



Professional Notes

International Report on Concussion

In recent years the effects of mild traumatic brain injury (MTBI) – also known as concussion – have become a major concern for the public and the focus of researchers. Many studies have been conducted but what exactly do they tell us about the effects of concussion?

This month the Archives of Physical Medicine and Rehabilitation, official journal of the American Congress of Rehabilitation Medicine and the most highly accessed/read journal in the field of rehabilitation, has published a supplement or additional volume on MTBI.

This contains the report of the International Collaboration on Mild Traumatic Brain Injury Prognosis, an international team of clinician scientists led by the chiropractic researcher David Cassidy DC, PhD, DrMedSc, a senior scientist at the University Health Network (UHN) at the University of Toronto. He and some of his graduate PhD students at the UHN, including Carol Cancelliere DC and James Donovan DC, are guest editors of the new publication which contains three original

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Women of the Chiropractic World

A. Introduction

ON MARCH 8 THIS YEAR the world celebrates International Women's Day. This affords us the opportunity to review and celebrate the growing and very substantial leadership role of women in the chiropractic profession.

Until now women have been under-represented both in the profession and its leadership. However currently there are as many women as men among students and in the latest generation they are strongly represented in leadership in research, education, policy and practice.

2. The profession has a number of women amongst its established and foremost leaders, examples being:

- Dr Jean Moss, President of the Canadian Memorial Chiropractic College (CMCC) in Toronto since 1990, during which time the college has developed into one of the profession's leading academic and research institutions. It has graduated more students who have progressed to masters and doctoral degrees, and to careers in research, than any other chiropractic school.



Dr Moss receives a World Federation of Chiropractic Honor Award for outstanding service to the international growth of the chiropractic profession at the WFC Congress in Durban, South Africa in April 2013.

- Dr Moss' colleague at CMCC Dr Deborah Kopansky-Giles, who leads CMCC's external clinic at St. Michael's Hospital in Toronto, serves on the



teaching faculty at the University of Toronto, School of Medicine, and has a formidable reputation as a clinician, educator, researcher, and professional leader.

Dr Kopansky-Giles, who has been a health policy consultant to many governments and their agencies, currently serves on the International Coordinating Committee of the Bone and Joint Decade/Global Alliance for Musculoskeletal Health and the Executive Council of the World Federation of Chiropractic (WFC). Last year she was honored for the second time as Chiropractor of the Year by the Ontario Chiropractic Association which, with 3,400 members, is one of the largest regional chiropractic associations.

- Dr Janet Ruth Sosna of Singapore, President of the Asia Pacific Chiropractic Doctors' Federation and a Past President of Singapore's national association. Dr Sosna has been the dominant chiropractic leader in South East Asia for the past 25 years, assisting pioneering chiropractors and growth of the profession in neighboring countries such as Malaysia and Indonesia.



Dr Sosna shown with the Singapore flag at the WFC 2013 Congress.



• Dr Sira Borges, the chiropractic and medical doctor who founded the Brazilian Chiropractors' Association, now serves as Executive Director of the Latin

American Federation of Chiropractic (FLAQ) and is known as the godmother of chiropractic in Latin America. When Dr Borges graduated from Palmer College and returned to Brazil in 1990 there were three chiropractors in the country, fewer than 100 in Latin America, and no chiropractic schools in the region. Now there are six schools – two in Brazil, one in Chile and three in Mexico – and approximately 1,400 chiropractors and students in Brazil alone. Much of this development can be attributed to Dr Borges' initiatives and influence.

• Sharyn Eaton DC, MPhil, PhD of Sydney, Australia, until recently Head of Chiropractic of Macquarie University in Sydney. Dr Eaton, who has had leadership roles in education, research, and professional association activities during a career spanning 30 years, now serves as Policy Director for the Chiropractors' Association of Australia.



• Charlotte Leboeuf-Yde DC, MPH, PhD, originally from Sweden but now Research Professor in Clinical Biomechanics at the University of Southern Denmark, where she

gained her PhD in epidemiology. Dr Leboeuf-Yde is one of the profession's leading researchers, extensively published in Spine, JMPT and other high-impact journals. From a public health perspective she is interested in the causes and possibilities of prevention of back pain. Her second main research interest, from a clinical perspective, is learning more about the different sub-populations of patients with back pain to make it possible to direct them to the best treatment.

