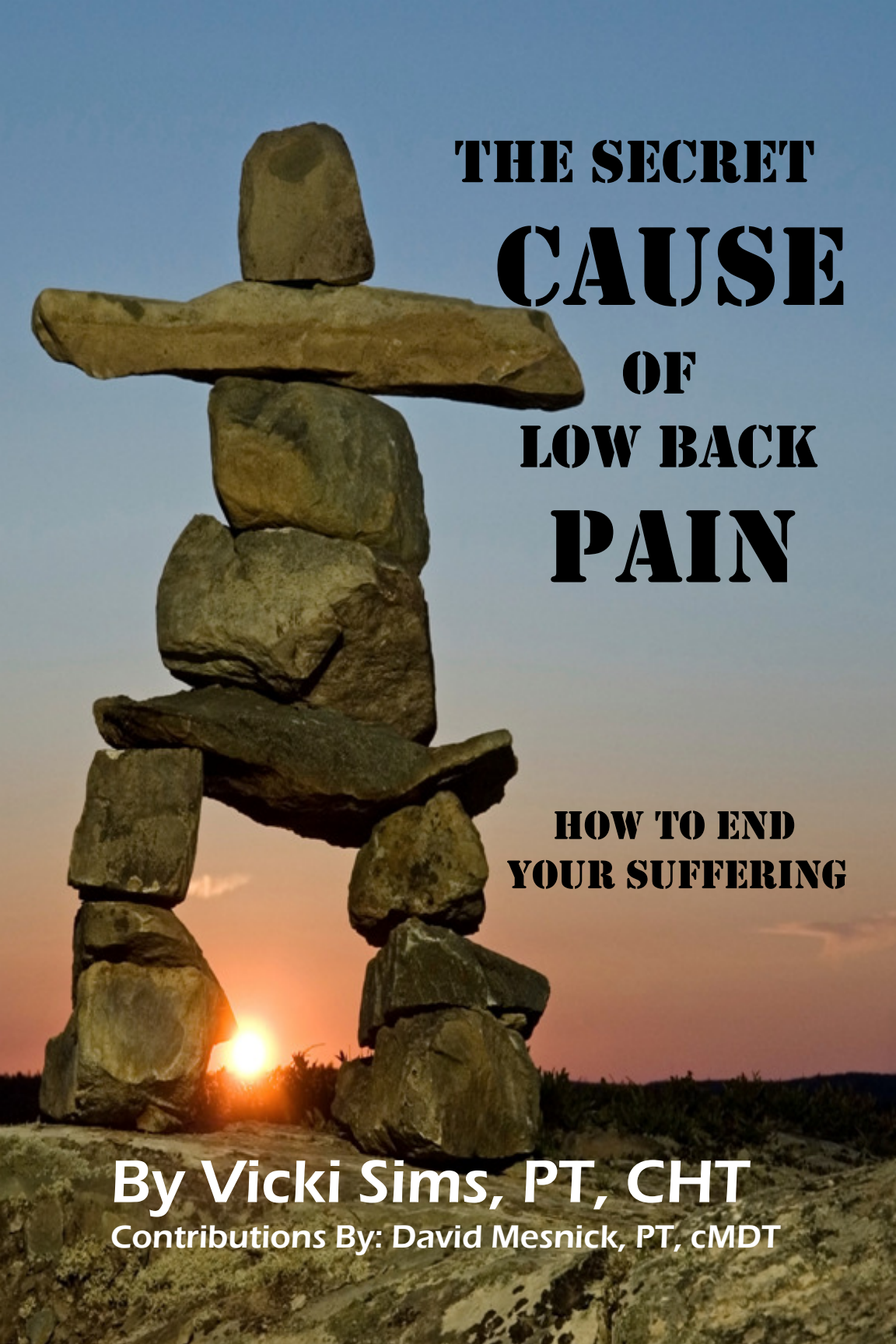

THE SECRET
CAUSE
OF
LOW BACK
PAIN
HOW TO END
YOUR SUFFERING
By Vicki Sims, PT, CHT
Contributions By: David Mesnick, PT, cMDT

THE SECRET CAUSE OF LOW BACK PAIN

HOW TO END YOUR SUFFERING

By Vicki Sims, PT, CHT
Contributions By: David Mesnick, PT, cMDT

Revised edition, 2011
First edition, Copyright © 2004
Published by SI Press
1296 Sims Street, Suite A
Gainesville, Georgia 30501
www.sipress.com
www.gainesvillept.com
www.sidysfunction.com
www.sacroiliacsurgery.com

Designed and typeset by Deborah Hiler Godfrey

Cover by Hollie Autry

Faithful reproduction of a lithograph plate from Gray's Anatomy,
Henry Gray (1821-1854) on page 7

This faithful reproduction of a lithograph plate from Gray's Anatomy, a two-dimensional work of art, is not copyrightable in the U.S. as per Bridgeman Art Library v. Corel Corp.; the same is also true in many other countries, including Germany. Unless stated otherwise, it is from the 20th U.S. edition of Gray's Anatomy of the Human Body, originally published in 1918 and therefore lapsed into the public domain. Other copies of Gray's Anatomy can be found on Bartleby and also on Yahoo!.

The author is grateful for permission to use material from the following sources:

- "Application of a pelvic belt" by Diane Lee
- "Pelvic stabilization exercise" by David Mesnick, PT, cMDT and Autumn Gehrlich, PTA
- "Prolotherapy" by Alan B. Lippitt, MD
- "Sacroiliac joint stabilization" by Alan B. Lippitt, MD

Manufactured in The United States of America

ISBN 978-0-9760347-3-5

ACKNOWLEDGMENTS

I am most grateful to Alan B. Lippitt, MD, a pioneer in his field, for having the courage to develop and use a surgery that was nonconventional, but has helped many who suffer from sacroiliac joint instability. Without his confidence and encouragement the development of these concepts and treatment methods would not have been possible.

My warmest thanks must go to the clinicians who contributed to this text: Dr. Alan B. Lippitt, Jeff Skorput, PT, Autumn Gehrlich, PTA, and Diane Lee, PT.

I thank Ron Lindahn for encouraging me to put pen to paper and for his advice, Deborah Hiler Godfrey for typset and design, and Hollie Autry for editing. I thank Val Lindahn and David Smith for their wonderful illustrations.

