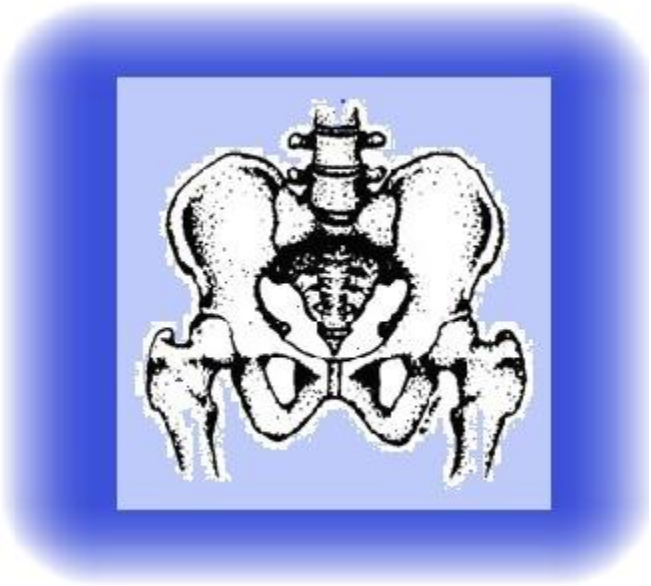
THE HESCH METHOD OF TREATING SACROILIAC JOINT DYSFUNCTION: INTEGRATING THE SI, SYMPHYSIS PUBIS, PELVIS, HIP AND LUMBAR SPINE

BASIC AND INTERMEDIATE WORKBOOK



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1985, ©1992, Latest Revision October 27, 2011

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By jh 2011

ACKNOWLEDGEMENTS

I would like to thank our Creator, my parents Reuben and Bernadine Hesch (both deceased) for their love, encouragement and understanding. Thanks to my brother Paul Hesch (deceased) for helping with my education. To my dear wife Karin French-Hesch, my life is so rich because you are in it. To my sons Jerry, Gabriel, Jody and Adam, Jerry's wife JoJo and grandchildren Emery and Gage, and now Charlotte and parents Eli and Amanda; you all are the tinsel and ornaments on the tree of life. Chari, you come in the room light up like a Christmas tree on skates!

To Karen Nielsen, my recent Administrative Assistant who helped birth the HESCH INSTITUTE.

To my instructors at University of New Mexico, Fred Rutan (deceased), Bill O'Brien, Cindy Gregory and Susan Roerhig. Thank you for your patience, your nurturing, and for this career. To Dick DonTigny, who in 1981 was a mentor in the true sense of the word, he taught me to love the sacroiliac joint, and pointed the way.

To Lori Magnuson, Rina Luban, Robert and Jill Breton, Luanne Olson, Lynn Leech, Theresa Kraemer, who in countless ways have promoted the work. Thank you for your faithfulness, for your sense of vision for this work, and for being a significant part of this process. I especially want to acknowledge the contributions of Rina Luban PT, and William J. Brooks, D.O. who have strongly influenced the development of the advanced work. To Gill Mazer and Maryann Cisco, who encouraged me to teach my first seminar. There are so many others who have contributed to this work and I am grateful to all of you. Thank you Rob Shapiro, MPT for letting me play mentor (2006), great discussions that inspired me to do more, and I really like you naming my Spring Tests "*Springing with Awareness*". Thank you also for funding the seminar on DVD for the Distance Learning Program. Thank you to so many others who have helped.

To Professor Andry Vleeming, a great anatomist who has brought many of us together and forever changed the paradigm of lumbopelvic joint dysfunction. Thank you also to Vert Mooney (deceased), Chris Snijders, Rob Stoeckart, and Thomas Dorman.

To my patients for coaxing my skills, and to my co-workers who also support the work, especially my former co-workers Kim Hughes and Barbara Fuller, I fondly recall all the fun we had! To clinicians, instructors, researchers, and writers, who have shared their talents. To all who have been so kind and supportive.

