Chiropractic management of patients with bilateral congenital hip dislocation, with chronic low back and leg pain.

Francisco Diez, DC

Objective: To discuss conservative methods for treating patients with chronic low back and leg pain associated with the biomechanic and postural alterations related to bilateral congenital hip dislocation.

Clinical features: This report describes the cases of two adult females with bilateral congenital hip dislocation without acetabula formation, who suffered from chronic low back and leg pain, managed conservatively by chiropractic methods. The first subject is a 45-year-old female with a nine-month history of right buttock pain and radiating right leg pain and paresthesia down to the first two toes, with a diagnosis of a herniated L4 intervertebral disc. The second subject is a 53-year-old female, who complained of chronic intermittent low back pain, and constant unremitting pain on her right leg for the last three years.

Intervention and outcome: Chiropractic manipulation utilizing Logan Basic’s apex and double-notch contacts, as well as sacroiliac manipulation on a drop table with a sacrum contact and with a PA-SI (posterior-to-anterior and superior-to-inferior) rocking thrust; together with a spinal stabilization exercise program, were used on these two patients. Both patients had significant clinical improvement, with reduction on the VAS of 67% and 84%, Oswestry Disability index improvement of 73% and 81%, and an improvement on the Harris Hip score of 71% and 44%, respectively.

Conclusion: A conservative management approach, including specific chiropractic manipulation and a spinal stabilization exercise program, can help manage the treatment of adult patients with chronic low back and leg pain related to bilateral congenital dislocation of the hips.

Key indexing terms: Congenital hip dislocation; low back pain; leg pain; chiropractic.
Bilateral acrometastasis secondary to breast cancer: a case report.

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**Background:** One out of every eight women will be diagnosed with breast cancer, and 1:28 will succumb to the disease. Skeletal metastasis occurs in 16-73% of breast cancer patients.

**Objective:** To present a comprehensive look at the pathophysiology, clinical presentation, and treatment options for skeletal metastasis secondary to breast carcinoma by discussing the case of an 80-year-old female with bilateral distal lower extremity metastasis following a previous diagnosis of breast cancer.

**Clinical features:** The patient had severe pain in both lower extremities, which caused her to have difficulty when ambulating. She also complained of fatigue and anorexia with an 8-pound weight loss. Chest examination revealed widespread rales without change. Her left calcaneus was tender to palpation and both feet and ankles were hot and swollen. Laboratory CA-27.29 value was 1,131 on October 16, 2001, which was elevated compared to the 454 value also obtained on October 16, 2001. Plain films of the lower extremities revealed destructive lesions of the distal left and right tibia and fibula, with involvement of the left calcaneous. These findings were most consistent with metastasis.

**Intervention and outcome:** The patient refused further care and sought a hospice referral.

**Conclusion:** There is no cure for acrometastasis and prognosis is poor. Treatment focuses on symptomatic relief, extended survival, and maintaining quality of life. Clinicians should consider metastasis in a patient with distal lower extremity osteolytic lesions with a previous history of breast malignancy.

**Key indexing terms:** Metastasis; breast cancer; lower extremity; chiropractic.

Paraspinal muscles and intervertebral dysfunction: part one.

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**Background:** One of the diagnostic characteristics of the manipulable spinal lesion - a musculoskeletal disturbance detected by manual palpation and corrected with manipulation - is said to be altered segmental
tissue texture. Various manual therapy authors have speculated on the possible nature of this tissue change, with some authors hypothesizing that it represents deep segmental muscle overactivity.

**Objectives:** To review the literature that relates to the detection and nature of altered paraspinal tissue texture, proposed explanations for altered tissue texture, the evidence for the plausibility of paraspinal muscle spasm, and evidence of muscle dysfunction associated with low back pain.

**Data source:** MEDLINE and CINAHL databases were searched using various combinations of the keywords: paraspinal, muscle, palpation, EMG, spine, low back pain, pain, myofascial, hardness, manipulation, reliability, somatic dysfunction; along with searching the bibliographies of selected articles and textbooks.

**Data extraction:** All relevant data were used.

**Results:** Little direct evidence exists for the nature of abnormal paraspinal tissue texture detected by palpation. Palpation for tenderness is more reliable than palpation for tissue texture change. Indirect evidence from animal studies and experimental muscle inflammation support the plausibility of protective paraspinal muscle contraction. Increased paraspinal EMG activity observed in subjects with low back pain appears to be a result of voluntary and nonvoluntary changes in motor control, modified by psychophysiological responses to perceived stress, rather than a simple protective reflex.

**Conclusion:** Although little direct evidence exists of the nature of clinically detected paraspinal tissue texture change, the concept of reactive muscle contraction appears plausible. Increased paraspinal EMG activity associated with low back pain does not appear to be mediated by a simple protective reflex.

