The Chiropractic Report

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Professional Notes

Back Pain, Neck Pain and Quality of Life – New Evidence

There is clear evidence that low-back pain (LBP) is the leading cause of disability – that has been demonstrated for over 20 years now – and causes very substantial direct and indirect costs to individuals and society.

But is it associated with a significant loss of quality of life? If so, how much, and is this worse for certain groups of patients, and is the severity of pain important?

The answer "yes" seems logical and likely to all these questions, but there is remarkably little real and documented evidence. One reason is that this is difficult research to perform, requiring a large population with individuals having many variables or confounding factors. It also requires design and validation of complex questionnaires.

The best study in this field has just been published in the European Spine Journal and reports that LBP is associated with worse health-related quality of life (HRQoL) when assessed six months later. Other research has reported loss of

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A New Online Reading List

WFC Provides Key Papers Suggested Reading List for All

A. Introduction

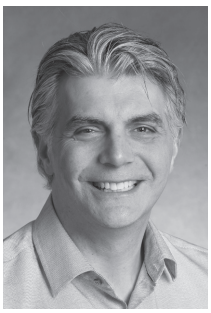
WHEN THIS REPORT WAS first published in late 1986, 28 years ago, there was little research supporting chiropractic care and there had been no effective way of disseminating the newly emerging studies to the profession.

The goal of the report, and the basis of its success, was providing such dissemination to usual and ordinary clinicians in a simple and summary format.

Today there is a large and ever increasing body of exciting and valuable research – but where is it all, what is most significant, and what does it mean?

The Chiropractic Report may have given you and analyzed many of the key papers on cost-effectiveness or safety or chiropractic management of headache or infantile colic/irritable baby syndrome as they were published over the years – and back issues are available to all at www.chiropracticreport.com – but what is the current status of the evidence on many important topics?

These questions, and the prayers of many, have just been answered by the World Federation of Chiropractic with publication of an online, free, recommended Reading List which you can find at www.wfc.org.



This is the result of two years of expert, committed and volunteer work led by Greg Kawchuk DC, PhD (*right*) of the University of Alberta, Canada, Chair, WFC Research Council, Stephen Perle DC, MS, University of Bridgeport and Associate Editor, *Chiropractic and Manual Therapies*, and Michael Schneider DC, PhD of the University of Pittsburgh. They were assisted by other members of the WFC Research Council and other topic experts.

The initial reading list covers 21 topics, each having 10 key papers. For each of these there is a summary of the paper's significance and a link to the full paper. This is an ongoing project, and work is continuing on:

- Maintenance and update of the published lists – the target is an annual update.
- A second round of topics and subtopics, each with its 10 key papers.
- A related WFC project – publication of a database of chiropractic researchers worldwide, their primary research interests and foremost publications.

All this is possible because of generous sponsorship from NCMIC and Standard Process. This Report now gives fuller information on the WFC Reading List and illustrates its value.

B. New WFC Reading List

2. **Topics.** The 21 topics, with the names of the expert curators in charge of each, are shown in Table 1. Contributors chosen by curators to assist them, are shown online. For the topic *Seniors*, for example, Paul Dougherty of New York Chiropractic College was assisted in choice and summary of papers by Michele Maiers of Northwestern University of Health Sciences, Lisa Killinger of Palmer College and Cheryl Hawk of Cleveland College, all published and expert in the subject.

There will be future topics and sub-topics. For example nutrition will be added as a topic or a sub-topic of *Wellness*. *Sports Injuries* may develop sub-topics for Improved Performance, Injury Prevention and Injury Management.

3. **Reading Lists.** As noted at the website, the 10 chosen papers are not a

Main Article *continued from page 1*

"best of" list. The goal is "to provide a list that would give any reader a solid appreciation of a specific chiropractic topic." For some topics there are good quality current systematic reviews, which are indeed the best research evidence available. For other topics with less published research, there is a choice of various preliminary studies and even commentaries.

How are papers chosen? "Each topic curator and their team can consider any content for inclusion. Inclusion criteria are set by each team and may involve any number of factors (e.g. breadth, clinical impact, historical value) with the goal of creating a list of 10 papers that give a sufficient overview of that topic."

Why is a limit of 10 papers given? "A key principle for this project is that listed papers for a given topic can be read in a reasonable period of time. That is why we have employed a 10 paper limit per topic with plans to develop a second unlimited list of (references for) "further reading" in the future."

4. **Summaries and Full Papers.** There is a summary for each paper, together with a link to the full paper, which may be:

- Free online – this is so if the paper is from one of the various journals that now offer free online access to all, such as *Chiropractic and Manual Therapies*, the official journal of the European Chiropractors' Union.
- Purchased as a specific paper – many journals have this arrangement if you do not have a subscription to the journal or access via a college/institution/library. An example is *Lancet* which published the recent trial by Williams, Maher et al. reporting that paracetemol/acetaminophen is ineffective for patients with acute low-back pain. That paper is listed under the topic *Acute Low-Back Pain* and has to be purchased at a cost of US $31.50.
- Purchased by paying for an annual subscription to the journal – unless, again, you have access via a college library.

