

## American Back Society

Robert Anderson, DC,MD,PhD

### Highlights of the Spring Symposium on Back Pain

The American Back Society (ABS) held their Spring Symposium on Back Pain in New Orleans, May 6-10, 1992. Distinguished faculty presented their outstanding, state-of-the-art techniques. The following are highlights of some of the presentations from the recent ABS meetings.

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### Exercise Principles in the Failed Low Back Pain Syndrome

Philip E. Greenman, D.O., FAAO

For long-term success, an exercise program needs to be individualized for each patient and be developed in a fashion that is acceptable to the patient. We have found that precise but simple exercises are well-accepted by patients. We try to avoid dependence upon particular pieces of equipment. The more complex the program, and the more pieces of equipment necessary, the least likelihood there will be of the patient ever maintaining the program.

#### Stages of the Exercise Program

Stage One -- Proprioceptive balance and sensory motor retraining

Stage Two -- Stretching

Stage Three -- Strengthening exercises

Stage four -- Aerobic reconditioning

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### Mechanical Traction in Management of Lumbar Disc Herniation

H. Duane Saunders, M.S., P.T.

In the moderate to severe stage of HNP protrusion, lateral shift correction and/or extension exercises may cause increased peripheral signs and symptoms rather than centralization of the pain. In such cases, traction may be necessary initially to reduce the extent of the bulge before posture correction and extension exercises can be implemented.

To be effective, traction must be given in poundages of at least 40-50 percent of the patient's body weight, utilizing relatively short treatment times (5-15 minutes), once or twice daily. Good scientific evidence exists regarding the effectiveness of mechanical traction treatment for lumbar HNP protrusion. A recent study by Onel is particularly convincing.

If a protrusion is reduced with traction, it is still unstable and the patient must not aggravate the condition for a period of time.

It must be emphasized that traction alone is usually ineffective, and that a total treatment regimen must be followed or the patient will not achieve a lasting benefit. And, if traction increases peripheral signs and symptoms, it must be changed or discontinued. Details on traction and protocol will be presented.

Continuous End-Range Passive Motion for Low Back and Referred Pain: Clinical experience with 300 patients.

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Robin McKenzie, O.B.E., FCSP, FNZSP

I have described in my text, *The Lumbar Spine: Mechanical Diagnosis and Therapy*, the system of evaluation and treatment that causes a rapid reduction or centralization of referred pain arising from the lumbar spine in non-specific low back disorders. Rapid reduction of referred symptoms followed by the abolition of back pain commonly follows when pain centralization is used to identify the appropriate direction for applying therapeutic motion.

Centralization of pain phenomena has been confirmed as a reliable outcome predictor and, in many cases, can occur in a matter of minutes. Such rapid resolution of symptoms in the acute and sub-acute back pain populations has been well-documented. The rate of recovery using repeated movements is, however, slower in patients with chronic low back problems. The application of repeated movements in chronic disorder is frequently limited by fatigue factors, the patient being unable to exercise with sufficient frequency in one session to bring about a change in symptomatology. What would be the result were we able to exercise the patient for several hundred cycles at any one time?

To discover the effects of large numbers of cyclical end-range movements, a mechanical device has been developed that will apply repetitive end-range passive flexion or extension as required.

In acute and sub-acute patients, up to 200 cycles have been applied in one treatment session; chronic patients have been receiving up to 1,500 cycles per day. This second preliminary report describes the results obtained on 300 patients with both acute and chronic low back pain.

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## California Back School -- Sixteen Year Follow-up

Arthur H. White, M.D.

In early 1976, the California Back School was started in San Francisco by Lynne A. White, A. William Mattmiller, R.P.T., and myself. During the next four years, we teamed together from different disciplines, including orthopedic surgery, physical therapy, and business. Using the Farni and Swedish models, we experimented with written materials, sound/slide shows, and one-on-one training by the physical therapists in order to deliver the basics of spinal anatomy, body mechanics for home and work activities, and personalized exercise programs for each patient. Our goal was to make the information interesting and challenging for the patient and figure out a way to get paid by third-party payers for the therapists' time for evaluating and training patients. During the second half of the 1980s, the use of exercise, education, and aggressive conservative care expanded the basic three or four visit back-school program into multidisciplinary, multivisit, intensive, and often expensive options.

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## The Subluxation Syndrome -- Fact or Fiction?