Jerry Hesch, MHS, PT, Hesch Seminars and PT, LLC, March 2009

QUOTATIONS

This evaluation and treatment approach may have more to do with the integration of the hip, pelvis (as a single structure), and lumbar spine than the SI joint itself, and I take great comfort in gradually de-emphasizing the latter. The biomechanics of the pelvis (as a single structure) are very relevant. The pelvis can move on both femoral heads, yet move asymmetrically. The posterior soft tissues of the back and pelvis will distort asymmetrically and give the appearance of "SIJ mechanical dysfunction". Much of what we call SIJD is actually a deformation of posterior soft tissues with a fairly predictable pain pattern that requires direct treatment as opposed to various lumbar spine paradigms. The pelvis being connected to the lumbar spine and trunk, distorts them as well. I hope that in time clinicians will include thorough testing of the pelvic (as single structure) biomechanics, as this large structure has a relevant influence on proximal soft tissues, distal structures due to the righting reflex, and again, influences the hips, the lumbar spine, etc.

The paradigm of "SIJ Dysfunction" remains controversial, depending on what literature you read. Research has recently shown that manipulation does not alter the position of sacroiliac joint[1], and that a common traditional movement test does not actually induce motion in the SIJ[2]. Quite some time ago, prior to the above research, many of the traditional tests were brought into question[3]. Some manual therapists continue to teach those tests, while others are abandoning the paradigm of SIJ dysfunction altogether. Altered pelvic landmarks, which are rendered symmetrical with intervention; do not validate that the SI joint was successfully treated. Many times it means that the pelvis itself has improved posture, not a bad thing to achieve! This approach is a relevant paradigm for both "true SIJ dysfunction" and altered pelvic mechanics.

Jerry Hesch, MHS, PT

The importance of the normal structural function of the pelvis can be expressed very sufficiently by saying that the pelvic girdle is the cross-roads of the body, its architectural center, the meeting place of the locomotive apparatus, the resting place of the torso, the temple of the reproductive organs, the framework within which new life develops, the place of the two main functions of elimination and last but not least a place on which to sit down.

Fred L. Mitchell, D.O.

Little wonder that the ancient phallic worshipers named the base of the spine the sacred bone. It is the seat of the transverse center of gravity, the keystone of the pelvis, the foundation of the spine. It is closely associated with our greatest abilities and disabilities, with our greatest romances and tragedies, our greatest pleasures and pains.

H.H. Fryette D.O.

Fortunately, biomechanical research into the pelvic girdle is increasing and, as new knowledge is acquired, the theoretical construct provided here may well need modification.

Philip E. Greenman D.O.

Unfortunately, cadaver dissections and static biomechanical analysis cannot replicate living anatomy nor duplicate habitual movement of the lower extremity either in weight-bearing or non-weight-bearing. In light of current scientific data, the presence or absence of sacroiliac joint mobility and its significance to the patient's presenting complaints are best judged by accurate, objective, clinical evaluation. In the absence of bony intra-articular ankylosis, the clinical impression is that age does not preclude motion— the individual's ontogeny may just be slightly behind his time.

Diane Lee, P.T.

The differential diagnosis between sacroiliac dysfunction and low back pain is difficult.

Alvin Stoddard, D.O.

Dogma dulls the wits! Sometimes arbitrary and perhaps impatient attempts to impose order, reason, and logic from without, on the irrational behavior of signs and symptoms in common joint problems, may be misguided and counterproductive. The body cannot read books and know what is confidently expected of them by the theorist, logician, and biomechanist. In our enthusiasm for this or that therapeutic revelation we sometimes overlook the infinite range of biological plasticity of response, and the individual uniqueness of response, which makes fools of all of us at one time or another. Perhaps it is wiser to let joints speak for themselves, especially in the matter of palpatory findings, and to assess and treat joint problems on the basis of acceptance of what is there to be observed, while views about its genesis must often remain unproven.

