

**SACRAL TORSION ABOUT AN OBLIQUE AXIS:
A NEW APPROACH TO AN OLD PROBLEM**
Jerry Hesch, MHS, PT

INTRODUCTION

This chapter is an in-depth exploration of sacral torsion and of sacroiliac joint dysfunction. It presents a model of nomenclature, of evaluation, and of treatment that is much more user-friendly than the traditional model. For those who do not want to dig deeply into the historical and theoretical reading, but do wish to learn the clinical application, you will find the latter part of the chapter that starts with TORSION EVALUATION will suffice. There are some videos on the topic which you can find by searching for “Jerry Hesch,” “sacral torsion” on www.YouTube.com. I believe the videos will be very helpful.

Manual therapy applied to the sacroiliac joint (SIJ) encompasses a variety of types of movement dysfunctions, and may include a variety of pain presentations. In this chapter, SIJ dysfunction (SIJD) will be defined thus: Sacroiliac joint dysfunction is a movement dysfunction in which movement within the SIJ, or going through the SIJ, is altered, possibly causing pelvic posture to be altered and provoking proximal or distal pain. The pain may be intrinsic to the SIJ, or extrinsic, such as from sacroiliac ligaments and other proximal soft tissue. Due to the proximity of the lumbar and sacral nerve supply, pain patterns can be unclear. True SIJ pain is not always clearly demarcated. Furthermore, the SIJ and lumbar spine are inextricably linked and therefore I deny distinct and separate SIJD without lumbar segmental involvement. In contradistinction to much of the general literature, asymmetry is not a necessary prerequisite for the definition of SIJD, as symmetrical and treatable hypomobilities and hypermobilities do exist. A frequently reported sacral movement dysfunction is named “sacral torsion about an oblique axis,” which is also known as “sacral torsion,” or simply as a “torsion.”^{1,2} Torsions do meet the above definition of SIJD, and are the focus of this chapter. I also include my method of evaluation and treatment for sacral torsions. My work is a distinct departure from the traditional evaluation and treatment paradigm, and is therefore referred to as the *Hesch Method*.

A frequently reported sacral movement dysfunction is named sacral torsion about an oblique axis, which is also known as sacral torsion, or simply as torsion. Torsions do meet the above definition of SIJD, and are the focus of this chapter.

TORSION THEORY

A sacral torsion is a pattern of traumatic, symptomatic, sacral asymmetry with altered movement in the joint. It is described in many works on osteopathic-based biomechanics of the SIJ, including Fryette,³ Greenman,⁴ Mitchell Sr.,⁵ Mitchell Jr., Moran and Pruzzo,⁶ Mitchell, Galen, and Mitchell-Kaia,⁷ Richard.⁸ It is also described in some physical therapy texts.^{9,10} Many typical works on manual medicine, manual therapy, and muscle energy technique (MET) address SIJD and torsion. In the SIJ, torsion is a type of dysfunction in which the sacrum is described as becoming stuck while moving within the ilia about the left or right physiologic oblique axes,^{11,12} (See Fig. 1.) Therefore, torsion can also appropriately be referenced as a sacral “fixation.” There are a total of four types of torsion: Left on Left, Right on Right, Right on Left, and Left on

Right, oftentimes abbreviated as L on L, R on R, R on L, L on R. The nomenclature will be addressed in detail later in the chapter.

Torsion might be an un-physiological dysfunction

Perhaps appearing counterintuitive and somewhat paradoxical, the sacrum can actually go further into the direction of fixation. However, it cannot move back to physiological neutral or beyond it into the opposite direction without a corrective maneuver. This phenomenon is explained as obeying the *Rule of Physiological Motion* (dysfunction). The rule defines physiological motions as those motions which are normal based on the design of the structure. For example, the knee primarily flexes and extends during gait and is *physiological*. A lateral blow to the knee induces a valgus movement which is *un-physiological*. In spite of the fact that torsions obey this rule, I believe that they are not a normative physiological motion, such as part of the gait cycle, per osteopathic theory as described by Greenman,¹³ and perhaps all works on the subject. Rather, it takes a large passive, extrinsic force in addition to vulnerable positioning to induce torsional movements and fixations. For example, activities such as lifting a heavy object with the spine in full flexion, rotation, and side bending.



