

CATEGORY SIX – THE ANTERIOR VERTEBRAL SUBLUXATION

If you are a surprised reader of the title above, then this means you haven't been following our series of "Expression" articles. To inform you and as a review for others, DeJarnette extended the three category system to eight categories in 1970, then decided to return to a three category system the following year. The five extra 1970 category listings were:

- Category IV Occipital Fibre Analysis
- Category V Trapezius Fibre Analysis
- Category VI Anterior Vertebral Subluxation
- Category VII The Oblique Sacrum
- Category VIII Occipito – Atlantal Syndrome

We have presented Occipital Fibre Analysis and Trapezius Fibre Analysis over the last three Expression issues with the hope of expanding these topics on what you receive at our yearly seminars and offer some historical background and further details of the work for those interested.

The article before the Category Four was Autumn 2007's "The Anterior Thoracic Technique and SOT" which covered the bulk of Category Six, so we will limit our discussion in this article to lumbar and cervical involvement save for defining the difference of the meaning of the term "anterior" when used in the various regions of the spine.

Anterior Cervical Thoracic and Lumbar

Thoracic Review:

In the Autumn 2007 Anterior Thoracic "Expression" article we sourced Dr. Bruce Fligg's "Anterior Thoracic Subluxation" which appeared in the Journal of the Canadian Chiropractic Association (December, 1986) for his definition of the term "anterior." Fligg¹ stated: "The anterior thoracic, by the semantics of its name, has produced some misunderstanding in its clinical application. Historically, the name came from the following two factors (i) the vertebral subluxation felt anterior (spinous) and (ii) the adjustive thrust was applied anteriorly."

The Saucer effect of the anterior thoracic subluxations had been noted by many including the thoracic Surgeon of the 30's – 50's era, Francis Pottenger who attributed gastric, liver and pancreatic diseases to its presence.

Dr. Burl Pettibon² in the 1970's suggested that the anteriorities of the thoracic spine were in fact apparencies rather than realities in that the spinous processes appeared "dished" or "saucered" due to the rotational and lateral flexion nature of the misalignments which have a global, rather than a segmented origin and which are kept "in check" by the rib heads.

So that's a brief summary of the thoracic. The term "anterior" used in the cervical and lumbar spine has a different meaning. Whereas "anterior thoracic" is determined by palpation (or Prill tests³, but we haven't written a paper on this yet so many of you won't know what we're talking about), the listings of anterior lumbar and cervical are postural listings determined by plumb line or X Ray examination and mean the whole region is anterior of the ideal or in the case of Spondylolisthesis, that one segment has moved forward.

Anterior Lumbar Spine

Just as there have been misconceptions and various ideas of how the thoracic spine subluxates anteriorly, the lumbar spine has had its share of theories and fallacies.

The very first idea we had to disabuse ourselves of was Ferguson's angle. This you recall from Spinography class is the angle made when an oblique line drawn through and parallel to the sacral base is intersected with the horizontal line. Also known as the sacral base angle or the lumbo sacral angle, Ferguson "swore blind" that this angle should be 34°. Any increase led to an increased lordosis and a decrease would produce a loss of lordosis or military lumbar spine. Some years after Ferguson someone actually read his paper and said, "Oh no! He did all his sacral base angle measurement non gravity-bearing." Stand the patients up and take a series of lateral lumbar views and the new average is 41° (range 38° - 42°). This is useful to us in the study of Category 6 as we can now use Ferguson's corrected angle value to determine our patients course of care, of course, after we have stabilised their Cat. III, II or I condition.

A Study of Ferguson's Angle as Related to Spine Comfort

On the sacral base, DeJarnette⁴ stated: “The position of the sacral base is important to health but is surely not the sole cause of musculoskeletal problems. It must be considered that the patient’s build has much to do with his ability to live with an abnormal Ferguson’s angle in comfort. Some of the world’s strongest men have severe lumbosacral lordosis to a major degree. The lumbar lordosis is no more conducive to back problems than is the lumbar kyphosis.”