In our condition of limited, albeit increasing certainty, careful and clinically responsible empiricism, and moderation in the use of vigor during treatment seem to be prudent things. Humanly, we seek a guru, with the short and certain answer to our difficulty of swimming in a sea of relativity, and of making up our own mind on the evidence before us. It is as unrealistic to hold that most sacroiliac area pain arises from the joint itself as it is to solve difficult problems by asserting that it all comes from the lumbar spine. In assessing the clinical status of this mysterious joint we need all the discernment we can muster.

Gregory P. Grieve. *Common Vertebral Joint Problems.* Churchill Livingstone, NY, 1983.

INTRODUCTION

My first introduction to the pelvic joints was rather inelegant and occurred in 1974. I was riding a motorcycle on some bumpy terrain and accelerating at 45 miles per hour. It was great fun, but I started to lose control and applied the brakes, which locked. I encountered the gas tank with my left pubic bone/ischium. I limped home sans motorcycle and humbly informed my brother that his motorcycle was near the railroad tracks. I moved rather slowly and utilized a kidney belt for several weeks. I sought medical care and was assured that time would take its course. If memory serves me, I managed fairly well for quite some time. I sought some care through manipulation and Rolfing. I was interested in both approaches, but also sensed that there were additional methods available for integration. Upon completing my last clinical affiliation as part of my physical therapy training, it was suggested that I take a job with Richard DonTigny, as he was known for his work on the sacroiliac joint. I claim full responsibility for my internal response of *Sacroiliac? What is that joint like?* I had little memory of that joint and felt quite inadequate in my understanding of that region of the body. I accepted the job and was very fortunate to have him as a mentor. I read and reread his work several times, and it took quite some time before I felt that I had an elementary grasp of the concept of sacroiliac joint dysfunction. When he treated my sacroiliac, I felt an incredible sense of relief, which lasted for quite some time.

I started to read everything I could get my hands on, and started to question some of the things I was reading. A lot of what I read seemed to oversimplify a complex problem. As an example, the most common pattern of lumbopelvic movement dysfunction has up to 8 components which occur sequentially though they are traditionally presented as disjointed random events. Other times the literature seemed to over complicate a simple problem, such as describing triplane sacral mechanics as though they were the norm, when sacral motion dysfunction is typically uniplanar or biplanar and rarely triplanar.

I was very surprised that passive accessory motion tests were given minimal if any application to the pelvic joints, and yet were part of a standard orthopedic physical therapy evaluation of every other joint in the body. I started to apply the few accessory motion tests that I encountered in the literature and developed several more and refer to them as Spring Tests. I felt very strongly that if the literature indicated that the structure moved a certain way we should be able to validate the motion or lack thereof with the Spring Tests. Initially these were utilized in pure planes and in pure directions. Over time I became convinced that the biomechanics of the SI, symphysis pubis, and pelvic structure was quite different than what was being propounded, yet undeniably there was a lot of good in the traditional model also. The current model which the profession has adopted was developed in the late 1950's and is presented within different treatment paradigms such as manual therapy, muscle energy, strain/counterstrain, etc. There have been some minor changes, but I would refer the reader to Mitchell's landmark article (1958). I am grateful for his contribution and hope that I have honored his work (and that of his contemporaries) by making it more accessible, more understandable, adding Spring Tests, and developing it further. One cannot take away but rather can only add to a work of significance.

