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### Drug usage by patients attending chiropractic clinics

Jamison J, Shadwell S, Foley N, Leskovec K.  
JMPT 1988; 11(6):474-479.

While chiropractors themselves offer a "natural" form of health care, their patients are drawn from a drug-ingesting population. This survey, conducted on patients attending chiropractic teaching clinics, found that more than 92% of respondents used drugs. Drugs assessed included nutritional supplements, social and prescription drugs. This paper considers the clinical manifestations of drugs frequently encountered in this study and comments on their impact for chiropractic practitioner's clinical practice.

### Biomechanical analysis by chiropractic radiography: Part III. Lack of effect of projectional distortion on Gonstead vertebral endplate lines

Zengel F, Davis B. JMPT 1988; 11(6):469-473.

Projectional distortion is known to produce artifactual dysrelationships between images of osseous segments on X-ray films. According to Gonstead, lines constructed parallel to the adjacent vertebral endplates will converge if a lateral flexion malposition is present and will be parallel if no such subluxation exists. To test the accuracy of these lines, we mounted two vertebrae on supports so that the superior vertebra could be laterally flexed by a known amount upon the fixed inferior vertebra. The specimen was X-rayed with no flexion or with various degrees of right or left lateral flexion of the superior vertebra. Lateral and inferior off-centering, rotation about the z axis, and object-film distance were also varied systematically. In every instance, off-centering produced no measurable effect on the position of the constructed Gonstead lines. We therefore conclude that these lines can be confidentially used to indicate structural dysrelationship during lateral flexion. No correction for projectional distortion appears to be necessary.

### Acute lumbosacral myofascitis associated with Reiter's disease

Irowa GO. JMPT 1988; 11(6):500-504.

Reiter's syndrome is an arthritic condition that has as its main diagnostic features polyarthritis, conjunctivitis and urethritis. It is not typically associated with lumbosacral symptomatology. This paper reports a case of Reiter's syndrome with lumbosacral myofascitis. Therapy and management are discussed.

### Chiropractic management of chronic obstructive pulmonary disease

Masarsky C, Weber M. JMPT 1988; 11(6):505-510.

A patient with a history of chronic obstructive pulmonary disease going back more than 20 years was treated with a combination of chiropractic manipulation, nutritional advice, therapeutic exercises, and inter-

segmental traction. Improvements were noted in forced vital capacity, forced expiratory volume in one second, coughing, fatigue, and ease of breathing (sign test significant at 0.005 level). Improvement was also noted in laryngospasm. Studies are made and speculation as to the mechanism of the treatment effect is provided.

### Chiropractic chronic low back pain sufferers and self-report assessment methods. Part I. A reliability study of the visual analogue scale, the pain drawing and the McGill questionnaire

Love A, Leboeuf C, Crisp T. JMPT 1989; 12(2):21-25.

Comprehensive assessment of the problems of low back pain sufferers requires that (in addition to objective measures and clinicians' judgments) an examination of subjective perception of their difficulties should also be made. Subjective measurements has, in the past, presented several problems to researchers. However, in recent years, several new methods of exploring individual reactions to pain and disability have been developed. These assessment measures have, in the main, been carefully explored with severe chronic, acutely ill and surgical patients, but they have not been shown to be appropriate for use with mild chronic low back pain sufferers. This study examines the reliability of several widely used self-report measures. In general, the measures were shown to have acceptable levels of reliability for use with this population, although recommendations for caution in the use of the pain drawing is urged.

### Clinical competence: the use of simulators/models in diagnosis of visceral conditions

Jamison JR. JMPT 1989; 12(2):10-14.

As primary contact practitioners, chiropractors must be competent to screen patients for the presence of visceral disease. Special "clinical" preparation is required to provide students with adequate diagnostic skills in this area in view of the "select" group of patients frequenting chiropractic clinics - the vast majority of chiropractic patients present the musculoskeletal disorders or pain syndromes. The use of simulators and life-form models in a problem-based teaching format ensures that students are equipped to cope with any primary contact clinical eventuality in this area. The use of these sound simulators and models in the assessment of clinical competence furthermore enables the implementation of improved standardization and clinical relevance in clinical assessment.

### Scoliosis: biomechanics and rationale for manipulative treatment

Danbert RJ. JMPT 1989; 12(1):38-45.

This paper discusses methods to biomechanically evaluate scoliosis. From a chiropractic point of view, an understanding of the biomechanics of scoliosis is of paramount importance. By understanding the



pathogenesis, the chiropractic physician can apply a rational approach to outline a treatment regimen.

Spinal curvatures in the median plane change during growth, and in normal children the thoracic kyphosis reduces in size between the ages of 8 to 14. However, the change occurs at different times for boys and girls. Since scoliosis is a lordotic problem, associating lateral curvatures with gender, age, and attitude of the thoracics during growth spurt may answer questions of a female disposition and a male tendency to Scheuermann's disease.