5. **Other Site Features.** Visit the site for these, which include a comment and contact page inviting your input, and a search feature for papers by author or other key words.

C. Exploring the Reading List.

6. Say, for example, that your first interest is what is known about the biomechanics of spinal manipulation. Under *Mechanisms: Biomechanical* you will find:

a) **Best Biomechanical Indications for Care**. *Review of Methods Used by Chiropractors to Determine the Site for Application for Manipulation,* a literature review by Triano, Budgell et al. published in 2013 in Chiropractic and Manual Therapies (CMT) gives you what is known on this. In summary, direct measurements at the proposed site of care (e.g. pain provocation on palpation and localized tissue examination) and leg-length assessment are better supported by research than other indirect measures (e.g. skin conductance or thermography). (Because CMT is an open access online journal you can link to and download the full paper for free).

b) **Proven) Biomechanical Changes Following Manipulation**. Read new research reporting:

- Changed muscle stiffness parameters and recruitment patterns of the lumbar multifidus.
- Changed thickness in the contracted lumbar multifidus.
- Increased gapping of the lumbar facet joints in acute low-back patients after two weeks of chiropractic manipulation, compared with those in comparison and control groups – a recent trial from Cramer, Cambron et al. at the National University of Health Sciences in Chicago.

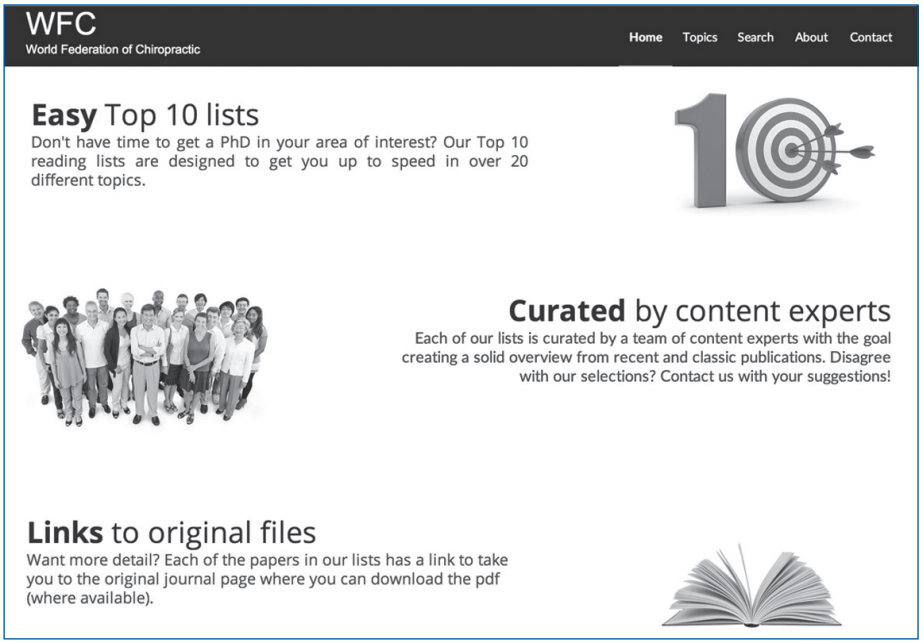


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Table 1 **Reading List Topics and Curators**

Topic	*Curator*
Conditions/Patients	
• Acute Low Back Pain	Jan Hartvigsen DC PhD
• Cervical (Neck) Pain	Mitchell Haas DC MA
• Chronic Low Back Pain	Michael Schneider DC PhD
• Extremities (Arm/Leg)	Stephen Perle DC MS ICCSP
• Headache	Gert Bronfort DC PhD
• Intervertebral Disc	Mark Erwin DC PhD
• Non-musculoskeletal	Cheryl Hawk DC PhD CHES
• Paediatrics	Lise Hestbaek DC PhD
• Pregnancy	Katie Pohlman DC MS DICCP
• Seniors	Paul Dougherty DC DABCO
• Sports Injuries	Stephen Perle DC MS ICCSP
• Wellness	Cheryl Hawk DC PhD
Guidelines	
• Guidelines	André Bussières DC PhD
Safety	
• Cerebrovascular	Greg Kawchuk DC PhD
• Musculoskeletal	Charlotte Leboeuf-Yde DC MPH PhD
Mechanisms	
• Biomechanical	Greg Kawchuk DC PhD
• Neurophysiological	Heidi Haavik DC PhD
• Other	Carolina Kolberg MSc(Chiro) PhD
Profession	
• Economics/Utilization	Christine Goertz DC PhD
• Ethics	Stephen Perle DC MS ICCSP
• Interprofessional	Corrie Myburgh DC PhD

c) **Relevant Basic Science Research.** In a sophisticated experiment Kawchuk, Carrasco et al. took porcine motion segments and used controlled robotics to apply manipulation and mobilization. One by one they dissected out spinal tissues from these segments to get a picture of which tissues were most affected by the manipulation and mobilization. They found some tissues more affected than others. The intervertebral discs experienced the greatest forces and moments. Some patients respond to manual therapies, some do not. It is surmised that one factor may be whether or not the pain is from an individual tissue that does receive a significant load from and is affected by treatment.

