CURRENT RESEARCH: A PRACTICAL APPLICATION
MCA Celebration April 25, 2015

Dr. Mark Dehen, DC FICC
- Second generation DC
- Ergonomic consultant for local industries
- Past MCA President
- MCA “Chiropractor of the Year” award
- NWHSU “Distinguished Alumnus” award
- MCA “John Allenberg” award
- Past Chair CCGPP
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Why do we need a reading list for chiropractic?  
Our colleagues often ask us to recommend papers for various forms of chiropractic advocacy. Wouldn’t it be nice to just refer these requests to an existing resource? That’s the vision we have for this project: A website that houses a suggested reading list curated by the profession and accessible to all.

This is not a “best of” list.
Our goal is to provide a list that would give any reader a solid appreciation of a specific chiropractic topic. As you can imagine, a current systematic review of each topic would be ideal; we hope to get there one day with more funding, people and time. For now, we are taking first steps to get this concept up and running so that people can get reading!

http://www.wfc_suggested_reading_list.com/#topics
# Top 10 Reading List

**Conditions / Patients**
- Acute Low Back Pain
- Cervical (Neck) Pain
- Chronic Low Back Pain
- Extremities (Arm/Leg)
- Headache
- Intervertebral Disc
- Non-musculoskeletal
- Paediatrics
- Pregnancy
- Seniors
- Sports Injuries
- Wellness

**Guidelines / Curator**
- Jan Hartvgsen DCPhD
- Mitchell Haas DC MA
- Michael Schneider DC PhD
- Stephen Perle DC MS ICCSP
- Gert Bronfort DC PhD
- Mark Erwin DC PhD
- Cheryl Hawk DC PhD
- Lise Hestbaek DC PhD
- Katie Pohlman DC MS DICCP
- Paul Dougherty DC DABCO
- Stephen Perle DC MS ICCSP
- Cheryl Hawk DC PhD

**Top 10 Reading List**

**Guidelines**
- Safety
  - Cerebrovascular
  - Musculoskeletal

**Mechanisms**
- Biomechanical
- Neurophysiological
- Other

**Profession**
- Economics/Utilization
- Ethics
- Interprofessional

**Curator**
- Andre Bussieres DC PhD
- Greg Kawchuk DC PhD
- Charlotte Leboeuf-Yde DC MPH PhD
- Greg Kawchuk DC PhD
- Heidi Haavik DC PhD
- Carolina Kolberg MSc PhD
- Christine Goertz DC PhD
- Stephen Perle DC MS ICCSP
- Corrie Myburgh DC PhD
Spinal manipulative therapy for acute low back pain: an update of the Cochrane review.
Rubinstein, Sidney M; Terwee, Caroline B; Assendelft, WJJ; de Boer, Michiel R & van Tulder, Maurits W
Spine 2013
STUDY DESIGN: Systematic review of interventions.
OBJECTIVE: To assess the effects of spinal manipulative therapy (SMT) for acute low back pain.
CONCLUSION: SMT is no more effective for acute low back pain than inert interventions, sham SMT or as adjunct therapy. SMT also seems to be no better than other recommended therapies. Our evaluation is limited by the few numbers of studies; therefore, future research is likely to have an important impact on these estimates. Future RCTs should examine specific subgroups and include an economic evaluation.

Manipulation or mobilisation for neck pain.
Gross, Anita; Miller, Jordan; D’Silva, Jonathan; Burnie, Stephen J; Goldsmith, Charles H; Graham, Nadine; Haines, Ted; Bronfort, Gert & Hoving, Jan L
The Cochrane Database of Systematic Reviews 2010
BACKGROUND: Manipulation and mobilisation are often used, either alone or combined with other treatment approaches, to treat neck pain.
CONCLUSIONS: Cervical manipulation and mobilisation produced similar changes. Either may provide immediate- or short-term change; no long-term data are available. Thoracic manipulation may improve pain and function. Optimal techniques and dose are unresolved. Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Effectiveness of manual therapies: the UK evidence report
Gert Bronfort, Mitch Haas, Roni Evans, Brent Leininger, Jay Triano
Chiropractic & Osteopathy 2010, 18:3

Background: The purpose of this report is to provide a succinct but comprehensive summary of the scientific evidence regarding the effectiveness of manual treatment for the management of a variety of musculoskeletal and non-musculoskeletal conditions.

Conclusions: Spinal manipulation/mobilization is effective in adults for: acute, subacute, and chronic low back pain; migraine and cervicogenic headache; cervicogenic dizziness; manipulation/mobilization is effective for several extremity joint conditions; and thoracic manipulation/mobilization is effective for acute/subacute neck pain. The evidence is inconclusive for cervical manipulation/mobilization alone for neck pain of any duration, and for manipulation/mobilization for mid back pain, sciatica, tension-type headache, coccydynia, temporomandibular joint disorders, fibromyalgia, premenstrual syndrome, and pneumonia in older adults.

