The Chiropractic Report

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Professional Notes

Musculoskeletal Medicine

In a significant new study titled *Musculoskeletal Medicine: An Assessment of the Attitudes and Knowledge of Medical Students at Harvard Medical School* published in the May 2007 issue of *Academic Medicine*, Harvard medical students were given the musculoskeletal medicine basic competency examination first given by Freedman and Bernstein to Pennsylvania medical students in 2003 and subsequently given to medical students in Australia and elsewhere. Consistent with the results of these earlier exams the Harvard students failed. Interestingly, they were also given a 30 question survey seeking their opinions on the importance of musculoskeletal medicine and their views on how it is being taught. Key points are:

a) The survey and exam were offered to 608 medical students during the 2005 to 2006 academic year. There was a response rate of 74% (449 of 608).

b) Students rated musculoskeletal education to be of "major importance" but rated the amount of curriculum time spent on this as "poor".

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Chiropractic on the Move in 2007

Advances Reported at WFC Congress/ECU Convention

A. Introduction

THE WORLD FEDERATION OF Chiropractic's 9th Biennial Congress and the European Chiropractors' Union's 75th Anniversary Convention, held together from May 15 to 19 in Vilamoura, Portugal, had all the ingredients for major professional impact and success.

There were strong academic, clinical and social programs, the venue was superb, and the meeting was larger and more representative than any previous chiropractic convention in Europe – with approximately 800 doctors of chiropractic and 1,000 total registrants. Delegates from 47 countries attended the WFC Assembly, the member associations' business meeting.

The jewel in the crown, however, was the presentation of much important new chiropractic research from around the world. This issue of *The Chiropractic Report* reports on the congress, but with particular focus on new clinical research of significance to clinicians including:

- A trial from Australia on prevention of hamstring injuries in elite athletes.
- A US trial funded by the National Institutes of Health suggesting that more intensive chiropractic care produces superior results for patients with chronic headaches.
- From Canada a study reporting excellent results when chiropractic care is included in multidisciplinary services available at government-funded community centers, and a study reporting equally excellent results and savings of over $900,000 when chiropractic in-house services were added to other health services at a meat processing plant where workers had frequent musculoskeletal injuries.

First, though, we start with a summary overview of the Congress/Convention and other points of significance to chiropractors generally and the profession.

B. Summary Overview

2. This international gathering, hosted by the Portuguese Chiropractors' Association which reported recent legislation to recognize and regulate chiropractic practice in Portugal, incorporated several separate meetings as now described.

3. **Main Convention**. Features of the outstanding academic program were lectures from Dr. Scott Haldeman, Dr. David Cassidy and other members of the Bone and Joint Decade 2000-2010 Task Force on Neck Pain and Associated Disorders, whose long awaited report on the safety and effectiveness of all treatments for neck pain and associated disorders is to be published in *Spine* and the *European Spine Journal* in November; workshops from many prominent technique lecturers; and the keynote Saturday morning presentation from Dr. Bruce Lipton, cell biologist and author of *The Biology of Belief*.

BJD Task Force members emphasized that it is premature and inappropriate to make public statements concerning the Task Force's specific findings and conclusions until its report is published, at which time news releases will come from one or more of the major universities affiliated with the Task Force. However what can be said now, to alert you to the importance of the Task Force's five year program of literature review and original research, and its significance for the future management of patients with neck pain is this:

a) Dr. Cassidy, currently a senior scientist and professor at the Departments of Public Health Sciences and Health Policy, Management and Evaluation at the Faculty of Medicine, University of Toronto, and Scientific Secretary for the Task Force, made the following points in

his lecture on best evidence-based care for non-specific neck pain:[1]

i) There has been an explosion of research in this field, meaning that "clinicians, researchers and policy makers have difficulty keeping up with this vast literature."

ii) A new best evidence synthesis by him and his colleagues indicates that "therapies involving manual therapy and exercise, and those including educational interventions that address self-efficacy, are more effective than alternative strategies for patients with neck pain." Such active treatments are preferable to passive treatments (e.g. usual medical care, rest, medication, injection therapies, etc).

iii) For all non-specific neck pain without radicular symptoms "interventions that focus on regaining function and returning to work as soon as possible are relatively more effective than interventions that do not have such a focus." However "none of the active treatments is clearly superior to any other in the short or long term."

