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Anterior interosseous nerve paralysis: cubital tunnel (Kiloh-Nevin) syndrome

Crawford J, Noble W. JMPT 1988; 11:218-20.

Paralysis of the anterior interosseous nerve may occur for a variety of reasons. It has been suggested that such a malady presents clinically more often than is recognized. Some authors attribute this to a general misunderstanding or ignorance of the precise anatomical distribution and motor function of this branch of the median nerve. The neuropathy produces a clinical scenario with a characteristic disturbance of the "pinch grip." Spontaneous recovery has been reported, but is said to be delayed and incomplete. Surgical exploration of the nerve may reveal a biomechanical basis for irritation, and decompression maneuvers may result in rapid and complete recovery. It is important to recognize, however, the value of conservative measures, including mobilization and adjustive procedures, which may be specifically directed to the elbow joint and other regions of the upper extremity. Such techniques may assist in reducing restrictive influences comprising the nerve and associated tissues. The benefits of electrotherapy may prove invaluable and, perhaps, should be considered prior to more radical procedures. Therefore, the practitioner should be wary of the potential to approach such a condition from the chiropractic perspective of treatment and management, which may yield rewarding sequelae.

Sacro-occipital technique: an investigation into the relationship between the arm-fossa test and certain examination findings

Leboeuf C, Jenkins D, Smyth R. J Austr Chiro 1988; 18:97-9.

The arm-fossa test is a commonly-used diagnostic test employed by those who practise the Sacro-occipital technique (SOT). It is believed to be indicative of a weight-bearing sacro-iliac joint subluxation, thought to be caused by pelvic trauma. Subjects which had been identified as arm-fossa positive were investigated by a blinded second examiner for any possible relationship between certain pain findings, side of the fixated sacro-iliac joint as determined by motion palpation, and side and level of the positive arm-fossa test. No significant relationship was found between these variables, except for a positive correlation between a right painful ilio-lumbar ligament and an ipsilateral positive arm-fossa test.

Correlates of low back pain in a general population sample: a multidisciplinary perspective

Roncarati A, McMullen W. JMPT 1988; 11:158-64.

This study identifies correlates of low back pain in a general population sample and defines a profile of subjects with low back pain. A multidisciplinary approach was employed that required surveying and physically assessing 674 subjects on 105 variables in biographical, anatomical, strength and flexibility measurement categories. No attempt was made to select subjects from specific occupational, age, athletic, psy-

chological and anatomical groups or subjects with specific biographical features, which may have resulted in a sample that was atypical of the general population. The results of this study based on a casual comparative ex post facto research design corroborated selected findings of previous research conducted on nongeneral population samples. These findings include relationships between low back pain and age, body type, sex, stress, smoking, selected types of physical activity, occupation and previous injuries to the neck, shoulders, back and upper legs, as well as previous episodes of low back pain. Additional correlates of low back pain that were identified and have little or controversial review in the back literature include: delayed low back pain syndrome caused by abrupt changes in running frequency, Q angle, pes cavus, leg length (right and left), trunk length, genu recurvatum and multiplane strength and flexibility limitations in the hip joints.

One profession - one oath? A survey of the disparity of the chiropractic oath

Deltoff A, Deltoff M. Chiro Hist 1988; 8(1):21-25.

The development of numerous oaths at various chiropractic colleges over the years is discussed. The oaths are analyzed as to their component themes, some of which consistently recur, and others which appear but once or twice and are lost. Finally, on the basis of the variety of oaths currently recited at the graduation ceremonies at the chiropractic colleges worldwide, it is suggested that consideration be given to the development of a universally accepted chiropractic oath, as a contemporary tangible symbol of professional unity.

Malingering vs. the factitious personality in chiropractic practice

Kreger-Wexler L, Foreman S. JMPT 1988; 11:416-21.

This article details how to identify and treat the malingering patient, which we feel is seen more often than was originally thought in chiropractic practice. A historical perspective of a malingering vs. a factitious personality is examined. The factitious patient is reviewed in detail with special attention to the classic case of Munchausen syndrome. An extensive treatment plan is discussed, including short- and long-term care. The common characteristics, objective tests and studies are reviewed. We theorize that due to our increasing involvement in Workers' Compensation and personal injury cases our attention should be focused more closely on the possibility of these types of patients entering our office.