Last, but not least, I sincerely thank my family: Jeff, Crystal, and Nick for their support.

V. Sims

PREFACE

The teenage boy sat on the treatment table, head down, answering my questions with a barely audible voice. In fact, his mother answered most of the questions I asked.

He had suffered constant low back pain since he fell from a wagon at the age of four. His mother recalled many occasions when he would cry at night, not able to sleep due to the never-ending gnawing ache in his low back. She would massage his lower back and try hot towels, but nothing seemed to ease the pain.

He had seen numerous physicians and had all the usual diagnostic tests available for low back pain. The test results were normal and the physicians were uncertain of the diagnosis.

He performed poorly in school due to poor concentration because of pain. He did not participate in sports and he couldn't even participate in P.E. He was depressed and saw a psychologist regularly to help him cope with the chronic pain.

After I examined the young man, it was quite clear that he was suffering with a sacroiliac joint dysfunction. His treatment program was implemented and even I was amazed at his resilient recovery. In two weeks he said, "I can walk, I can run, I can even play basketball without pain!" His depression lifted and he resumed a normal life, after ten years of pain.

This is only one of many heart-breaking stories I hear from people who suffer with chronic pain due to sacroiliac joint dysfunction. It can be a devastating disorder. I hope to contribute to the distribution of information concerning possible solutions for this problem, so fewer people will continue suffering.

Vicki Sims

TABLE OF CONTENTS

FORWARD

Lower back pain is a 50 billion-dollar a year growth industry in our society. The frequency of back pain is such that in the United States alone there are seven million people off work because of it at any one time. Indeed, the most common cause of occupational disability is lower back pain.

There has been considerable research directed towards identifying the cause of lower back pain. Only syndromes that are associated with compression of the nerve roots are well understood by clinicians. It has been estimated that 80% to 90% of patients with lower back pain remain undiagnosed.

An area of lower back pain that has attracted increased interest is the sacroiliac joint and its associated structures. The symptoms and "syndrome" associated with the sacroiliac joint have very seldom been addressed by standard orthopedic literature. The sacroiliac joint is often overlooked as a source of chronic lower back pain, with symptoms confused with those arising from a disc problem. Many patients suffer with severe pelvic pain because no physical findings could be found to explain their symptoms.

Low back pain that has defied diagnosis by conventional means frequently emanates from the sacroiliac joint. Sacroiliac joint dysfunction is the result of injury in which the ligament complex is torn or stretched, thus destabilizing the joint. This results in the joint coming out of correct alignment. Since a stable sacroiliac joint is critical for the normal transfer of force from the trunk to the legs, disruptions lead to major pain and problems of the musculoskeletal system.

Sacroiliac joint dysfunction should be divided into two categories: intra-articular and extra-articular. True intra-articular (inside the joint) pathology includes fracture, infection, tumor,

inflammation, and degenerative joint disease. Extra-articular (outside the joint) sacroiliac joint dysfunction is a disorder of abnormal joint movement and alignment due to disruption of the ligamentous support system. This leads to joint instability and recurrent subluxation.

The sacroiliac joint plays a key role in coupling the mechanical forces of the lower extremities below with the skeleton above. It has been demonstrated that the stability of the sacroiliac joint is dependent on two systems: force closure and form closure. Force closure refers to the compressive forces that hold the joint together, which includes body weight, muscle balance, and ligament complex. Form closure refers to the sacroiliac joint stability due to the anatomy of the joint surfaces, which contain complementary ridges and grooves that act like a lock and key and resist movement.

Some of the causes of sacroiliac joint dysfunction are as follows. Disruption of the ligamentous complex is the primary cause of failure of the self-locking mechanism. It cannot be demonstrated with radiographic studies (x-ray). Trauma or hormonal changes such as those occurring during pregnancy will allow the sacroiliac joint ligaments to become lax and the joint to move beyond its normal range. This results in locking between the opposing surfaces of the ilium and sacrum in an abnormal position. The ligamentous laxity, with time, can lead to degenerative changes in joint surfaces.

Common causes of ligamentous disruption include:

1. A fall on the buttock.
2. A motor vehicle accident in which the affected leg is extended, and the force is transmitted upward to the sacroiliac joint.
3. Lifting in a forward side-bending position.
4. Inadvertent stress on the ligamentous complex during childbirth.
5. Instability due to weakening of the joint and ligaments from overzealous bone harvesting for graft.

6. Increased force across the joint created secondary to lower extremity or spine fusion.
7. Hormonal imbalances.
8. Muscle or ligament imbalance due to disc problems.

Sacroiliac joint dysfunction may be solely responsible for the low back pain syndrome and/or may be contributory to low back pain in concert with other pathology of the lumbar spine or musculoskeletal system.

In most cases of sacroiliac joint dysfunction, the problem can be effectively treated by a combination of joint mobilization, external stabilization techniques, such as taping and belting, and a pelvic stabilization exercise program. It is common to experience a complete remission of symptoms within a 6 to 8 week period of time with the appropriate treatment.

INTRODUCTION

Vicki Sims is a physical therapist. She graduated in 1977 from Georgia State University. Furthermore, she is a Certified Hand Therapist and self taught specialist in the treatment of low back pain, specific to dysfunction of the sacroiliac joint (SIJD). During the past twenty-five years, Sims has co-owned and operated a physical therapy practice, raised a family with three children, produced a yoga video for those affected by low back pain, developed a course for physical therapists on the treatment of sacroiliac joint dysfunction (SIJD), and wrote the book for patients on the subject. Sims is a dynamo in all endeavors she has undertaken, and her goal to present a self-treatment approach of SIJD to the general population has been no exception.

Her passion and interest in treating sacroiliac joint dysfunction was sparked by a young patient that came to visit Sims in her clinic. The eighteen-year-old girl had fallen on her buttocks on a cement floor and developed a painful back as a result. During the course of treatment, Sims found this young lady had a patent sacroiliac joint subluxation that could be reduced by a relatively simple manual correction, and subsequently provided significant relief of pain. However, routine activities of daily living now caused a common recurrence of the joint dysfunction, setting the stage for a life of debilitating low back pain.