b) Speaking on the risk of stroke associated with cervical manipulation, Dr. Cassidy indicated that the BJD Task Force will report the first assessment of risk actually derived from hard data – review of patient data from many millions of treatments provided from multiyear government databases in two provinces in Canada. He was principal investigator for this stroke study and in Portugal referred to figures demonstrating:

i) A very remote and acceptable risk of stroke associated with cervical manipulation for patients with neck pain.

ii) That for neck pain sufferers choosing to consult a chiropractor or a family physician for treatment of neck pain, the very slightly increased risk of stroke compared with the general population (i.e. individuals without neck pain, and not seeking treatment) is the same. Whether you judge the risk of stroke within one day, one week or one month following treatment, there is the same risk associated with treatment whether you choose a chiropractor or family physician. The implication is that a very small proportion of neck pain patients have a stroke in progress when they consult a health professional, and that for them stroke is "associated with" rather than "caused by" the care given.

4. In the opening session Portuguese sprint star Francis Obikwelu, 2006 European Male Athlete-of-the-Year and 100 meters record holder, spoke of the importance of his regular chiropractic care in training and competition in terms of performance enhancement and prevention of injury, and received an award from the profession given by Dr. Roland Noirat of Switzerland, President of the Fédération Internationale de Chiropratique du Sport (FICS). To view the short special video prepared for Francis and shown at the convention, and featuring his European record set during the final at the Athens Olympics, go to the Newsroom at www.wfc.org.

The featured speaker at the Saturday night Gala Dinner and Dance was Professor Joao Lobo Antunes from the University of Lisbon, Portugal's leading neurosurgeon, who spoke on the future of health care in Europe and his positive clinical experiences with the growing chiropractic profession in Portugal.

An emotional highlight was a powerful address by Sister Brigette Yengo, DC MD, of the Congo. Sister Yengo, who founded and runs an orphanage in the Congo, has a part-time chiropractic practice and will lead the Congolese Special Olympics Team to the Beijing Olympics, moved the audience to laughter and tears as she spoke of her experiences and her respect for the profession and its founders. Over US$12,000 was raised for her orphanage from a fundraising raffle and appeal during the meeting.

To learn more of Sister Yengo and her inspiring work, and consider supporting it, go to www.sisteryengoschildren.org.

5. **WFC Assembly.** Delegates representing member national associations in 47 countries reported on chiropractic, giving news of many advances (e.g. new university-based chiropractic schools soon to open in Spain and Switzerland, new legislation to regulate chiropractic in Thailand and provide additional funding for chiropractic services in Norway) and new challenges (e.g. physical therapists in Brazil seeking recognition of chiropractic as a PT specialty, new threats of prosecution for chiropractors in Taiwan). See the Professional Notes in this report for more.

The special report given to the Assembly of most general interest was that relating to the Straighten Up program and plans for use of this worldwide by the Bone and Joint Decade on the BJD's World Spine Day on October 16 this year.

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The Straighten Up program, first developed as Straighten Up America (www.straightenupamerica.org) by a interdisciplinary team led by Dr. Ron Kirk of Life University, and described in detail in the November 2006 issue of *The Chiropractic Report*, is an evidence-based 3 minute course of simple exercises designed for daily use in the community to improve spinal health and general well being. Last year the US BJD and then the International BJD adopted Straighten Up, which then had spin-off versions in Australia (www.straightenupaustralia.com.au), Hong Kong, Ireland and South Africa, as its prime focus on World Spine Day. At the WFC Assembly:

a) The British Chiropractic Association (BCA) presented its new adaptation of the Straighten Up program – Straighten Up UK. Go to the BCA website www.chiropractic-uk.co.uk to see how the British do it – a 5-minute video giving members of the public an introduction to Straighten Up UK; downloadable pamphlets for children and adults; other practical ideas – for example members of the public can click on the pamphlet

and generate an automatic email to the BCA for a print copy to be mailed out. The BCA website video can be used by you with your patients and community if you are in an English-speaking country.

b) WFC member associations in other countries – e.g. the Netherlands and Sweden – reported that they were now preparing national Straighten Up programs.

c) Dr. Kirk once more presented the Straighten Up program to delegates and reported on plans for special events for schools and the community for World Spine Day – this October 16. In North America the Association of Chiropractic Colleges is working with all member colleges, which are preparing community activities. To view the BJD's international endorsement go to www.boneandjointdecade.org, scroll down to World Spine Day and/or Bone and Joint Decade Action Week 2006 and click on the links to see the BJD press release on the Straighten Up program.