Evidence-based guidelines for the chiropractic treatment of adults with neck pain.
Bryans, Roland; Decina, Philip; Descampsaux, Martin; Duranteau, Mireille; Marcoux, Henri; Potter, Brice; Ruegg, Richard P; Shaw, Lynn; Watkin, Robert & White, Eleanor
Journal of Manipulative and Physiological Therapeutics 2014

OBJECTIVE: The purpose of this study was to develop evidence-based treatment recommendations for the treatment of nonspecific (mechanical) neck pain in adults.

CONCLUSIONS: Interventions commonly used in chiropractic care improve outcomes for the treatment of acute and chronic neck pain. Increased benefit has been shown in several instances where a multimodal approach to neck pain has been used.
Manual therapies for cervicogenic headache: a systematic review.

Chaibi, Aleksander & Russell, Michael Bjørn
The Journal of Headache and Pain 2012

This paper systematically reviewed randomized clinical trials (RCT) assessing the efficacy of manual therapies for cervicogenic headache (CEH). A total of seven RCTs were identified, i.e. one study applied physiotherapy ± temporomandibular mobilization techniques and six studies applied cervical spinal manipulative therapy (SMT). The RCTs suggest that physiotherapy and SMT might be an effective treatment in the management of CEH, but the results are difficult to evaluate, since only one study included a control group that did not receive treatment. Furthermore, the RCTs mostly included participant with infrequent CEH. Future challenges regarding CEH are substantial both from a diagnostic and management point of view.

Molecular Basis of Intervertebral Disc Degeneration and Herniations: What Are the Important Translational Questions?

Kadow, Tiffany; Sowa, Gwendolyn; Vo, Nam & Kang, James D
Clinical Orthopaedics and Related Research 2014

BACKGROUND: Intervertebral disc degeneration is a common condition with few inexpensive and effective modes of treatment, but current investigations seek to clarify the underlying process and offer new treatment options. It will be important for physicians to understand the molecular basis for the pathology and how it translates to developing clinical treatments for disc degeneration. In this review, we sought to summarize for clinicians what is known about the molecular changes occurring in the degenerating disc degeneration.

CONCLUSIONS: Intervertebral disc degeneration occurs where there is a loss of homeostatic balance with a predominantly catabolic metabolic profile. A basic understanding of the molecular changes occurring in the degenerating disc is important for practicing clinicians because it may help them to inform patients to alter lifestyle choices, identify beneficial or harmful supplements, or offer new biologic, genetic, or stem cell therapies.
Visceral responses to spinal manipulation.

Bolton, Philip S & Budgell, Brian


While spinal manipulation is widely seen as a reasonable treatment option for biomechanical disorders of the spine, such as neck pain and low back pain, the use of spinal manipulation to treat non-musculoskeletal complaints remains controversial. This controversy is due in part to the perception that there is no robust neurobiological rationale to justify using a biomechanical treatment of the spine to address a disorder of visceral function. This paper therefore looks at the physiological evidence that spinal manipulation can impact visceral function. The corpus of literature is not large, and the greatest number of papers concerns cardiovascular function. Authors often attribute visceral effects of spinal manipulation to somato-autonomic reflexes. While this is not unreasonable, little attention is paid to alternative mechanisms such as somato-humoural pathways. Thus, while the literature confirms that mechanical stimulation of the spine modulates some organ functions in some cohorts, a comprehensive neurobiological rationale for this general phenomenon has yet to appear.

Clinical effectiveness of manual therapy for the management of musculoskeletal and non-musculoskeletal conditions: systematic review and update of UK evidence report

Clar, Christine; Tsertsvadze, Alexander; Court, Rachel; Hundt, Gillian Lewand; Clarke, Aileen & Sutcliffe, Paul

Chiropractic & Manual Therapies 2014

Background
This systematic review updated and extended the "UK evidence report" by Bronfort et al. (Chiropr Osteopath 18:3, 2010) with respect to conditions/interventions that received an 'inconclusive' or 'negative' evidence rating or were not covered in the report.

Conclusions
Overall, there was limited high quality evidence for the effectiveness of manual therapy. Most reviewed evidence was of low to moderate quality and inconsistent due to substantial methodological and clinical diversity. Areas requiring further research are highlighted.

To ensure optimum development, children and infants need Chiropractic.

Crawl-Ins Welcome!
The evidence base for chiropractic treatment of musculoskeletal conditions in children and adolescents: The emperor’s new suit?