• Lise Hestbaek DC, PhD, a Senior Researcher at the Nordic Institute and Clinical Biomechanics (NIKKB) in Odense. Dr Hestbaek has a primary

research interest in back pain and other musculoskeletal disorders in children and adolescents – epidemiology, prevention, management and public health impact. This was the field she was asked to cover in a recent major report in JMPT titled *Chiropractic Care and Public Health: Answering Difficult Questions About Safety, Care Through the Life Span and Community Action*.¹



• Norway's 2010 Chiropractor of the Year Dr Lise Raven Lothe, honored for her achievements in clinical practice, continuing education, research and profes-



sional service. Dr Lothe, a 1991 Palmer College graduate with a Masters degree in clinical chiropractic and currently completing a PhD at the University of Oslo, has held many offices in the Norwegian Chiropractors' Association and her community of Grimstad where for many years she has lectured on musculoskeletal health at the tax department, local hospital, workers' union and to medical doctors and students.

She currently serves as Chair of the Norwegian Chiropractors' Association Research Commission and Registrar of the European Academy of Chiropractic, the ECU's agency for post-graduate and continuing education. A member of the Norwegian national swim team from 1980 to 1987 with national records in backstroke, Dr Lothe remains an active masters swimmer holding several masters records.



• Cynthia Peterson RN, DC, MMedEd, originally from Canada but now a professor and radiologist in the Departments of Chiropractic Medicine and Radiology at the

University of Zurich in Switzerland, a leading radiologist and researcher, now widely published in the field of imaging.

• Dr Christine Goertz, Vice-Chancellor for Research and Health Policy at Palmer College of Chiropractic, one of

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the profession's most experienced and influential research and policy experts worldwide. Dr Goertz, who received her doctor of chiropractic degree from Northwestern Health



Sciences University and her PhD in Health Services, Research Policy and Administration from the University of Minnesota, was a program officer at the US National Institutes of Health before joining Palmer College where she manages the profession's single largest research program and institute. As a now nationally prominent health policy expert she is a member of the Board of Governors of the federal government's Patient Centered Outcomes Research Institute (PCORI).

• Dr Claire Johnson MMed, DC, DACBSP of San Diego, California who deserves special mention for excellent perfor-



mance of the demanding role of serving as Editor-In-Chief for the profession's foremost scientific journal the Journal of Manipulative and Physiological Therapeutics (JMPT), published by the National University of Health Sciences in Chicago and the official scientific journal of the American Chiropractic Association. Dr Johnson edits two other journals (Journal of Chiropractic Medicine and Journal of

Chiropractic Humanities), and is the principal coordinator for the profession's two primary original research conferences. These are the Association of Chiropractic Colleges' annual Research Agenda Conference and the World Federation of Chiropractic's Biennial Congress. Other roles include serving on the Board of Directors of the NCMIC Group.

3. Many other women have established leadership roles. For example in recent years women have served as presidents of their national associations in Brazil, Canada, Denmark, Ghana, Greece, Iceland, Ireland, Namibia, The Netherlands, Norway, Spain and Sweden. In this report, however, our main focus is on the latest generation of women chiropractors – those who have graduated within the last 20 years and are the emerging leaders for the present and future. There are far too many to mention them all. Here is a representative selection listed by world region.

B. Emerging Women Leaders

4. **Africa.** One of the profession's foremost young leaders worldwide is Dr Caroline Mwendwa, Secretary of the Chiropractic Association of Kenya (CAK) and one of nine doctors of chiropractic practicing in Nairobi. Currently she is coordinator for the first Annual Assembly and Seminar of the African Chiropractic Federation (ACF) to be held in Nairobi in April.



Dr Mwendwa, who holds a pre-med Bachelor of Science degree and was attending the Tufts University School of Medicine in Boston, Massachusetts when she decided upon a career in chiropractic, is a 2005 graduate of Sherman College of Chiropractic and practices at the Chiropractic and Physiotherapy Health Centre in Nairobi, co-founded by her following her graduation and return to Kenya.

Like many of today's young leaders she was active in college in the World Congress of Chiropractic Students (WCCS), being the WCCS President for its annual meeting held at Sherman College in 2005. Dr Mwendwa is currently engaged in CAK campaigns for legislation to recognize and regulate the chiropractic profession in Kenya, and for the development of East Africa's first school of chiropractic.