**Key indexing terms:** Spine; muscle; palpation; chiropractic; osteopathic medicine.

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**Interprofessional collaboration and job satisfaction of chiropractic physicians.**

*Thomas R. Konrad, PhD; Grant S. Fletcher, MPH; Timothy S. Carey, MD, MPH*

**Background:** Despite the fact that chiropractic physicians (DCs) are growing in numbers and legitimacy in the community of health care professionals, little recent research describes how their relationships with medical doctors (MDs) affects their job and career perceptions.
**Objective:** This study explores interprofessional relations by identifying factors associated with variations in how DCs evaluate their interaction with MDs. It also adapts a previously validated multifaceted measure of MD job satisfaction for use with DCs.

**Design:** Cross-sectional survey of 311 DCs in North Carolina.

**Results:** The hypothesized multifaceted nature of DCs’ job satisfaction was confirmed. Four distinct job facets and global career satisfaction were measured effectively in DCs. The DCs’ career satisfaction is related to satisfaction with compensation, intrinsic motivation of relating to patients, and having positive relationships with DC colleagues. DCs report referring patients to MDs more often than they report MDs referring patients to them. Satisfaction with relationships between DCs and MDs is relatively low, and is strongly linked to the quantity of referrals from MDs and perception that MDs practice collaboratively with DCs. However, the DCs’ global career satisfaction is unrelated to their relationships with MDs.

**Conclusion:** Global career satisfaction of DCs is relatively high and unaffected by the low level of satisfaction DCs report having with their relationships with MDs. These findings suggest that despite increasing interaction and interdependence, the DCs’ relationship with MDs is of minor importance in their professional self-image.

**Key indexing terms:** Chiropractic; medicine; collaboration; job satisfaction; referrals.

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**Applying evidence-based health care to musculoskeletal patients as an educational strategy for chiropractic interns (a one-group pretest-posttest study).**

*Charles E. Fernandez, DC; Paul M. Delaney, PhD, DC*

**Objective:** To describe and measure the effectiveness of a problem-based educational strategy for teaching Evidence-Based Health Care (EBHC) to chiropractic interns, which focused on the development and appraisal of answerable clinical questions using actual musculoskeletal patients.

**Methods:** A one-group pretest-posttest design (simple panel design) with investigator-blinded survey administration was used to measure effectiveness of educational activities using adult learning theory with a study population of interns (n =31) at a chiropractic college (LACC/SCUHS) teaching clinic. Activities
included two workshops on constructing clinical questions and critical appraisal of published research, and independent patient-based EBHC assignments. A qualitative self-assessment survey was administered before and after a six-week period of EBHC activities to measure its effectiveness. Sign tests and paired T-tests were utilized to determine p-values for significant difference of score results.

Results: Eighty-one percent of subjects completed the pretest-posttest surveys. All survey item responses showed an average increase in subjects’ self-rating of skills and attitudes from pretest to posttest. There were statistically significant differences in interns’ self-assessed ability to construct an answerable clinical question, appraise research articles and apply them to patient management, as well as their rating of importance of EBHC in patient decision-making.

Conclusions: The results of this study suggest that having chiropractic interns apply EBHC to actual musculoskeletal patients along with attending EBHC workshops, had a positive impact on interns’ perceived ability to practice EBHC.

Key indexing terms: Evidence-based medicine; chiropractic; education; critical appraisal.

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Prescribing wellness: a case study exploring the use of health information brochures.

Jennifer R. Jamison, MB, BCh, PhD, EdD

Objective: A case study was undertaken to ascertain the potential usefulness of brochures as a strategy for encouraging short and longer-term acquisition of healthy behaviors at the consumer health care system interface.

Method: Purposive sampling of chiropractic clinics and convenience sampling of patients attending these primary contact practitioners was undertaken. Patients were asked to complete a questionnaire. Interested patients were given a health information brochure on topics of their choice. Patients who had requested health information brochures were phoned at three weeks, three months and one year after completing the initial questionnaire and asked if they had implemented any of the suggestions for health promotion or risk prevention. A minimum of four attempts were made to contact each participant by telephone. Data were analyzed using descriptive statistics.
Results: Twenty-one chiropractic clinics and 781 patients participated. Although every third patient requested one or more health information brochure, fewer than one in four of those receiving brochures implemented some health-promoting behavior. Although some patients persisted with their newly initiated health promoting behaviors, compliance diminished over time. Exercise and dietary change were the behaviors most likely to be modified.

Conclusion: Implementation of even one healthy behavior can have a ubiquitous health benefit. Despite dwindling compliance, it is therefore suggested that suitably formulated health information brochures that inform and encourage adoption of healthy behaviors by motivated patients deserve consideration by all health professionals working at the consumer-health care system interface.

Key indexing terms: Chiropractic; primary health care.

Original research published in the chiropractic literature: evaluation of the research report.
Cynthia R. Long, PhD; Todd G. Nick, PhD; Chi Kao, PhD

Objective: To evaluate the quality of research reports published in the chiropractic literature.