Hestbaek, Lise & Stochkendahl, Mette Jensen

Chiropractic & Osteopathy 2010

Five to ten percent of chiropractic patients are children and adolescents. Most of these consult because of spinal pain, or other musculoskeletal complaints. These musculoskeletal disorders in early life not only affect the quality of children's lives, but also seem to have an impact on adult musculoskeletal health. Thus, this is an important part of the chiropractor's scope of practice, and the objective of this review is to assess the evidence base for manual treatment of musculoskeletal disorders in children and adolescents. With this review, we have detected a paradox within the chiropractic profession: Although the major reason for pediatric patients to attend a chiropractor is spinal pain, no adequate studies have been performed in this area. It is time for the chiropractic profession to take responsibility and systematically investigate the efficiency of joint manipulation of problems relating to the developing musculoskeletal system.

Outcome of pregnancy-related lumbopelvic pain treated according to a diagnosis-based decision rule: a prospective observational cohort study.

Murphy, Donald R; Hurwitz, Eric L & McGovern, Ericka E

Journal of Manipulative and Physiological Therapeutics 2009

Objective
The purpose of this study was to describe the clinical outcomes of patients with pregnancy-related lumbopelvic pain (PRLP) treated according to a diagnosis-based clinical decision rule.

Conclusions
The management strategy used in this study appeared to yield favorable outcomes in this patient population and appears to be a safe option for patients with PRLP, although because of this study's sample size, rare complications are not likely to be detected. In addition, the absence of randomization and a control group limits interpretation with regard to clinical effectiveness. Randomized, controlled trials are necessary to distinguish treatment effects from the natural history of PRLP.
**Best practices recommendations for chiropractic care for older adults: results of a consensus process.**

Hawk, Cheryl; Schneider, Michael; Dougherty, Paul; Gleberzon, Brian J & Killinger, Lisa Z

Journal of manipulative and physiological therapeutics 2010

**OBJECTIVE:** At this time, the scientific evidence base supporting the effectiveness of chiropractic care for musculoskeletal conditions has not yet definitively addressed its appropriateness for older adults. Expert consensus, as a form of evidence, must be considered when higher levels of evidence are lacking. The purpose of this project was to develop a document with evidence-based recommendations on the best practices for chiropractic care of older adults.

**CONCLUSION:** A multidisciplinary panel of experienced chiropractors was able to reach a high level (>80%) of consensus on evidence-informed best practices for the chiropractic approach to evaluation, management, and manual treatment for older adult patients.

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**A survey of Fellows in the College of Chiropractic Sports Sciences (Canada): their intervention practices and intended therapeutic outcomes when treating athletes.**

Miners, Andrew L & Degraauw, Christopher

The Journal of the Canadian Chiropractic Association 2010

**Objective**

To compile baseline data regarding the treatment practices and therapeutic outcomes that fellows of the College of Chiropractic Sports Sciences Canada (CCSS(C)) strive for when treating athletes.

**Results**

The majority of questioned fellows believe that they can cause direct and specific improvements in an athlete’s sport performance. The most commonly utilized therapeutic intervention was spinal joint manipulation/mobilization. The most anticipated outcomes following the treatment of athletes with the goal of affecting athletic performance were “changing or improving aberrant body mechanics,” “restoring or improving aberrant muscle function,” and “improving joint function or reducing joint dysfunction.”
The Nordic maintenance care program: the clinical use of identified indications for preventive care.

Axén, Iben & Bodin, Lennart

Chiropractic & Manual Therapies 2013

Background
Low back pain (LBP) is a prevalent condition and has been found to be recurrent and persistent in a majority of cases. Chiropractors have a preventive strategy, maintenance care (MC), aimed towards minimizing recurrence and progression of such conditions. The indications for recommending MC have been identified in the Nordic countries from hypothetical cases. This study aims to investigate whether these indications are indeed used in the clinical encounter.

Conclusions
The study largely confirms the clinical use of the previously identified indications for recommending MC for recurrent and persistent LBP. Previous episodes of LBP was the strongest indicator.

Synthesis of recommendations for the assessment and management of low back pain from recent clinical practice guidelines.

Dagenais, Simon; Tricco, Andrea C & Haldeman, Scott


Purpose
To conduct a systematic review of recent CPGs and synthesize their recommendations on assessing and managing LBP for clinicians.

Results
Recommendations for management of acute LBP emphasized patient education, with short-term use of acetaminophen, nonsteroidal anti-inflammatory drugs, or spinal manipulation therapy. For chronic LBP, the addition of back exercises, behavioral therapy, and short-term opioid analgesics was suggested. Management of LBP with neurologic involvement was similar, with additional consideration given to magnetic resonance imaging or computed tomography to identify appropriate candidates willing to undergo epidural steroid injections or decompression surgery if more conservative approaches are not successful.
Internal Carotid Artery Strains During High-Speed, Low-Amplitude Spinal Manipulations of the Neck.