Chiropractic leaders from 12 African countries met to establish the ACF, a regional organization for Africa, at the WFC's Congress in Durban in April last year. It was because of the strong impression she made upon her colleagues then that the first ACF meetings are being held in Kenya. Dr Mwendwa has also secured the agreement of the Kenyan Orthopaedic Society and the CAK to co-host a World Spine Care conference in Nairobi during the next year, with Dr Scott Haldeman as

keynote speaker and with a view to establishing a WSC clinic in Kenya.

5. Other African leaders include Dr Kendrah da Silva, Dr Charmaine Korporaal and Dr Caileen Walker of the Chiropractic Association of South Africa (CASA), respectively Past President, Vice-President and Conventions Manager, and Dr Elga Drews, President of the Namibian Chiropractic Association. Further, there is the inspirational Sister Brigitte Yengo DC, MD of Brazzaville in the Republic of Congo, the National University of Health Sciences graduate and Catholic sister who practices as a chiropractor and has established the internationally renowned orphanage Sister Yengo's Children. Sister Yengo has recently been joined in practice by the Life West graduate Sister Anne Marie Diahoua DC.

6. **Asia-Pacific.** Hung-Chun Huang DC, ICCSP of Kaohsiung, Taiwan, better known to her international sports chiropractic colleagues as Jackie, is a prominent sports chiropractor and the current President of the Taiwan Chiropractic Doctors' Society (TCDS). Taiwanese by birth and upbringing, Dr Huang was a student and taekwondo athlete at Seattle University when she was injured in a motor vehicle accident. After six months of allopathic and oriental medical treatment with little improvement she was referred for chiropractic management – "I knew nothing about chiropractic physicians but within one month I had great results and was pain free."



She completed her BS degree at Seattle University, her DC degree at Palmer West in 1999, and then returned to Kaohsiung to open a practice in 2000. This has had an increasing specialization in sports chiropractic, for which she has an established reputation in Asia and internationally.

Dr Huang holds a post-graduate ICCSP certification from the International Federation of Sports Chiropractic (FICS) and has served on FICS teams at the World Games in her city of Kaohsiung (2009) and in Colombia (2013), and other world championships held in Asia such as the World DanceSport Federation's World Latin Championships in 2013. In December she was with the Chinese Taekwondo team in Beijing prior to and during the national championships.

All this has been achieved in one of the few countries where duly qualified chiropractors are not recognized and still face prosecution if they give public notice of their practices, including any exterior office signage. Practice must be by word-of-mouth and referral-based. This means Dr Huang is demonstrating particular leadership and bravery serving as President of the TCDS, the national association in the embattled corner of the chiropractic world that is Taiwan.



Dr Jackie Huang at her clinic, which features several adjusting tables and a selection of high and low-tech rehabilitation equipment.



6. Far to the south of Taiwan in Auckland, New Zealand is Heidi Haavik BSc(Chiropractic), PhD, Director of Research and Head of Neuroscience at the New Zealand College of Chiropractic (NZCC). Dr Haavik, one of the profession's leading young researchers, received her chiropractic degree from the NZCC in 2000. She then attended the University of Auckland

on a Top Achievers Doctoral Scholarship from the New Zealand Tertiary Education Commission gaining her PhD in neurophysiology in 2008.

Since then she has conducted research in the area of human neurophysiology, utilizing techniques such as somatosensory-evoked electroencephalography and transcranial magnetic brain stimulation to investigate the effects of chiropractic adjustment on somatosensory processing, sensorimotor integration and motor cortical output. Dr Haavik is widely published, has received numerous research awards and is a dynamic speaker. After winning third prize in the original research competition at the World Federation Chiropractic's 9th Biennial Congress in 2007, in 2008 she won first prize in the basic science category at the ACC Research Agenda Conference in Washington, DC and Chiropractor of the Year awards from the New Zealand Chiropractors' Association and the NZCC Alumni Association.

Dr Haavik is one of eight renowned researchers serving on the Research Council of the World Federation of Chiropractic and speaks at the WFC Congress in Athens in May 2015 on *Chiropractic and the Neuromatrix*. This is in line with her central research interest of exploring neuroplasticity – how the central nervous system adapts to its environment.