Further, this paper evaluates the lateral curvatures of the spine concerning normal curve mechanics and idiopathic scoliosis. Mechanical stability is considered, applying engineering principals to understand buckling and critical loading. By examining the factors of spine slenderness, flexibility and strengths of the trunk muscles, and applying this understanding to curve mechanics-biomechanics of scoliosis, the chiropractor has a rationale for the treatment of mild lateral curves.

#### **Skin accelerometer displacement and relative bone movement of adjacent vertebrae in response to chiropractic percussion thrusts**

Smith DB, Fuhr AW, Davis BP. *JMPT* 1989; 12(1):26-27.

The authors studied relative bone movements in response to manipulative light taps to the spine. Piezoelectric accelerometers attached to bone of an anesthetized dog measured transverse, X-Z plane, movements of L2-L3 adjacent vertebrae while percussion thrusts of an instrument used for manipulation made inputs three vertebrae above and five vertebra below the L2-L3 joint interface. Small, relative 1-mm translations and 0.5° rotations occurred during the first 19 msec. When one set of accelerometers were stabilized on the skin surface, half of the skin-bone translation maxima erred less than 2%. However, skin translations averaged 77% (SD = 2%) of bone translations and skin rotations averaged 95% (SD = 26%) of bone rotations. The results suggest the possibility that, with further development, piezoelectric accelerometers can be a noninvasive tool to study dynamic, relative bone movement.

#### **Regional cerebral blood flow in the different clinical types of migraine**

Juge O. *Headache* 1988; 28(8):537-49.

Modifications of regional cerebral blood flow were measured during different phases of different types of migrainous headache in a population of 180 migraineurs, using the 133Xenon inhalation technique. Mean hemispheric and regional distribution of flow were compared to normal values obtained in age-matched normal controls. Generalized, and particularly fronto-temporal, increase of the fast flow component was found during the acute phase of common migraine with a progressive decrease during the days following. Comparable changes were observed for the slow component of blood flow. During the interictal period, the only difference between normals and migraineurs was an enhanced fronto-temporal predominance of the fast flow values. In the

accompanied forms of migraine, the major finding was the presence of two subgroups of patients: in the first group, reduced flow was correlated with the neurological deficit, while in the second, high flows were measured in the presence of neurological deficits. A review of the personal history of each patient revealed that the two subgroups differed in age, sex, time course of the headache and past history of migraine. The high flow group was more characteristic of migraine while the oligemic group raised the questions of either another pathophysiological mechanism or of another degree of severity of the same disease. The two hypotheses are discussed in the light of review of the literature.

#### **Magnetic resonance imaging: indications, comparison with computed tomography**

Merritt CR. *Modern Med* 1988; 56(11):54-61.

To expand the clinician's knowledge of disease processes and the latest therapies and technologies, this series explores discoveries being made on the frontiers of medicine and the clinical applications of those discoveries. This installment examines the applications of magnetic resonance imaging and compares it with other diagnostic technologies, notably computed tomography.

#### **Clinical characterization of patients with chronic tension headache**

Langemark M, Olesen J, Poulsen D, Bech P. *Headache* 1988; 28(9):590-596.

One hundred and forty-eight patients with tension headaches at least 10 days per month were studied prospectively with a standardized interview, neurological examination and evaluation of muscle tenderness and jaw movements. Patients with migraine attacks oftener than once per month were excluded. Ninety-three had headache. Median age at onset was 23 years. Half of the patients had headache predominating in one part of the head. In the other half, headache was diffuse or with changing pattern. Fifty-eight reported migraine attacks 1-12 times per year; twenty-seven of these did not remember onset, 15 initially had migraine later developing into chronic headache, and 16 started with tension headache and developed migraine attacks later in life. Photophobia was reported as frequently associated with tension headache (migraine attacks not included) in 13 percent infrequently in 38 percent and absent in 49 percent. Corresponding figures for phonophobia were 7, 35 and 57 percent. Characteristics of chronic tension headache were similar in patients with and without migraine attacks. The components included in the usual idiocies of temporomandibular joint dysfunction showed little mutual correlation. Pericranial tenderness scores were elevated compared to previously studied controls. Tenderness in paravertebral muscles were significantly correlated to pericranial tenderness, and patients indicating influences by environmental factors had the highest pericranial tenderness scores. The findings are suggestive of a generalized muscular reaction to environmental stress in the majority of patients.



### Reliability of spinal mobility measurements in ankylosing spondylitis patients

Stokes B, Helewa A, Goldsmith C, Groh J.  
Phys Can 1988; 40(6):338-44.