Figure 1. The left and right oblique axes of the sacrum. The left oblique axis originates above the left side of the sacrum, whereas the right oblique axis originates above the right side of the sacrum.

Torsion theory is often absent in movement science textbooks

It is noteworthy that the concept of torsions is either trivialized without justification, or completely omitted, in several traditional works and in contemporary works on manual therapy, including physical therapy and sports medicine literature.^{14,15,16,17,18,19,20,21,22,23} These works do address the general concept of SIJD. A few manual medicine practitioners, such as JF Bourdillon, MD²⁴ and K Lewitt, MD, DSc,²⁵ do not endorse a torsion model. Also, a remarkably detailed textbook on joints; *Joint Structure & Function: A Comprehensive Analysis*, briefly covers the SIJ in less than four pages, but avoids sacral torsions.²⁶ Another thorough textbook, *Kinesiology of the Musculoskeletal System: Foundations for Physical Rehabilitation*, also limits explanation of sacral motion to nutation and counter nutation.²⁷ The topic of sacral motion is limited to only a single page. Both of these textbooks hold a very prominent location in my library, and if published clinical studies existed that showed the utility of treatment for torsion, I

-
- ¹ Greenman PE. *Principles of Manual Medicine*. Baltimore, MD: Williams & Wilkins, 1989:227-229.
 - ² Schamberger W. *The Malalignment Syndrome*. Edinburg, Scotland; Churchill Livingstone, 2002:55-57.
 - ³ Fryette H. *Principles of Osteopathic Technic*. Carmel, CA. Academy of Applied Osteopathy, 1966.
 - ⁴ Greenman, op. cit. 1989:227-229.
 - ⁵ Mitchell F Sr. Structural Pelvic Function. *Academy of Applied Osteopathy* 1958:72-90.
 - ⁶ Mitchell F Jr, Moran P, Pruzzo N. *An Evaluation and Treatment Manual of Osteopathic Muscle Energy Procedures*. Valley Park, MO: ICEOP, 1979.
 - ⁷ Mitchell Fred Jr, Galen Mitchell P. Kai. *The Muscle Energy Manual, 1st ed*. East Lansing, MI. MET Press, 1995.
 - ⁸ Richard R. Sacral lesions in torsion about an oblique axis. In: Richard R. *Osteopathic Lesions of the Sacrum*. New York: Thorsons Publishing Co. 1986:255-272.
 - ⁹ Nyberg R. Pelvic girdle. In: Payton O, ed., *Manual of Physical Therapy*. New York: Churchill Livingstone, 1989:372-376.
 - ¹⁰ Woerman A. Evaluation and treatment of dysfunction in the lumbar-pelvic-hip complex. In: Donatelli R, Wooden M, eds. *Orthopaedic Physical Therapy*. New York: Churchill Livingstone, 1989:391-392.
 - ¹¹ Schamberger, op. cit. 2002:55.
 - ¹² Woerman op cit 1989.
 - ¹³ Greenman. op cit. 1989:228-230.
 - ¹⁴ Maitland GD. *Vertebral Manipulation, 5th ed*. London. Butterworths, 1986:314-317.
 - ¹⁵ DonTigny R. Dysfunction of the sacroiliac joint and its treatment. *JOSPT* 1979;1:23-35.
 - ¹⁶ DonTigny R. Function and pathomechanics of the sacroiliac joint. *Phys Ther* 1985;65: 35-44.
 - ¹⁷ DonTigny R. Anterior Dysfunction of the Sacroiliac Joint as a Major Factor in the Etiology of Idiopathic Low Back Pain Syndrome. *Phys Ther* 1990; 70:250-262.
 - ¹⁸ Grieve G. *Modern Manual Therapy of the Vertebral Column*. NY: Churchill Livingstone, 1986:329-324.
 - ¹⁹ Makofsky HW. *Spinal Manual Therapy*. Thorofare, NJ: SLACK Incorporated 2003:170.
 - ²⁰ Porterfield J. The sacroiliac joint. In: Davis G, Gould J, eds. *Orthopedics and Sports Physical Therapy*. St Louis: CV Mosby, 1985:550-579.
 - ²¹ Porterfield JA, DeRosa C. The sacroiliac joint. In: Davis G, Gould J, eds. *Orthopedic and Sports Physical Therapy, 2nd ed*. St Louis: Mosby-Yearbook; 1990:553-574.
 - ²² Porterfield J, DeRosa C. *Mechanical Low Back Pain: Perspectives in Functional Anatomy*. Philadelphia:W.B. Saunders 1991.
 - ²³ Prather H, Hunt D. Sacroiliac joint problems. In: Guanche CA, ed. *Hip and Pelvis Injuries in Sports Medicine*. Philadelphia: Lippincott Williams & Wilkins, 2010:200-206.
 - ²⁴ Bourdillon JF, Day EA. *Spinal Manipulation, 4th edition*. London: William Heineman Medical Books, 1987:64-65.
 - ²⁵ Lewitt K. *Manipulation in Rehabilitation of the Locomotor System, 2nd ed*. London: Butterworth, 1999:162-164.
 - ²⁶ Levangie PK, Norkin CC. The hip complex. In: *Joint Structure & Function: A Comprehensive Analysis*. Philadelphia:F.A. Davis, 2005:368-372.
 - ²⁷ Neumann D. Axial skeleton: osteology and arthrology. In: *Kinesiology of the Musculoskeletal System*. St Louis, MO. Mosby Inc., 2002:303-305.