Initially I was very focused on the concept that motion occurs in the SI joint and treatment should restore normal functional mobility and stability within the joint. I am now much more broad minded and view motion as something that must occur *through* the SI joint. Initially I thought the Spring Tests measured motion *occurring in* the joint, and now believe they may assess motion occurring *through* the joint; and I feel strongly that this is an important distinction. For example, several muscle groups are essentially inaccessible to direct assessment or are only partially accessible, especially with respect to palpation, such as the iliacus, psoas, quadratus lumborum, and pelvic floor. These muscles can have a significant influence on pelvic posture and mobility as measured by "Joint Spring Tests". Fortunately, in spite of this lack of clarity (pure joint restriction versus muscular restriction), treatment is usually fairly straightforward, and usually very effective in restoring mobility/integrity as measured by the Spring Tests. The Spring Tests measure a very important and inextricable functional property of joints; which is joint play. The growth in our understanding of the role of joint receptors with respect to overall function of the neuromusculoskeletal system and their relation to pain syndromes mandates their inclusion in treatment paradigms. Increase or decrease in joint mobility is usually treatable and has much to do with respect to overall rehabilitation goals. I much prefer to view the lumbopelvic-hip complex as part of the integrated neuromuscular-multi-joint system that is not fully understood at this point in time. Within this paradigm is a respect of the functional interdependence of the "whole body." From this perspective one should never treat the lumbopelvic-hip complex in isolation.

My contributions to the evaluation and rehabilitation of the lumbopelvic complex are:
A uniquely thorough palpatory assessment, integrating multiple landmarks and systematic, three dimensional techniques for identifying landmarks.

Multiple articular accessory motion tests (Spring Tests). The Hesch Method is much more Spring Test driven than any other of which I am aware, which contributes to a clearer understanding of the client's dysfunction.

Refinement of several traditional patterns of dysfunction by expanding on their description; such as describing Anterior Ilium Dysfunction as a triplanar pattern, not a uniplanar or biplanar phenomenon.

Identification of and treatment techniques for several new patterns of pelvic joint dysfunction.

The most common patterns of dysfunction are in the basic workbook; the advanced material includes less common, but no less significant patterns. In fact, the advanced work can be the "missing ingredient" for treatment of complex or chronic dysfunction, such as was the cased with my own injury. Developing a logical sequence in which some of the common dysfunctions are encountered in the clinic, thus making evaluation and treatment logical and sequential for the first and second most common patterns of lumbopelvic dysfunction.

Treatment featuring short levers, with low-load and long duration stretches/mobilizations. This approach is gentle on the clinician yet empowering to the client. Treatment hold times are longer than the traditional approach, with the belief that creep (deformation over time) is the key to quickly resolve biomechanical dysfunction. Most treatments can be performed by the client

easily, and patient education is considered to be an important aspect of care.

A technique that purports to evaluate the transfer of energy thru the pelvis, instead of relying on pain-provocation or postural compensations.

A method capable of identifying symmetric dysfunction of the pelvis, in addition to the more traditional asymmetrical patterns.

I think that a deeper understanding of this problem has come from a continual state of questioning and receptivity, allowing the joint to `speak for itself.' I am less concerned about *how* one treats the joint than I am about the importance of a thorough evaluation and re-evaluation to assure that treatment goals are realized, as the joint undergoes several permutations throughout the course of treatment. I am convinced that there are many adequate approaches to treatment and offer what usually works readily in my hands.

I think I have imaged almost every conceivable way the joint/structure can move. I have been blessed with a healthy dose of empiricism and have been frustrated with traditional approaches to the lumbopelvic region. Integrating the lumbar spine with the pelvis, and vice-versa is an on-going lesson for me. The lumbopelvic-hip complex is inter-connected, inextricably linked, as it is also with the rest of the neuromusculoskeletal system.

Philosophically, the problem needs a whole body approach. This cannot be expressed within this workbook and within the constraints of a 2 or 3-day workshop. I consider exercise, patient education, and self-treatment to be critical components of successful rehabilitation. These concepts are not fully expressed in the workbook or workshop due to space and time constraints.

This workbook is not designed to stand alone, but rather is designed to accompany a hands-on workshop. Several original and key concepts have been purposely omitted from the workbook to protect my ownership. I am convinced that this hands-on approach cannot be learned by reading about it, and post seminar surveys have reinforced this belief. Several key concepts are unique and at odds with traditional theory. These were realized by allowing the joint to `speak for itself' and seem to be learned optimally via an empirical approach.