Osteoporosis screening and prevention in the chiropractic clinic

Jamison J, Geraghty B, Keating G, Livingstone K.
JMPT 1988; 11:390-5.

Osteoporosis is a significant health problem among women. Fractures appear to occur once bone mass falls below a certain threshold. Maxi-

mization of bone mass may therefore constitute a measure for promoting skeletal health. Dietary calcium consumption of 1-1.5 g/day and adequate weight-bearing exercise maximize bone mass in all age groups. A small survey of women attending the chiropractic clinics of Phillip Institute suggest that routine screening for osteoporosis risk factors may be justified. A self-care program for improving skeletal health in women who fail to meet the dietary calcium and exercise risk minimization criteria is provided.

Non-invasive, reliable and repeatable at any time – ultrasonographic measurement of leg length

Holst A, Thomas W. *Electro Medica* 1988; 56(3):105-9.

With the newly developed technique of ultrasonographic measurement of leg length and leg length differences, the length of both the thigh and lower leg can be established highly accurately.

The joint cavity in the hip, knee and ankle joint is displayed with the aid of a 5 MHz or 7.5 MHz linear ultrasonic transducer head. For measuring, a metal wire, 1 mm in thickness, is positioned on the skin beneath the ultrasonic transducer, exactly perpendicular to the longitudinal axis of the body, in such a manner that is visualized in the middle of the relevant joint cavity with the real-time technique; this situation is then documented.

The distances between the joint cavities are read off a measuring device marked in centimeters, the differences corresponding to the actual length of the thigh and lower leg. For the standardized measuring procedure, a specially developed patient positioning and measuring device is employed.

The results of the ultrasonographic measurements obtained in 20 corpses, and checked against the anatomical preparations subsequently obtained from the latter, revealed a 100 percent measuring accuracy of the ultrasonographic technique in the case of the overall leg length in 75 percent of the cases. For the thigh, the ultrasonographic measuring accuracy was 85 percent, and for the lower leg 90 percent. The maximum ultrasonographic measuring error (observed in only a single case), was 1.0 cm for the thigh length, and 0.5 cm for the length of the lower leg.

Ultrasonographic measurements of leg length – we employed the SONOLINE® S-1 for our measurements – turns out to be a reliable, non-invasive, easy-to-perform, new measuring method that can be repeated as often as desired.

Biological effects of diagnostic x-ray exposure

Maurer E. *Am J Chiro Med* 1988; 1:115-8.

In recent years the United States Food and Drug Administration (FDA) of the Department of Health and Human Services (HHS), through its Center for Devices and Radiological Health (CDRH) has been expressing increased concern for reduction of patient exposure dose in diagnostic radiology. In response, two states (Illinois and Vermont) have adopted new legislation which sets strongly recommended maximum permissible dose (MPD) to patients, and it is likely that similar legisla-

tion will be adopted in other states. The paper briefly reviews some of the basic concepts and terminology relating to the biological effects of radiation, and updates information relating to the abovementioned concerns.

Science and politics and the subluxation

Keating J. *Am J Chiro Med* 1988; 1:107-10.

Since the birth of chiropractic as a separate and distinct health care profession in 1895, theories of spinal intervertebral subluxation have held a central role in clinical applications and politicolegal involvements. This paper discusses how chiropractic subluxation theories, which once held a young and besieged profession together, have become so overburdened with philosophical and political meaning and significance to chiropractors that any criticism of their validity is automatically rejected. This intolerance to critical questions and theoretical/philosophical dissent is inimical to clinical research. Chiropractors' dogmatic belief in subluxation must be tempered to permit chiropractic scientific thought to flower.

Biomechanical analysis by chiropractic radiography: Part II. Effects of x-ray projectional distortion on apparent vertebral rotation

Zengel F, Davis B. *JMPT* 1988; 11:380-9.

