Dynamic Chiropractic

CHRONIC / ACUTE CONDITIONS

Leg Length and Pelvic Fixations

A NEW APPROACH TO THE POSITIVE DERIFIELD TEST.

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A common component of low back pain is sacroiliac joint dysfunction. Signs of SIJ dysfunction can include fixation with reduced range of motion, and localized pain or joint laxity and inflammation. Restoration of SIJ mobility frequently abates pain and restores range of motion and activity.

There are several explanations underlying the pathophysiology of sacroiliac joint dysfunction. A biomechanical description is offered by Greenman,[1] in which he identifies "downslip" and "upslip" of the ilium relative to the sacrum. Greenman's downslip is commonly referred to as a posterior-inferior (PI) ilium. The upslip corresponds to the anterior-superior (AS) ilium.

Radiographic analysis is also used to identify PI and AS ilium on plain-film X-rays,[2] although the findings may be skewed by positional and anatomical variance. A third explanation involves fibroblastic and structural changes within the sacroiliac ligaments resulting in adhesions of the joint interface.[3] All of these underlying events would reasonably result in inflammatory responses, including pain and altered range of motion, in the dysfunctional sacroiliac joint.

To begin, test the patient for sacroiliac joint fixation using the sacroiliac fluid motion test.[4-5] To perform the test, apply a firm, continuous pressure to the medial, superior aspect of the PSIS anterior, inferior and lateral toward the acetabulum. While performing the test, observe the leg-length changes in response to applying fluid motion through the sacroiliac joint space. If only the leg on the side tested elongates, the joint is not fixed. If, on the other hand, both legs elongate simultaneously during the test, the joint is fixed.

The patient with SIJ involvement typically demonstrates leg-length inequality in the prone position. A common assessment procedure is to use the Derifield prone leg check.[6-8] With a positive Derifield[7-8] (+D), the doctor observes a reactive (shorter) leg in the prone extended position that crosses over and becomes long when the knees are flexed to 90 degrees. If the shorter leg remains short when the knees are flexed, the test indicates a negative Derifield[7-8] (-D.) In this discussion, we will assume a +D finding on initial assessment. Usually a PI ilium is on the side of the shorter leg in the prone extended position.[6-9]

If fixation is discovered on the side of the shorter leg in the prone extended position, perform an articular pressure test[6,10-11] for a PI ilium. If the legs become even following the articular pressure test, adjust for a PI ilium on the side tested. One way to adjust a PI ilium, according to Thompson, is to contact the inferior aspect of the PSIS. Apply a thrust inferior to superior and posterior to anterior through the motion plane of the SI joint.[7-8]

If fixation is discovered on the side of the longer leg in the prone extended position, perform an articular pressure test for an AS ilium. If the legs become even following the articular pressure test, adjust for an AS ilium on the side tested. One way to adjust an AS ilium is to contact the upper part of the ischial tuberosity. Apply a thrust superior to inferior and posterior to anterior to rock the ilium posterior inferior down the articulation.[7-8]

Following adjustment of either the AS or PI ilium, the legs should be even in the prone extended and flexed positions. A follow-up sacroiliac fluid motion test after the adjustment will typically also reveal that the joint is now freely movable, indicating the fixation subluxation has been resolved.

Keep in mind that PI and AS iliums are the most common "simple" listings or misalignment patterns for sacroiliac dysfunction. Furthermore, posterior-inferior ilium on the side of the shorter leg tends to occur most frequently. Consequently, most pelvic complaints resolve readily by addressing PI or AS misalignment subluxation. However, a negative Derifield leg check finding (-D) may reveal additional misalignment components of the pelvis including IN or EX ilium, and anterior or posterior rotation of the sacrum.

References

1. Greenman PE. Innominate shear dysfunction in the sacroiliac syndrome. *J Manual Med*, 1986;2:114-121.
2. Herbst RW. *Gonstead Chiropractic Science & Art*. Mt Horeb, WI: Sci-Chi Publications, 1974.
3. Schleip R, Werner K. Active fascial contractility: fascia is able to contract and relax in a smooth muscle-like manner and thereby influence biomechanical behavior. Poster presentation, September 2005, 1st International Congress of Osteopathic Medicine.
4. Burns JR, et al. *Palmer College of Chiropractic Adjusting Technique Manual*. Davenport, IA: Palmer College of Chiropractic, 1981.
5. Pettersson HA, Green JR. *How to Find a Subluxation*. Davenport, IA: Black Athena Press, 2003.
6. Fuhr AW, et al. *Activator Methods Chiropractic Technique, Second Edition.* St. Louis: Mosby-Elsevier, 2009.
7. Laufenberg PC. *Thompson Terminal Point Handbook.* Davenport, IA: J Clay Thompson, 1974.
8. Thompson Educational Workshops. *The Thompson Technique Reference Manual.* Elgin, IL: 1984.
9. Kasperbauer R, et al. Gonstead Methodology Institute: Case Management. Continuing education, Logan College of Chiropractic, January 2014.
10. Haas M, Peterson D, Panzer D, et al. Reactivity of leg alignment to articular pressure testing: evaluation of a diagnostic test using a randomized crossover clinical trial approach. *J Manip Physiol Ther*, 1993;16(4):220-7.
11. Khauv KB, John C. Health-related quality of the improvements in adult patients with chronic low back pain under low-force chiropractic care: a practiced-based study. *Chiropr J Aust*, 2011 Dec;41(4):118-122.