6. **ECU's 75th Anniversary Celebrations.** These included the launch of *Chiropractic in Europe: An Illustrated History* (hardback, 131 pp, £18.95) edited by Dr. Francis Wilson, commissioned by the ECU for this event and published in memory of Dr. Kyrre Myhrvold, a highly respected Norwegian leader in the profession who also championed the importance of history. This excellent book, given to all at the meeting, contains summary chiropractic history chapters from 19 European countries. (For information on purchase go to www.chiropractic-ecu.org). Other ECU celebrations were a Past-Presidents' Dinner and the presentation and cutting of a massive ECU birthday cake by ECU President, Dr. Philippe Druart of Belgium at the Saturday Gala Dinner and Dance.

7. **AHC Conference.** This, the first ever annual conference of the US-based Association for the History of Chiropractic to be held in Europe, featured European chiropractic history and all those attending the WFC/ECU/AHC meetings received the Summer 2007 issue of the AHC's journal *Chiropractic History* with history papers from Belgium, France, Italy, Portugal, Spain, Wales and the UK. The AHC's annual prize for an outstanding contribution to chiropractic history, the Lee-Homewood Award, went to Ann-Liss Taarup of Denmark.

8. **Sports Chiropractic Forum.** Over 50 sports chiropractic leaders from 20 countries attended a forum organized by the WFC and the Fédération Internationale de Chiropratique du Sport (FICS) and sponsored by Parker College – thought to be the most representative international gathering of sports chiropractic leaders ever. This featured a morning of clinical and research presentations followed by an afternoon of planning to re-energize and better coordinate the specialty of sports chiropractic internationally.

Latin American sports chiropractic specialists present included Dr. Plinio de Barros Barreto, who is one of three Brazilians providing official chiropractic services to athletes at the Pan Am Games in Rio de Janeiro this month, and Dr. Yolanda Camacho Kortman from Costa Rica. Dr. Kortman, who sits on the Executive Committees of the Costa Rican Football Association and CONCACAF, the FIFA regional body for North and Central America and the Caribbean, is in Canada this month for the FIFA Under-20 World Cup.

C. Original Research Presentations – ICCR

9. The International Conference on Chiropractic Research (ICCR) administered

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Dr. Gerard Clum, WFC President, and Dr. Philippe Druart, ECU President, open the meeting.

Dr. David Cassidy addresses the meeting.

Musculoskeletal Medicine

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c) Examination results on average were that students in all years failed to reach the passing benchmark of 70%, except for fourth year students who had taken an elective related to musculoskeletal medicine –and even they barely passed on average. The individual student passing rates on the exam, which was accepted as a "nationally validated basic competency exam in musculoskeletal medicine", were 2% for second year students (2/98), 7% for third year students (9/129) and 26% for fourth year students (22/84).

d) Day, Yeh et al. conclude that their findings "which are consistent with those from other schools suggest that medical students do not feel adequately prepared in musculoskeletal medicine and lack both clinical confidence and cognitive mastery in the field."

e) Related noteworthy comments in the paper include:

- "In 2004, the National Ambulatory Medicine Care Survey indicated musculoskeletal conditions were the number one reason across the United States for visits to physician's offices, with approximately 92.1 million cases reported annually"
- "The discrepancy between the widespread impact of musculoskeletal diseases on society and the relative inattention devoted to this subject in the undergraduate medical curriculum has been a subject of increasing concern during the past five years."
- "In 2001 a comprehensive study reviewing the curricula of all Canadian medical schools indicated that directors of undergraduate musculoskeletal programs felt dissatisfied with the curricular time devoted to musculoskeletal education. In the same year, survey responses by over 1,900 second year residents in United States residency programs revealed that residents felt poorly or very poorly prepared in their training when conducting a musculoskeletal examination on various parts of the body."

Day, Yeh et al. report that Harvard is in the process of designing a four year musculoskeletal curriculum to address the above problems. This study, which will presumably attract attention because of the star power of Harvard, identifies that throughout North America medical students have inadequate preparation for understanding and clinically addressing common musculoskeletal problems that fall within the mainstream of chiropractic practice. Work being done in the Bone and Joint Decade confirms this is a truly international problem. This provides a rationale for inclusion and funding of chiropractic services in many community and hospital settings within mainstream health care. Further than that, this provides a strong opening for medical students being exposed to chiropractic during their training – from doctors of chiropractic being involved in curriculum design and lecturing, as now happens in some Canadian and US medical schools, through to visits to chiropractic offices.