7. **Eastern Mediterranean and Middle East.** In this region, with countries that can be challenging for women seeking leadership roles, Dr Amy Bowzaylo (Palmer West, 1996) has proved herself to be one of the profession's most dynamic and successful young leaders anywhere. Following early years in practice specializing in sports

chiropractic and rehabilitation in North America, Dr Bowzaylo commenced a private practice in Saudi Arabia in 2002 and was appointed Deputy Director for Allied Health at the Saad Specialist Hospital (SSH) in Al Khobar in 2004.

For the next seven years until 2010 Dr Bowzaylo managed the SSH Department of Physical Medicine and Rehabilitation, with a team of over 30 professionals including six doctors of chiropractic. This was both clinically and administratively, taking the DPMR and other Allied Health sections through several accreditations and a five-year plan of restructuring and staff development. Having two young daughters Dr Bowzaylo relocated to Bahrain in 2010 where she is in private practice as CEO and Clinical Director of InTouch Integrated Chiropractic and Rehabilitation, and is completing an MBA in Human Resource Management.

As the only chiropractor in Bahrain she has achieved legal status for the profession. Regionally she serves as Chair of the Communications Committee for the Eastern Mediterranean and Middle East Chiropractic Federation and Editor of the EMMECF News.

Other prominent women chiropractors in the region include

Dr Pamela Leader, Immediate Past President, Emirates Chiropractic Association in the United Arab Emirates, and Dr Aurelie Belsot, elected President of the Turkish Chiropractic Association in December.

8. **Europe.** Raised and educated in Hoensbroek in the Netherlands, Vivian Kil MChiro, DC, is a 2007 graduate of the Anglo-European College of Chiropractic (AECC). Within a year of graduation she was Head of Public Relations for the Netherlands Chiropractors' Association (NCA) and within five years President.

She has been quickly identified by the European Chiropractors' Union as one of the brightest and most able new young leaders of the profession in Europe as she represents the NCA on the ECU General Council.

At AECC Dr Kil was Treasurer of the Student Union and President of the Dutch Student Union. She has opened the first chiropractic practice in Valkenburg, the Netherlands, and is fluent in Dutch, English and German with good knowledge also of French and Spanish.

Within a year of being elected President in 2012 Dr Kil was tested early in her presidency by a campaign by critics of upper cervical manipulation to have the Dutch Ministry of Health ban this intervention by law. She consulted widely then moved decisively to bring in international scientific experts to meet with Ministry officials and her NCA leadership. This led to a ministry decision against any such intervention.



Her counterpart in the UK is Dr Elisabeth Angier, Vice-President of the British Chiropractic Association (BCA) since September 2013 after just two years on the BCA board – but several years of BCA committee work.

Dr Angier, who practices in Anglesey in Wales, is a 2000 graduate of the former chiropractic school at the University of Surrey where she was the chiropractic representative on the Students Council. She holds a BSc (Hons) in physiology from the University of Bristol and was about to commit to a PhD in cardiophysiology when she decided upon a career in chiropractic – preferring hands on clinical care with a holistic philosophical background.

Her counterpart in Ireland is Dr Siobhan Guiry, President since 2010 of the Chiropractors' Association of Ireland (CAI). Dr Guiry, born of Irish parents and raised in South Africa, is a 2002 graduate of the Durban University of Technology who moved to Ireland and commenced practice there in 2003.



Dr Guiry quickly rose to prominence within the CAI and has provided outstanding leadership in a country where the practice of chiropractic is not yet regulated but negotiations are proceeding on legislation and on opening a first school of chiropractic in the country. She has a well-established sports chiropractic practice and is team chiropractor for the Wexford County Football team, the premier professional Gaelic football team in the region.

9. Mette Jensen Stochkendahl DC, PhD, like Dr Hestbaek, a researcher at the Nordic Institute of Chiropractic and Clinical Biomechanics (NIKKB) in Odense, is an outstanding young



researcher in Denmark. Dr Stochkendahl received both her chiropractic degree (2002) and PhD (2010) from the University of Southern Denmark (USD). Her research interests include the diagnosis and treatment of non-cardiac chest pain, thoracic spine pain (epidemiology, diagnosis and treatment), clinical research and clinical trials. Current research focuses on are work

disability prevention and musculoskeletal health, and the role chiropractors may play in early identification of people at risk of prolonged work disability. In 2011 Dr Stochkendahl was principal author for a study titled *Chiropractic Treatments vs. Self-Management in Patients with Musculoskeletal Chest Pain: A Randomized Controlled Trial* which won the Scott Halde-man Award, first prize in the original research competition at the WFC's 12th Biennial Congress in Rio de Janeiro, Brazil.