The problem with the lordotic or kyphotic sacrolumbar spine is one of age, as many serious problems do originate here with advanced and degenerative joint dysfunction.

The basic information of value in the lateral sacrolumbar film is of course the ability to study the disc structures, the spinal ligaments and the facet system. Early detection of an oncoming Category III is much easier to handle than would be such a problem in full bloom.

In the modern practice of Chiropractic, the prone or sitting lumbar posterior to anterior thrust techniques have all but disappeared so DeJarnette’s 1970 admonition doesn’t apply to many. He wrote: “It would be well to never increase a sacrolumbar curve by adjusting down into it. Thus you would not thrust posterior to anterior into a 70 degree sacral base, but you would find it beneficial to thrust posterior to anterior onto a sacrolumbar spine with 20 degree angulation.”

The point DeJarnette was trying to make in 1970 and in the Category Six classification – anterior lumbar part was that the ability to work is not as dependant upon the sacrolumbar spine as it is upon the pelvis or the occipitoatlantal region. Exercise and the use of the SB+ or SB- blocks are the thing to do, as we will outline at the end of this article. The rule of thumb to remember is decrease the anterior and increase the posterior.

The Sacrovertebral Angle

We first came across this time in a text book called “Chiropractic Orthopedy” by Donald Pharaoh⁵ who was a Palmer lecturer and an Australian; the book was written at Palmer in the late 50’s. If you ever get a chance to pick up a copy of this you will want to read it from cover to cover. As well, if you are at a seminar and come across Dr. Rolf Peters, the editor of the Chiropractic Journal of Australia, discussion of his experience at Palmer in this era (the 50’s when BJ was still lecturing) will fascinate you.

The Sacrovertebral angle is also called the Lumbosacral disc angle by some. It is formed by intersection of the line drawn through the inferior end plate of the fifth lumbar and the superior end plate of the first sacral segment in other words, the line you’ve already drawn to measure Ferguson’s angle.

Years ago when we were learning Spinography and reading Pharaoh the magic number for the sacrovertebral angle was twelve degrees. Lately, the “normal range” is considered to better form and in sacrovertebral angles case this range is ten to fifteen degrees.

You will see a twenty degree sacrovertebral angle and want to do something about it, just like you will want to jump in and do something for the Spondylolisthesis. Likewise, when you see a sacrovertebral angle of 4°, you will say to yourself “that couldn’t be good.” A prominent lordosis of the lumbar spine with an exceedingly serious dorsal kyphosis, yet the sacral base angle is fine but with a 4° sacrovertebral angle – the question you ask yourself is: “how do I extend the sacrolumbar spine and not alter the Ferguson’s angle in so doing?”

Defining the Lordotic Lumbar Spine

It may come as a bit of surprise to many of our readers that the defining of an ideal lumbar spine is a relatively recent event. Don Harrison⁶ who we referenced in the Anterior Thoracic article as done a fantastic job in describing the ovoid shaped lumbar spine. In terms of DeJarnette's Category Six, the anterior lumbar spine which appears in postural analysis can be a true lumbar lordosis whereby the lumbar curve is hyperlordotic with the curve positioned anteriorly to the second sacral segment or the very common "sway back" where the thoracolumbar spine is posteriorly translated.

Corrective Procedures

The situation we have with the Spondylolisthesis, the changed sacral base angle, the changed sacrovertebral angle, the increased lordosis or the posterior translated thoracolumbar spine is always secondary in importance to our categorisation of the patient as Category I, II or III.

So you have stabilised that Category III, Category II or Category I. You are in the healing phase and you are moving into structural reconstruction.

DeJarnette offered the blocking procedures and suggested some home exercises with an admonition as applicable today as it was in 1970, that being: "the difficulty here lies in the well known fact that as soon as the back problem lessens, the patient abandons the exercises."⁷

Here in turn are the supine lumbar lordosis exercise, the recovery exercises for lumbar anteriority and the spondylolisthesis techniques.

a) The Lordotic Lumbar Spine Home Exercise

This is applied when Ferguson's angle exceeds 45°.