(Day CS, Yeh AC et al. (2007) *Musculoskeletal Medicine: An Assessment of the Attitudes and Knowledge of Medical Students at Harvard Medical School*, Academic Medicine 82(5):452-457).

Other Research Notes

1. **Norway – Chiropractic for Sciatica in a Hospital Setting**

The authors of this very practical and valuable new study from Norway are Jan Roar Orlin, MD PhD, an orthopedic consultant at the Central Hospital of Sogn and Fjordane in Norway, and Andrè Didriksen, DC, who provided successful chiropractic care for 44 consecutive patients referred to the hospital orthopedic department for acute sciatica. On one hand this is a relatively small series of patients rather than a major controlled trial – though the study has been done as a first step towards a controlled trial. On the other hand it provides an excellent blueprint for how to go about including chiropractic services within a hospital orthopedic department, with the orthopedic consultant concluding that such an interdisciplinary partnership "may benefit not only patients but also the department as a whole." Points are:

a) The 44 sciatica patients were aged 60 or younger, had no spinal structural changes or major depression, exhibited a characteristic posture of lumbopelvic fixation and had either a job or fulltime study to return to – this last condition was necessary since successful treatment was defined as the patient returning to work permanently.

b) Patients were treated daily while in the hospital, 3 days a week for the first 2 weeks at a chiropractic clinic following discharge from the hospital and then once or twice a week as necessary. Total number of treatments rarely exceeded 14. Full details of chiropractic examination and treatment methods and suggested mechanisms of action of chiropractic adjustment are given.

c) After chiropractic treatment 40 of the 44 patients returned to work fulltime within an average period of 21.1 days. This compares with Norwegian Health Department data showing an average sick leave of 72 days for patients with sciatica who later return to work.

d) It was observed that a number of patients felt anxious about being treated for acute sciatica outside the hospital setting. While this anxiety was ultimately "overcome by eventual good results" the authors note that this anxiety is "an argument in favour of locating the chiropractor inside the hospital."

(Orlin JR, Didriksen A (2007) *Results of Chiropractic Treatment of Lumbopelvic Fixation in 44 Patients Admitted to an Orthopedic Department,* J Manipulative Physiol Ther 30:135-139).

3. **US – Cervical Epidural Steroid Injections – Significant Risks**

Cervical radiculopathy is quite common, and the primary cause of nerve compression is intervertebral foraminal stenosis associated either with cervical spondylolosis (70-75% of cases) or herniation of the nucleus pulposis (20-25%). The natural history is "often favorable – a watch-and-wait approach is reasonable." Much treatment is conservative (e.g. analgesics, cervical

collar, physical treatments) but treatments also include surgery and cervical transforaminal epidural steroid injections (TF-ESIs).

These observations come from Scanlon et al. from the University of California at San Diego in a new study that acknowledges that there are no randomized controlled studies showing the effectiveness of TF-ESIs, and reports the first survey of serious adverse events – a survey which demonstrates a significant risk of neurologic injury and acknowledges "a case could be made to abandon cervical TF-ESIs in light of the severe complications that can result." This paper illustrates a medical procedure for the cervical spine with no trial evidence of effectiveness and much higher risk rate than cervical manipulation and it is noted:

a) This survey of the 1340 US physician members of the American Pain Society was conducted because of "a rapidly expanding body of literature illustrating the potential for brain and spinal cord infarction following cervical TF-ESIs" and on the hypothesis that a substantial number of complications would be reported.

b) They were. There was only a response rate of 21.4% but the 78 complications reported included "30 brain and/or spinal cord infarcts and 13 fatalities" – evidence of much more harm than was known from previously published cases.

c) Risk rate is not assessed. Medicare claims data reports an increasing number of cervical and thoracic TF-ESIs from 20,358 in 1998 to 37,651 in 2003. In other words far fewer procedures than the tens of millions of chiropractic cervical adjustments given each year in the US.

d) The leading hypothesis for the usual mechanism for the brain and spinal cord infarctions caused by TF-ESIs is "inadvertent intra-arterial injection of particulate corticosteroid (*that)* creates an embolus, causing a distal infarct. Interestingly, in three cases in the study, and one previous case report, there was vertebral artery trauma and dissection.