Projectional distortion in an x-ray image can produce artifacts that cause error in the measurement of vertebral rotation. By means of a stereotaxic positioning device, the effect of varying object-film distance, vertical and horizontal off-centering, rotation, and lateral flexion on the amount of distortion in the image of a third lumbar vertebra was determined. Mathematical analysis of the results revealed that projectional distortion due to vertical off-centering does not affect the apparent rotation of the vertebra measurably; that there is a linear relationship between apparent vertebral rotation and horizontal off-centering; for the object-film distances of 35.64 ± 0.12 cm and 19.48 ± 0.08 cm, the vertebra displayed 1 mm of apparent rotation for every 2 to 3 cm of lateral off-centering regardless of whether the vertebra is rotated or laterally flexed; and that as long as a given osseous segment is compared to its adjacent segment (as in analysis for subluxation), the apparent vertebral rotation may be regarded as a sufficiently accurate representation of the actual rotation of the vertebra.

Reliability of the Derifield-Thompson test for leg length inequality, and the use of the test to demonstrate cervical adjusting efficacy

Shambaugh P, Sclafani L, Fanselow D. *JMPT* 1988; 11:396-9.

The Derifield-Thompson test for leg length inequality (LLI) is commonly used by chiropractors to assess a need for adjustment and to evaluate the results of adjustment. The two previous studies testing the reliability of the technique reported conflicting results. This study had

two objectives: to demonstrate inter- and intraobserver reliability in detecting a LLI as little as 3 mm; and to document what effect Pierce-Stillwagon cervical adjusting has on a functional LLI. Twenty-six subjects walked into five successive examining rooms where a Derfield leg check was performed, including an estimate of the millimeters of difference in leg lengths. The subjects then entered a treatment room where they were randomly given no treatment, cervical adjusting, or gluteal massage. This process continued for 5 cycles. This study demonstrated that clinicians could reliably measure a LLI to less than 3 mm (both inter- and intraobserver), and also detect a change in LLI when the head was rotated. Neither cervical adjustment nor gluteal massage produced a significant change in observed LLI.

What radiology reveals about the painful neck

Sartons D, Resnick D. *J Musculoskel Med* 1988; 5(10):52-71.

Neck pain may be caused by degenerative processes, cervical disk disease, spinal stenosis, neoplasm, or infection. The radiologic work-up plays an important role in the diagnosis but is initiated only after history taking, thorough physical evaluation, and consultation with the radiologist. The radiologist needs to know the neurologic findings and suspected lesion level(s). Roentgenography is the first examination in all patients; lateral, anteroposterior, and oblique views are usually taken. Of the additional studies, myelography is being supplanted by magnetic resonance imaging (MRI), diskography's role is diminishing, and computed tomography should be considered complementary to MRI.

Traction osteophytes of the lumbar spine: radiographic-pathologic correlation

Pate D, Goobar J, Resnick D, Haghighi. *Radiol* 1988; 166:843-6.

Previous reports have emphasized two types of osteophytes on the anterior aspects of the lumbar vertebral bodies: the common claw osteophyte and the less common but more significant traction osteophyte, which is indicative of spinal instability. To delineate the importance of the traction osteophyte, a radiographic-pathologic study was conducted. The results indicate that claw osteophytes are more frequent than traction osteophytes, that both may coexist in a single vertebral body, and that, in most cases, these osteophytes appear to represent different stages of the same pathologic process.

Chiropractic distractive decompression in the treatment of pelvic pain and organic dysfunction in patients with evidence of lower sacral nerve root compression

Browning J. *JMPT* 1988; 11:426-32.

Chiropractic theory postulates that organic dysfunction could be the result of neurological disorganization secondary to mechanical disorders of the spine. Few studies have documented the efficacy of chiropractic manipulative therapy in treating mechanically induced

organic dysfunction. Lower sacral nerve root compression (LSNRC) as the result of lumbar disc lesion has been identified as a cause of pelvic pain and organic dysfunction (PPOD). Ten cases of PPOD with accompanying evidence of LSNRC in patients with low back pain as a result of a clinically established lumbar disc lesion are presented with symptomatology prior to and following treatment with distractive decompression manipulation. A report of one of the cases is detailed. LSNRC is often overlooked as a cause of PPOD. Recognition of associated symptomatology in patients with evidence of LSNRC and confirmation through pain provocation examination is emphasized. Chiropractic distractive decompression may be effective in treating PPOD in patients with evidence of LSNRC as a result of a clinically established lumbar disc lesion.