10. Dr Gitte Tønner, Danish born and a 2004 graduate of the University of Southern Denmark, practices in Amsterdam, sits on the executive board of the Netherlands Chiropractors' Association and serves as Academic Coordinator for the ECU and its annual conventions – all achieved within 10 years. Her leadership skills were evident to all from her participation in the World Congress of Chiropractic Students (WCCS), where she served as Vice-Chair then Chair of WCCS annual congresses in 2004 and 2005 and built an international network of colleagues. Why did Dr Tønner learn Dutch and move to the Netherlands following her graduation? In her own words:



“Going from one of the most established countries in terms of chiropractic to the Netherlands, which has no chiropractic legislation or recognition but boasts an active anti-quackery association, was a conscious choice. Here, I can put my enthusiasm, energy and curiosity to good use, as a young profession and association emerges and matures. We're currently carving out a place for ourselves in the Netherlands, and I'm excited to be part of a younger generation of colleagues that dare to go beyond, as well as build on, the work of colleagues that came before us.”



Dr Gitte Tønner ECU Academic Coordinator seen with Dr Greg Kawchuk (left), Chair WFC Research Council and Dr Richard Brown, Secretary-General, European Chiropractors' Union at a recent planning meeting for the WFC/ECU Congress in Athens in May 2015.

11. **Latin America.** A quartet of young women leads the rapidly growing chiropractic profession in Brazil. They are all graduates of Brazil's two university-based chiropractic educational programs opened 15 years ago and producing over 100 graduates annually.



Dr Juliana Piva of Sao Paulo, a graduate of Feevale University in Novo Hamburgo, has served as President of the Brazilian Chiropractors' Association (ABQ) for the past five years, providing stable and strong leadership for a young profession in which over 90% of chiropractors have graduated in the past generation.

Dr Ana Paula Facchinato, who gained her chiropractic degree from Anhembí Morumbi University in Sao Paulo in 2004, now serves as Director of the program. Following her graduation Dr Facchinato completed a post-graduate residency at the University of Western States in Portland, Oregon in the USA, then a Masters Degree in Health Sciences at Southern Cross University in Sao Paulo. Most of her research is either in the field of education or prospective clinical studies on the effectiveness of chiropractic management – for example, back pain in soccer players, quality of voice in singers and movement in dancers.



Dr Thiana Paula Schmidt, a 2002 graduate of the chiropractic program at Feevale University, now leads that program and has been instrumental in achieving substantial integration of chiropractic services within government and community-funded clinics in Rio Grande do Sul, the southernmost state in Brazil where Feevale is located.



Last of the quartet is Carolina Kolberg DC, PhD, like Dr Facchinato a 2004 graduate of Anhembí Morumbi University, who has subsequently earned a masters degree (2009) and PhD (2014) in Biological Sciences: Physiology at the Federal University of Rio Grande do Sul. Her research interests include the neurophysiology of pain, pain management and the physiological effects of chiropractic treatment.



Dr Kolberg is a member of the editorial board of the journal *Columna/Coluna*, the official scientific publication of the Brazilian Spine Society and affiliated societies. She chairs the Research Committee for the Latin American Federation of Chiropractic (FLAQ) and represents Latin America on the World Federation of Chiropractic's Research Council. Academically Dr Kolberg serves as Collaborating Professor in the post-graduate program of Chiropractic Orthopaedics and Traumatology at the Latin American College in Rio Grande do Sul, and she is also active in clinical practice.

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12. North America. The chiropractic profession in Canada has developed a particularly strong research culture and capacity, with 30 DC, PhDs in active full-time research, and Canadian Chiropractic Research Foundation (CCRF) Research Chairs/Professorships established at 14 major universities. Many young women chiropractors either have or are pursuing PhDs and research careers.