(Scanlon GC, Moeller-Bertram T et al. (2007) *Cervical Transforaminal Epidural Steroid Injections: More Dangerous Than We Think?* Spine 32(11):1249-1256)

World Notes

Source – World Federation of Chiropractic

Iran: Dr. Mohsen Khamessipour, Secretary of the Iranian Chiropractic Association (IrCA) reported to the WFC Assembly that Iran now has 52 licensed chiropractors. Legislation was passed in 2000 to recognize and regulate the profession which has a traditional primary contact chiropractic scope of practice that includes broad diagnostic rights including the right to order most forms of skeletal imaging. IrCA President Dr. Hosein Sabbagh sits as a Director on the Iranian Medical Council – which may well be a first for the chiropractic profession internationally, After early challenging years in the 1980s and 1990s the profession is now well-established.

Japan: In a significant development Japan now has a second school partnering with an accredited chiropractic school from Australia to provide education at an international level in Tokyo. The first was RMIT Japan, sponsored by the Japanese Association of Chiropractors and partnering with RMIT University, Melbourne, Australia. RMIT Japan now has full accreditation from CCE Australasia.

The second is Murdoch Japan, led by Dr. Yozo Kawanishi and partnering with Murdoch University in Perth, Australia. Dr. Kawanishi and Dr. Brian Nook, Program Head, School of Chiropractic, Murdoch University, were at the WFC Assembly to explain the double bachelor's degree qualification in chiropractic now available through Murdoch in either Perth or Tokyo. The Perth program is fully accredited by CCE Australasia, the Tokyo program is applying for accreditation.

Saudi Arabia: One of the speakers in a Congress session on chiropractic services in hospital settings was Dr. Amy Bowzaylo (Palmer West 1996), who currently serves as Director of Physical Medicine and Rehabilitation at the Saad Specialist Hospital in Al Khobar, Saudi Arabia. The multidisciplinary staff in her department includes 8 doctors of chiropractic. Al Khobar, on the east coast of Saudi Arabia, is home to the world's largest oil company, Saudi Aramco, and a large expatriate community working for multinational companies such as British Aerospace. Chiropractic has been a service at the Saad Specialist Hospital since it began accepting in-patients in 2001 and Dr. Bowzaylo reports that chiropractic is much used and well-liked by both the expatriate and Saudi communities. Chiropractors provide much more than relief from musculoskeletal pain and disability. Many patients have co-morbidities linked to lack of exercise and poor diet and she and her colleagues provide broad wellness care.

Sweden: Swedish association President Dr. Stina Berg, a Northwestern graduate who is a fourth generation chiropractor, spoke at both the Council and Assembly meetings in Portugal to emphasize the difficulties for the profession created by the Scandinavian College of Chiropractic in Stockholm, an unaccredited school of chiropractic that has been given the opportunity of accreditation but is not pursuing it. The Swedish Chiropractic Society, European Chiropractors' Union and the WFC are united in asking chiropractors from North America and elsewhere not to accept invitations to speak at the Scandinavian College or accept its graduates as registrants at seminars. If a Swedish 'chiropractor' applies for registration, please check whether he or she is duly qualified and a member of the Swedish Society by going to the ECU website www.chiropractic-ecu.org or contacting Dr. Berg at stina.berg@kiropraktik.se.

Thailand: Thailand passed law to recognize and regulate the practice of chiropractic last year, and Dr. Oat Buranasombati, President, Thailand Chiropractic Association (TCA) confirms that the first licensing examinations for chiropractors under the new law are taking place in Bangkok on July 6 and 7, 2008. At the invitation of the TCA and the Thai Ministry of Health, the WFC is administering the examinations in partnership with the US National Board of Chiropractic Examiners (NBCE). Examinations are in Thai and English. From now doctors of chiropractic considering practice in Thailand will first need to obtain a licence to practise.

by the US-based Foundation for Chiropractic Education and Research (FCER), is that part of the WFC Congress involving submissions of original research. In Portugal 120 submissions/abstracts from 14 countries (Argentina, Australia, Brazil, Canada, Denmark, France, Germany, Korea, Netherlands, New Zealand, Norway, South Africa, the UK and USA) were accepted for platform (32) and poster (88) presentation. Researchers who then submitted completed full papers were eligible for the four main WFC awards, sponsored by the US National Board of Chiropractic Examiners (NBCE). Winning papers were:

• **First Prize (Scott Haldeman Award – US$7,000)** *Predictors of Adverse Reactions following Chiropractic Care for Patients with Neck Pain.* Sidney Rubinstein, Charlotte Leboeuf-Yde et al – the Netherlands and Denmark. This is clinical research exploring factors that might predict any adverse reactions to spinal manipulation. 60 factors or variables were examined – some relative to the patient, some to the doctor of chiropractic and some to the type of treatment delivered. Adverse reactions were defined as any new complaint or worsening of an existing complaint by 30% or more following any of the first three visits. In a population of 579 adult neck pain patients, the only two predictors of adverse reactions were a manipulative technique involving cervical rotation and the working status of the patient – those on sick leave or workers' compensation reported more adverse reactions.

