American Back Society Meets in Las Vegas, Part I

By Robert Cooperstein, MA, DC

This was a particularly upbeat meeting of the American Back Society. Several speakers, overcome with the infectious, convivial atmosphere, noted from the podium that "this was a really good conference." There was precious little griping about managed care and no dire predictions for the future. Just a goodly bunch of back specialists sharing their knowledge and experience in treating the spine, and indulging in the various recreational pursuits afforded by Las Vegas, that great American theme park. Most of the presentations were infused with optimism: uplifted by surgical improvements; promising new drugs; good manual treatment outcomes; and this pervasive feeling that the enigma of low back pain is, well, somehow less enigmatic.

In retrospect, the opening remarks of Dr. James Rappaport were not really consistent with what transpired. He said that our best weapons for combating back pain remained education and superior knowledge, adding, "Surrounded by the enemy, we have a great opportunity, we can attack in any direction." Really, most of the presenters gave an impression of back pain on the run.

How to Measure Lumbar ROM Correctly and Draw the Wrong Conclusion

Mr. H. Duane Saunders, PT, finds the inclinometer not as useful as it could be for measuring spinal range of motion, a case of the "right instrument, but wrong protocol." He contrasted the AMA guide’s method with the curve angle method. In both methods, the angular measurement at the initial position is subtracted from the flexion end-range angle to obtain the ROM, but they differ in how the initial angle is obtained. The AMA guide’s method uses the angle obtained by placing the inclinometer at the sacral midpoint (essentially, the amount of standing hip flexion), almost always a positive number, whereas the curve angle method simply zeroes the tool at the caudal landmark. This means that if a person does not have a "normal" standing posture (Mr. Saunders did not define what is a normal standing posture), then the AMA guide’s method will obtain a misleading measure of spinal flexion. Essentially, the amount of spinal flexion obtained will be underestimated in individuals who have an anteriorly tipped pelvis; they will appear more limited in flexion only because their initial position is in effect relatively flexed.
In my last column in *DC*,¹ I made about the same point regarding lateral flexion restrictions in the lumbar spine. Side-bending toward the closed wedge side may be underestimated if it is not corrected by the amount the subject is already bent in that direction in the static posture. The general point to be made is that ROM that does not take into account postural influences on initial start positions will not only confound comparisons of ROM given by different investigators, but generate misleading information about the movement capacity of the articulations.

**Cervicogenic Headaches**

Recently, there has been much attention and controversy surrounding SMT and headaches, the result of a recent negative JAMA article.² Dr. John Hilton had first called attention to the possible etiology of cervicogenic headache (not to be confused with tension headache) as far back as 1860. By the early ’80s, the major causes for cervicogenic headache had been clearly described. Headache exacerbation with neck movements and symptom amelioration with diagnostic blockade have proven important confirmatory factors, whereas x-ray, CT, MRI, discography and arthrography have not been as useful.

Among the treatments that have been attempted, SMT has proven more useful than drugs and physical therapy, according to Dr. Sudderth, who cited a previous positive study on SMT and cervicogenic headache,³ co-authored by one of the investigators on the more recent negative study on tension headache. There is another comprehensive study in the chiropractic literature⁴ on SMT and tension headache that is no doubt relevant. Although narcotics help for cervicogenic headache, physicians are understandably loathsome to prescribe them in this situation; botulinum injections (yes, the same paralytic neurotoxin found in improperly preserved foods) are under consideration as an alternative.