Prognostic factors in bronchial asthma in chiropractic practice

Nilsson N, Christiansen B. *J Austr Chiro* 1988; 18(3):85-7.

A retrospective case record based study of asthmatic sufferers attending a chiropractor was carried out to determine the characteristics which correlate with a beneficial outcome following treatment of asthmatic sufferers by a chiropractor.

There was evidence that some asthmatic sufferers obtain perceived (subjective) benefit following spinal adjustments (manipulations). Those most likely to report a benefit had less severe asthma, young ages of asthmatic onset and had an average of 5 treatments over an average period of 1 month.

This study provides some evidence that the age of onset and severity of asthma may be significant prognostic factors for at least a subjective benefit by asthmatic sufferers who choose spinal adjustments as treatment for their asthma.

Paradoxical motion of atlas in flexion: a fluoroscopic study of chiropractic patients

Taylor M, Skippings R. *Euro J Chiro* 1987; 35(3):116-34.

Fifty-two chiropractic patients were screened using cinefluoroscopy to record sagittal plane motion at the atlanto-occipital joints. Measurements of the atlanto-occipital angle were taken at neutral and during three types of cervical flexion. The measurements were analysed to determine when, where and how paradoxical motion took place. Paradoxical motion was defined as the non-opening of the atlanto-occipital angle during cervical flexion. It was concluded that, despite individual variations, paradoxical motion can be considered a normal variant during full cervical flexion.

Piriformis syndrome in the athlete

Corwin J. *J Chiro* 1987; 24(1):21-3.

Chiropractic management of piriformis syndrome in the athlete is discussed in this case study. Anatomical description of the involved area and techniques involved in diagnosis and treatment are covered.

Osteochondritis dissecans in the lateral patellofemoral groove

Kurzweil P, Zambetti G, Hamilton W.
Am J Sport Med 1988; 16(3):308-10.

Two cases of osteochondritis dissecans in the superior portion of the lateral patellofemoral groove are discussed. To the exact sizes and locations of the defects were precisely determined by CT scan. Simple excision of the fragments was performed by arthroscopic surgery. Despite the large size of the defects, this approach has given excellent preliminary results. Osteochondritis dissecans of the patellofemoral groove should be considered in anyone presenting with patellofemoral symptoms.

Clavicular fracture: effect on thoracic outlet components

Mackey J. Am J Chiro Med 1988; 1:126-8.

Clavicular fractures are one of the most common injuries of children and should be suspected in adult patients presenting with thoracic outlet symptoms who may have had such a fracture in early life. A case is presented of a 27-year-old male presenting with spastic torticollis and radiculitis who, when further evaluated, revealed such a clavicular fracture sustained during adolescence.

Chiropractic residency at Lindell Hospital: a program description

Carmichael J. JMPT 1988; 11:177-180.

Chiropractors have been excluded from postgraduate training in medical hospitals since the time such programs were mandated following World War II. Recently, a chiropractic residency program has been established at Lindell Hospital in St. Louis, Missouri. This paper briefly describes the development of this program and the functions carried out by the chiropractic resident in the hospital environment. It then attempts to define a future direction for such residency programs.

Effects of a chiropractic adjustment on changes in pupillary diameter: a model for evaluating somatovisceral response

Briggs L, Boone W. JMPT 1988; 11:181-9.

The relationship between a cervical chiropractic adjustment, in subluxated vs. unsubluxated subjects, and autonomic response monitored as change in pupillary diameter was evaluated in 15 subjects. The results indicate that: a) successful adjustment elicits either a parasympathetic or sympathetic response; b) the vertebral level at which the adjustment is administered has undetectable specificity for the parasympathetic or sympathetic input to the pupil; c) unsubluxated subjects generally exhibit no change in pupillary diameter following a sham adjustment and d) subluxated subjects exhibit variable preadjustment

pupillary diameters, with significant pupillary diameter changes in response to an adjustment. These data suggest that autonomic input to the pupil may be influenced by subluxation, as well as the magnitude and direction of force exerted during the chiropractic adjustment.