• **Second Prize (US$4,000).** *Economic and Resource Status of the Chiropractic Profession in Ontario, Canada: A Threat or an Opportunity*. Silvano Mior and Audrey Laporte – Canada. This is health services research evaluating the chiropractic human resources or manpower status in Ontario, Canada and factors relevant to supply and demand.

• **Third Prize (US$2,500)**. *Altered Sensorimotor Integration with Cervical Spine Manipulation.* Heidi Haarik Taylor and Bernadette Murphy – New Zealand. This is basic science research which demonstrates that spinal manipulation of dysfunctional cervical joints in subjects with a history of recurring neck pain but no acute symptoms can alter specific central corticomotor facilitatory and inhibitory neural processing, and corticomotor control of two upper limb muscles in a muscle-specific manner.

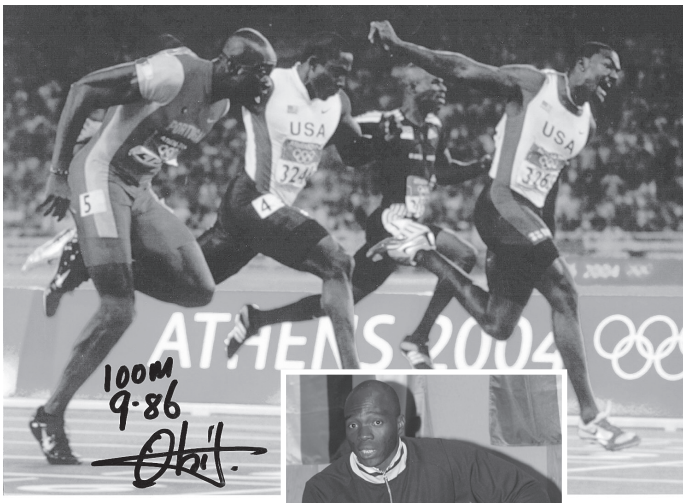
• **Private Practice Award (US$1,500).** *The Effect of Sports Chiropractic on the Prevention of Athletic Injuries in Elite Athletes: A Randomized Controlled Trial.* Wayne Hoskins, Henry Pollard and Rod Bonello – Australia. See detailed commentary below.

These prize-winning papers will be published in the *Journal of Manipulative and Physiological Therapeutics (JMPT)* in January 2008. We now review some of the clinical research presented that will be of interest and significance to clinicians.

10. **Prevention of Hamstring Injuries in Elite Athletes**. There will be particular interest in the prize-winning paper from Hoskins, Pollard and Bonello from Australia,[2] partly because of the positive results for chiropractic care in this high-quality trial, but also because it goes to the heart of chiropractic – resolving problems in one part of a musculoskeletal or locomotor system through finding and resolving biomechanical and neurological problems elsewhere in the system.

As Hoskins et al. explain, hamstring injuries are the most prevalent and recurring injuries in running-based power sports including Australian Rules football. Conventional injury prevention has focused on local hamstring factors. Standard sports medicine thinking is that poor flexibility, fatigue, lack of warm-up and weakness are risk factors for injury – but there is no good scientific evidence to support this thinking. The goal

Dr. Scott Haldeman, Chair, WFC Research Council (right) *looking on as* (left) *Dr. Vernon Temple, President, National Board of Chiropractic Examiners presents first prize in the original research competition,* The Scott Haldeman Award*, to co-author Dr. Charles Pfeifle of the Netherlands.*



Francis Obikwelu, setting his European 100 meters record and addressing the meeting.