Herzog, Walter; Tang, Conrad & Leonard, Tim

Journal of Manipulative and Physiological Therapeutics 2012

OBJECTIVE: The primary objective of this study was to quantify the strains applied to the internal carotid artery (ICA) during neck spinal manipulative treatments and range of motion (ROM)/diagnostic testing of the head and neck.

CONCLUSIONS: This study showed that maximal ICA strains imparted by cervical spinal manipulative treatments were well within the normal ROM. Chiropractic manipulation of the neck did not cause strains to the ICA in excess of those experienced during normal everyday movements. Therefore, cervical spinal manipulative therapy as performed by the trained clinicians in this study, did not appear to place undue strain on the ICA and thus does not seem to be a factor in ICA injuries.

Serious Adverse Events and Spinal Manipulative Therapy of the Low Back Region: A Systematic Review of Cases.

Hebert, Jeffrey J; Stomski, Norman J; French, Simon D & Rubinstein, Sidney M

Journal of Manipulative and Physiological Therapeutics 2013

OBJECTIVE: The purpose of this study was to systematically search the literature for studies reporting serious adverse events following lumbopelvic spinal manipulative therapy (SMT) and to describe the case details.

CONCLUSIONS: This systematic review describes case details from published articles that describe serious adverse events that have been reported to occur following SMT of the lumbopelvic region. The anecdotal nature of these cases does not allow for causal inferences between SMT and the events identified in this review. Recommendations regarding future case reporting and research aimed at furthering the understanding of the safety profile of SMT are discussed.
Magnetic resonance imaging zygapophysial joint space changes (gapping) in low back pain patients following spinal manipulation and side-posture positioning: a randomized controlled mechanisms trial with blinding. Cramer, Gregory D; Cambron, Jerrilyn; Cantu, Joe A; Dexheimer, Jennifer M; Pocius, Judith D; Gregerson, Douglas; Ferguson, Michael; McKinvis, Ray & Grieve, Thomas J. Journal of Manipulative and Physiological Therapeutics 2013

Objective
The purpose of this study was to quantify lumbar zygapophysial (Z) joint space separation (gapping) in low back pain (LBP) subjects after spinal manipulative therapy (SMT) or side-posture positioning (SPP).

Conclusions
SPP showed greatest gapping at baseline. After two weeks, SMT resulted in greatest gapping. SPP appeared to have additive therapeutic benefit to SMT.

Spinal manipulative therapy and somatosensory activation.

Manually-applied movement and mobilization of body parts as a healing activity has been used for centuries. A relatively high velocity, low amplitude force applied to the vertebral column with therapeutic intent, referred to as spinal manipulative therapy (SMT), is one such activity. It is most commonly used by chiropractors, but other healthcare practitioners including osteopaths and physiotherapists also perform SMT. The mechanisms responsible for the therapeutic effects of SMT remain unclear. Early theories proposed that the nervous system mediates the effects of SMT. The goal of this article is to briefly update our knowledge regarding several physical characteristics of an applied SMT, and review what is known about the signaling characteristics of sensory neurons innervating the vertebral column in response to spinal manipulation. Based upon the experimental literature, we propose that SMT may produce a sustained change in the synaptic efficacy of central neurons by evoking a high frequency, bursting discharge from several types of dynamically-sensitive, mechanosensitive paraspinal primary afferent neurons.

Immediate effects of spinal manipulative therapy on regional antinociceptive effects in myofascial tissues in healthy young adults.
Srbely, John Z; Vernon, Howard; Lee, David & Potgar, Miranda. Journal of Manipulative and Physiological Therapeutics 2013

OBJECTIVE: The purpose of this study was to investigate if spinal manipulative therapy (SMT) can evoke immediate regional antinociceptive effects in myofascial tissues by increasing pressure pain thresholds (PPTs) over myofascial trigger points in healthy young adults.

CONCLUSIONS: This study showed that SMT evokes short-term regional increases in PPT within myofascial tissues in healthy young adults.
Utilization and expenditures on chiropractic care in the United States from 1997 to 2006.

Davis, Matthew A; Sirovich, Brenda E & Weeks, William B

Health Services Research 2010

OBJECTIVE: To investigate national utilization and expenditures on chiropractic care between 1997 and 2006.

DATA SOURCE: The nationally representative Medical Expenditure Panel Survey (MEPS).

PRINCIPAL FINDINGS: The total number of U.S. adults who visited a chiropractor increased 57 percent from 7.7 million in 2000 to 12.1 million in 2003. From 1997 to 2006, the inflation-adjusted national expenditures on chiropractic care increased 56 percent from U.S.$3.8 billion to U.S.$5.9 billion. Inflation-adjusted total mean expenditures per patient and expenditures per office visit remained unchanged. CONCLUSION: The large increase in U.S. adult expenditures on chiropractic care between 1997 and 2006 was due to a 57 percent increase in the total number of U.S. adult chiropractic patients that occurred from 2000 to 2003. From 2003 to 2006, the total number of U.S. adult chiropractic patients has remained stable.