Data Sources: Original research articles, defined as those reporting studies that included primary data collection, published in the 13 Chiropractic Research Journal Editors Council member journals from January 1999 through February 2000.

Methods: A two-page checklist developed from review criteria used in the biomedical literature. Three doctoral-trained biostatisticians blinded to author identification and affiliation evaluated the articles.

Results: Of the 73 eligible articles, 21% lacked description of the study design, 77% did not provide a sample size justification, 26% reported inappropriate descriptive statistics, 26% reported conclusions not supported by the results, and 21% did not avoid redundancy of information presented in tables, figures and text. Of the 55 articles with a primary objective of testing, 10 did not report any inferential statistics, 19 reported inappropriate inferential statistics, and 22 did not make the primary comparisons of interest clear.

Conclusions: In this study, we evaluated a measure of the quality of the research report. However, the value of the research articles is diminished by the poor quality of reporting, as well as the actual errors in data
analysis. Yet, this problem is not unique to the chiropractic literature. It is recommended that all investigators submitting manuscripts to chiropractic journals use available guidelines in preparing their research reports and that reviewers use those same guidelines in critiquing the manuscripts.

**Key indexing terms:** Statistics; research report; chiropractic; journals.

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**Low back pain in Australian adults. Prevalence and associated disability.**

*Bruce F. Walker, DC, MPH; Reinhold Muller, MS, PhD; William D. Grant, MD, EdD*

**Objectives:** To determine the prevalence ranges of low back pain (LBP) together with any related disability in Australian adults.

**Design:** A population-based survey.

**Methods:** The survey was mailed in June 2001 to a stratified random sample of 3,000 Australian adults selected from the Electoral Roll. Demographic variables of respondents were compared to the Australian population. Selective response bias was investigated using wave analysis. A range of prevalence data were derived as were disability scores using the Chronic Pain Grade.

**Results:** There was a 69% response rate. There was little variation between the sample and the Australian adult population. There was no significant selective response bias found. The sample point prevalence was estimated at 25.6% (95% CI, 23.6-27.5); 12-month prevalence was 67.6% (95% CI, 65.5-69.7); and lifetime prevalence was 79.2%, (95% CI, 77.3-81.0). In the previous six-month period, 42.6% (95% CI, 40.4-44.8) of the adult population had experienced low-intensity pain and low disability from it. Another 10.9% (95% CI, 9.6-12.3) had experienced high-intensity pain, but still low disability from this pain. However, 10.5% (95% CI, 9.2-11.9) had experienced high-disability LBP.

**Conclusion:** LBP is a common problem in the Australian adult population, yet most of this is low-intensity and low-disability pain. Nevertheless, over 10% had been significantly disabled by LBP in the past six months. Data from this study will provide a better understanding of the magnitude of the LBP problem in Australia, the need for access to health care resources and also strategic research directions.
**Key indexing terms:** Low back pain; prevalence; incidence; disability; epidemiology.

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**Active trunk extensor contributions to dynamic posteroanterior lumbar spinal stiffness.**

*Christopher J. Colloca, DC; Tony S. Keller, PhD*

**Background:** Assessments of posteroanterior (PA) spinal stiffness using mobilization apparatuses have demonstrated an increase in PA spine stiffness during voluntary contraction of the lumbar extensor muscles, yet little work has been done to this degree in symptomatic subjects.

**Objective:** To use a previously validated dynamic mechanical impedance procedure to quantify changes in PA dynamic spinal stiffness at rest and during lumbar isotonic extension tasks in patients with low back pain (LBP).

**Methods:** Thirteen patients with LBP underwent a dynamic spinal stiffness assessment in the prone resting position and again during lumbar extensor efforts. Stiffness assessments were obtained using a hand-held impulsive mechanical device equipped with an impedance head (load cell and accelerometer). PA manipulative thrusts ((150N, < 5 msec) were delivered to skin overlying the L3 left and right transverse processes (TPs) and to the L3 spinous process (SP) in a predefined order (left TP, SP, right TP) while patients were at rest, and again during prone lying lumbar isotonic extension tasks. Dynamic spinal stiffness characteristics were determined from force and acceleration measurements, using the apparent mass (peak force/peak acceleration, kg). Apparent mass measurements for the resting and active lumbar isotonic tasks trials of each patient were compared using a two-tailed, paired T-test.

**Results:** A significant increase in the PA dynamic spinal stiffness was noted for thrusts over the SP (apparent mass [17.0%] p = 0.0004) during isotonic trunk extension tasks compared to prone resting, but no statistically significant changes in apparent mass were noted for the same measures over the TPs.

**Conclusions:** These findings add support to the significance of the trunk musculature and spinal posture in providing increased spinal stability.

**Key indexing terms:** Apparent mass; biomechanics; electromyography; low back pain, lumbar spine; chiropractic manipulation muscle coactivation; stiffness; stability.