Over the next five years, this young lady became almost completely confined to the bed, gained 60 pounds, and lost her ability to continue gainful employment. Sims discovered that a vital key to success was not only aligning the joint correctly, but also implementing a process of neuro-muscular reeducation to “hold” the sacroiliac joint complex in a correct position. The Sims stabilization protocol allowed this young lady to take her life back. Since then, she had an uneventful pregnancy and delivery of a baby, enjoys a pain free lifestyle in the home and holds down a part time job.

Many people take these simple daily tasks for granted, but those suffering from mechanical low back pain know differently. Their lives are dictated by a painful condition in all aspects of daily function.

The young lady became one of many success stories from that point forward. No other success was more important, as that patient led Sims to focus her clinical attention on the treatment of sacroiliac joint dysfunction (SIJD), and to discover the therapeutic techniques to remedy a common affliction of low back pain. The successful techniques are presented in this book. Sims' mission is to educate the public to take control of their lives, as the self-treatment of low back pain is just a read away.

The Mechanism of SIJD

As with all joints in the body, the sacroiliac joint must possess the ability to move normally (mobility), while at the same time safeguards are in place to prevent abnormal movement (stability). The three major factors steering normal movements are the shape of the bones forming the joint, the ligaments that hold the bones together, and the muscles that are the movers of the bones and joints. The shape of the joint surface is a given, unless altered by injury or disease, and the bones fit together with a purpose of moving through the appropriate range of motion. The ligaments surrounding the sacroiliac joint continue to mesh the bony joints together, determining the range through which the bones may move. Thirdly, the muscles impart the force to create movement and stability through the sacroiliac joint. In summary, the shape of the joint, ligaments in or around the joint and the muscles moving the bones all play a vital role in maintaining a healthy and functional sacroiliac joint.

The mechanics of any joint requires very little attention, as long as all the factors are working in sync. Otherwise, the muscles of the

joint initiate a guarding or "hold" response when sensing pain or faulty movement within the joint. The stabilizing or postural muscles establish a guarded position first. With regards to the sacroiliac joint, the piriformis muscle is the primary stabilizer, and thus a major guarding muscle. The longer the brain gives messages to continue the guarding, the more irritated the piriformis muscle becomes, and may hold a malaligned joint in a painful position. The brain does not discern the cause of the pain; the brain will continue to protect the joint from moving in a painful way. Should the malalignment place the ligaments of the sacroiliac joint on an abnormal stretch, the concern is a permanent lengthening of the ligaments that will allow poor mechanics to continue to generate pain.

Correcting the joint malalignment is a priority in treatment. However, reeducation of the muscles surrounding the sacroiliac joint is necessary to provide normal movement. Typically, postural muscles become tight and guarded about a painful joint, and primary movers of a painful joint tend to become weak and inhibited. The major postural muscles of the lumbo-pelvic complex, which become tight and guarded, are the piriformis, erector spinae, iliopsoas and quadratus lumborum. The primary mover muscles that become weak and inhibited are the gluteal and abdominal muscles. As mechanical dysfunction of the sacroiliac joint is the stimulus for an abnormally protective sensory input to the muscles about the joint, successful treatment must correct the alignment of the sacroiliac joint and reeducate the sensory motor behavior of the muscles.

Common Complaints and Symptoms of Sacroiliac Joint Dysfunction

The complexity of the various bones, ligaments, joints and muscles of the pelvic girdle, may cause a wide variation of symptoms. Presented here will be the major and common

complaints of sacroiliac dysfunction, with or without accompanying lumbar joint involvement.

- Pain over the right or left low back
- Intolerance of sustained positions, sitting, standing, or lying
- Groin and medial thigh pain
- Intolerance to walking, especially uphill or on stairs
- Buttock and posterior leg pain (sciatica)
- Urinary urgency

The sacroiliac joint is one of several joints that comprise the lumbar-pelvic-hip complex, of which the SI joint is primary. Symptoms generated from other affected joints within the pelvic girdle need to be considered as well.

The lumbar spine most often reflects concurrent dysfunction along with SIJD. As discussed previously, the attachments of the iliolumbar and sacroiliac ligaments virtually tether the movements together. Therefore, SI joint malalignment will influence position of the lumbar vertebra and disc causing a sustained compressive force that could become a painful disc problem.

Rationale for Treatment

Treatment strategy for all acute joint and ligamentous strain or sprain injuries calls for rest from function and allows healing to occur. The example of an ankle joint ligamentous sprain would be treated with an immobilizing splint for a prescribed period of time, followed by a therapeutic exercise program to restore normal function. This strategy is also applied to SIJD, with respect to resting the joint from painful activity while the inflamed tissues resolve. In most instances, the clinician must assess the integrity of the sacroiliac joint position, and if necessary, manually reduce a

subluxed sacroiliac joint to the correct alignment. The bracing of the SI joint is accomplished by taping or a stabilization belt.

Maintaining alignment of the sacroiliac and related joints is crucial to a successful outcome, nonetheless, complete resolution must include reeducation of the muscles of the spine and pelvis. The length of treatment varies; a 6 to 12 week treatment program would be required to stabilize the SIJD.

This book has been written to give the back pain sufferer an understanding of sacroiliac joint dysfunction and related joint disorders of the low back and pelvis. There may be a need for a skilled physical therapist to implement many of the therapeutic strategies of treatment; however, through this book you will gain insight towards taking control of your self treatment.

CONSULT WITH YOUR PHYSICIAN OR PHYSICAL THERAPIST before beginning any exercise program. This program is not intended for use as treatment of a health problem or as a substitute for consulting a licensed medical professional.