Sister Brigette Yengo with Dr. Charles Sebwana and Dr. Nakato Mubanda of Uganda.

of this randomized controlled trial (RCT) was to investigate whether a manual therapy intervention from a sports chiropractic approach could reduce local and non-local hamstring injury risk factors, prevent the occurrence of hamstring and other lower limb injuries, decrease low-back pain and alter health outcomes in elite Australian Rules footballers. Therefore:

a) 59 adults (age range 18-27) were recruited from two elite Australian Rules football teams and randomly allocated to intervention and control groups. Those in the control group continued to receive standard club medical, paramedical and sports science management, including medication, surgery, manipulative physical therapy, massage, strength and conditioning and rehabilitation as directed by club staff. Those in the intervention group continued to receive standard management as in the control group, but also received a pragmatic course of chiropractic management according to the sports chiropractor's clinical judgement. However the chiropractic management involved manual therapies (manipulation and/or mobilization and/or soft-tissue therapies to the spine, pelvis and lower extremity) and there was a minimum treatment schedule of one treatment per week for 6 weeks then one treatment per fortnight for 3 months, then one treatment per month for the remainder of the football season (3 months).

b) Injury definition and surveillance were based on the AFL's injury surveillance system, with injury diagnoses determined by club staff blinded to which treatments had been received. The results were that after 24 matches there was a significant difference in favor of those in the sports chiropractic intervention group with respect to incidence of hamstring injury, primary lower limb muscle strain and primary non-contact knee injury. There was also significant difference in the number of weeks missed due to hamstring injury (4 weeks intervention group vs 14 weeks control group), lower limb muscle strain (4 vs 21) and non-contact knee injury (1 vs 24). In the intervention group there was also a significantly greater reduction in overall low-back pain. No adverse outcomes were reported.

Hoskins et al. conclude that the addition of a sports chiropractor to the multidisciplinary medical, paramedical and sports science team appears to be beneficial for elite Australian Rules footballers for the prevention of injuries, reduction of low-back pain and improvement in physical components of health status.

11. **Frequency of Care for Cervicogenic Headache**. There is now good evidence supporting the effect of chiropractic manipulation for cervicogenic headache (CHA), but no clear evidence on the best duration and frequency of care. At the WFC Congress Dr. Mitchell Haas and colleagues from the Western States Chiropractic College, Portland, Oregon, presented a new RCT funded by the US National Institutes of Health to test this issue of frequency and duration of care for patients with chronic CHA.[3] It is noted:

a) 80 patients were randomly assigned to 1 of 4 groups:

• Groups receiving chiropractic manipulation once weekly for 8 weeks (8 visits), or twice weekly for 8 weeks (16 visits). In both these groups patients received light massage and a hot pack prior to manipulation.

• Groups receiving light massage and hot pack only, also from a chiropractor, once weekly in one group and twice weekly in the second group.

Those receiving only 8 treatments still had 16 visits scheduled so that there was similar exposure to clinicians, but in the second visit each week received no treatment but assessment only.

b) The Modified Von Korff Pain and Disability Scales were completed and various other measures taken before the first treatment (at baseline) and every 4 weeks up to 24 weeks. Primary interest was in pain reduction at 12 weeks, which was approximately one month after treatment ended. At 12 weeks there was "a clinically important and statistically significant" advantage in pain reduction for the patients receiving chiropractic manipulation. These patients also had significantly better results on various secondary measures at 12 weeks – reduction in number of headaches during the past 4 weeks; reduction in disability and "unpleasantness" related to headache; and reduction in pain and disability related to neck pain.

Further, those in the chiropractic manipulation group receiving 8 treatments had a 9.4-point advantage in pain reduction over those in the control groups, whereas those receiving 16 visits for chiropractic manipulation had a 17.2-point advantage. Therefore in answer to the main question posed by the trial, whether there is a dose response for the more intensive course of care, these results suggest there is – with 16 visits producing better results than 8 visits for these patients with chronic CGH. However, this particular difference was not statistically significant and Haas et al. call for a larger trial with more statistical power to confirm the trend seen in their trial.

12. **Chiropractic for the Underprivileged in Government-Funded Community Centers.** Dr. Peter Aker from Canada presented what is understood to be the first study of chiropractic care for a low-income population with musculoskeletal (MSK) disorders receiving their care through government-funded community clinics.[4] The research is part of a demonstration project funded by the Ontario Ministry of Health and studying the integration of chiropractors into multidisciplinary primary health care settings – community health centers (CHCs), primary health care groups and hospitals. Results indicate that, for this population that would normally have no access to chiropractic care, such care "reduced pain and disability as well as improved general health status." Full details are available since the study has now been published in JMPT[5] and:

a) The study involved all eligible patients attending two Canadian CHCs between August 2004 and December 2005. Eligibility criteria were the presence of an MSK disorder, residence in the catchment area for the CHC and inability to pay for chiropractic care. Of the 324 patients who met these criteria, 259 (80%) entered and completed the study. This was a pragmatic study – the choice of treatment type and frequency was determined by the treating chiropractor. Patients were treated and followed for a maximum of 12 weeks.