Leading them is Professor Jill Hayden DC, PhD, Dalhousie/CCRF Research Professor in Epidemiology in the Department of Community Health and Epidemiology, Faculty of Medicine, Dalhousie University in Halifax, Nova Scotia. Her research expertise includes systematic review methods and knowledge translation, prognostic research and musculoskeletal health. Examples of current projects are:

- A systematic review of the literature to explore the relationship between individual recovery expectations and results/outcomes in adults experiencing low-back pain.
- Meta-analysis of the literature to investigate characteristics of exercise therapy interventions that make them more or less effective, and identify characteristics of individual patients and/or treatment subgroups who would most benefit from specific exercise therapy interventions.

After having served as an Advisory Board member for the Cochrane Collaboration Back Review Group, Dr Hayden has founded and is Head of the Nova Scotia Cochrane Resource Centre.

In November 2013 the Canadian Chiropractic Association's Young Investigator of the Year Award was shared by two outstanding young women researchers from Toronto, Dr Carol Cancelliere and Dr Jessica Wong. Dr Cancelliere (CMCC, 2004) (right), who holds a Masters in Public Health and is pursuing a PhD at the University of Toronto, is primary author of several papers from the International Collaboration on Minor Traumatic Brain Injury Prognosis just published in the Archives of Physical Medicine and Rehabilitation and mentioned under Professional Notes in this Report. Dr Jessica Wong (CMCC, 2010) (left), who works with Dr Pierre Côté at the University of Ontario Institute of Technology – CMCC Centre for the Study of Disability, Prevention and Rehabilitation, won the Scott Haldeman Award and first prize in the original research competition at the WFC's Biennial Congress in Durban in April 2013 as lead author of her study titled *Examining the Relationship between Theory-Driven Policies and Allowed Lost-Time Back Claims in Workers' Compensation: A System Dynamics Model*.



13. We turn now to the United States. Most people have strength in one area, be that research, education, policy, clinical practice, or political skills. Michele Maiers DC, MPH Assistant Professor at the Centre for Health Care Innovation and Policy at the Northwestern Health Sciences University (NWHSU) is an emerging leader with ability and strength in all those fields. This is illustrated by the fact that, as she pursues her PhD and a demanding research agenda, she also serves as the state



delegate from Minnesota to the American Chiropractic Association's House of Delegates. She was alternate delegate from 2003-2008, and has been full delegate since then. She is one of only seven women amongst the 57 state delegates.

Academically Dr Maiers gained her doctor of chiropractic degree from NWHSU in 2000, her Masters in Public Health Administration from the University of Minnesota in 2006 and is currently completing a PhD through the University of Southern Denmark. Her dissertation for this is titled *Chiropractic and Exercise for Seniors with Chronic Neck Pain: A Mixed Methods Assessment of Effectiveness, Harms and Patient Perspectives*. Much of her past research relates to the management of spinal pain in seniors. She is currently a co-investigator for a 2007-2015 CAM Research Education Partnership Project funded by the National Institutes of Health which has the broad objective of facilitating/promoting the practice of evidence-based health care by CAM practitioners.

Other professional roles include serving since 2010 as a Councillor in the Chiropractic Health Care Section of the American Public Health Association where her focus is policy on the significance and prevention of back pain in the general population, which was the subject of her MPH thesis.

14. Also from NWUHS and Minnesota and a prominent young leader is Dr Molly Meri Robinson Nicol. Since 2010 Dr Robinson has worked for the World Health Organization at its headquarters in Geneva, Switzerland rising quickly to a senior position in the Office of Classifications, Terminologies and Standards (CTS) which manages WHO's various international classifications.



These include the International Classification of Diseases (ICD) and its revisions. CTS and Dr Robinson are currently working on ICD-11.

Dr Robinson is one fine example from the line of young women leaders emerging from the Student American Chiropractic Association (SACA) and its participation in the World Congress of Chiropractic Students (WCCS). As a student member of WCCS she interned at WHO. Following her graduation in 2008 the WFC and the profession, recognizing Dr Robinson's ability and promise, funded her 12-month secondment to WHO in 2009. As anticipated this led to an offer of full employment from WHO, initially in the Office of Traditional and Complementary Medicine and subsequently at CTS.

Her success at CTS has led to a WHO-WFC Fellowship program administered by her. Under this program, commenced in January 2013, and designed to offer appropriately qualified doctors of chiropractic the opportunity to build policy experience and expertise for the future benefit of the profession, one 12-month fellowship is awarded annually. Under this the fellow chosen by WHO works with Dr Robinson in the CTS office. The current fellow is Dr Anni Preisler of Denmark, the next commencing in August 2014 is Dr Nicole Homb of the USA. Both can be added to our list of emerging young women leaders in the profession.