Chiropractic leadership in the eradication of sexual abuse.

Kinsinger, F Stuart & Sutton, Wendy

The Journal of the Canadian Chiropractic Association 2012

Health practitioners work under fiduciary constraint, and are obligated to favour patient needs over all others and in particular their own. The principles of professionalism demand that professionals take great care to ensure that boundaries are maintained safely to provide an optimal setting in facilitating patient care. Boundary violations cause serious harm to the patient. Any romantic or sexual activity between parties is the most serious form of boundary violation. The chiropractic profession is included in the list of disciplines which are at an increased risk for boundary violations. The authors propose a four stage protocol which is designed to offer all parties maximal protection beginning with undergraduate professional education and then mandatory continuing education for registrants in professional practice. The protocol would affect all aspects of professional life including training in boundaries and jurisdictional regulation.
The establishment of a primary spine care practitioner and its benefits to health care reform in the United States.
Murphy, Donald R; Justice, Brian D; Paskowski, Ian C; Perle, Stephen M & Schneider, Michael J

Chiropractic & Manual Therapies 2011

It is widely recognized that the dramatic increase in health care costs in the United States has not led to a corresponding improvement in the health care experience of patients or the clinical outcomes of medical care. In no area of medicine is this more true than in the area of spine related disorders (SRDs). Costs of medical care for SRDs have skyrocketed in recent years. Despite this, there is no evidence of improvement in the quality of this care. In fact, disability related to SRDs is on the rise. We argue that one of the key solutions to this is for the health care system to have a group of practitioners who are trained to function as primary care practitioners for the spine. We explain the reasons we think a primary spine care practitioner would be beneficial to patients, the health care system and society, some of the obstacles that will need to be overcome in establishing a primary spine care specialty and the ways in which these obstacles can be overcome.

http://www.westhartfordgroup.com

Other Recent Research
### The Efficacy of Manual Therapy and Exercise for Different Stages of Non-Specific Low Back Pain: An Update of Systematic Reviews

**Annals of Internal Medicine • Vol. 162 No. 4 • 17 February 2015**

**Objective:** To review and update the evidence for different forms of manual therapy (MT) for patients with different stages of non-specific low back pain (LBP).

**Results:**

**Acute–Subacute LBP:**
- **Strong evidence** in favor of MT compared to sham for pain, function, and health improvements in the short-term (1–3 months).
- **Moderate evidence** to support MT and MT3 combined with UMC (Usual Medical Care) in comparison to UMC alone for pain, function, and health improvements in the short-term.

**Chronic LBP:**
- **Moderate to strong evidence** in favor of MT1 in comparison to sham for pain, function, and overall health in the short-term.
- **Moderate evidence** in favor of MT3 combined with exercise or UMC in comparison to exercise and back-school was established for pain, function, and quality-of-life in the short and long-term.
- **Limited evidence** in favor of MT2 combined with exercise and UMC in comparison to UMC alone for pain and function from short to long-term.
- **Limited evidence of no effect** for MT1 with extension-exercise compared to extension-exercise alone for pain in the short to long-term.

### The Effectiveness and Risks of Long-Term Opioid Therapy for Chronic Pain: A Systematic Review for a National Institutes of Health Pathways to Prevention Workshop

**Annals of Internal Medicine • 17 February 2015**

**Background:** Increases in prescriptions of opioid medications for chronic pain have been accompanied by increases in opioid overdoses, abuse, and other harms and uncertainty about long-term effectiveness.

**Purpose:** To evaluate evidence on the effectiveness and harms of long-term (>3 months) opioid therapy for chronic pain in adults.

**Conclusion:** Evidence is insufficient to determine the effectiveness of long-term opioid therapy for improving chronic pain and function. Evidence supports a dose-dependent risk for serious harms.

### Risk of Stroke After Chiropractic Spinal Manipulation in Medicare B Beneficiaries Aged 66 to 99 Years With Neck Pain

**Journal of Manipulative and Physiological Therapeutics 2015**

**Objective**
- The purpose of this study was to quantify risk of stroke after chiropractic spinal manipulation, as compared to evaluation by a primary care physician, for 1,157,475 Medicare beneficiaries aged 66 to 99 years with neck pain.

**Conclusions**
- Among Medicare B beneficiaries aged 66 to 99 years with neck pain, incidence of vertebrobasilar stroke was extremely low. Small differences in risk between patients who saw a chiropractor and those who saw a primary care physician are probably not clinically significant.
CCGPP Rapid Response Resource Center (R3C)

- The R3C is an open access virtual library maintained on the CCGPP website. Materials available are:
  1) Relevant and current peer-reviewed journal articles, either as abstracts or full-text, depending upon availability.
  2) A summary and annotated bibliography for each topic.