d) **The Biomechanics of Spinal Manipulation.** However a real gem for the normal clinician, who is interested but not well-versed in reading research, is *The Biomechanics of Spinal Manipulation* by Walter Herzog PhD, from the Faculty of Kinesiology, University of Calgary in Canada, an invited review published in the Journal of Bodywork & Movement Therapies in 2010. Unfortunately, unless you have access to the full paper through an institution/college, you will need to purchase it through the online subscription process given, taking an annual subscription at US$131.

Herzog explains that "Biomechanics is the science that deals with the external and internal forces acting on biological systems and the effects produced by these forces," then reviews what is known on these matters relative to "chiropractic spinal manipulation." This is in clear language directed at the clinician rather than researchers. With respect to external forces from high-velocity low-amplitude (HVLA) adjustment or manipulative thrust, the various chiropractic studies demonstrate:

- All clinicians apply substantially less force for treatments of the cervical spine compared to the thoracic spine. Peak forces for neck manipulation average 100 Newtons, for thoracic, lumbar and sacroiliac joints all about 400N.
- External forces "vary dramatically between clinicians – adjustments measured range from 200N to 1,600N or an eightfold variation."
- Thrust times are similar for all clinicians, and typically 100ms for cervical and 150ms for thoracic and lumbar spine treatments.
- The force of some soft adjusting chiropractors does not reach the preload force of harder adjusting clinicians.
- All of this suggests that direction of thrust is more important than force or speed – but that remains a hypothesis because force direction has not yet been studied systematically.

With respect to specificity of force and movement there is "substantial relative movement of both the target and adjacent joints" during the preload and during the adjustment.

With respect to internal forces, stresses and strains Herzog, who has completed much of the best research himself on forces reaching the vertebral artery, explains that there is less force and strain on the vertebral artery segments C1-C6 from HVLA manipulation than from diagnostic procedures and "normal everyday movements." In his 2002 cadaveric study which involved 176 manipulative treatments:

- Peak strain on any artery (elongation from neutral) was 2.1% of its resting length.
- Strains for diagnostic procedures (e.g. flexion, rotation and Houle's test) "were in excess of 10%."
- This was consistent with earlier studies mentioned.

Overall, however, Herzog reports that there is still "little knowledge of the transmission of stresses and strains across hard and soft tissues during spinal manipulation. This is a vast field of investigation that needs careful attention." Other key papers in the Reading List, such as that by Kawchuk et al. with porcine motion segments already mentioned, are now giving that careful attention.

Herzog's paper also includes interesting review of some neurological responses to spinal manipulation. On this:

- Manipulation does produce reflex responses in muscles. Surface electromyography (EMG) measurements of back muscles at the treatment site, taken within 200-400ms following the onset of the thrust, show that muscle activity disappears.
- Reflex responses to a very short and focused treatment force, in Herzog's studies delivered by an Activator, are restricted to the vicinity of the treatment area and appear to have a muscle spindle reflex pathway given a 500-100ms delay from the onset of force.
- For HVLA spinal manipulations by hand, reflex responses are not restricted to the immediate treatment area, having various activation patterns that depend upon the site of force application.
- Other reflex responses are seen in patients with spastic muscles and EMG activity in the treatment area. In some but not

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Back Pain, Neck Pain and Quality of Life – New Evidence

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HRQoL associated with the number of days of LBP – more days of pain, less quality of life. This is the first to study and report an association with severity of LBP.

Principal author is Canadian chiropractor Paul Nolet DC MPH, a senior clinician scientist in private practice. Second and third authors came from major health policy centers in Toronto – Vicki Kristman PhD, Institute of Work and Health, Toronto and Pierre Côté DC PhD UOIT-CMCC Centre for the Study of Disability Prevention and Rehabilitation, Toronto.

