

## The Biomechanical Basis for Spinal Correction in Treatment of Tennis Elbow and Various Wrist Dysfunctions

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Reading a chiropractic publication this past week, I noted an article on the correction of tennis elbow. The emphasis of the article was to correct the problem with stroke changes. Lip service was paid to adjusting as a temporary solution, but the article then states, "But to produce long-term change, the correction of the underlying faulty techniques that led to the condition's onset must be addressed." Sounds good, but it does not work out in real life experience. The faulty stroke technique of the patient is often a compensation for poor body mechanics elsewhere. A few examples from my experience:

Patient #1 was a stranger I met on the golf course wearing a tennis elbow brace. After the round, I asked him about the condition. The history was insidious onset of elbow pain several months previous, which was worse during sporting activities. Medical treatment including rest and steroid injection yielded no improvement. Chiropractic treatment offered temporary relief after the first adjustment, but he said the pain was much worse after the second visit. The chiropractor had adjusted only his elbow and neck. After discussing the problem with several other people that had not gotten relief with any type of treatment except the elbow brace, he had given up on doctors and bought a brace at the drug store. He said he only had relief while wearing the brace but still had some pain while wearing it. He had arm and hand weakness without the brace, but it was the most effective thing he found.

Further questioning for other problems not related to the elbow elicited a history of a mild back sprain lifting something during yard work about a week before the onset of the elbow problem. I made a brief check of the man's body mechanics, tested the insertion of the latissimus dorsi on the ipsilateral humerus (pain on palpation with flinch of patient), and tested the elbow for pain on wrist extension against resistance with no spinal support (positive to the point of eliciting a yelp and the person pulling away his arm). I then tested the elbow pain again in the same manner after wrapping a shirt tightly around the person's trunk at the T10 level. The test elicited the comment from the patient that the elbow was still very sore but much stronger. This was while he continued to extend his wrist against resistance without flinching. Testing the insertion of the latissimus again elicited no flinch and a subjective report of no pain. After removing the support, all tests were again positive. I told him the problem was in his spinal mechanics and might be correctable.

On intake to the office a complete history and physical examination was done along with full spine radiographs, in both the sitting and standing positions, for comparative biomechanics. The findings were altered spinal biomechanics with focal problems (primary subluxation, fixations, whatever nomenclature you use) at L4, T10, C7, and a marked resistance to flexion of the head and neck (standing) when the coccyx was held anterior, which indicates fixation in the meninges. Not unusual, all the primary vertebral problem areas were subluxated and fixed anterior.

To successfully adjust the lumbar and lower thoracics, A to P, without using a lot of force, hurting the patient, you also need some information from the sitting full spine film. Where is the apex of the person's kyphosis while sitting relaxed?

When adjusting the anterior upper thoracics, you put your hand under the vertebra to be adjusted. This puts the adjusting fulcrum (your hand) between the vertebra to be adjusted and the apex of the person's thoracic kyphosis. To adjust lower thoracics and lumbar, A to P, your adjusting fulcrum must also be between the vertebra to be adjusted and the apex of the kyphosis, which means above the vertebra to be adjusted. The person also needs to be bent forward quite a bit imitating a sitting type position.

In many people (about 80 percent in my office), especially those with biomechanical pathology, the lumbar lordosis and thoracic kyphosis degenerate in undefended positions. An undefended position is any position where the pelvis and femurs are flexed, which removes some or all of the stabilizing effect of the large muscles attaching the femur to the pelvis and the pelvis to the column, forcing the column to hold itself (defend itself) against gravity without the benefit of its primary large stabilizers. This biomechanical degeneration leads to a change in the position of the kyphosis, most often downward. With the kyphotic curve moving caudad, the position of the apex also changes in the same direction making the placement of the adjusting fulcrum a little more difficult to determine in the L3 to T7 region. Remember, stretch the meninges, fulcrum position, and patient flexion, making A to P adjusting much easier, even in the lumbar.

After stretching the meninges to loosen any internal soft tissue fixations in the column, adjustment of T10 (A to P) was done first. After the adjustment testing, the elbow revealed a return of strength but some continuing pain. After adjustment (A to P) of C7, elbow testing revealed some improvement subjectively. The patient also noted he could breath better which had been a problem since the strain, but nothing significant objectively. After adjustment of L5 (also A to P, the ease of which, when I demonstrate, brings me many questions) testing of the elbow revealed a greater increase in strength and a subjective report of a little soreness with no pain at all. At that point, I had the patient stretch his arm vertically to full extension of the elbow. There was an audible pop. Testing the elbow again yielded a subjective report of normal but no notable objective change since it seemed normal at the previous test. I should mention here that there is a large difference between A to P and P to A adjusting, especially since these types of cases are usually anterior fixations.

Many people think adjusting the lumbar A to P is difficult to impossible. It's easy. First, you must note that when the lumbar go anterior there is often meningeal fixation which must be released before the lumbar will release. This is easily accomplished with the patient side-lying, by flexing and extending the knees and hips with the person's head in lateral flexion to both sides (not at the same time, ha ha), then in extension, and lastly in flexion. sometimes the coccyx is fixed anterior and must be adjusted A to P.