NASS Contemporary Concepts in Spine Care: Spinal manipulation therapy for acute low back pain

Simon Dagenais, Ralph E. Gay, Andrea C. Tricco, Michael D. Freeman, John M. Mayer

The Spine Journal 2010

BACKGROUND CONTEXT: Low back pain (LBP) continues to be a very prevalent, disabling, and costly spinal disorder. Numerous interventions are routinely used for symptoms of acute LBP. One of the most common approaches is spinal manipulation therapy (SMT).

CONCLUSIONS: Several RCTs have been conducted to assess the efficacy of SMT for acute LBP using various methods. Results from most studies suggest that 5 to 10 sessions of SMT administered over 2 to 4 weeks achieve equivalent or superior improvement in pain and function when compared with other commonly used interventions, such as physical modalities, medication, education, or exercise, for short, intermediate, and long-term follow-up. Spine care clinicians should discuss the role of SMT as a treatment option for patients with acute LBP who do not find adequate symptomatic relief with self-care and education alone.

MANAGEMENT OF CHRONIC SPINE-RELATED CONDITIONS: CONSENSUS RECOMMENDATIONS OF A MULTIDISCIPLINARY PANEL

Ronald J. Farabaugh, Mark D. Dehen and Cheryl Hawk

Journal of Manipulative and Physiological Therapeutics 2010

Objective: Chronic spine-related conditions are very problematic in terms of treatment and indemnity costs, diagnostic complexity, and appropriate case management. Currently no chiropractic-directed guideline exists related to chiropractic management of the chronic spine pain patient. The purpose of this project was to develop a broad-based multidisciplinary consensus of medical and chiropractic clinical experts representing mainstream medical and chiropractic practice to produce a document designed to provide standardized parameters of care and documentation.

Conclusions: A multidisciplinary panel of experienced practitioners was able to reach a high level (>80%) of consensus regarding specific aspects of the chiropractic approach to care for complex patients with chronic spine-related conditions, based on both the scientific evidence and their clinical experience.
Complementary and Alternative Therapies for Back Pain II
University of Ottawa Evidence-based Practice Center, Ottawa, Ontario, Canada

AHRQ Publication No. 10(11)-E007 October 2010

Objectives: To systematically review the efficacy, effectiveness, cost-effectiveness, and harms of acupuncture, spinal manipulation, mobilization, and massage techniques in management of back, neck, and/or thoracic pain.

Conclusions: Evidence was of poor to moderate grade and most of it pertained to chronic nonspecific pain, making it difficult to draw more definitive conclusions regarding benefits and harms of CAM therapies in subjects with acute/subacute, mixed, or unknown duration of pain. The benefit of CAM treatments was mostly evident immediately or shortly after the end of the treatment and then faded with time. Very few studies reported long-term outcomes. The trial results were inconsistent due probably to methodological and clinical diversity, thereby limiting the extent of quantitative synthesis and complicating interpretation of trial results. Future well powered head to head comparisons of CAM treatments and trials comparing CAM to widely used active treatments that report on all clinically relevant outcomes are needed to draw better conclusions.

Patient-centered outcomes of high-velocity, low-amplitude spinal manipulation for low back pain: A systematic review
C.M. Goertz, K.A. Pohlman, R.D. Vining, J.W. Brantingham, C.R. Long

Journal of Electromyography and Kinesiology 2012

Low back pain (LBP) is a well-recognized public health problem with no clear gold standard medical approach to treatment. Thus, those with LBP frequently turn to treatments such as spinal manipulation (SM). The primary objective of this paper was to describe the current literature on patient-centered outcomes following a specific type of commonly used SM, high-velocity low-amplitude (HVLA), in patients with LBP. A systematic search strategy was used to capture all LBP clinical trials of HVLA using our predefined patient-centered outcomes: visual analogue scale, numerical pain rating scale, Roland-Morris Disability Questionnaire, and the Oswestry Low Back Pain Disability Index. Like previous SM for LBP systematic reviews, this review shows a small but consistent treatment effect at least as large as that seen in other conservative methods of care. The heterogeneity and inconsistency in reporting within the studies reviewed makes it difficult to draw definitive conclusions. Future SM studies for LBP would benefit if some of these issues were addressed by the scientific community before further research in this area is conducted.
Dose-response and efficacy of spinal manipulation for care of chronic low back pain: a randomized controlled trial

Mitchell Haas, Darcy Vavrek, David Peterson, Nayak Polissar, Moni B. Neradilek

The Spine Journal 2013

PURPOSE: To identify the dose-response relationship between visits to a chiropractor for spinal manipulation and chronic low back pain (cLBP) outcomes and to determine the efficacy of manipulation by comparison with a light massage control.