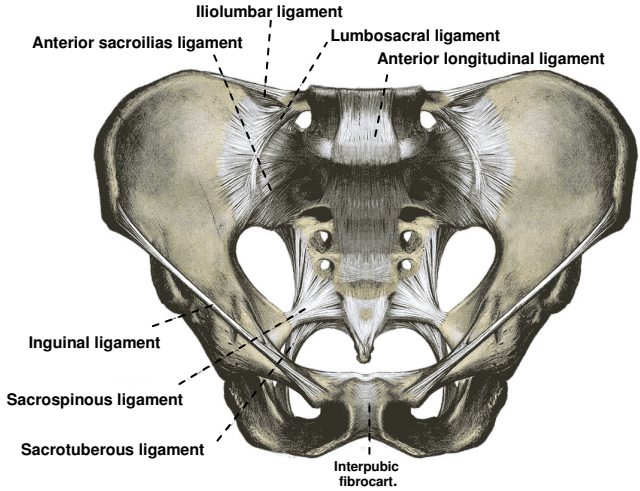
CHAPTER 1

ANATOMY

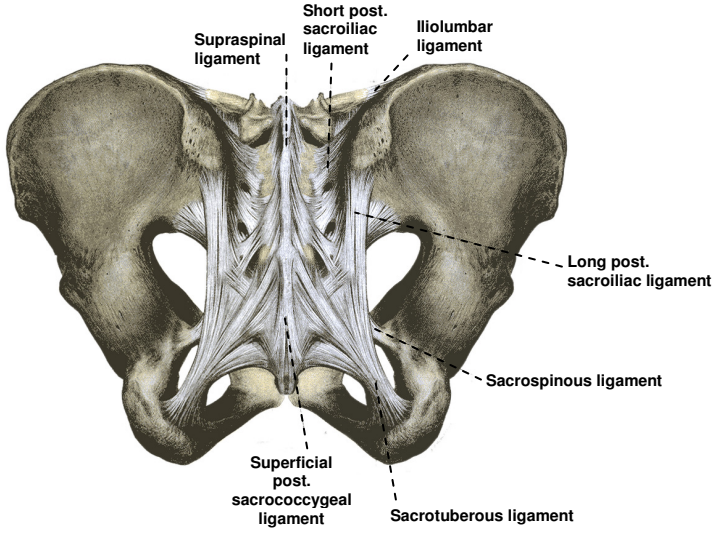
Millions of people suffer with low back pain. It is a common complaint, which may persist for months or even years. Much of what is thought of as "low back pain" is actually caused by a malalignment or sprain of the sacroiliac joint. This condition often is not diagnosed because few health care professionals are trained to identify the specific symptoms, which indicate a sacroiliac joint problem. Sacroiliac, or SI, joint disorders do not usually show up on x-rays. In order to understand the nature of the injury and what can be done to relieve the pain, it is useful to become familiar with the functioning of the sacroiliac joints, which are the connection point between the lower spine and the pelvis.

The sacrum is the lower portion of the spine where several vertebras are fused together. The sacrum has a joint on either side with each of the ilium or pelvis bones. The two ilia fit together in the front forming the pubic symphysis. The sacroiliac joints are L-shaped in contour with a shorter upper and longer lower arm. The actual shape of the sacroiliac joint varies a great deal from individual to individual; and moreover, from side to side in the same individual. Normally, the sacroiliac joint is configured in such a way that the bones have an interlocking structure, which assists in keeping them properly aligned. In some cases the opposing joint surfaces are quite flat. This type of joint is much less stable and can lead to a shearing or sliding misalignment. Some sacroiliac joints reverse the normal concave-convex 'locking' relationship, which can lead to rotational malalignment. The variation in joint configuration results in a corresponding variation in integrity. This means that some sacroiliac joints are inherently weaker or more prone to malalignment.

Much of the integrity of the sacroiliac joint depends on the ligaments that hold it in place. Ligaments are bands of connective tissue, like strong rubber bands, that are attached on either side of the joint. Ligaments allow the joint to flex enough to allow movement, but limit the range of motion and provide structure so the joint is not over stressed.

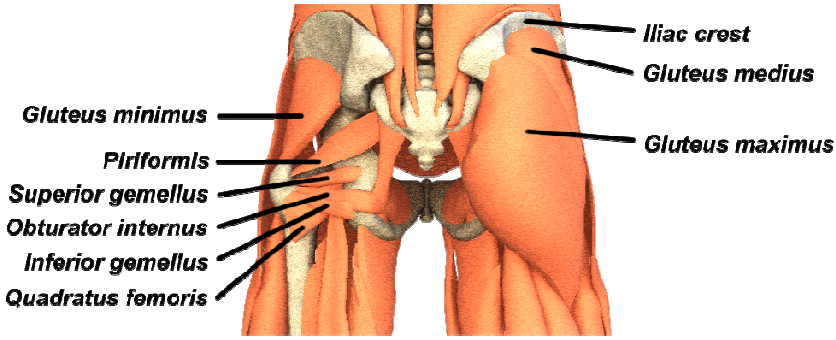


Anterior pelvic ligaments



Posterior pelvic ligaments

The muscular attachment to the pelvic girdle is so extensive that all of the muscles that directly influence sacroiliac motion are difficult to identify. There are 35 muscles that attach directly to the sacrum and/or the innominate bone. Several key muscles are identified here:



Pelvic Girdle Muscles

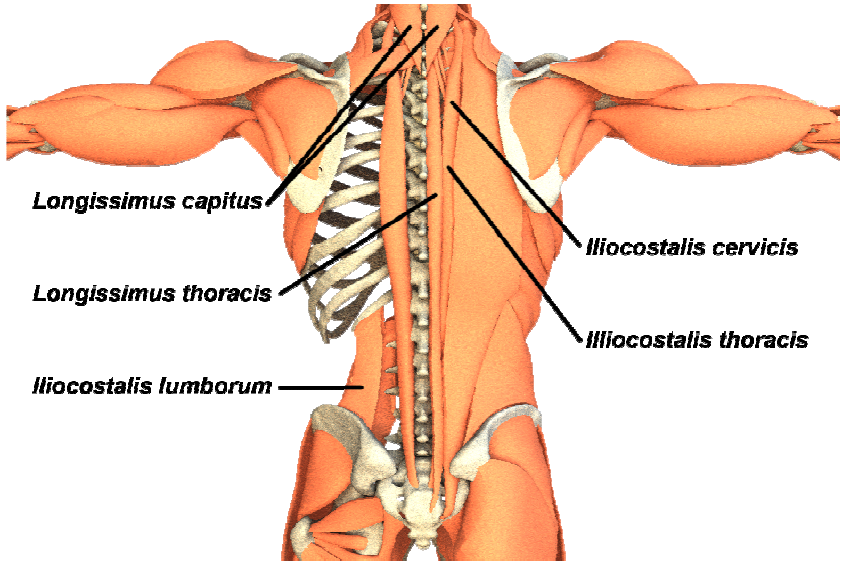
The **gluteus maximus** is a massive structure mainly responsible for backward movement of the hip joint. This muscle originates from the back of the ilium, the erector spinae muscle, back surface of the sacrum, coccyx and sacrotuberous ligament. This muscle influences the stability of the joint.