The integration of this approach with the rest of your clinical skills is a challenge that will develop into the art of your own unique expression. I am honored to be a part of that. This workbook has undergone many laborious revisions over the past years and I hope that I have succeeded in making it serve as a useful tool in your clinical armamentarium. This work has evolved only because others have coaxed me along the way and because they have shared their resources of time and talent. The evolution needs to continue and I invite your participation.

Jerry Hesch, Hesch Seminars and PT, LLC September 6, 2010

DEFINITION OF SACROILIAC JOINT DYSFUNCTION

SIJ dysfunction is defined as altered mobility of the SIJ/pelvic structure per passive accessory motion tests, also named Springing with Awareness, which is a specific manner of performing Spring Tests. The tests are performed with the client's body in stable positions, which are correctable with intervention. The pelvis may or may not be symmetrical. In other words, a symmetrical pelvis can present with hypomobility or hypermobility that is treatable. SIJ dysfunction may also have altered proximal soft tissues, especially if asymmetry is present. The literature describes a fairly unique pain pattern with SIJD, however this model is a biomechanical model, and many more clients have treatable pelvic asymmetry that is relevant to the concept of prevention and optimizing biomechanical function. Pain does not have to be present in order to have SIJ dysfunction.

Chapter 1 - ANATOMY

ARTICULAR REVIEW

(for your reference, please see Figures at the end of this chapter)

The pelvis is comprised of the ilia, ischia, pubes, and sacrum.

The sacroiliac joint (SIJ) is best described as a synovial joint, as it has five of six synovial characteristics. It has a joint cavity with synovial fluid, a capsule with an outer fibrous layer and inner synovial membrane, cartilage covering the joint surfaces, and ligamentous connections, and it has definite motion. The main non-synovial characteristic is that only one joint surface is hyaline (the sacrum), while the ilium is covered with fibrocartilage (Bowen and Cassidy 1981).

The SIJ is a true joint and does not necessarily fuse. A recent review of one hundred CT scans revealed the average age for grade zero joint narrowing to be sixty six, and grades one (slight narrowing) and two (moderate) to be sixty-seven (Yagan 1987).

The SIJ has up to three planes which are angulated to each other. It is impossible to visualize the entire joint surface on radiographs.

The sacrum is shown in the dorsal, ventral, transverse and sagittal views.

The joint has many furrows and interdigitations and may vary from individual to individual and side to side in the same person. The iliac surface is not an exact mirror image of the sacral articular surface.

The angle of the joint orientation as well as that of the lumbosacral facets may vary from side to side. Several types have been identified.

Solonen (1957) studied sacral articular orientation in the frontal and transverse planes. In the frontal plane 90% of specimens narrowed inferiorly at S1, 85% narrowed inferiorly at S2, and 80% then widened inferiorly at S3. In the transverse plane, S1 and S2 narrow posteriorly and S3 widens posteriorly.

Fryette (1954) described six types of sacra. Type A narrows in the frontal plane inferiorly at S1 and S2. It widens inferiorly at S3, and the superior facet orientation (lumbosacral) is in the frontal plane. The dorsal surface (transverse width) is slightly wider at S1, more so at S2, and narrower at S3.

In the frontal plane type B widens inferiorly at S1, its transverse width is much less ventrally at S1, and the superior articular facets are oriented sagittally (lumbar type).

Type C is a combination of type A on one side and type B on the other with regard to both sacral articular and lumbosacral facet orientation.

Fryette also described a type D with smooth convex surface on the anterior to posterior sacral articular surface. This type corresponds with the "rare" (my own quotations) Inflare or Outflare.

Type E is the average type described elsewhere (central depression, elevation at each end).

Type F is extremely irregular and concave with significant stability.