CONCLUSIONS: The number of spinal manipulation visits had modest effects on cLBP outcomes above those of 18 hands-on visits to a chiropractor. Overall, 12 visits yielded the most favorable results but was not well distinguished from other dose levels.

The efficacy of manual therapy and exercise for different stages of non-specific low back pain: an update of systematic reviews

Benjamin Hidalgo, Christine Detrembleur, Toby Hall, Philippe Mahaudens, Henri Nailens

Journal of Manual and Manipulative Therapy 2014

Objective: To review and update the evidence for different forms of manual therapy (MT) for patients with different stages of non-specific low back pain (LBP).

Conclusion: This systematic review updates the evidence for MT with exercise or usual medical care (UMC) for different stages of LBP and provides recommendations for future studies.

CARE ALGORITHMS

Chiropractic Clinical Compass

Printed by CCGPP
Care Algorithms

- **Topics in Integrative Healthcare** journal
- 2012, Vol. 3(4) ID: 3.4007
- Adopted by MCA on February 22, 2014

### Chiropractic Tx Dosing

<table>
<thead>
<tr>
<th>Stage</th>
<th>Frequency</th>
<th>Duration</th>
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<tbody>
<tr>
<td>Acute* and subacute*</td>
<td>2-3 x weekly for 2-4 weeks</td>
<td>2-4 weeks (per trial)</td>
</tr>
<tr>
<td>Recurrent/flare-up</td>
<td>1-3 x weekly for 1-2 weeks</td>
<td>1-2 weeks</td>
</tr>
<tr>
<td>Chronic**</td>
<td>1-3 x weekly for 2-4 weeks</td>
<td>2-4 weeks</td>
</tr>
<tr>
<td>Exacerbation (mild) of chronic**</td>
<td>1-6 visits per episode</td>
<td>At beginning of each episode of care</td>
</tr>
<tr>
<td>Exacerbation (moderate or severe) of chronic**</td>
<td>2-3 x weekly for 2-4 weeks</td>
<td>Every 2-4 weeks, following acute care guidelines</td>
</tr>
<tr>
<td>Scheduled ongoing care for management of chronic pain**</td>
<td>1-4 visits per month</td>
<td>At minimum every 12 visits, or as necessary to document condition changes.</td>
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* For acute and subacute stages; up to 12 visits per trial of care. If additional trials of care are indicated, supporting documentation should be available for review, including, but not necessarily limited to: documentation of complicating factors and/or comorbidities coupled with evidence of functional gains from earlier trial(s). Efforts towards self-care recommendations should be documented.

** For chronic presentations, exacerbations and scheduled ongoing care for management of chronic pain: additional care must be supported with evidence of functional improvement or functional optimization. Such presentations may include, but are not limited to: (1) substantial symptom recurrences following treatment withdrawal, (2) worsening/treatment intolerance, (3) maintenance of functional improvement or functional optimization, and (4) care for special populations such as patients with osteoporosis of the spine. Efforts towards self-care recommendations should be documented.

### Care Algorithms APPs

- CCGPP has created two APPs containing the acute and chronic care algorithms for spine-related pain / conditions.
- Providing both APPs free of charge to all
- [clinical compass spine-care algorithms @ the App Store](http://www.tihcij.com/Articles/Algorithms-for-the-Chiropractic-Management-of-Acute-and-Chronic-Spine-Related-Pain.aspx?id=0000381)
Continued from previous page

Treat for up to 6 visits.

Has patient returned to pre-episode status?
  Consider further diagnostic testing.

Does condition worsen upon repeated attempts to withdraw care?
  See rationale for ongoing care.

Yes
  Release patient; provide home management recommendations if appropriate.

No

Consider ongoing/recurrent care plan of up to 4 visits per month. Re-evaluate at least every 12 visits.

Red flags present or other conditions outside of scope or skill set?
  Refer to appropriate provider/facility.

Yes

Symptoms Improved?/Are chronic care goals being met?

MTB/pre-episode status?

Yes

No

Other treatment options available at this facility?

Yes

No

Discontinue care and refer to appropriate provider/facility for opinion/management.

No

No

Treat for up to 6 visits. Consider multimodal, multidisciplinary care.

Yes

No

Clinical Practice Guideline: Chiropractic Care for Low Back Pain (Draft)

Authors

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Methods

This project was a guideline update based on current evidence and consensus of a multidisciplinary panel of experts in the conservative management of LBP.

Systematic review

We conducted a systematic review to update the literature published since the previous CCGPP guideline was developed; the search including articles from October 2009 through February 2014. Table 1 summarizes the eligibility criteria for the search.