The **biceps femoris** is a hamstring muscle that bends the knee and extends the hip and is located on the back of the thigh. Like the piriformis and gluteus maximus, this muscle has an ancillary function of stabilizing the sacroiliac joint.

The **iliopsoas muscle** runs across the front of the hip joint immediately in front of the femoral head. Its action is to flex the hip and contribute to the stability of the hip during walking and standing. It can also be a pain generator in the presence of a sacroiliac joint dysfunction.

The **piriformis muscle**, like the gluteus maximum, originates from the sacrotuberous ligament. It runs from the front of the sacrum to the femur and its action is to outwardly rotate the femur; but it is a stabilizer of the SI joint. It is often the source of deep buttock pain associated with a sacroiliac joint dysfunction.

The **quadratus lumborum** is a rectangular muscle that runs from the 12th rib to the top of the ilium. It can often be a source of side pain in the presence of sacroiliac joint dysfunction.



Back-Erector Spinae Muscles

Back-erector spinae muscles arise from the anterior surface of a broad tendon that is attached to the sacral crest, to the spines of the vertebrae, to their ligaments, to the back part of the iliac crest and to the sacral crest where it blends with the sacrotuberous and dorsal sacroiliac ligaments. This muscle splits in the upper lumbar region into three columns: iliocostercervicalis, the longissimus and spinalis. The primary functions of these muscles are to move the vertebral column.

The **multifidus muscle** arises from the back of the sacrum, erector spinae, iliac spine and sacroiliac joint, and is attached to the whole length of the spine.

Theoretically, this muscle is capable of backward movement, side bending and rotation of the spine. It stabilizes the low back and pelvis.

The **transverses abdominis** is the deepest abdominal muscle and arises from the inner lip of the iliac crest, the thoracodorsal fascia and the lower six costal cartilages. The action of this muscle is a pelvic stabilizer.

There are more muscles that contribute to pelvic stability and motion. These can be found in an anatomy book like Grey's Anatomy.

CHAPTER II

BIOMECHANICS / KINETICS

A. BIOMECHANICS

MOTION OF THE PELVIC GIRDLE

The pelvic girdle functions as an integrated unit in all three bones moving at all three joints influenced by the lower extremities, vertebral column, and trunk.

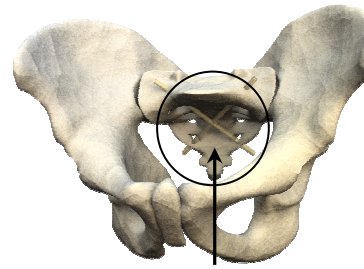
While the amount of movement present at the pubic symphysis and at both sacroiliac joints is certainly not great, these joints provide the structural link between the legs and spine and are thus very important.

PUBIC SYMPHYSIS

Movement at the pubic symphysis is quite small, but it occurs in single leg standing and during the walking cycle. The normal integrity of the joint is maintained by strong ligaments, primarily superiorly and inferiorly. The ligaments become more lax as a result of hormonal changes in females, particularly during pregnancy and delivery, and separation occurs to widen the internal pelvic diameter during delivery. In normal individuals standing on one leg, there is a slight upward shearing movement if the position is maintained for several minutes. After standing on the opposite leg or with prolonged standing on both legs, the shearing movement returns to normal. During normal walking, the symphysis pubis serves as the axis for iliac rotation.

SACRAL

Sacroiliac motion is movement of the sacrum between the two iliac bones, and it requires the participation of both sacroiliac joints. Nutation is a nodding forward movement of the sacrum between the iliae. Counternutation occurs when the sacrum goes backward and upward. This is the sacroiliac movement which occurs in two-legged standing and trunk forward and backward bending. The sacrum also moves in a rotational pattern over an *x-axis*.



Sacrum x-axis

Movement of the sacrum between the two iliae during walking is more complex and not easily understood. The sacroiliac joint is at risk of injury (as is the lumbar spine) when the trunk is bent forward and side bending and rotation are introduced.

ILIAL MOVEMENT

The sacroiliac region can also be viewed from the perspective of each ilium articulating with the sacrum at its respective sacroiliac joint. Each iliac bone participates in the walking cycle by forward and backward rotation around the axis at the symphysis pubis. A superior (upward) and inferior (downward) shearing movement occurs with the ilium in relation to the sacrum as well as a backward and forward movement. Another movement associated with the ilium is the internal and external rotary movement around a vertical *y-axis*. These movements have been termed inflare and outflare.

Sacroiliac joint movement

Movement of the sacroiliac joint is a complex combination of these motions.

Dysfunction can occur with any of these motions within the pelvic girdle. Each of these motions is quite small; however, when lost, each has a significant clinical effect. In dysfunctions within the pelvic girdle, it is not uncommon to find restriction of several movements within the three joints.

B. KINETICS OF THE PELVIC GIRDLE

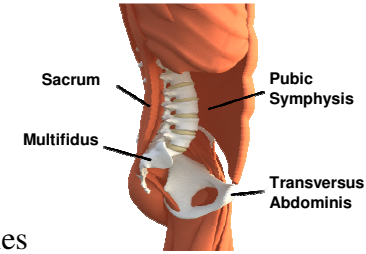
The pelvic girdle demonstrates a self-locking mechanism that incorporates both form and force closure. With respect to form closure, the shape of the sacroiliac joint is highly variable both between and within individuals. The sacrum also acts like a wedge between the ilia. These factors provide resistance to movement. The complementary ridges and grooves in the sacroiliac joint also increase friction and thus contribute to form closure.

The sacroiliac joint is surrounded by some of the strongest ligaments in the body, which together with the contraction of surrounding muscles provides the force closure that contributes to holding the joint in place. Compression of joint surfaces is essential for effective load transfer from the legs to the trunk and vice versa.