Points are:

- The population surveyed was 1,110 age-stratified but randomly-selected adults (age 20-69) in Saskatchewan in Canada, a province of 1 million people with universal healthcare coverage. Data came from the Saskatchewan Health and Back Pain Survey. Potential confounding factors were captured in the survey – socio-demographic factors, comorbidities, depressive symptoms and general health.
- Back pain in the last six months was measured with a validated chronic pain questionnaire that put respondents in one of five categories – Grade 0 (no chronic pain, no disability) to Grade 4 (high disability/severely limiting).
- HRQoL was measured with the Medical Outcomes Study SF-36 questionnaire proven to have reliability and good validity for physical and mental health criteria.
- Response rate was 71%, potentially a concern, except that there were no significant differences between responders and non-responders "in presence and severity of comorbidities, SF-36 scores, or baseline neck or back pain grade."
- Results included:
  - In unadjusted results, increasing severity of LBP was significantly associated with poorer quality of HRQoL, in each of physical and mental dimensions.
  - This remained true on adjustment of results for baseline socioeconomic differences or confounders.
  - On adjustment of results to allow for baseline differences in musculoskeletal comorbidities (e.g. arthritis, neck pain) and other physical components measured by the SF-36, the relationship between severity of LBP and HRQoL was still there but reduced. Nolet et al. explain, however, that these particular baseline differences are not really confounders – probably they should be better seen as part of the causal link between severity of back pain and loss of quality of life.

Nolet, Kristman, Côté et al. conclude that LBP has a clinically significant impact on future HRQoL, and that "to improve the HRQoL in a population it will be important to prevent and treat disabling LBP of greater pain intensity". They indicate that this will be of interest not only to clinicians and researchers but also health policy makers. That is because disability from back pain is so common. In this representative sample of the whole adult population aged 20-69 approximately 1 in 4 (23.7%) had disabling LBP with high pain intensity – Grades 2-4. Numbers were:
Grade 0 – no pain, no disability – 318 (28.6%)
Grade 1 – low pain/low disability – 530 (47.7%)
Grade 2 – high pain/low disability – 136 (12.3%)
Grade 3-4 – high pain/moderate or severe limitations – 126 (11.4%)

And Nolet and his colleagues have also completed a companion study on neck pain and HRQoL, published in The Spine Journal in December. From a similar survey in Saskatchewan with a similar response rate (74.9%), but this time with neck pain, they again found a negative association between pain and HRQoL after 6 months.

The two differences were that this association was for physical but not mental HRQoL (back pain produced poorer results for both physical and mental HRQoL), but existed for participants with mild neck pain as well as those with more severe pain.

(Nolet P, Kristman VL, Côté P et al. (2014) *Is Low-Back Pain Associated with Worse Health-Related Quality of Life 6 Months Later?* Euro Spine J: DOI 10.1007/s00586-014-3649-4; Nolet P, Côté P, Kristman VL et al.(2014*), Is Neck Pain Associated with Worse Health-Related Quality of Life Six Months Later? A Population-Based Cohort study,* The Spine Journal doi: 10.1016/j.spinee.2014.12.009.

World Notes

1. **China – A New Frontier for Chiropractic**

China is one of the last great frontiers for chiropractic. Other than Hong Kong, where the profession is recognized and regulated and there are some 150 chiropractors in practice, the country has few chiropractors. Individual chiropractic licenses have been issued in Beijing and Shanghai but there are fewer than 20 chiropractors in mainland China.

A major recent development is the decision of the Baptist University of Hong Kong (BUHK), which has campuses in Hong Kong and mainland China, to establish the first chiropractic educational program in China. The BUHK, which plans to enroll first students in September 2015, is developing its program with the support of the Hong Kong Chiropractors' Association (HKCA) and advice on curriculum from the Canadian Memorial Chiropractic College.

On an invitation from and sponsored by the Chinese government the World Federation of Chiropractic (WFC) attended the Taihu Forum on Traditional Medicine in Macau, China on November 13-14, 2014. WFC representative Dr Terrence Yap of Singapore, WFC Council representative for Asia, gave an address titled *An Introduction of Chiropractic: A Traditional Healthcare Profession Originating in North America.* Dr Yap spoke of the origins and growth of chiropractic and its potential role in China alongside traditional Chinese medicine (TCM). He reports strong interest in chiropractic. TCM has strength in acupuncture and herbal medicine but less strength in tuina or manual healthcare.

Life University has a well-established clinic and presence in Beijing, two chiropractic associations in Hong Kong have growing

numbers and strength, and with the BUHK commencing education chiropractic is set to arrive in a meaningful way in China.

2. **Japan – On the Road to Regulation.** Chiropractic is much better established in Japan than China, but is still unregulated by law. Approximately 700 duly qualified chiropractors have to practice alongside many thousands trained in chiropractic as a technique at local unaccredited schools. The Tokyo Chiropractic College, Japan's one accredited chiropractic college, formerly known as RMIT Japan, has its 20th anniversary celebrations in March.