An anatomical pathway through which the observed responses may occur is proposed.

Juvenile rheumatoid arthritis - or something else

Doughty RA. J Musculoskel Med 1988; 5(2):59-78.

Juvenile rheumatoid arthritis (JRA) has several variable patterns and may manifest as a systemic, a pauciarticular, or a polyarticular form. Discriminating factors include the child's age at onset and gender, the symptomatic presentation and duration of the disease, and whether rheumatoid factor is present. Because the diagnosis of JRA is one of exclusion, the clinician evaluating a child with arthritis must attend to details that receive little notice during routine history taking, physical examination, and other studies. The examination results can be interpreted using an algorithmic approach. These findings also provide the foundations for the medical and psychosocial therapy for these children, as well as the management of chronic complications, and the ultimate prognosis.

MRI's role in assessing musculoskeletal disorders

Sartoris D, Brozinsky S, Resnick D.
J Musculoskeletal Med 1987; 4(12):12-24.

Magnetic resonance imaging (MRI) can aid in diagnosing many musculoskeletal disorders, including early ischemic necrosis, intervertebral disk disease, and spinal infections. It is also ideal for assessing the extent of malignant osseous and soft tissue neoplasms, traumatic meniscal and ligamentous injuries, internal derangements of the temporomandibular articulation, and progress after spine surgery and chemonucleolysis. MRI is often preferred over computed tomography because MRI is capable of multiplanar imaging without loss of spatial resolution and offers superior soft tissue contrast discrimination; furthermore, MRI does not expose the patient to radiation. Order an MRI scan when the history and clinical findings suggest a primary, musculotendinous or soft tissue lesion that cannot be detected on conventional roentgenographic films.

Interexaminer/intertechnique reliability in spinal subluxation assessment: a multifactorial approach

Rhudy T, Sandefur M, Burk J. Am J Chiro Med 1988; 1:111-14.

Various procedures of detecting and/or measuring spinal intervertebral subluxations are used by chiropractors to assist them in making clinical decisions on when, where and how to manipulate, and most of these procedures have previously been individually evaluated for their accuracy on the basis of interexaminer reliability studies with results ranging from very good to very poor. The purpose of this present study

was to multifactorially evaluate several commonly used procedures to determine possible consistency of conclusions made on the basis of the information derived. Level of agreement was found to be low and it was concluded that on the basis of this study, along with the present lack of scientific evidence of their value for the purposes used, the subsequently-made clinical judgements are probably based more on other subjective impressions on the part of the chiropractor than on the information derived from the procedures themselves.

How many chiropractic schools? An analysis of institutions that offered the D.C. degree

Ferguson A, Wiese G. *Chiro Hist* 1988; 8(1):27-31.

Medical literature has often repeated early and unsubstantiated statements to the effect that "as many as 500 different schools of chiropractic have seen the light of day." Research by the authors, which initially resulted in a listing of chiropractic institutions known to have existed from 1897 to the date of the publication in 1985, indicates a far smaller figure. Allowing for mergers, acquisitions and satellite schools, the figure for the past 90 years may be nearer 190. An updated list of these institutions, including those located since this original work, is part of the appendix of this study. They are categorized by states and provinces, location and dates of operation when known.

Defining the debate: an exploration of the factors that influenced chiropractic's founder

Gaucher-Perslherbe P. *Chiro Hist* 1988; 8(1):15-18.

The author sets the stage for his 1982 dissertation on D.D. Palmer and the formulation, discovery and early evolution of his new alternative school of healing in late 19th Century America. Placing these events in the framework of the post-frontier United States, with its Puritan, Anglo-Saxon and Republican traditions, this French historian and chiropractor also suggests that the contemporary scientific knowledge – or lack of it – were factors in the development of Palmer's thought and in the establishment of his particular science, art and philosophy.