When considering the muscles that contribute to stability of the pelvic girdle (and the lumbar spine and hip), there are two important groups: the inner unit and the outer unit. The inner unit consists of the muscles of the pelvic floor, transversus abdominis, multifidus and the diaphragm. The outer unit consists of four systems: the posterior oblique, the deep longitudinal, the anterior oblique and the lateral.

THE INNER UNIT

Studies have found that activation of the abdominal muscles is a normal response to contraction of the pelvic floor. When the abdominal muscles were recruited strongly, the entire pelvic floor contracted in response. When the individual abdominal muscles were selectively recruited gently, the pelvic floor responded with a specific response.

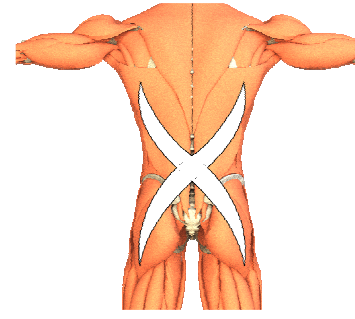


Inner Unit

Together the levator ani (pelvic floor) and multifidus act as a force couple to control the position of the sacrum. When the sacrum is held secure by these two muscles, the base of the spine is more stable. The transversus abdominis has been previously discussed in terms of its role in the stabilization of the lumbar spine. Contraction of this muscle increases the tension in the thoracodorsal fascia and helps to increase the intra-abdominal pressure. When acting in conjunction with the muscles of the outer unit, contraction of the transversus abdominis can increase the tension in the posterior sacroiliac ligaments through the thoracodorsal fascia, and thus augment the force closure mechanism.

THE OUTER UNIT

There are four systems, which comprise the outer unit: the posterior oblique, the deep longitudinal, the anterior oblique and the lateral. The posterior oblique system includes the latissimus dorsi, gluteus maximus and the intervening thoracodorsal fascia. Compression of the sacroiliac joint occurs when the gluteus maximus and the opposite side latissimus dorsi contract. This compression



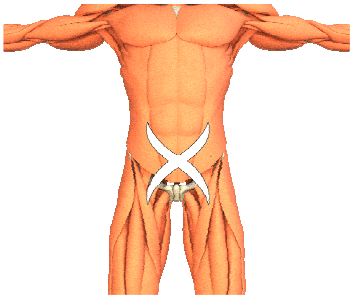
Outer Unit Posterior Oblique System

contributes to the force closure mechanism. The oblique system is a significant contributor to load transference through the pelvic girdle during rotational activities and walking.

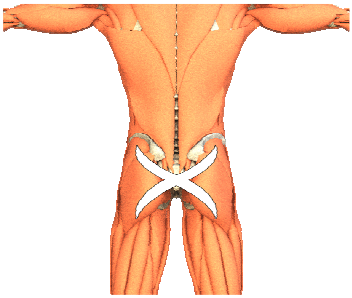
The deep longitudinal system includes the erector spinae muscle, the deep lamina of the thoracodorsal fascia, the sacrotuberous ligament and the biceps femoris muscle. This system can also increase tension in the thoracodorsal fascia and facilitate compression through the sacroiliac joints. In addition, the biceps femoris can control the degree of sacral movement through its connections to the sacrotuberous ligament.

The anterior oblique system includes the oblique abdominals, the opposite side adductor muscles of the thigh and the anterior abdominal fascia. The oblique abdominals are thought to be primary movers of the trunk. They are involved in all activities of the trunk and upper and lower extremities.

The lateral system includes the gluteus medius, gluteus minimus and the opposite side adductors of the thigh. They are significant for the function of the pelvis girdle during standing and walking and do not function properly when the sacroiliac joint is unstable.



Anterior Oblique System



Lateral System

Weakness or insufficient recruitment and/or timing of the muscles of the inner and/or outer unit reduce the force closure mechanism through the sacroiliac joint. The patient then adopts abnormal movement strategies to accommodate the weakness. This can lead to problems and pain of the low back, hip and knee.

CHAPTER III

SYMPTOMS OF SACROILIAC (SI) JOINT DYSFUNCTION

A clear understanding of the difference in the signs and symptoms of sacroiliac joint dysfunction and other pathologies is key in making the proper diagnosis. Because the diagnosis of SI joint dysfunction is made primarily from the patient's subjective complaints and the physical evaluation, its diagnosis is somewhat problematic for the clinician.

Diagnostic sacroiliac block injections can often confirm a diagnosis of SI joint dysfunction. In this test an analgesic is injected into the sacroiliac joint under x-ray. The patient then notes any relief of symptoms. This diagnostic test is rarely utilized because of lack of knowledge of the symptomatology of SI joint dysfunction.

The most common manifestation of sacroiliac joint dysfunction is acute pain in the low back in the area of one or both Posterior Superior Iliac Spine (PSIS) and is very deep-seated. Usually, tenderness is found near the lumbo-sacral promontory and in the PSIS area; one is more pronounced than the other. Radiating pain into the buttock, hip, groin and thigh is often experienced. The pain is frequently increased by prolonged sitting, standing, walking or lying. The patient reports that frequent position changes are needed to maintain any degree of comfort.

LIST OF COMMON SYMPTOMS OF SACROILIAC DYSFUNCTION

1. Lumbosacral pain
2. Buttock pain

3. Pain radiating to the leg
4. Hip pain
5. Groin pain
6. Urinary frequency
7. Iliac crest pain
8. Transient numbness, prickling or tingling
9. Increased pain with menstruation
10. Increased pain with sexual intercourse
11. Increased pain with stair climbing
12. Increased pain with sustained positions (i.e., sitting, walking, lying)

Symptoms are varied for several reasons:

1. Pain from the movement dysfunction may be secondary to muscle spasm, inflammation, ligamentous and joint capsule tension or compression.

2. Depending on the severity of the dysfunction, one may develop a similar problem in the joints above and below the pelvis due to faulty motion coupling of the lumbar spine and pelvis, and to faulty motion coupling of the lower limbs and pelvis.

3. Referred pain can vary due to joint capsule and ligamentous nerve innervation spanning from the second lumbar to the second sacral segments.