The great variety of anatomical possibilities requires an individual approach to every presentation. Based on the variety of sacral types described above, one realizes that the only clinical tool we have available to make conclusions about movement dysfunction is to gather information using multiple articular Spring Tests. The range of possibilities of joint orientation requires individual approaches to treatment. If one realizes that the joint can move in three planes and may have up to six degrees of freedom in dysfunctional joints, evaluation and treatment can have a logical approach, with a limited number of permutations. The joint Spring Tests and descriptions of the most common types of dysfunction are presented elsewhere.

Most sacra narrow inferiorly in the frontal plane. Some widen inferiorly, and others are a combination.

In the transverse plane most sacra have a narrower dorsal surface. If one could make a single plane of the articular surface, it could be described as "parasagittal" with approximately a 30-45 degree angle away from the sagittal plane. This is visualized clinically by connecting the anterior superior iliac spines (ASIS's) with the posterior superior iliac spines (PSIS's).

In the sagittal plane the sacral articular shape is described as "C" shaped, or as an inverted "L" or auricular (ear) shaped. The convex part is anterior. The short arm is narrower and is superior; the longer, wider arm is inferior.

The angle of the two arms varies from an acute angle in a dynamic type spine (curves are accentuated, and it has more mobility), to a static type spine (reduced curves, less mobile) to an almost purely vertical articular surface as noted by Kapandji.

The upper arm is usually formed at the first sacral segment. The lower arm is usually formed at S2 and S3. The PSIS's are usually at the level of S2, where the apex of the arms is located. A medial view of the sacrum and ilium shows the articular surfaces.

Occasionally accessory articulations are present; usually these are posterior to the first or second sacral segments. They are much more common in adult specimens and may develop in response to the stress of weight-bearing (Ehara et al. 1988).

The SI joint may occasionally span as far down as the fourth sacral segment. The sacrum has a central depression with elevations at each end. The ilium is similarly shaped, though not a mirror image, with a central elevation known as Bonnare's tubercle. The joint is beautifully designed to tolerate stresses in all directions.

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ANATOMY FIGURES

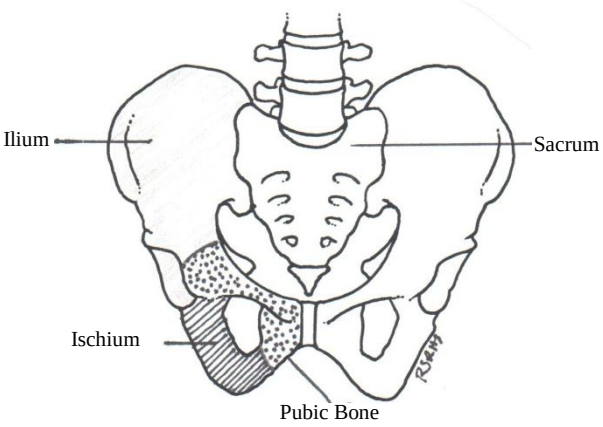


FIGURE 1. The bony pelvis is comprised of the ilia, ischia, pubic bones and sacrum.

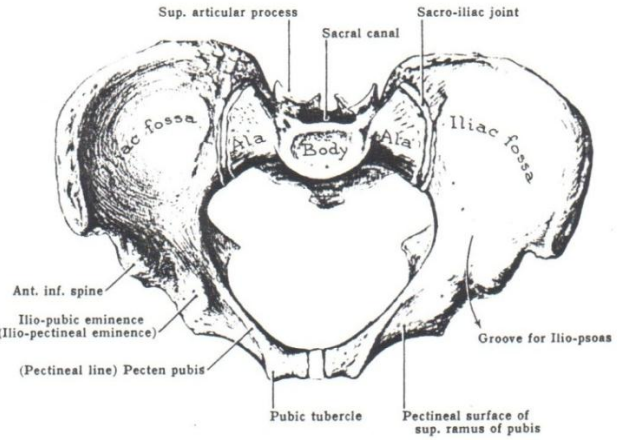
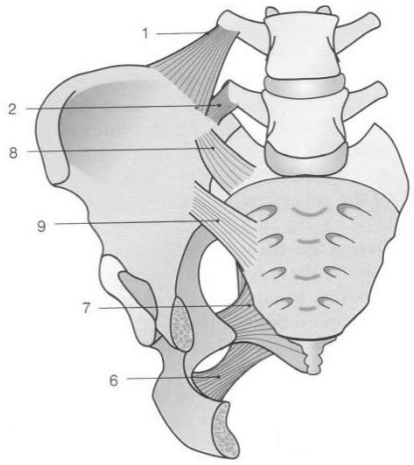