In the past two years the Japanese Association of Chiropractors (JAC) led by the President Dr Keisuke Takeyachi of Tokyo, has made major progress on the road to full legislative recognition. Two important steps demonstrating maturity and self-regulation to the government have been development of a new Safety Training Program and a Japanese Chiropractic Register (JCR) to establish standards of chiropractic qualification and practice worthy of adoption by the government. For many years senior figures in the Ministry of Health, Labour and Welfare would not meet with chiropractic leaders – currently there are meetings developing firm relationships.

3. **France – IFEC Turns 30.** France's school of chiropractic, the Franco-European Institute of Chiropractic (IFEC), now with 800 students at its two campuses in Paris and Toulouse, celebrated its 30th anniversary in high style in Paris on November 22 with the graduation of 85 students followed by an elegant dinner then dancing for more than 750 guests.

Master of Ceremonies was IFEC President Dr Olivier Lanlo, an IFEC graduate himself. The congratulations of the French Association of Chiropractors (AFC) were given by President Dr Philippe Fleuriau, also an IFEC graduate. Other graduation and dinner speakers included Dr Øystein Ogre, ECU President, Dr Richard Brown, ECU Secretary-General and David Chapman-Smith, WFC Secretary-General.

With full legal status now achieved, and a large and mature chiropractic educational program, the chiropractic profession is now firmly established in France. It is facing competition, however, from a large osteopathy profession. There are approximately 1,000 chiropractors, but 20,000 osteopaths.

4. **Poland - First Chiropractic Education in Central Europe.**

Dr Artur Mazur (*left*), President of the Polish Chiropractic Association (PCA), has recently announced that the first school of chiropractic in Poland will open in Gdansk in July 2015. This will be an historic moment, as this will be the first chiropractic education program in all of Central or Eastern Europe.

The school will be at the Gdansk University of Physical Education and Sport (AWFiS) with the Anglo-European College of Chiropractic in the UK as an academic partner. Professional support will come from the PCA and the European Chiropractors' Union (ECU), both of which have been strong partners in development to this stage. As with first programs in other countries in recent

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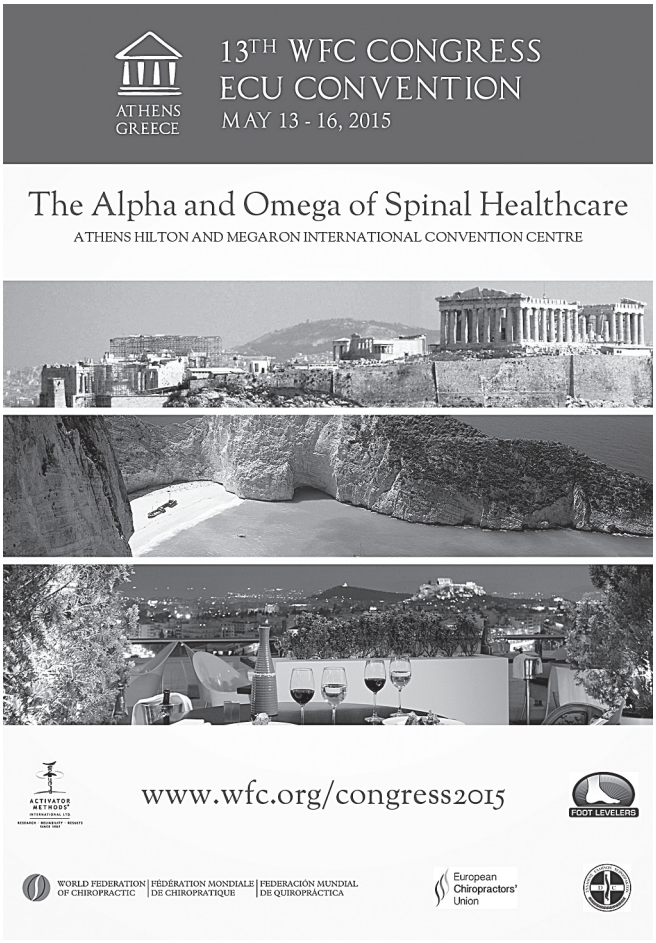

10 Reasons to Attend the WFC Congress in Athens

1. The opening session of a WFC Congress - ask anyone who has experienced this. 20 minutes of entertainment then world class keynote lectures with about 1,000 of your colleagues around you.

2. Continuing education program with something for everyone – from the latest in spine care to workshops on scoliosis, extremities and equine chiropractic (at nearby stables).

3. From world experts in their fields – e.g. Greg Kawchuk and Scott Haldeman on the biomechanics and neurology of SMT; Stuart McGill on rehabilitation; Dan Murphy on the neurology of the subluxation model; Matthew Antonucci on functional neurology.

4. 20 or more CE/CPD credits.

5. Option of one or two day pre-congress technique seminars at bargain basement prices – e.g. Activator Methods, McKenzie Methods, Paediatrics, Sports Chiropractic (FICS Symposium).