Cluster headache pain vs other vascular headache pain: differences revealed with two approaches to the McGill Pain Questionnaire

Jerome A, Holroyd K, Theofanous A, Pingel J, Lake A, Saper J. *Pain* 1988; 34(1):35-42.

We compared cluster headache pain and other vascular headache pain on pain intensity ratings and the McGill Pain Questionnaire. Cluster headache sufferers reported not only more intense pain and more affective distress, but also different pain qualities than did migraine and mixed headache sufferers. The pain qualities that best distinguished cluster headaches from other vascular headaches were the presence of punctate pressure and thermal sensations and the absence of dull pain. Although cluster headache sufferers and other vascular headache suf-

ferers endorsed different sensory pain qualities, MPQ subscales proved no better than pain intensity ratings at distinguishing these two groups. This finding may have occurred because MPQ subscale scores include an intensity component and do not provide information about specific pain qualities such as that provided by MPQ sensory items. These findings provide evidence that cluster headaches are characterized by distinct pain qualities and are not simply a more intense version of the same vascular headache pain experienced by migraine and mixed headache sufferers. They further suggest that when the MPQ is used to assess specific pain qualities, sensory items and not the sensory subscale are the preferred units for analysis.

Quantitative evaluation of autonomic nervous dysfunction in patients with thoracic outlet syndrome

Yamaga M, Takagi K, Morisawa K, Ide J, Ikuta T. *Neuro Orthop* 1988; 5(2):83-6.

The function of the autonomic nervous system in 30 patients with thoracic outlet syndrome (TOS) was examined by a non-invasive technique assessing the mean length (M) and coefficient of variation (CV) of RR intervals in the ECG during rest. The first group, suspected of having autonomic nerve disorder, because the patients complained of general discomfort like Barre-Lieou syndrome, has a reduced M and a smaller CV of RR interval. The second group with TOS, which had no complaints of general discomfort had a normal range of M and CV of RR interval. These results suggest that in the first group of patients with TOS the function of the autonomic nervous system was altered. This simplified test may be a most useful method for evaluating autonomic nerve dysfunction in patients with TOS.

Influence of dynamic factors on the lumbar spine moment in lifting

Bush C, Schipplein O, Anderson G. *Ergonomics* 1988; 31(2):211-6.

Flexion-extension moments occurring at the L5-S1 level of the spine were calculated when subjects lifted a 150 N box at slow, normal and fast speeds. Three methods of lifting were used: leg-lifting, back-lifting and free-style lifting. The peak moment increased linearly with increasing lifting speed. The increase was greatest for back lifts, but occurred with the other two lifting techniques as well. Inertial forces should be considered when analysing lifting tasks biomechanically. Excessive speed of lifting, including jerking, should be avoided.

The neuropathology of spinal cord injuries

Dommissie G. *Neuro Orthop* 1988; 5(2):87-95.

The neurological deficits following spinal cord injuries are described under six syndromes which are determined by the severity and the level of the lesion. The early identification of the syndrome is the determining factor in the immediate management and in the rehabilitation of the patient. A seventh syndrome, post-traumatic hydromyelia, is a rare,

late-onset phenomenon characterized by progressive neurological loss. Recognition of the syndrome and surgical drainage of the pseudocystic cavity or cavities lead to arrest of neurological loss and a return to the status quo ante.

Degenerative spondylolisthesis of C7 and L4 in same patient

Cox J, Aspegren D. *JMPT* 1988; 11:195-205.

The incidence of a C7 spondylolisthesis has never been reported, and this paper shows the presence of C7 and L4 degenerative spondylolisthesis in a 66-year-old female. No report of this combined problem has been reported. The clinical findings of the patient are given as well as treatment protocol.

Peripheral entrapment neuropathies in the upper extremity

Gerstner D, Omer G. *J Musculoskeletal Med* 1988; 5(4):37-49.