Sacral Torsions 1. A positive seated flexion test on the RIGHT denotes what axis? 2. Negative spring test (there is good, easy anterior spring) denotes what dysfunction? 3. with the above info and landmarks of Anterior (deep) sulcus right and posterior ILA left What is the Diagnosis? Unilateral Sacral Flexion: 1. The slippage of one sacroiliac joint about a vertical axis with translation of the sacral base (the sacrum appears to be side bending on an A-P axis). 2. Positive seated flexion test (usually) on dysfunctional side. 3. Spring test NEGATIVE (forward motion present) Sulcus deep on same side as positive seated flexion test ILA posterior on same side as positive seated flexion test this gives you a unilateral sacral flexion. SACRAL TORSION ABOUT AN OBLIQUE AXIS: A NEW APPROACH TO AN OLD PROBLEM Jerry Hesch, MHS, PT INTRODUCTION This chapter is an in-depth exploration of sacral torsion and of sacroiliac joint dysfunction. It presents a model of nomenclature, of evaluation, and of treatment that is much more userfriendly than the traditional model. A frequently reported sacral movement dysfunction is named sacral torsion about an oblique axis, which is also known as sacral torsion, or simply as torsion. Torsions do meet the above definition of SIJD, and are the focus of this chapter. TORSION THEORY A sacral torsion is a pattern of traumatic, symptomatic, sacral asymmetry with altered movement in the joint. A New Approach to an Old Problem. Read later - download this post as PDF >> click here <<. by Jerry Hesch, MHS, PT. Read this very informative chapter in its entirety in the Dynamic Body Textbook. If torsion is present, you will be able to spring three sacral quadrants. However, you will not be able to take up the slack on the prominent and stuck sacral quadrant in yoga child pose, nor in prone neutral a small percentage of the time. Even by increasing the force to 20 pounds or somewhat greater, the joint will not spring. In time, you will easily realize that the prominent sacral quadrant is always the stuck one, and you can skip the spring/micro-motion test and directly proceed to treatment. Learn more about our Lower Body Home-Study course. Click here for more information. Torsion on structural elements may be classified into two types; statically determinate, and statically indeterminate. In Figures 5.1.a through 5.1.e several examples of beams subjected to torsion are shown. In these figures, torsion results from either supporting a slab or a beam on one side only, or supporting loads that act far away transverse to the longitudinal axis of the beam. Shear stresses due to torsion create diagonal tension stresses that produce diagonal cracking. If the member is not adequately reinforced for torsion, a sudden brittle failure can occur. Since shear and moment usu