6. The energy and motivation of being with colleagues from 40-50 countries from all world regions.

7. An outstanding social program – including the famous foods, music, dance and hospitality of Greece at the Greek Night.

8. The Acropolis, Olympia and the other glorious historical sites of ancient Greece.

9. The springtime beauty of Greece, its islands, and neighbouring Turkey in pre and post Congress tours.

10. The tax deductible trip of your life. Call a friend and be there.

Main Article *continued from page 3*

all patients "the muscles relaxed and EMG activity was abolished… when subjected to an HVLA treatment thrust."

Must there be an audible release, the indication of a successful adjustment for many chiropractors and patients, to achieve reflex responses? Apparently not. Herzog explains that there are "a variety of observations that do not fit that idea." For example:

• In his research study mentioned every HVLA treatment thrust recorded was associated with an electromyographical response, but not all of these caused capitation.

• When chiropractors were asked to apply treatment at the exact location and in the exact direction as they would for a normal manipulative thrust, but to do so very slowly, there was not an EMG response – but audible releases were elicited.

7. **Neurophysiology.** For *Mechanisms: Neurophysiological* the expert leading the selection of papers is Heidi Haavik DC, PhD from New Zealand who has her doctorate in this field. She is assisted by Bernadette Murphy DC, PhD, Martin Descarreaux DC, PhD and Steven Passmore DC, PhD from Canada, Joel Pickar DC, PhD, Chuck Henderson DC, PhD and Ram Gudavalli PhD from the US and Barbara Polus, DC, PhD from Australia.

One of the 10 papers is an excellent review article by Pickar titled *Neurophysiological Effects of Spinal Manipulation* published in The Spine Journal, the official journal of the North American Spine Society. This was in 2002, making it a little dated, but it remains expert and informative. It presents the theoretical model describing the relationships between spinal manipulation, segmental biomechanics, the nervous system and end-organ physiology, reviews the experimental evidence, then concludes that "an experimental body of evidence exists indicating that spinal manipulation impacts primary afferent neurons from paraspinal tissues, the motor control system and pain processing." There is evidence, for example, of:

• Alteration of central sensory processing, by removing mechanical or chemical stimuli from the paraspinal tissues that are allowing central neurons to signal pain.

• Alteration of reflex neural outputs to muscle and visceral organs. "Substantial evidence demonstrates that spinal manipulation evokes paraspinal muscle reflexes and alters motoneuron excitability."

8. Two recent papers are from the Journal of Electromyography and Kinesiology. This, the official journal of the International Society of Electrophysiology and Kinesiology and published since 1990, has become a primary source for high-quality articles on the study of human movement and muscle contraction via the motor units and central system, through mechanical and electrical detection techniques. It publishes basic science studies of relevance to many disciplines including chiropractic, others being rehabilitation, sports and exercise, motion analysis and ergonomics.

• The first paper, from Pickar at Palmer College and Philip Bolton DC, PhD from the University of Newcastle in Australia, titled *Spinal Manipulative Therapy and Somatosensory Activation* and published in 2012, reviews what is known about the signaling characteristics of sensory neurons innervating the vertebral column in response to spinal manipulation. Based upon the experimental literature they propose that SMT produces "sustained change in the synaptic efficacy of central neurons" and does this "by evoking a high-frequency, bursting discharge from several types of dynamically-sensitive, mechanosensitive paraspinal primary afferent neurons."

Table 2 **WFC Research Council**

Greg Kawchuk DC PhD (*Chair*)	Canada
Christine Goertz DC PhD (*Vice-Chair*)	USA
Iben Axén DC PhD	Sweden
Pierre Côté DC PhD	Canada
Mitch Haas DC MA	USA
Heidi Haavik DC PhD	New Zealand
Jan Hartvigsen DC PhD	Denmark
Carolina Kolberg MSc(Chiro) PhD	Brazil
Scott Haldeman DC MD PhD (*Emeritus Chair*)	USA

• The second paper, from a US physical therapy team led by Rogelio Coronado PT, PhD from Madison, Wisconsin is a systematic review of the literature on changes in pain sensitivity following SMT. The various studies examining the immediate effect on SMT on pain pressure threshold (PPT – the level of pressure that a patient can handle without pain) demonstrate that SMT increases PPT more than other treatments. Of interest, this is not only at the site of treatment but also at remote/distant sites of application of pressure, indicating a central nervous system mechanism of action for SMT.

Other neurophysiology papers include:

• A controlled trial from Haavik and Murphy reporting that chiropractic cervical spine manipulation of dysfunctional cervical joints can alter cortical somatosensory processing and sensorimotor integration by producing transient cortical plastic changes.

• A recent animal model study from William Reed DC, PhD and colleagues at Palmer College that provides one starting point on the large question of what relationship there is between biomechanical characteristics of SMT (force, amplitude, duration, rate) and neural responses, and as a result clinical effectiveness. In this recent study published in The Spine Journal in 2013 they report that decreasing thrust duration (i.e. increasing speed or velocity) had a "significant effect on increasing muscle spindle activity" during HVLA SMT.