After a short course of treatment consisting of twice a week for five weeks, this patient has no pain in the right elbow except if he falls asleep sitting in a chair with his head down and plays tennis the following day. The reason is easily seen on the sitting full spine film. When he relaxes the apex of the thoracic, kyphosis moves down from T7 to T10 fixing that vertebra anterior to setting a pathological (abnormal) defense which affects the biomechanics of the latissimus dorsi, which affects upper extremity biomechanics adversely.

This local biomechanical mechanism for tennis elbow and other biomechanical pathologies of the arm and wrist are often set up by normal mechanics in the thoracolumbar region of the spine that cause abnormal mechanical action (changes in the vector of force) of the latissimus dorsi muscle, which changes the mechanics of the entire shoulder-arm-elbow-wrist-hand mechanical unit. I have found quite a few cases of carpal tunnel that did not respond to any treatment until the thoracolumbar mechanics were corrected, after which there was excellent response to adjustive treatment to the elbow and wrist with various PT to the wrist.

A similar case involves a long-time tennis player with slight but significant lateral wedging of the T11, T10, and T9 vertebrae. His original reason for visiting a chiropractor was back pain. Upon moving to the area he was referred to me by a neighbor for a minor strain in the lumbosacral region, which had been a recurrent problem for several years following a rear-end auto collision. The tennis elbow complaint was elicited in the history.

Examination and x-rays gave me the necessary information for treatment. As an aside, before treating him I tested the wrist dorsiflexion against resistance eliciting pain at the lateral epicondyle of the elbow. Postadjustment (A to P of the anterior fixations at L4, T11, T6, and C7) treating of wrist dorsiflexion against resistance elicited slight pain and greater strength. The patient was then instructed to force extend his elbow with the arm vertical. An audible pop was produced. Repeating the test there was "no pain, just a little soreness" in the elbow.

Playing tennis brought the pain in the elbow back within a set until I recommended this patient use a rib belt while playing to compensate for the lateral flexion effect of the vertebral compression when he moved his trunk. Not only have his elbow complaints been reduced by 90 percent, but "with this chest brace for my elbow" the man now has a very effective backhand.

My main point is for chiropractors to continue to look at the body as a single functioning unit with all parts interconnected. Not every problem involving subluxation is nerve related and most problems with extremities are not local. When subluxation is defined to include nerve interference, it narrows the thought processes so we become like medical doctors in our thinking: Treat neck subluxations for carpal tunnel, tennis elbow, and shoulder problems because that is where the nerves originate. No wonder the "old time guys" got and get better results than the younger guys. The "old timers" were educated more broadly in full spine effects than students are today. They, "old guys," are more often than not full spine adjusters who solved and solve many conditions by fixing biomechanics, not just relieving nerve pressure, whether they know it or not.

These case studies are anecdotal. They provide a basis for doctors to institute more effective chiropractic treatment of these upper extremity conditions and a basis for research study by a formal researcher. Let's get back to full spine work. I am not a straight, and I think those guys miss a great deal by not employing therapy at the appropriate times, but the rest of you are missing a lot when you do not diagnose or analyze the spine as a single functioning unit. Full spine films, standing and sitting, will give you more appropriate information than just standing. Do them by section if you do not have a large buckey. You will be amazed at the changes in biomechanics from one minute to the next as the person sits. Many biomechanical pathologies will become apparent sitting that are unseen in standing or recumbent films.

As I finished this paper, a chiropractor friend called me and asked if I could see his friend, a chiropractor, who had not been able to get relief from back and leg pain for six weeks. This doctor

said, "I told him he would have to listen to you lecture about full spine sitting and standing radiography, but he would be much better when you finished." This turned out to be the case, but more interesting was my friend. He came in with his left arm in a sling due to a painful calcification of the forearm extensor tendons.

He could not extend his elbow past 95 degrees or his wrist more than five degrees, and that caused pain that buckled his knees. He had received a cortisone injection which was not helping. I examined his spinal mechanics and adjusted (A to P) at T7, 10, 12, and L4. Immediately he could extend his wrist 30 degrees and elbow 25 degrees although with pain. After adjusting C7 (also A to P), the wrist extension increased to 45 degrees and the elbow to 150 degrees. The next morning the wrist had full range in extension and was pain free; the elbow had the same 150 degrees extension but was not pain free.

He continued to improve until sitting for days at a chiropractic seminar brought a return of the pain. He was afraid to be adjusted (P to A) because a previous adjustment of this type brought instant return of pain to his arm and wrist. Upon his return, two adjustments had him back to pain free with full range of motion.

This is a sad state of affairs. Either of these people should have been cake for any chiropractor to successfully treat. When I read about DACBRs saying meaningful biomechanical measurements cannot be made from x-rays, and hear neurologists saying that the chiropractors in their town are just glorified physical therapists because, by their own admission, they don't do much manipulation, I know why chiropractic is having so much trouble.

My last article brought many letters and phone calls. If you have a question, I answer them all. Just don't call and yell if the answer is, "I do not know."

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