4. Different dysfunction will produce different symptoms. Examples: An upslip may produce pain on the top of the iliac crest of the dysfunctional side. An anteriorly (forward) rotated ilium may produce groin pain. A sacral torsion may produce buttock pain.

In one study of 100 patients undergoing physical therapy for sacroiliac instability, the following conclusions were made as documented by Alan B. Lippitt, MD, Vicki Sims, PT, CHT, and David Mesnick, PT.

The patient self-evaluation of symptoms revealed the following:

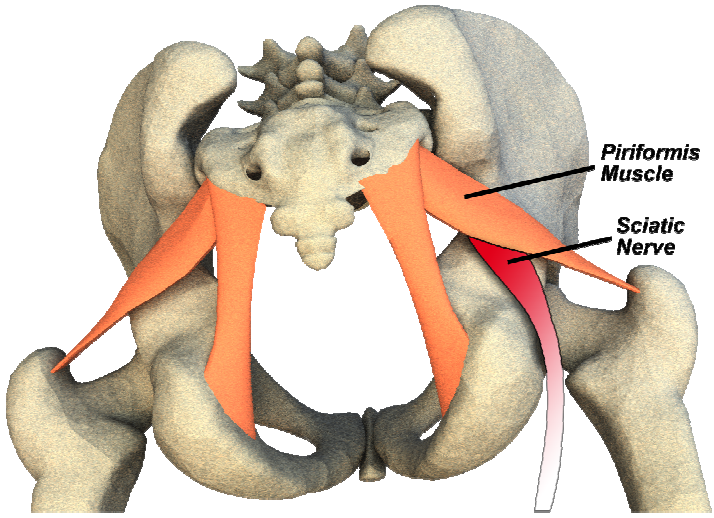
96%	Increased discomfort with sustained positions (i.e., standing, sitting, lying)
66%	Radiating buttock pain
39%	Discomfort with stair climbing and/or hill climbing
26%	Groin pain
23%	Radiating leg pain
20%	Pain with forward flexion
15%	Loss of strength in the legs
10%	Urinary frequency

The most commonly reported position of comfort by patients in the study was side lying (left or right) with a pillow between the knees.

The most frequent complaint from patients with sacroiliac joint dysfunction was increased discomfort with sustained positions such as standing, sitting and lying with the inability to attain a position of comfort. A disc patient can often find a position of comfort, especially in recumbency. Sacroiliac joint symptoms will intensify with activity and decrease with rest while disc symptoms will usually be worse upon rising in the A.M.

The second most common symptom of sacroiliac joint dysfunction is radiating buttock pain. This is reported as a generalized distribution of "achiness," which can radiate into the thigh. Disc pathologies will often cause a dermatomal pattern of

numbness, tingling, burning or pain that radiates to the thigh and/or foot. The PIRIFORMIS is one of the most adversely affected muscles with chronic sacroiliac instability. The piriformis can entrap neurovascular structures that accompany it through the Greater Sciatic Foramen (Superior and Inferior Gluteal nerve, Pudendal nerve, and Sciatic nerve). This may account for the non-dermatomal pattern of pain.



Piriformis Syndrome with Associated Anatomy

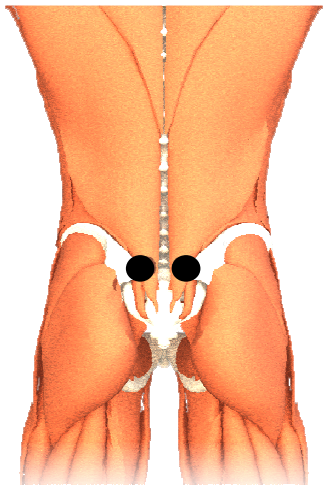
The third most common symptom is increased discomfort with stair or hill climbing. This is a result of increased demands on the skeletal and soft tissue system of the pelvic girdle during these activities. This symptom may also be present in disc pathologies, but is usually reported as increased discomfort with forward trunk flexion. Table 1 shows a comparison of symptoms in low back pain.

TABLE 1 Differential Diagnosis

DIAGNOSIS	HISTORY	SYMPTOMS	SIGNS	WORKUP
Facet Arthropathy	[1] Traumatic rheumatologic DJD [2] Segmental instability	[1] Hip, buttocks pain [2] Cramping in thigh [3] Stiffness in AM [4] (-) Paresthesia	[1] Local paralumbar tenderness [2] (-) Neurological signs [3] Pain on spine with hyperextension [4] (-) Root tension signs	[1] (+) Facet block
Lumbar Disc	[1] Quick movement into flexion, rotation, side bending or extension [2] Lifting injury [3] Trauma	[1] Worse in AM [2] (+) Paresthesia [3] Worse with FF [4] Presence of lateral shift deformity	[1] (+/-) Slump test and SLR [2] (+/-) Diminished reflexes [3] (+) Dermatomal patterns [4] LE weakness	[1] (+) MRI [2] Discography [3] (+/-) Nerve study [4] (+) Epidural block
Hip Disorder	[1] Congenital [2] DJD [3] Trauma	[1] Pain with ambulation	[1] (+) Trendelenburg [2] (+) FABERS test [3] (+) Grind test [4] Leg length discrepancy	[1] (+) X-ray [2] (+) CT scan
Sacroiliac Joint Dysfunction	[1] Fall on buttocks [2] Motor vehicle accident [3] FF and rotation injury [4] Trauma incurred during childbirth	[1] Increased discomfort with sustained positions [2] Increased discomfort with stair climbing [3] Radiating buttocks pain [4] Worse in PM	[1] (+) Yo-Yo sign [2] (-) Neuro signs [3] Non-dermatomal pattern [4] Tenderness over Baer's point [5] (+) Stork test [6] Piedallu's sign [7] (+) Gillet's test	[1] (+) Sacroiliac blocks
Spinal Stenosis	[1] Age > 60 [2] Insidious onset	[1] Aggravated by walking (Claudication) [2] (Bil) Leg pain [3] S/S increased by extension	[1] (+) Paresthesia [2] (+) SLR	[1] (+) Response to epidural blocks

PATIENT SYMPTOMS

Pain associated with sacroiliac joint dysfunction and an inflamed piriformis can often be misdiagnosed as hip bursitis, because the insertion of the piriformis is at the greater trochanter. Pain from piriformis syndrome arises most often at the origin at one side of the sacrum and insertion over the back of the hip. Point tenderness at the insertion of the piriformis from sacroiliac joint pathology can easily be overlooked in favor of hip bursitis because of their common anatomical location.