b) Outcome measures, which were administered before initial treatment and at discharge or after 12 weeks of care whichever came first, were Visual Analogue Scale (pain), Roland Morris Questionnaire and Neck Disability Index (disability), Short Form-12 (general health status – physical and mental composite scores were taken) and patient satisfaction. Differences between pre-test and post-test scores were judged as clinically important if there was a change of at least 2 points on the VAS, 5 points on the Neck Disability Index, 30% in the Roland Morris Questionnaire and 2.5 points for the mental or physical composite scores. There was clinically important improvement

on all measures, and on analysis this was found to hold true for both acute and chronic conditions. Almost 8 in 10 (78.8%) recorded being "very satisfied" with the chiropractic care, 18.9% being "satisfied".

c) These Canadian CHCs are non-profit, publicly-funded, community-governed organizations that provide primary health care, health promotion and community development services. Their multidisciplinary teams typically are limited to a range of traditional health care providers – physicians, nurse-practitioners, dieticians, health promoters, social workers and counsellors. Professionals are paid by salary and benefits rather than fee-for-service. Services are given at no cost to patients/clients. There were excellent results and, Aker et al. report there was "good interprofessional rapport and teamwork between the medical doctors and the chiropractors at both sites."

13. **An On-site Industrial Chiropractic Program.** Cooper and Pfefer[6] reported on the results of implementing an in-house chiropractic industrial program at a large meat processing plant (butchering and packing of raw meat) in Manitoba, Canada, where this industry has one of the highest rates of occupational musculoskeletal injuries – primarily repetitive strain and back injuries. In response to management concerns about the impact and cost of such injuries Dr. Cooper was invited to provide an in-house chiropractic service involving on-site services two days per week, and comprising early detection, treatment, prevention and occupational management of musculoskeletal injuries. Features of the program included advice on ergonomic issues, job rotation, modified duties and return to work, and also stretching programs and back school.

The program was implemented in April 2005. Cooper and Pfefer report on data for the pre-chiropractic care period of April 2003 to March 2005, and the post-implementation period of April 2005 to December 2006. Work related and non-work related MSK concerns were addressed. Data considered included industry standard injury status indicators such as Total Injury Frequency (TIF – number of recorded injuries x 200,000 ÷ by total hours worked) and days of lost time (DLT – days a worker was unable to work an entire shift). There was also review of WCB data, levels of patient satisfaction and cost. Impressive results included:

a) Although TIF increased following implementation of the chiropractic program, probably indicating worker awareness of and willingness to report problems quickly, DLT decreased sharply. Average DLT from April 2003 to March 2005 was 235.6 lost days per month, whereas after implementation of the chiropractic program from April 2005 to December 2006 it was 134.6 days per month.

b) WCB cost per claim for work injuries went down from $1174 (2003) and $797 (2004) to $481 (2005) and $677 (2006). The WCB rate premiums paid by the employer prior to the chiropractic program of 5.35% (2004) and 5.24% (2005) were reduced to 4.17% (2006) and 3.13% (2007).

c) There was a high rate of patient satisfaction in all areas. One practical result of this was that most workers with a WCB claim for injury, who then needed to be treated offsite rather than in-house, chose to be treated offsite by the in-house chiropractor.

As he delivered his presentation at the Congress, Dr. Cooper noted that there has also been a significant decrease in the number of surgeries since implementation of the chiropractic program, and that this meat packing plant had saved over $900,000 in the first 21 months of implementation of the chiropractic program.

D. Conclusion

For more information on the Congress and photographs, go the Newsroom and the Photo Gallery at www.wfc.org. And plan now to be at the next WFC Congress – being held in Montreal, Canada, April 28 to May 2, 2009. There is general agreement that WFC congresses are now the most informative and exciting meetings held by the profession and in Montreal, quite apart from the celebrated night life of that city and the program, you can expect to be with 1,000 or more of your colleagues from 50 countries and cultures worldwide. TCR

References

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6 Cooper SR, Pfefer MT (2007) *Development of an On-Site Industrial Chiropractic Program*, Abstract in Proceedings of the WFC's 9th Biennial Congress, 202-204.