William C. Meeker, D.C., MPH

One of the theoretical mainstays of the manipulative disciplines has been the putative existence of a "manipulable lesion." Depending upon the discipline, this lesion has been called by various names including chiropractic subluxation, somatic dysfunction, joint blockage, etc. Clinicians trained in spinal manipulation locate the lesions as part of their case management approach because they are generally convinced that more effective treatments can be delivered as a result. While there is widespread agreement on the clinical concept, there is disagreement about the operational definition of the subluxation syndrome. A great deal of criticism has been leveled at chiropractors and other manipulative therapists due to the lack of a physiological model and experimental evidence to support it. This state of affairs is currently under change, largely as a result of strong clinical trial evidence that spinal manipulation has specific effects on pain perception and joint kinematics. Although spinal manipulation clearly seems to influence patient outcomes, the biological mechanisms by which this occurs remain obscure. The development of a "manipulable lesion" model could prove quite helpful. This presentation will focus on current research on the subluxation concept to include physiological definitions, clinical definitions, results from laboratory research, and results from the clinical world.

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## Pathogenesis of Cervical and Cranial-Facial Pain

Rene Cailliet, M.D.

The functional anatomy of the cranial upper cervical spine differs from the functional anatomy of the lower cervical spine (C3-C8) and the dermatomal innervation also differs. Pain originating from these two functional segments also differs, as does the pathomechanics of the resultant pain.

The occiput only flexes and extends (25-30 degrees) upon the atlas. The atlas only significantly rotates upon the axis with slight flexion-extension. Restriction is exerted by ligamentous structures.

There are no discs between the occiput and axis-atlas as occurs in the lower segments, and there are no foramina and posterior zygoapophysial joints. Excessive motion, imposed by trauma, must exceed the ligamentous and annul (fibrous) aspects of the "discs." This trauma causes irritation of the C2 nerve roots that innervate the interbody "discs" with resultant facial and occipital pain.

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## Current Status of Functional and Palpatory Evaluation of the Spine

Scott Haldeman, D.C., Ph.D., M.D., FRCP(C)

The term "spinal function" has been given almost mythical connotation by a number of clinicians and researcher. The search for anatomic pathology by increasingly sophisticated imaging techniques has failed to explain symptoms in more than a small percentage of patients with back pain. This has resulted in an increased interest in measuring various physiologic and biomechanical functions in the hope that abnormalities may be detected, which are associated with back pain and

which may be amenable to treatment. In the past it has been said that "structure governs function." However, it is now evident that most anatomical variations and many types of pathology, including degenerative disc disease and disc herniation, exist without detectable symptoms or loss of function. It is becoming obvious that it is the presence of functional changes that make pathology clinically significant and not necessarily pathology which causes abnormal function. This has made it increasingly important to find sensitive and specific methods to measure various parameters of spine function.

The most accepted and researched functional assessment is the electrodiagnostic evaluation of neurologic activity. These tests have expanded to measure motor, sensory, and reflex function, as well as denervation on EMG. Recently, the use of muscle contraction evoked responses are being investigated to look at muscle function in an attempt to evaluate muscle spasm. The measurement of muscle activity with surface EMG does record muscle electrical activity, but the meaning and significance of these measurements is not yet known.

There is a rapidly growing technology to measure spinal posture, motion, and strength. The dispute as to whether isometric, isokinetic, isotonic, or work simulation strength testing is more specific, accurate, or useful has barely been looked at. Although strength and endurance testing has been used as a means of determining the success of a rehabilitation program, there has yet to be any convincing evidence that these measurements have any diagnostic value. The majority of research on specific instruments has focused on reliability and accuracy of the measurements. The meaning of the readings has yet to be determined.

The primary diagnostic tool of clinicians who practice spinal manipulation is manual palpation. The use of the hands to localize a lesion that is amenable to manipulation is the hallmark of any manual therapy. There has been, however, a great deal of skepticism concerning the nature of the manual diagnosis. Various structures and functions are manually palpated and given significance. Subluxations, osteopathic lesions, fixations, blockages, myofascial trigger points, subcutaneous texture changes, muscle bands, and spasm have all been defined in terms of their palpatory properties.

Until recently, however, there have been virtually no studies that evaluated the specificity, sensitivity, or significance of palpatory findings. The past few years have seen the publication of a number of research papers on the topic. These papers primarily address the issue of interobserver and intraobserver reliability. These studies have demonstrated various degrees of reliability and lead to the conclusion that certain spinal structures and functions can be evaluated with reasonable sensitivity.

The marked increase in the investigation of palpatory and instrumental techniques of measuring spinal function is consistent with a growing realization that function is important. The current research illustrates that certain spinal functions can be measured in a consistent and reproducible manner. It remains, however, to be determined what all these functional measurements mean.

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