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Evidence-informed Management of Chronic Low Back Pain Without Surgery

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As most of you are aware, the management of chronic low back pain (CLBP) is very challenging, as evidenced by the escalating socioeconomic burden and increasing disability related to this disorder. There is often uncertainty about what is the most appropriate intervention for a particular patient, and choosing among the non-surgical therapies can be overwhelming for patients, clinicians, policy makers, and third-party payers. Unfortunately, a “supermarket” approach to the management of CLBP is frequently the norm.



To help understand and evaluate the commonly used non-surgical approaches to CLBP, the North American Spine Society recently sponsored a special focus issue to *The Spine Journal*, titled “Evidence informed management of chronic low back pain without surgery”. Articles in this issue were contributed by leading spine practitioners and researchers (including doctors of chiropractic) who summarized the best available evidence for particular interventions using narrative and systematic review methodologies. Many of these therapies (e.g. spinal manipulation, exercise therapies, functional restoration, physical modalities, traction, massage, herbal supplements, acupuncture) can be directly administered by doctors of chiropractic, while others (e.g. medications and injections) are often utilized by many of the patients with CLBP who present to doctors of chiropractic.

At the plenary session of the 2008 FCA National Convention, on August 23, Scott Haldeman, DC, MD, PhD, Simon Dagenais, DC, PhD and I will summarize the findings of this issue with special emphasis on how these findings relate to chiropractic clinicians and patients. We will present up-to-date information about the evidence supporting various interventions for CLBP to enable doctors of chiropractic to: 1) learn how chiropractic therapies fit within the broader world of CLBP care and “measure up” to other interventions, 2) update patients so that they can make informed decisions on their care, and 3) identify topics for future research projects. I look forward to seeing you at the FCA National Convention, August 21-24 at the Gaylord Palms Resort and Convention Center in Kissimmee. ◀FCA

Report on Accomplishments: October 1, 2007 - March 15, 2008

By John Mayer, DC, PhD

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Editor's Note: *Read and enjoy the impressive list of accomplishments of the Lincoln Chair in just the first five months since Dr. Mayer's appointment.*

I. RESEARCH

Laboratory and Research Equipment

- ▶ Set up research laboratory.
- ▶ Acquired:
 - *MedX computerized exercise lumbar and cervical testing and training machines, and torso rotation exercise training machines.*
 - *telemetric surface and needle EMG system*
 - *diagnostic ultrasound machine*
 - *EPIC Lift Capacity Test station*
 - *Multidimensional Task Ability Profile functional outcome measure*

Grants

Awarded:

- ▶ Small grant from U.S. Spine & Sport Foundation for the project, "Disc restorative solution for discogenic headache—a retrospective case series."
- ▶ Travel grants from sponsors and conference organizers for many of the presentations listed below.

Efforts in progress to procure extramural research funding:

- ▶ Outlined research proposal and continued discussions with firefighter associations, fire chief associations, and other stakeholders about collaborating on a grant project via application to the Department of Homeland Security/FEMA for firefighter wellness and fitness.
- ▶ Began to assess the feasibility of submitting research grant applications to other federal agencies (e.g. NIH, HRSA, VA) in FY '08-'09:
- ▶ Submitted proposal for an industry-sponsored project on treatment of acute low back pain.
- ▶ Continued fundraising efforts for chiropractic research, along with the FCA, Florida Chiropractic Foundation, Lincoln Chiropractic Education and Research Fund, and USF Health.

Research Projects Underway

- ▶ Disc restorative solution for discogenic headache - a retrospective case series: prepared IRB application and analyzed data.
- ▶ Development and implementation of standardized neck strengthening exercise protocols for prevention of head and neck injuries: prepared executive summary for this project in collaboration with the

USF Sports Medicine and Athletic Related Trauma (SMART) Institute.

- ▶ Other: initiated discussions with various investigators of USF and other institutions regarding potential research collaborations.

Publications

Peer reviewed manuscripts:

- ▶ Mayer JM, Mooney V, Dagenais S. Evidence informed management of chronic low back pain with lumbar extensor strengthening exercises. *The Spine Journal* 2008;8:96-113.
- ▶ Second author on 5 manuscripts in *The Spine Journal*, *Journal of Occupational Rehabilitation*, *International Journal of Toxicology*, and *Consultant for Pediatricians*.