**Low-Speed Auto Impacts**

Dr. Murphy impressing upon me, while still a chiropractic student, how major trauma can result from accidents that result in little vehicular damage. Dr. Clarence Nicodemus explained that if the vehicle is demolished, it absorbs the energy of the impact, whereas the better the vehicle makes out, the more energy is delivered to the occupant. Head position, type of head rest, victim’s state of mind and other parameters may be more determining than the speed of the crash. In relatively low speed crashes, although normal physiologic movements are not exceeded in the global sense, intersegmental movements often exceed normal limits. Furthermore, compression of the cervical vertebrae in excess of load limits may occur.
Non-operative Care of Spinal Stenosis

Verbiest popularized the diagnosis of lumbar spinal stenosis in 1949, defining it as an AP measurement of the spinal canal less than 10mm. Since the incidence increases in the elderly, aging of the population will increase the number of diagnoses and afford greater importance to the search for effective treatments. Dr. Philip Greenman, citing Deyo, stated that surgery for spinal stenosis is the most rapidly growing form of spinal surgery, even though all surgical studies indicate that the surgical patient should have failed a trial of "conservative" treatment prior to surgery. We must wonder if this is what is actually happening.

Dr. Greenman believes that the word conservative in this context is misleading, because non-operative care should be aggressive. The pharmaceutical repertoire includes NSAIDs, analgesics, muscle relaxants and epidural steroids. Braces, corsets and a variety of physical therapy modalities have been tried. Nonetheless, the cornerstone of Dr. Greenman’s approach remains an aggressive program of manual treatment, including mobilization of the lumbar zygapophyseal and SI joints and a comprehensive exercise program. He was careful to stipulate that he uses "mobilization without impulse," although he did not elaborate further or why.

The exercise program is Jandaesque (see "The Case on Janda" below), involving stretching of hypertonic, shortened muscles (such as psoas, piriformis and latissimus dorsi) and, once stretching is underway, strengthening of weak, inhibited muscles (including the abdominals and gluteals). The care aims to reduce passive congestion in the lateral recess and central canal; to eventually permit aerobic conditioning; and ultimately to "empower the patients to control their own care" (to coin a phrase). Among 15 consecutive lumbar stenosis patients, four of whom had previous surgery, and most of whom now had claudication and low back pain, here were the results using this protocol: none could walk more than two blocks before, but 12 of the 15 had a symptom free mile afterwards; pain levels dropped significantly; and after a mean 33 months, most were doing rather well.

In Vivo 3-D Kinematic Analysis of the L4-5 Spinal Segment

In this column, I have frequently drawn attention to the impressive array of evidence that the McKenzie milieu has assembled on the theory, practice and mechanisms of their manual treatment for IVD syndrome. Dr. Nicodemus returned to describe his recent study on the in vivo kinematics of the L4-5 spinal segment during a procedure known as the McKenzie lateral shift. Under local anesthesia, and with a prior CT scan to identify markers, five volunteers had pins placed in their vertebra. Then they were coaxed into a simulated
antalgic posture, where upon a "correction" was made. The object was to measure how much and what type of motion occurs in this corrective therapy. Dr. Nicodemus stated that the findings confirmed the centering and distraction (7-8mm) hypothesized in the McKenzie literature, and there was little evidence of rotation.

**Boxing Not that Bad for the C-Spine**

Now that Iron Mike Tyson is back, it seemed particularly timely for Dr. Margaret Goodman, who serves as a Nevada ringside physician, to explain why cervical spine injuries in boxers are unusual. She not only is a ringside consultant for cuts, head injuries and impaired mentation, but also consults on career continuance in injured boxers. Each boxer is assessed after a fight to determine the need for acute referral or long-term following. The long and short of it is, there is no known cervical damage associated with boxing; indeed, the knockout punch "never affects the cervical spine/cord," and there has never been a catastrophic cervical injury.

By comparison, blocking with the head in football is far more dangerous. A knockout is a transient alteration of consciousness that does not necessarily involve falling down, resulting from hyperextension and/or rotatory blows to the head that disrupt the vascular supply to the brain. There can also be a disruption of proprioception that can interfere with balance and require stopping of the fight.

What protects the professional boxer from cervical trauma during a fight? Answer: a straight neck in line with the occiput and strong trapezius muscles. A straight neck bodes well for a long and successful career, for which reason the "chin tuck" exercise is learned from day one. Hitting the opponent on the chin is the best way to extend the neck and achieve a knockout. In spite of all this, once the neck starts to move around excessively, an astute and observant fight official will interrupt the fight. Should boxers wear headgear? The Nevada doctors don’t think so. Although headgear may prevent cuts, they do not prevent head injury or knockouts. The additional weight actually increases head momentum following a blow, which can result in worse injuries.