9. **Interprofessional Issues.** The topic *Profession: Interprofessional,* curated by Corrie Myburgh DC, PhD of Denmark, includes three important papers on the role of chiropractic in spine care, all of which are available free online.

• *Chiropractic as Spine Care: A Model for the Profession,* by US Drs Craig Nelson, Dana Lawrence, John Triano et al., and published in Chiropractic and Manual Therapies (then called Chiropractic and Osteopathy) in 2005 was the first clear call for chiropractic to purposefully adopt a professional identity based on spine care. For over 100 years, they state, the profession had failed to define itself in a way that was "understandable, credible, and scientifically coherent", this failure had prevented the profession from establishing its cultural authority over any specific domain of healthcare, and a model based on spine care would establish authority and increase market share.

The chiropractic professional identity should be based on these things:

• spinal care as the defining clinical purpose of chiropractic

• chiropractic as an integrated part of the healthcare mainstream

• the rigorous implementation of accepted standards of professional ethics

• chiropractors as portal-of-entry providers

• the acceptance and promotion of evidence-based healthcare

• a conservative clinical approach without drugs and surgery.

"This model will allow chiropractic care to be integrated into the mainstream delivery system while still retaining self-identity for the profession.

• *The Establishment of a Primary Spine Care Practitioner and Its Benefits to Health Care Reform in the United States,* by Drs Donald Murphy, Brian Justice, Ian Paskowski et al., and published in Chiropractic and Manual Therapies in 2011, is also from US chiropractors. It identifies the need for a new primary spine care practitioner in the healthcare system, the skills required and why doctors of chiropractic should fulfill that role – but also identifies the developments needed within the profession.

• *Taking Responsibility for the Early Assessment and Treatment of Patients with Musculoskeletal Pain: A Review and Critical Analysis,* by Nadine Foster PT, PhD, Jan Hartvigsen DC, PhD and Peter Croft MD, a Professor of Family Medicine, published in the UK journal Arthritis Research and Therapy in 2012, presents a fundamentally similar argument from Europe.

Most healthcare systems have a general medical practitioner as the first person to see a patient with musculoskeletal problems, the authors note, and access to other professionals – such as chiropractors, osteopaths and physiotherapists – is either controlled by a traditional medical practitioner or left to self-referral by the patient. They present the arguments for reconsidering this and giving these other professionals a primary care role, and conclude:

"Non-medical professions are well accepted as primary-care providers of oral and dental health, visual health, and many aspects of mental health, and clinicians such as nurses and pharmacists have been shown to improve both quality and cost-effectiveness in the management of many conditions. We think it is time to debate and re-think the way front-line musculoskeletal care is delivered in our health services."

Foster and Hartvigsen, now much in demand as expert and influential speakers on this subject at international conferences, will speak and present a workshop on this at the joint Congress/Convention of the World Federation of Chiropractic and European Chiropractors' Union in Athens May 13-16 this year. Others joining them include UK Professor of Rheumatology Anthony Woolf, Chair and leader of the Bone and Joint Decade/Global Alliance for Musculoskeletal Health. All information is at www.wfc.org/congress2015. Be there to hear them, and to understand why the road is now open to the chiropractic profession to greatly increase its role and access to patients in mainstream primary health care as spinal health experts if it wants to do so.

10. **Conditions/Patients.** It is not possible here to comment in any depth on the many papers on acute and chronic back pain, neck pain, headache, extremities, non-musculoskeletal disorders and other conditions. On one hand you may well find missing important papers that you would have included in a list of key papers. One example under acute low-back pain might be the award-winning Canadian trial by Bishop, Quon et al. reporting that guidelines-based care, including four weeks of chiropractic manipulation, was superior to usual medical care for adults with acute mechanical low-back pain.[1]

On the other hand there is an impressive array of papers under acute low-back pain and all other conditions. Be aware that papers under some topics have relevance under related topics. Therefore for example the first paper under *Guidelines* is *Diagnosis and Treatment of Low-Back Pain: A Joint Clinical Practice Guideline from the American College of Physicians and the American Pain Society* published in the Annals of Internal Medicine in 2007. This has importance for both acute and chronic back pain. Its many recommendations include spinal manipulation as an evidence-based treatment for patients with acute, sub-acute and chronic low-back pain.