FIGURE 2. Transverse view of the pelvis.



Following are labels for **FIGURES 3, 4a & 4b**:

1. Iliolumbar Ligament Superior Bundle.
2. Iliolumbar Ligament Inferior Bundle
3. Superior Sacroiliac Ligament
4. Posterior Sacroiliac Ligaments Note variation in attachments.
5. Anterior (deeper) Portion of the Dorsal SIJ Ligaments. Note the insertion onto the sacral tubercles.
6. Sacrospinous Ligament.
7. Sacrotuberous Ligament.
8. Anterior Sacroiliac Ligament (superior portion).
9. Anterior Sacroiliac Ligament (inferior portion).
10. Axial Portion of Interosseous Ligament (also named Illi's ligament).

FIGURE 3. Anterior view of the pelvis with ligaments. (Kapandji 2008 p59)

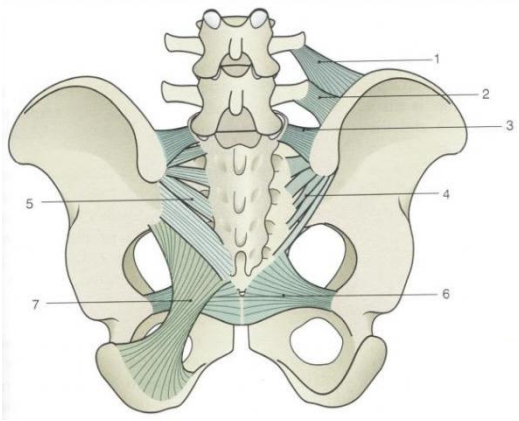


FIGURE 4a. Posterior views of the pelvis with ligaments . (Kapandji 2008 p59)

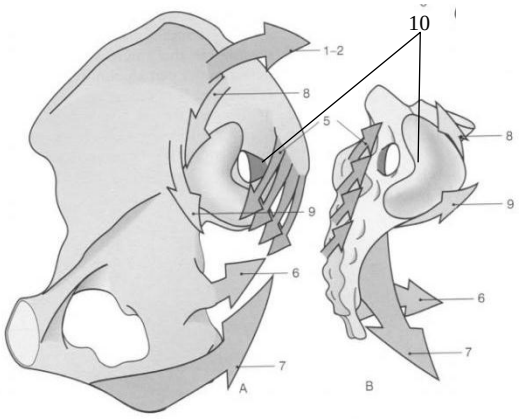


FIGURE 4b. Medial views of the pelvis with ligaments. (Kapandji 2008 p59)

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DEFINITIONS

Many of these movement definitions are different from those encountered in the literature, especially with regard to patterns of sacroiliac joint dysfunction. This approach was developed because of frustration with traditional definitions and approaches. These definitions are based on the use of more landmark palpation and a much greater number of articular Spring Tests, rather than gross motion tests.

ACCESSORY MOTION: An involuntary joint movement that is necessary for full normal motion. There are two types; component motion and joint play (see definitions).

ACCESSORY MOTION MOBILIZATION: Motion performed at a joint for the purpose of evaluation or treatment. Three common types are distraction, glide and compression.

ANTERIOR ILIUM: A movement dysfunction in which the ilium moves anteriorly on the sacrum. The ASIS will be anterior, inferior and medial. The PSIS will be anterior, lateral and superior in relation to the opposite side. Anterior rotation about a transverse or para-transverse axis is increased while posterior rotation is decreased.