To confirm the site of ulnar nerve compression, use nerve conduction velocities and electromyography (EMG). Abnormal EMG findings in the flexor carpi ulnaris are consistent with neuropathy at the elbow or higher; if EMG results are normal, compression could be at either elbow or wrist. True ulnar tunnel syndrome causes symptoms similar to those of carpal tunnel syndrome, but its usual cause is chronic repetitive trauma to the base of the hypothenar eminence or a volar carpal ganglion. Posterior interosseous radial nerve syndromes manifest either as motor weakness of lateral elbow pain. Neuropathy of the superficial radial nerve causes cheiralgia paresthetica. For most ulnar and radial entrapment syndromes, initial treatment is conservative; surgical release is indicated if there is no improvement within two to three months.

The statics of postural pelvic tilt scoliosis; a radiographic study on 288 consecutive chronic LBP patients

Friberg O. *Clin Biomech* 1987; 2(4):211-9.

Standing orthoradiography of the lumbar spine, the hip and knee joints revealed a lateral lumbar curve of 5-22 degrees secondary to leg length inequality in 186 or 64.6% of 288 consecutive patients with chronic low back pain (LBP). The incidence of leg length inequality on LBP patients was significantly higher than in 366 asymptomatic controls. In 170 cases the lumbar curve was convex toward the short leg side, correlating significantly with the degree of lateral inclination of the sacrum and with the amount of leg length inequality. The curvature was generally coupled with an axial rotation of the vertebrae moving the spinous processes toward the concavity, as well as with an opposite rotation of the pelvis, which were calculated to result in a significant torsional stress on the L5-S1 segment. Weight-bearing orthoradiography in a standardized and repeatable bipedal standing position is a practical means for measuring structural and functional asymmetries of the spine and the lower extremities that in a clinical examination as well as in

recumbent 'routine' radiography generally remain undiagnosed. Postural asymmetries compensating for leg length inequality mostly disappear following correction of the length discrepancy with a lift under the shorter leg.

Does hard work prevent disc protrusion?

Porter R. *Clin Biomech* 1987; 2(4):196-8.

This study compares the prevalence of coal miners attending hospital with three defined back pain syndromes, with the number of miners in the working population. Of the men who attended hospital with back pain there were more miners than would be expected. 0.32% of the miners had criteria of disc protrusion compared with 0.4% of non-miners; significantly more had syndromes associated with degenerative change. Relatively few men requiring disc excision were miners, whilst there were many who had decompressive surgery. This is compatible with the concept that heavy manual work strengthens the spine, restraining encroachment of a disc protrusion into the vertebral canal. These findings suggest a need to identify and encourage activities in early life which may develop annular and ligamentous strength. Furthermore, unfit workers should not be deployed to areas of heavy work and we should re-examine advice about light work after the first disc protrusions.

Working disability due to occupational back pain: three-year followup of 2,300 compensation workers in Quebec

Rossignol M, Suissa S, Abenhaim L. *J Occup Med* 1988; 30(6):502-5.

A cohort of 2,342 cases constituting a random sample of all occupational back injuries compensated in Quebec (Canada) during 1981 was observed prospectively for 3 years to study associations between cumulative duration of absence from work and sex, age, site of symptoms (cervical, thoracic, and lumbar), and occupation. Of the cohort members, 227 cumulated 6 months of absence or more. A logistic regression model showed age and site of symptoms to be the two most important risk factors associated with absences of 6 months or more. No association was found with sex or occupation. The results showed discrepancies between measures of frequency distribution of back injuries and duration of absence from work, an important finding in terms of identifying health priorities.

Osteoporosis vs osteomalasia

Dhami M, Moore M, Coyle B. *Cal Chiro J* 1988; 13(6):26-33.

Clinically, osteoporosis is characterized radiographically by the attenuation of the horizontal trabecular pattern and by wedge fractures of the thoracic spine and crush fractures of the lumbar spine. It is the condition of the skeleton in which there is loss of bone mass. Osteoporosis usually occurs in postmenopausal white women (> 65 years of age), at a rate of approximately 15 percent. Under this broad condition, many other diseases have been associated, including osteomalacia, osteopenia, endocrinopathies, marrow-packing disorders and idiopathic osteoporosis.