Medicine (EMGO-Institute), VU University Medical Center, Amsterdam, The Netherlands. sm.rubinstein@vumc.nl

Study background: Study took place 9/04 – 4/05. DC’s who were members of the Netherlands Chiropractic Association were invited to participate. They were asked to recruit 10 consecutive new adult (18-65 yoa) pts who had to neck, cervicothoracic, and/or periscapular pain. Exclusion criteria included: 1) DC or manual therapy tx in last 3 mths; b) contraindications to SMT. Pts filled out questionnaires (anonymously) on 5 occasions: baseline, prior to second tx, prior to fourth tx, 3 mths after start tx, and 12 mths after start tx. Results: A) general: 1) DC participation rate - 42% (79/190); 2) pt follow-up rate – approx. 90% at ea. follow-up point; 3) avg. # of eligible pts recruited by ea. DC - 6.7 (529 pts total); 4) pt were 69% female and 41 yoa, avg.; 4) sx info: hx of similar sx - 72%, UE sx radiation - 52%, sx duration > 3mths - 75%; 5) previous tx: MD - 67%, DC or MT - 37%, PT - 26%, specialist - 19%; B) DC tx info: 1) # of txs: 9.3 txs, avg., over 12 mths (90% of pts r/c a fourth tx w/in the first 6 wks of starting care); 2) type of tx (at first visit): diversified SMT - 78% (60% of pts r/c at least 2 different C/S adjustments), exercise advice - 36%, soft-tissue tx - 29%; C) sx change after first 3 txs (results after first 3 txs was primary study objective): 1) % recovered - 48% (“completely recovered” or “much better”; 65% at 3 mths; 65% at 12 mths); 2) pt satisfaction - 99% (% of pts who answered “yes” to the question: “Would you visit a chiropractor again for this or any other complaint?”, 90% at 3 mths; 84% at 12 mths); 3) % change in pain - 25% better (from 4.8 to 3.6; pain score on 0-11 NPRS; 42% better at 3 mths {4.8 to 2.8}; 42% better at 12 mths {4.8 to 2.8}); D) adverse events over first 3 txs: 1) % of pts w/ an adverse event - 56% (90% had adverse event begin w/in 2d of first tx); 2) most common adverse events: a) increased pain in tx area - 63%; b) HA - 9%; c) tiredness or fatigue - 7% (77% of pts had this sx at baseline; 14% of pts had this sx after 3 txs); d) dizziness or light-headedness - 7% (60% of pts had this sx at baseline; 11% of pts had this sx after 3 txs); nausea - 5% (35% of pts had this sx at baseline; 6% of pts had this sx after 3 txs); 3) severity of adverse events (“no serious adverse events were reported during the study period”): a) % of adverse events w/ “no” or “minor” impact on ADL’s - 84%; b) % of adverse events that were considered severe - 13% (“severe” was defined as >= 8 on 0-11 NPRS; all had remitted before the end of the study period). Conclusion: “Patients respond quickly to care...” “Adverse events may be common, but are rarely severe in intensity.” “No serious adverse events were recorded during the study period.” “...this study shows that the benefits of chiropractic care for neck pain seem to outweigh the potential risks.”
Chiropractic care is as safe as a visit to your family medical doctor.


Patients are no more likely to suffer a stroke following chiropractic care than they would be after visiting their primary care physician.
Risk of vertebrobasilar stroke and chiropractic care: results of a population-based case-control and case-crossover study.


Centre of Research Expertise for Improved Disability Outcomes, University Health Network Rehabilitation Solutions, Toronto Western Hospital, Toronto, ON, Canada. dcassidy@uhnresearch.ca

Study background: Authors reviewed medical billing records for residents of Ontario, CA (“covered by the publicly funded Ontario Health Insurance Plan”). Data collection period covered 1/93 – 3/02. Sought all cases of vertebrobasilar artery (VBA) occlusion/stenosis stroke (based on ICD code) that resulted in acute care hospital admissions (subjects w/ previous hx of stroke were excluded). Data from the stroke pts were compared to data from randomly chosen control subjects (age & sex-matched subjects w/ no hx of stroke; approx. 4 control subjects for ea. stroke pt). Results:

A) general: 1) 818 VBA occlusion/stenosis stroke cases (out of 109 million person-years) were compared to 3164 control subjects; 2) avg. sex/age: 63% male, 63 yoa, avg.;

B) entire cohort: 1) w/in 7 days of stroke onset: a) % who saw a DC: controls – 1.8%, stroke pts – 1.7%; b) % who saw an MD: controls – 9.2%, stroke pts – 25.1%; 2) w/in 30 days of stroke onset: a) % who saw a DC: controls – 4.0%, stroke pts – 4.4%; b) % who saw an MD: controls – 29.9%, stroke pts – 53.4%;

C) subjects < 45 yoa: 1) w/in 7 days of stroke onset: a) % who saw a DC: controls – 3.4%, stroke pts – 7.8%; b) % who saw an MD: controls – 6.6%, stroke pts – 24.5%; 2) w/in 30 days of stroke onset: a) % who saw a DC: controls – 4.4%, stroke pts – 12.7%; b) % who saw an MD: controls – 20.3%, stroke pts – 45.1%;

D) odds ratios for stroke: 1) HA or cervical visit in last 7 days: a) to a DC: entire cohort – 1.42, < 45 yoa pts – 3.11; b) to an MD: entire cohort – 16.72, < 45 yoa pts – 37.6; 2) HA or cervical visit in last 30 days: a) to a DC: entire cohort – .98, < 45 yoa pts – 3.0; b) to an MD: entire cohort – 7.0, < 45 yoa pts – 11.5.

Conclusion: “We found no evidence of excess risk of VBA stroke associated with chiropractic care compared to primary care.” The MD numbers represent “the background risk [of VBA stroke] associated with patients seeking care...”, since “…it is unlikely that PCPs cause stroke while caring for these patients...” (NOTE: All of the DC numbers were less than the MD numbers). While seeing a DC or an MD is associated w/ an increased risk of VBA stroke, “a plausible explanation for this is that patients with head and neck pain due to [VAD] seek care for these symptoms, which precede more than 80% of VBA strokes.”