A portable spinal mobility scale (PSMA) is described for measuring fingertip-to-floor and occiput-to-wall distances in patients with ankylosing spondylitis. A reliability and validity study comparing PSMS to a measuring tape in 5 ankylosing spondylitis patients using two types of observers: physiotherapists and independent assessors, showed that PSMS is a valid instrument. There were no differences detected between the physiotherapists and the independent assessors. However, there were differences among all observers. Repeated measurements on a given patient, therefore, should be taken by the same observer. Patients were clearly different on both distances. Tape measurements were significantly larger than PSMS measurements for finger-to-floor and for occiput-to-wall. Order was significant in fingertip-to-floor, but not in occiput-to-wall indicating that the number of measurements should be specified for finger-to-floor distance in a clinical or research setting. The PSMS is accurate, stable, safe, inexpensive, portable, and easy-to-use, and is recommended for clinicians monitoring spinal mobility.

### Abnormalities of the sacroiliac joints in diffuse idiopathic skeletal hyperostosis: demonstration by computed tomography

Durback M, Edelstein GF, Schumacher H.  
J Rheumatol 1988; 15(10):1506-11.

Eight patients with classical spinal radiographic features of diffuse idiopathic skeletal hyperostosis (DISH) had pelvic radiographs which suggested sacroiliac joint abnormalities. No patient had clinical features of ankylosing spondylitis. Computed tomography of the sacroiliac joints revealed several abnormalities including asymmetric intra-articular partial fusion, osteophytes with or without bridging, and vacuum phenomenon. Sacroiliac joint disease can complicate DISH.

### Spinal recordings suggest that wide-dynamic-range neurons mediate sympathetically maintained pain

Roberts W, Foglesong M. Pain 1988; 34(3):289-304.

In order to determine which classes of spinal neurons are capable of mediating sympathetically maintained pain, recordings were made from single somatosensory neurons in spinal cords of anesthetized cats. Each neuron was functionally identified with mechanical stimuli, and its responses to electrical stimulation of the sympathetic trunk were recorded. Nearly half of the wide-dynamic-range (WDR) neurons tested were activated by sympathetic stimulation, but none of the high threshold neurons and only 17% of the low threshold neurons were activated. Sympathetic activation was most common for WDR neurons that had the following: receptive fields proximal of the toes, low thresholds for mechanical activation, and both rapidly and slowly

adapting responses to pressure. The predominant WDR response to sympathetic stimulation was long latency excitation. Sympathetic activation of WDR neurons was abolished by each of the following procedures: subcutaneous injection of local anesthetic, cooling of the receptive field with ice, and intravenous injection of the alpha-adrenergic blocker, phentolamine. The axons of some sympathetically activated WDR were shown to project to higher centers. These results indicated that WDR neurons are the only spinal nociceptive neurons activated by sympathetic efferent activity in this preparation. Therefore, WDR neurons, rather than high threshold neurons, are most likely to mediate the spinal component of sympathetically maintained pain. These results provide supporting evidence for the previous hypothesis that sympathetically maintained pain is mediated by myelinated mechanoreceptors acting on sensitized WDR neurons. Results also demonstrate that sympathetic activation of WDR neurons is mediated by an alpha-adrenergic mechanism in the skin.

### Epidemiology of migraine: a survey in 21 provinces of the People's Republic of China

Zhao F, Tsay J, Cheng X, Wong W. Headache 1988; 28(8):558-565.

The first large scale study of migraine epidemiology from a nationwide collaborative group was carried out in 22 Chinese rural and ethnic communities of 21 provinces of the People's Republic of China during 1985 in a well-defined population of 246,812 inhabitants. On the day for which prevalence was calculated, January 1, 1985, there were 1703 cases of migraine, yielding a point prevalence ratio of 690/100,000. The prevalence ratio of migraine for females was higher than for males. The overall sex difference in the prevalence ratio was significant. The prevalence began from the age before 10 years old, and monotonically increased until it had reached its peak at age 40-49, then decreased steadily. The geographic distribution of the prevalence has the tendency that the south is higher than the north, and the west is higher than the east. The incidence rate of new cases was 37/100,000 in 1984. The incidence rate reached its peak at age 15-19, then gradually decreased. Incidence before age 10 and after 50 was rare. The incidence rate of migraine was higher in females than in males. Sex difference in the incidence rate was significant.

### Vertigo: how serious are recurrent and single attacks?

Slater R. Postgrad Med 1988; 84(5):58-63;67.

Although most diseases that cause vertigo are benign, a patient who complains of this disorder cannot be treated casually. The first attack of vertigo can be a special challenge to diagnose, because serious problems must be ruled out. Subsequently, a single attack may prove to be a recurrent disorder, which is easier to diagnose. The author describes how to distinguish between conditions that can cause vertigo, with emphasis on the most common causes of recurrent episodes: Meniere's disease, benign recurrent vertigo, benign positional vertigo, and panic vertigo.