Dr Robinson, of whom we will hear much more in the years ahead, has the distinction of being the first doctor of chiropractic ever employed by the World Health Organization.

15. If space allowed we should be discussing women leaders in many American state associations and specialty groups, including orthopedics, pediatrics, radiology, rehabilitation,

and sport sciences. Representative of them, and now an international leader in the field of sports chiropractic, is Dr Sheila Wilson of Indianapolis. A Past President of the ACA Sports Council, she is currently serving a 4-year term as President of the Fédération Internationale de Chiropratique du Sport (FICS).



Dr Wilson holds a BS degree from Pittsburgh State University, is a 1995 graduate of Cleveland Chiropractic College in Kansas City, and has a post-graduate ICCSP sports chiropractic certification. Since shortly after graduating as a doctor of chiropractic she has been team chiropractor for the Indiana Invaders Track and Field Team, a natural choice since her own impressive athletic record is in track and basketball. She has worked at the US track and field national championships and the Olympic trials for track and field since 1999.

International games served include the Winter Olympics in Salt Lake City (2002), the Central American and Caribbean Games (2003), the Pan-American Games (2012), and the World Games (2005, 2009, and 2013).

As was the case for many others discussed in this article, Dr Wilson demonstrated her leadership interest and abilities early at chiropractic college, where she was President of the student Beta Chi Rho Service Fraternity.

C. Conclusion

16. In short, women are occupying many of the foremost leadership positions in the profession throughout the world – and this should and will grow in the years ahead.

A final point in conclusion relates to family. On one hand for good reason we have not commented on family obligations – no article on men in leadership would discuss their obligations to children or elderly parents. On the other hand it is realistic and fair to note generically that many of the women we have mentioned are producing their impressive achievements while managing large family responsibilities. All the more reason for admiration and congratulations. 

Reference

1 Johnson C, Rubinstein SM, Cote P, et al. (2012) *Chiropractic Care and Public Health: Answering Difficult Questions About Safety, Care Through the Lifespan, and Community Action.* J Manipulative Physio Ther 35:493-513.

International Report on Concussion

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research papers and 10 systematic reviews of the best research available addressing prognosis for MTBIs.

The findings include many interesting points on a variety of issues linked to concussions and include:

- The majority of people with MTBI or concussion recover, but about 25% still have persistent symptoms a year after suffering the injury.
- The main factors that influence a patient's recovery are: the severity of symptoms immediately after the injury, a person's expectations for recovery, and physical and mental health status prior to the injury.

- There is a higher risk of epilepsy in children after concussion; however, the overall risk is low as it accounts for very few new cases.
- Concussion can cause cognitive or "thinking" problems that can persist for months in some individuals.
- People with other injuries also experience symptoms experienced by people with concussion, such as headache, dizziness, memory and concentration problems, and fatigue. Many symptoms associated with post-concussion syndrome are not specific to concussion.
- Some small studies suggest that concussions are a possible risk factor for dementia. However, the larger studies don't show this. To date, there is no high-quality scientific evidence that concussions cause dementia or other neurodegenerative disorders.

This project was funded by the Ontario Neurotrauma Foundation, and this allowed Cassidy to assemble an international team of clinician scientists from five countries and involved collaboration between UHN, the University of Alberta, the University of Southern Denmark, the University of Bordeaux, the Center for Disease Control in Atlanta and Karolinska Institute in Stockholm, Sweden.

Dr Cassidy has built relationships with these institutions and their scientific leaders through his contributions to several major



David Cassidy DC, PhD, DrMedSc

international task forces. This began with the Quebec Task Force on Whiplash-Associated Disorders. He was principal author of its 1995 report in Spine titled *Redefining Whiplash and its Management*. He was also scientific secretary for the report of the Bone and Joint Decade 2000-2010 Task Force on Neck Pain and its Associated Disorders, published as a supplement in each of Spine and the European Spine Journal in 2008.