ANTERIOR PUBIC BONE: A movement dysfunction in which the entire portion of one pubic bone shifts anteriorly. Both superior and inferior portions of the pubic bone will be anterior. It will display increased anterior motion, but decreased posterior motion. The soft tissue overlying the pubic bone on the side of dysfunction may be tender.

A-P: Anterior to Posterior.

APPARENT HYPERMOBILITY: Initially a joint will appear to be hypermobile, but has normal (or improved) stability with simple procedures applied over a very short period of time. Oftentimes stability is enhanced by treating the hypomobility which coexists. (Compare this with the definition for True Hypermobility.) Muscle length/strength imbalances are common with apparent hypermobility. Most clients have a combination of apparent hypermobility and apparent hypomobility.

APPARENT HYPOMOBILITY: Initially a joint will appear to be hypomobile, but has normal (or improved) mobility with simple procedures applied over a very short period of time. (Compare this with the definition for True Hypomobility.) Muscle length/strength imbalances are common with apparent hypermobility. Most clients have a combination of apparent hypermobility and apparent hypomobility.

ARTHROKINEMATICS: The movement of one joint surface on another without regards to the motion of the bones. Examples are roll, spin, and glide. (Contrast this with osteokinematics.)

ARTICULATION: The junction of two or more bones. It also defines the process of moving a joint through part or all of its range of motion.

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APPENDIX 1 – HOME EXERCISE PROGRAM
SELF TREATMENT EXERCISES FOR THE MOST COMMON PATTERN

☐ 1a. SELF- TREATMENT FOR RIGHT SIDE GLIDE DYSFUNCTION

Lie on your LEFT side with pillows under your pelvis, hips and knees straight in line with the trunk. Pillows should be high enough so you perceive a comfortable, gentle stretch. Add or subtract pillows as needed. Maintain the stretch for 3-5 minutes 1-2 times a day for one week, then twice a week thereafter.

☐ 1b. SELF-TREATMENT FOR LEFT SIDE GLIDE DYSFUNCTION

Lie on your RIGHT side with pillows under your pelvis, hips and knees straight in line with the trunk. Pillows should be high enough so you perceive a comfortable, gentle stretch. Add or subtract pillows as needed. Maintain the stretch for 3-5 minutes 1-2 times a day for one week, then twice a week thereafter.

These exercises should only be performed as instructed by your health care clinician. Stop if you have any unusual response such as increased pain, numbness, tingling, etc., and report it.

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The Hesch Method

Home Exercise Program for SI/Pelvic Joint Dysfunction

Page	#	Exercise	Week 1							Week 2	
		MOST COMMON PATTERN	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7		
1	1	Side Glide Dysfunction (L or R)									
2	2	Left Posterior Pubic Bone									
2	3	Right Anterior Ilium	AM/PM								
3	4	Posterior Ilium	AM/PM								
4	5	Flare Exercises									
		Step 5a									
		Step 5b									
		Step 5c									
		Step 5d									
		2ND MOST COMMON PATTERNS	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	**Week 2**	
5	6	Posterior Trochanter	AM/PM								
6	7	Bilateral Inflare	AM/PM								
6	8	Bilateral Anterior Ilium	AM/PM								
7	9a	Forward Bent Sacrum	AM/PM								
7	9b	Bilateral L5-S1 Extension	AM/PM								
7	10	Self Traction	AM/PM								
8	11	Sitting Lumbar Traction-Decompression	AM/PM								
		OTHER PATTERNS	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	**Week 2**	
8	12	Superior Pubic Bone (L or R)	AM/PM								
9	13	Ilium Upslip (L or R)	AM/PM								
9	14	Downslip against a Wall	AM/PM								
10	15	Downslip with Vertical Support	AM/PM								
11	16	Sacral Torsion	AM/PM								