Canadian Chiropractic Association Guidelines

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NECK DISORDERS (NOT DUE TO WHIPLASH)

Key Recommendations

Acute Non-Specific Neck Pain

- Spinal manipulative therapy is recommended for the treatment of acute neck pain for both term benefit (days to recovery, pain) when used in combination with other treatment modalities (advice, exercise, and mobilization). Three studies used several treatment sessions (4 and 5, or an average of 15) for 2 or 12 weeks, respectively.

- Mobilization is recommended for the treatment of acute neck pain for short-term (up to 12 weeks) and long-term benefit (days to recovery, pain) in combination with advice and exercise. One study used 4 treatment sessions over a 2-week period.

- Home exercise with advice or training is recommended in the treatment of acute neck pain for both short and long-term benefits (neck pain). This study used a regime of daily home exercise (6-8 repetitions per day) for 12 weeks with two 1-hour advice/training sessions 1 to 2 weeks apart.
Chronic Non-Specific Neck Pain

- Spinal manipulative therapy is recommended in the treatment of chronic neck pain for short- and long-term benefit (pain, disability). This study used 2 treatments per week for 9 weeks.
- Spinal manipulative therapy is recommended in the treatment of chronic neck pain as part of a multimodal approach (including advice, upper thoracic spinal manipulative multimodality, low-level laser therapy, soft tissue therapy, mobilizations, pulsed short wave diathermy, exercises, massage, and stretching) for both short- and long-term benefit (pain, disability, cROM). Investigators used a number of treatments over several weeks, in addition to assessing the impact of a single treatment over the short term.
- Mobilization is recommended for the treatment of chronic neck pain for short-term (immediate) benefit (pain, cROM).
- Manual therapy is recommended in the treatment of chronic neck pain for the short and long-term benefit (pain, disability, cROM, strength) in combination with advice, stretching, and exercise.
- Home stretching (3-5 times per week) with advice/training is recommended in the treatment of chronic neck pain for short and long-term benefits in reducing pain and analgesic intake.
- Home strengthening and endurance exercises with advice/training/supervision are recommended for both short- and long-term benefits (neck pain, cROM) in the treatment of chronic neck pain. In all studies, home exercises were performed daily to 3 times per week.
- Exercise (including stretching, isometric, stabilization, and strengthening) is recommended for short- and long-term benefits (pain, disability, muscle strength, QoL, cROM) as part of a multimodal approach to the treatment of chronic neck pain when combined with infrared radiation, massage, or other physical therapies. In these studies, exercises were typically performed 2 to 5 times per week for several weeks.
- Massage is recommended for the treatment of chronic neck pain for short-term (up to 1 month) benefit (pain, disability, and cROM) when provided in combination with self-care, stretching, and/or exercise. In both studies, 5 to 10 upper body/neck massage sessions lasting 60 - 75 minutes were provided.

WHIPLASH-ASSOCIATED DISORDERS

Key recommendations
For Patients with WAD-1 to -3 or Chronic WAD-4 with Stable Healed Fractures and without Neurological Signs

- Treat all WAD patients with caution. Caution is defined as initiating or continuing with a treatment only after an assessment indicates that risks associated with administering a treatment are not elevated.
- Refer to Figures 4 to 7 and corresponding text to determine administration of HVLA manipulation and other treatment modalities.
- Base the frequency, dosage and duration of selected treatments on your clinical experience and the patient’s specific situation.

All acute patients benefit from supervised and unsupervised cervical range of motion (cROM) exercise, instruction and information tools. Exercise protocols vary widely in the literature. For this reason practitioners should base treatment on clinical experience and on a patient’s specific situation.

- Balance passive and active care based on each patient’s stage of tissue healing as suggested by time since injury. Care becomes increasingly active with time.
- Encourage the resumption of normal activities of daily living.
- Provide chiropractic treatment in the context of multidisciplinary management with qualified practitioners when chiropractic specialists, medical management, psychological counseling, acupuncture, occupational therapy or other approaches are required.
- When choosing 2 or more outcome-equivalent treatments, choose the one that is least likely to contribute to the patient’s propensity for chronic WAD. The treatment that is less complex and less costly is recommended if both treatments suggest similar impact on chronicity.
• Where Figures indicate a treatment modality is in conflict with a treatment that a practitioner has determined is appropriate, this may reflect a limitation in the available published evidence.

• Treat 2 to 5 times per week unless a specific justification suggests otherwise.

• Reassess upon any clinically significant change or within 10 to 12 visits.

• Refer to a chiropractic specialist recognized by the CFCREAB when uncertain about the type of care that should be recommended or the risk of adverse events.

• Continue with treatment only if a patient chooses supportive care once the best possible clinical improvement is reached, even if not all clinical goals are met.

• Continue with care only if a patient chooses a program of elective care once all clinical goals are met.

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Change is inevitable, growth is optional!

-Dr. Jay Triano

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Questions & Answers