Principal authors of the Introduction to the findings of the MTBI International Collaboration are Rachid Salmi MD, PhD of the University of Bordeaux, France, Cassidy and Lena Holm DrMedSc, of the Karolinska Institute, Stockholm, Sweden. Key points they make include:

- Differentiating prognostic factors (causally linked with outcome), prognostic markers (associated but not causally), and predictors is important to guide interventions, public health policy, and research.
- Most MTBI prognostic studies do not meet important design criteria – e.g. clear purpose, prospective rather than retrospective design, a representative cohort.
- Given the increasing concern about health problems after concussion or MTBI "high quality prognostic research should be given a high priority by funding agencies and clinical investigators"

(Salmi, Cassidy, Holm, Cancelliere, Côté, Borg (2014) *Introduction to the Findings of the International Collaboration on Mild Traumat-*

Other Research

1. Neural Responses to Preload to Spinal Manipulation.

In a new study in JMPT Drs William Reed, Cynthia Long and Joel Picar from the Palmer Centre for Chiropractic Research in Davenport, Iowa and Dr Greg Kawchuk from the University of Alberta, Canada, all prominent basic science researchers, note that “paraspinal electromyographic responses to a high-velocity low-amplitude spinal manipulation (HVLA-SM) are affected by both thrust force and duration”. However currently “we know very little about the mechanical characteristics critical for the most effective application of SM.”

JMPT reports their animal experiment with anesthetized cats to determine how the preload before an HVLA-SM affects muscle spindle input from lumbar paraspinal muscles both during and after the manipulation. They report that a smaller and longer preload, as compared with a larger and shorter one, significantly increases muscle spindle responses during the manipulation thrust.

This demonstrates how basic the current status of the clinical research on spinal manipulation is. Meta-analyses of trials of “manipulation” include all trials irrespective of the training and skill and techniques of those applying the manipulation. Clinical researchers are far from dealing with subtleties such as preload.

Reed et al. observe that in clinical studies descriptions of manipulation “often lack adequate reporting for assessing how its mechanical characteristics relate to clinical outcomes”, and that “preload characteristics should be taken into consideration

when judging this intervention’s therapeutic benefit in both clinical efficacy studies and in clinical practice.”

What is their hypothesis for the mechanisms by which HVLA-SM reduces pain and improves functional health status? “Clinical improvements are thought to be initiated by the high-frequency peripheral sensory input evoked during the manipulation itself and improved spinal biomechanics, and sustained by a subsequent cascade of central neurophysiological changes.” Given the expertise of Reed et al. this may be language you can use in your next medicolegal report.

(Reed WR, Long CR et al. (2014) *Neural Responses to the Mechanical Parameters of a High-Velocity, Low-Amplitude Spinal Manipulation: Effect of Preload Parameters*. J Manipulative Physiol Ther 2013;37:2:68-76)

2. Valid Assessment of Site for Manipulation.

A new literature review by Triano, Budgell et al., sponsored by the Association of Chiropractic Colleges and published in Chiropractic and Manual Therapies, reports on “the validity and reliability of the more common methods used by doctors of chiropractic to inform the choice of the site at which to apply spinal manipulation.” There is free access online at www.chiromt.com.

The authors, who represent several schools including CMCC, Northwestern, Palmer, University of Bridgeport and Logan explain that there is no gold standard for diagnosis of pain and neurological deficits referable to the spine and that, as in other fields of medicine “it is the clinical presentation... that directs decision making.” What are valid and reliable methods for diagnosing “the clinically important manipulable or functional spinal lesion” and deciding where to apply manipulation? Key points made are:

- “The most convincing favorable evidence was for methods which confirmed or provoked pain at a specific spinal segmental level or region.”
- There was also “high quality evidence” supporting the use of “static and motion palpation and measures of leg-length inequality”
- The PARTS method, “likely the most widely utilized method to justify a treatment application site,” is supported – the authors “found high quality evidence for the majority of the PARTS constructs.”
- Evidence of mixed quality and with limitations supported the use of postural evaluation.
- The evidence was “unclear on the applicability of measures of stiffness and the use of spinal x-rays.”
- Mixed quality evidence was “unfavorable for the use of manual muscle testing, skin conductance, surface electromyography and skin temperature measurement.”

As a general and overall conclusion “the stronger and more favorable evidence is for those procedures with take a direct measure of the presumptive site of care – methods involving pain provocation upon palpation or localized tissue examination.”

(Triano JJ, Budgell B et al. (2013) *Review of Methods Used by Chiropractors to Determine the Site for Applying Manipulation*. Chiropractic & Manual Ther 2013;21:36 Pgs1-3, 22-29)

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