Manuscripts (in preparation):

- ▶ MRI assessment of lumbar muscle activity during occupational lifts.
- ▶ Electromyographic analysis of the trunk muscles during dynamic exercise with a new low back exercise device.
- ▶ Disc restorative solution for discogenic headache - a retrospective case series.

Book chapters:

- ▶ Finished editing of an "in press" book chapter: Mayer JM, Udermann BE. Chapter 1: Anatomy and biomechanics. in ACSM's Certification Review, 3rd edition. Lippincott Williams & Wilkins, Baltimore.

Other scholarly publications:

- ▶ Mayer JM. Research Corner I. *FCA Journal*, Winter 2008.

Presentations

Podium:

- ▶ Heat, physical, and chiropractic therapies for low back pain. GlaxoSmithKline Consumer Healthcare Back Pain Scientific Session, Parsippany, NJ, October 2007.
- ▶ Acute toxicity of Proliferol in rats. Third Annual Prolotherapy Research Forum, Madison, WI, October 2007.

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- ▶ Treating acute low back pain with continuous low-level heat wrap therapy and/or exercise: a randomized controlled trial. Sixth Interdisciplinary World Congress on Low Back & Pelvic Pain. Barcelona, Spain, November 2007.
- ▶ Evidence-informed management of chronic low back pain with lumbar extensor strengthening exercises. Association of Chiropractic Colleges - Research Agenda Conference (ACC-RAC), Washington DC, March 2008.
- ▶ Evidence-informed management of chronic low back pain with physical modalities. ACC-RAC, Washington DC, March 2008.

Podium (accepted):

- ▶ Exercise therapy for spinal disorders - evidence-informed management and research considerations. James A Haley Veteran's Administration Hospital, Tampa FL, April 2008.
- ▶ Manipulation, mobilization, and chiropractic care for the management of chronic pain. International Association for the Study of Pain (IASP) Consensus Meeting to Develop NeuPSIG Recommendations for the Non-Pharmacologic, Non-Interventional Treatment of Neuropathic Pain. Tampa, FL, May 2008. Co-presenter: Haldeman S.
- ▶ Evidence-informed management of low back pain without surgery. Co-presenters: Haldeman S, Dagenais S, et al.
 - *Workshop at the American Back Society Annual Meeting, June 2008.*
 - *Plenary session at the FCA National Convention August 2008.*
 - *Workshop at the North American Spine Society Annual Meeting, September 2008.*
 - *Mini-symposiums at the American Academy of Physical Medicine and Rehabilitation Annual Meeting, November 2008.*
- ▶ Current advances in research methodology - an evidence based pathway to developing a scientific study. Workshop at the American Back Society Annual Meeting, June 2008. Co-presenter: Dagenais S.
- ▶ Clinical presentation to a multi-disciplinary panel of experts, Ground rounds at the American Back Society Annual Meeting, June 2008. Co-presenters: various.
- ▶ Strengthening exercises for the management of the injured athlete. American Chiropractic Association Sports Council Annual Conference, St Louis MO, July 2008.
- ▶ Chiropractic from a scientific standpoint. Florida Workers' Compensation Institute Annual Educational Conference. Orlando FL, August 2008.

Posters:

- ▶ Second author on 2 posters at the North America Spine Society Annual Meeting, Austin TX, October 2007.

Poster (accepted):

- ▶ Lumbar paraspinal muscle activation during back extension exercise on a new home exercise device. American College of Sports Medicine Annual Meeting, Indianapolis IN, June 2008.

II. EDUCATION / TEACHING

- ▶ Co-director and co-instructor for the "Health Promotion and Wellness" course at USF, Spring 2008.
- ▶ Initiated discussions with chiropractic institutions to co-sponsor / co-host internships and post-graduate courses.
- ▶ Appointed as volunteer adjunct associate professor, New York Chiropractic College.

III. SERVICE / OTHER

- ▶ Selected for the USF Health monthly research dean's meetings.
- ▶ Reviewed a research grant application for the Raine Medical Research Foundation, Australia.
- ▶ Continued service as manuscript reviewer for several scientific journals, advisory editorial board member for one journal, and advisory panel/committee/board member for various health and research agencies.
- ▶ Began feasibility assessment for a proposed "Lincoln Prize" to be awarded to a top researcher in a related field.
- ▶ Initiated the formation of the Lincoln Chair advisory committee.
- ▶ Appointed honorary member of the Florida Chiropractic Association.