**The Case of Janda**

It would be hard to exaggerate the appreciation, bordering on reverence, that some of the other presenters afford Dr. Vladimir Janda of Prague, introduced as a specialist in neurology and physical rehabilitation. Although his talk was "The Role of Muscles in the Pathogenesis and Dysfunction of Back Pain," his main point was the other way around, the role of locomotor dysfunction in the genesis of muscle pain.
According to Janda, "The main structure we are trying to treat is the muscular system. It is usually ignored, on the other hand. "Because myofascial tissue is multisegmental, the patient may feel pain other than where the structural problem may be. According to Janda, we should never limit ourselves to local treatment since the therapeutic goal involves improving the quality of overall movement. Muscle spasm and trigger points are fully recognized as pain generators; improper joint-muscle correlation (i.e., muscle pattern) and muscle imbalance are less fully recognized, whereas faulty motor unit recruitment and contraction speed, proprioceptive influence on posture and movement and CNS programming are not yet recognized.

Janda defines muscle correlation as: any changed function or position of a joint that alters the ability of the surrounding muscles to function properly, perhaps resulting in inhibition or increased tone of the related muscles. Indeed, no joint problem exists without an immediate muscular response; we don’t know whether the muscle imbalance produces the joint dysfunction or the other way around. When there is imbalance, the main concern ought to be muscle weakness. Muscle imbalance results in altered joint mechanics, limited ROM and hypermobility, altered proprioceptive input, impaired reciprocal innervation and altered programming of the CNS.

Some (postural) muscles seem especially prone to tightness, whereas others are more prone to (phasic) inhibition. For example, the hamstrings tend to get tight, whereas the gluteus maximus tends to weaken. Any effort to strength weak muscles is likely to fail unless there is simultaneous stretching of tight antagonist muscles. The long-term treatment program should address the neurological elements of the locomotor system through: a) increasing proprioceptive input from the area by activating more motor units to improve motion and coordination; (b) stimulating the CNS areas involved in posture and equilibrium (cerebellum and vestibular system); (c) activation of brain-stem functions using primitive patterns, e.g., reflex crawling; and (d) deployment of a physical therapy approach to the deep intrinsic muscles which affect stabilization of the spine.

I would like to make a passing observation, not to take anything away from Dr. Janda’s presentation, but simply to call attention to a rather curious double standard, one truly in the spirit of the interdisciplinary character of the ABS. Dr. Janda’s ideas are certainly interesting and provocative, and perhaps confirmed on the shop floor to many’s satisfaction. However, I do not think many of his hypotheses would fly well had they been first formulated by a chiropractor, neither at the chiropractic research symposia I attend, nor at the ABS, nor with MDs and DCs. Such a presenter would have to offer at least some supportive evidence from the basic and clinical science literature, if there is any. It is interesting to see how one type of model builder
attracts mostly skepticism, whereas another with a different degree earns respect for having had the courage
to take liberties before an audience as august as the American Back Society. I’m sorry, but to put it bluntly,
sometimes there’s a fine line between being revered as a visionary and being seen as someone just over the
edge.

Part II of this symposium report will discuss DeFoyd on interdisciplinary practice; Robertson on
manipulation/prolotherapy of the SI joint; Foster on piriformis syndrome; Leeder on the doctor as witness;
Chiu on endoscopic laser disc shrinkage; Young on annular tears; Pope on the cervical musculature in
whiplash; and more. (Editor’s Note: Look for Part II of Dr. Cooperstein’s article in the April 9, 1999 issue
of DC.)

References

3. Nilsson N, Christensen HW, Hartvigsen J. The effect of spinal manipulation in the treatment of
   the treatment of chronic tension-type headaches: a randomized clinical trial (see comments). J
5. Cooperstein R. American Back Society meets in San Francisco: spinal pain generators not so positively

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