Step 1 is supine body extension. Have the patient lie down on a firm surface and stretch full length as if he wanted to gain height. Hold as a passive exercise for ten seconds, relax and repeat ten times.

Step 2 (Patient is in same supine position for all 3 steps) Begin with the right leg. Leg is flexed and grasped back of knee by patient's hands. This is a resistance exercise. Patient pulls leg as close to body as possible, while leg muscles resist this movement. Leg is then told to use its muscles to try and get back to table as patient holds against movement. Repeat five times. Then use left leg for five times. Move leg slowly. Use full leg strength and full arm strength.

Step 3 DeJarnette's approach was to delay this exercise for several days to determine patient compliance. If the patient wasn't doing stretch, right leg, left leg steps as above then it was pointless giving step 3. However, if the patient followed through on the single leg exercises they would receive its benefits and step 3 was included. Simply, step 3 is bilateral leg movement. Pull legs up towards the body, with two hands resisting behind knees. Legs pull themselves away from the body, with patient's arms resisting. It isn't the amount of movement, but the amount of resistance that makes the corrections. It has to be used over a long period of time, as you are retraining muscle groups.

b) Recovery Exercises for Lumbar Anteriority

The goal is to retrain the total muscle structure of your patient's pelvis. While at work, your patient can take a few minutes and do the following twice per day. Patient stands with back to a wall – feet six inches from wall – lifts his pubes anteriorly and lowers the buttocks – holds for ten seconds. While pubes are lifted and buttocks lowered, he lifts one leg and then the other. Patient then steps away from the wall – stands on toes, elevates pubes.

c) Spondylolisthesis Techniques

DeJarnette suggested the important point was not to do anything that would further damage this area. The so-called million dollar chiropractic roll is definitely taboo. As we mentioned previously techniques involving prone thrusting to the lumbar region are not much taught these days, but in 1970, this was also something DeJarnette was concerned about as he was with any technique with rigorous leg movements.

The DeJarnette blocks in SB plus position is the safest and best approach. This could also be the statement for the patient with an increased sacrovertebral angle or posteriorly translated thoracolumbar spine.

Home exercise consists of patient in the prone position over an exercise ball. The objective is to cause the lumbar lordosis to gravitate into flexion and pull the fifth lumbar posterior. This position should be maintained for fifteen minutes once per day if at all possible. Short periods are worse than none at all.

Anterior Cervical Spine

The Anterior cervical spine is most uncommon and when found it will secondary to some increased thoracic condition like Scheuermanns disease. A more likely finding in the lateral x ray is a loss of lordosis with anterior translation and that, of necessity, requires a whole article on its own at some time in the future.

Conclusion

The fact that anterior vertebral subluxation was considered one of the further five category classifications reflects its importance. Dorsal anteriorities are most hazardous as they produce visceral dysfunction. Dorsal anteriorities are never malpositioned as a single unit but are in series, thus, DeJarnette's method of dorsal block or thenar placement was to find the lowest level, i.e. the base of the anterior section. In the lumbar region, an increased sacral base or changed sacrovertebral angle is something to be corrected following Category I, II, III procedures. Our next issue's topic will be the oblique sacrum. How does that short leg affect the Category II and when do you use a leveller? We hope to see some of you at this year's seminar series. It's always good to review the basics.

Kind Regards,

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References:

1. Fligg B. "Anterior Thoracic Subluxation" JCCA
2. Pettibon B.R. "Thoracic Spine" Lecture notes, 1978
3. Prill C. "Prill Analysis" privately published 1986
4. DeJarnette M. B. "SOT Manual 1970" Nebraska
5. Pharaoh D. "Chiropractic Orthopedy" Palmer 1956
6. Harrison D.D. CBP website
7. DeJarnette M.B. "SOT Manual 1970" Nebraska