## Osteoporosis

Barth R, Lane J. *Orthop Clin North Am* 1988; 19(4):845-58.

This article defines osteoporosis, discusses the pathophysiology and causes of osteoporotic bone loss, and presents an office approach to the evaluation, treatment, and more importantly, the prevention of osteoporosis.

## The tibialis anterior reflex in healthy subjects and in L5 radicular compression

Stam J. *J Neurol Neurosurg Psych* 1988; 51(3):397-402.

Phasic stretch reflexes were evoked in the tibialis anterior (TA) muscle, by tapping the dorsal side of the foot with a hand-held reflex hammer. The responses were recorded by means of surface electrodes. The TA reflex was examined in 70 healthy subjects and in 18 patients with L5 radicular compression. In 58 of the healthy subjects the reflex could be recorded bilaterally, in eight subjects no reflex was found on either side, and in four it was absent in one leg. Simultaneous recordings from the gastrocnemius-soleus showed that TA responses were not caused by volume conduction from that muscle. In the 18 patients with L5 radicular compression the TA reflex was absent on the affected side 13 times and present bilaterally in the other five cases. If asymmetry of the reflex (unilateral absence) is considered as test for the presence of L5 radicular compression, the likelihood ratio for a positive test is 12-0, and for a negative test 0.3. The examination of the TA reflex is easily performed and can be useful in the diagnosis of L5 radicular compression.

## Lumbar radiculopathy after spinal fusion for scoliosis

Harper C, Daube J, Litchy W, Klassen R. *Muscle Nerve* 1988; 11(4):386-391.

In 184 patients with no preoperative neurologic deficit who underwent operation for idiopathic scoliosis, somatosensory evoked potential monitoring was used. Four patients had neurologic deficits postoperatively. Two patients developed mild signs of intraspinal lesions involving upper motor neurons at high lumbar levels that resolved over 3-5 months. These patients and two others developed evidence of unilateral, lower motor neuron damage that was confined on electromyography. No changes in somatosensory evoked potentials occurred in these patients. Lumbar root damage may be difficult to recognize after operation and should be considered in patients with neurologic deficit after scoliosis surgery.

## On geographical variations in the normal range of joint motion

Ahlberg A, Moussa M, Al-Nahdi M. *Clin Orthop* 1988; 234:229-231.

Fifty Saudi Arabian men 30 to 40 years of age without present or previous history of injury or disease related to the lower extremities were randomly selected for measurement of the range of motion in the

basic planes of hip, knee, and ankle joint. The results were compared to a similar study from Scandinavia. There was a highly significant difference in external rotation of the hip, flexion of the knee, and dorsiflexion of the ankle. Cultural differences in the activities of daily life are suggested to explain the difference in the range of motion.

## Correlations of hip mobility with degree of back pain and lumbar spinal mobility in chronic low-back pain patients

Mellin G. *Spine* 1988; 13(6):668-670.

Mobility of hips and lumbar spine were measured in 301 men and 175 women who were in employment but suffered from chronic or recurrent low-back pain. The degree of low-back pain (LBP) was assessed with a questionnaire. Hip flexion, extension, internal rotation, and hamstring flexibility in the men, and hip flexion and extension in the women had statistically significant negative correlations with LBP. Among the correlations between hip and lumbar spinal mobility, hip flexion and extension with lumbar rotation were strongest.

## Psychometric analysis of the audiovisual taxonomy for assessing pain behavior in chronic back-pain patients

Kleinke C, Spangler A. *J Behav Med* 1988; 2(1):83-94.

Sixty chronic back-pain patients were administered the audiovisual taxonomy of pain behavior during their first and last weeks in an inpatient multidisciplinary pain clinic. Audiovisual total score provided a useful index of pain behavior with a suitable frequency and reliability, while offering unique variance as a measure of treatment outcome. Patients' pain behaviors upon admission to the pain program were positively correlated with the following background variables: receiving worker's compensation, pound overweight, and number of back surgeries. Patients' pain behavior upon completion of the pain program were significantly correlated with their preferences for pain treatment modalities. High levels of pain behavior correlated with a preference for treatments of ice and heat. Low levels of pain behavior correlated with a preference for physical therapy, social work, lectures, and relaxation. It was suggested that treatment outcome in a multidisciplinary pain clinic is more immediately related to patients' coping styles and their choice of pain treatment modalities than to their demographics and personalities.

## Answers to radiology quiz

- |     |              |
|-----|--------------|
| 1 e | 6 c          |
| 2 a | 7 a, b, d, e |
| 3 c | 8 F          |
| 4 e | 9 T          |
| 5 b | 10 F         |