11. **Guidelines.** Under this topic there are four important papers with respect to neck pain and its related disorders, these being:

• Two papers from the Bone and Joint Decade 2000-2010 Task Force on Neck Pain and its Associated Disorders, still the most expert and comprehensive source of evidence and guidelines on the management of neck pain. One, by Nordin, Carragee et al. published in JMPT in 2009, provides guidelines on assessment. The other, from Hurwitz, Carragee et al. and published in Spine in 2008, has guidelines on treatment. These conclude:

"For both whiplash-associated disorders and other neck pain without radicular symptoms, interventions that focused on regaining function as soon as possible are relatively more effective than interventions that do not have such a focus. Our best evidence synthesis suggests that therapies involving manual therapy and exercise are more effective than alternative strategies for patients with neck pain."

• New guidelines from Canada specifically for the chiropractic profession, published last year in JMPT. These are *Evidence-Based Guidelines for the Chiropractic Treatment of Adults with Neck Pain* from a Canadian Chiropractic Association Task Force led by Bryans, Decina, Descarreaux et al.

• A new systematic review of clinical practice guidelines for management of conditions arising from traffic accidents. This, from Wong, Côté, Shearer et al. and published last year in Disability and Rehabilitation is titled *Clinical Practice Guidelines for the Management of Conditions Related to Traffic Collisions: A Systematic Review by the OPTIMa Collaboration,* and concludes:

• The core components of a program of care to manage common traffic injuries (whiplash-associated disorders – WAD, anxiety and mild traumatic brain injuries) should include advice, education and reassurance.

• The following specific interventions are recommended for whiplash-associated disorders (WAD): "exercise, early return to activity, mobilization/manipulation, analgesics and avoidance of collars".

D. Conclusion

As explained in the introduction, it is only in the last generation that the profession has had an evident commitment to research and produced a substantial body of high-quality

research to advance knowledge in health care and support chiropractic practice. Many people outside the profession, whether in other professions, health policy, government, reimbursement or other remain unaware of this. Many are uninformed on the safety, effectiveness, cost-effectiveness and other features of chiropractic care, including its acceptance and integration into mainstream healthcare systems in many countries. Some make uninformed comment and criticism. Those who consider chiropractic manipulation a hands-on placebo are unaware of the proven biomechanical and neurological mechanisms of action.

A great additional benefit of the WFC Reading List, beyond informing chiropractors, is that now there is a quick and persuasive new way to demonstrate to everyone that chiropractic has a commitment to research, strong international research capacity and an impressive record of published research – and that there are now evidence-based answers to most major questions on the profession and its practice.

We all owe a large debt to the profession's researchers, the WFC's Research Council and specifically its chair, Dr Greg Kawchuk. TCR

Reference

1 Bishop PB, Quon JA, Fisher CG et al. (2010) The Chiropractic Hospital-Based Interventions Research Outcomes (CHIRO) Study: A Randomized Controlled Trial on the Effectiveness of Clinical Practice Guidelines in the Medical and Chiropractic Management of Patients with Acute Mechanical Low-Back Pain. The Spine J 10:1055-1064.

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years, and in accordance with WHO Guidelines and World Federation of Chiropractic policies, chiropractic education will be introduced in two stages.

Initially there will be a 3 year part-time program for students who already have a health sciences background, such as medical doctors, rehabilitation specialists and physiotherapists. Following that there will be a standard full 5 year MSc program as in other European accredited schools of chiropractic.

"Our association has many people to thank for making this exciting new program possible," said Dr Mazur. "Particular thanks must be given to the leaders at AWFiS and AECC, our two strong academic partners, and ECU President Dr Oystein Ogre."

*AWFiS Rektor Prof Waldemar Moska (*center*), Dr Øystein Ogre, ECU President (*center left*), Dr Artur Mazur (*right*) and other representatives of the PCA and AECC at AWFiS as the new program is announced.*

5. **FICS – Around the World in Sports Chiropractic**. Are you aware of the new growth and achievements of sports chiropractic and the significance of this to the recognition and future success of the profession as a whole? Visit www.fics-sport.org, website of the International Federation of Sports Chiropractic (FICS), for the impressive December 2014 issue (and other back issues) of the quarterly FICS News. This reports:

• Teams of sports chiropractors within the host medical services provided for all athletes at most major games these days, for example, the recent Central American and Caribbean Games in Veracruz, Mexico (2014), the upcoming Pan American Games in Toronto (2015) and the Summer Olympics in Rio de Janeiro, Brazil (2016).

• Sports chiropractic teams at many recent national and international events, such as Ironman Australia, the Challenge Triathlon in Bahrain (the world`s richest professional/amateur triathlon with a $500,000 purse), the Kayak World Polo Championships in France, the Asia Games in Korea, the Ju-jitsu World Cup in Romania and the World Powerlifting Championships in the USA.

In the meantime, FICS is working to build a mature sports chiropractic speciality including post-graduate education and research. Its ICCSP certification program (Internationally Certified Chiropractic Sports Practitioner), with its combination of online and hands-on study, now has hands-on modules not only in North America, Europe and Australasia but also South Africa, Japan, Israel and Brazil. For those interested, all details are at the website.