Pain Drawing

Groin pain from an anteriorly subluxed sacroiliac joint or dysfunction of the pubic symphysis is often misdiagnosed as a gynecological problem. Lippitt describes that an asymmetrical relationship between the two ilia places an asymmetrical tension on the pelvic and urogenital diaphragms, thus placing a constant stretch on the iliopsoas muscle. Additionally, pelvic wall myalgia (Levator Ani Syndrome, Tension Myalgia of the Pelvic Floor) is often characterized by bladder symptoms, anal pain, pain with intercourse, constipation and painful defecation. Women who experience these symptoms often undergo laparoscopic evaluation with normal findings.

Pain is usually reported as being on one side of the low back; however, occasionally there is pain on both sides.

CHAPTER IV

COMMON CAUSES OF SACROILIAC (SI) JOINT DYSFUNCTION

A. Acute strain or sprain
   The ligaments of the joint can be strained by forceful movement or trauma.
   - Example 1: Lifting with a rotation from a flexed position
   - Example 2: Involvement in a motor vehicle accident when forceful leg extension forces the pelvis to move into end range
   - Example 3: Falls, especially on the buttocks

B. Chronic strain
   Repetitive abnormal posture of the spine and/or hips
   - Example 1: Repetitive lifting, twisting or pulling
   - Example 2: Repetitive stair climbing, step aerobics, ladder climbing
   - Example 3: Repetitive golf swing

C. Pregnancy causing laxity of ligaments due to hormonal changes

D. Muscle imbalances may cause dysfunction
   - Example 1: Muscle spasm and an inhibition due to disc derangement
   - Example 2: Muscle tightness and/or weakness due to other injury or disease

E. Dysfunction in the kinetic chain
   - Example 1: Leg length discrepancy
   - Example 2: Abnormal gait due to lower limb injury
   - Example 3: Vertebrae movement dysfunction
   - Example 4: Restrictions in hip motion
   - Example 5: Abnormal foot biomechanics

CHAPTER V

CONDITIONS ASSOCIATED WITH SACROILIAC (SI) JOINT DYSFUNCTION

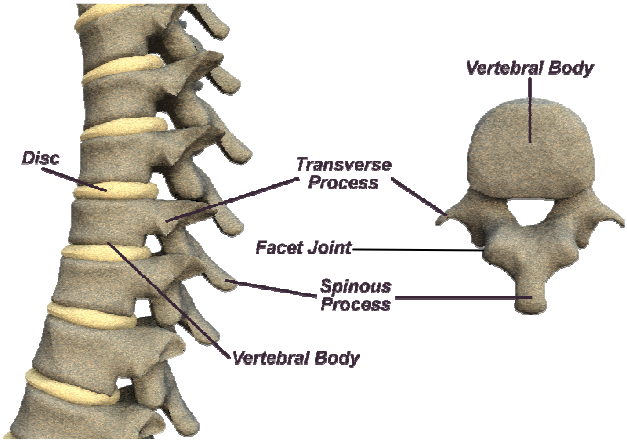
By Alan Lippitt, M.D.

Sacroiliac joint dysfunction can occur as an isolated condition or associated with other spinal disorders.

Torsion injuries can cause damage to the disc annulus, facet joints, lamina, pedicle and ligaments as well as to the sacroiliac joint.

Vertebrae and Facet Joints

The bones provide the structural support for your back. The *facet joints* control the amount and direction of movement.



1. FACET JOINT
   Torsion or axial rotation causes the facets to flex and laterally bend toward the side of rotation crushing the facet articular surfaces on the rotation side and distracting the capsule with tearing or avulsion on the side opposite the rotation.

2. NERVE ROOT
   The lateral portion of the facet joint is long and slender making it easily deformed. Torsion causes facet impingement on the torsion side. Distraction on the opposite side can stretch the nerve root. Therefore, neural arch deformation can cause bilateral nerve root entrapment.

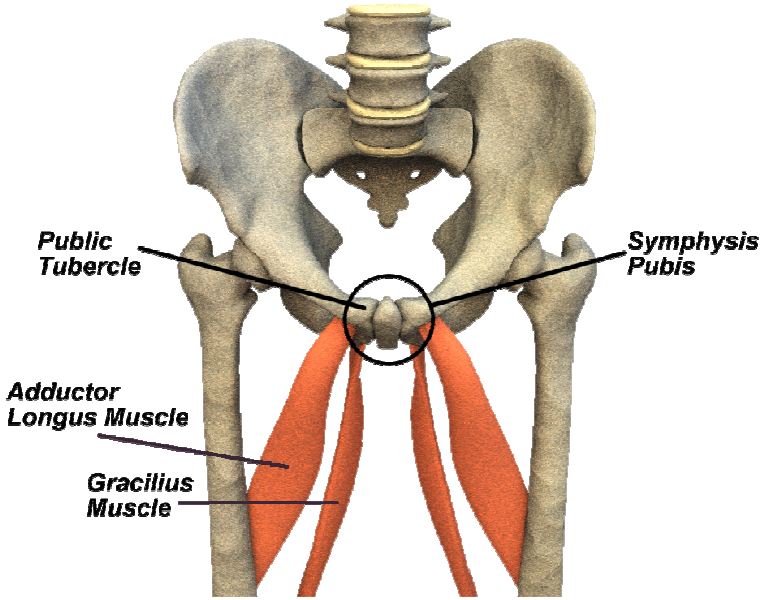
3. DISC
   Torsion causes annular tears that can weaken the annulus leading to an annular bulge, or herniation, of the nucleolus pulposis. The iliolumbar ligament can become taut due to sub-luxation of the sacroiliac joint. Its fibers are attached to the transverse process of L4, and chronic tension can lead to bulging of the disc. It is not uncommon to see an L4 annular bulge on the MRI of a patient who has chronic sacroiliac joint instability.

4. EFFECT ON MUSCLE
   Janda Vladimir, MD, an expert on muscle imbalance, has pointed out that postural muscles become facilitated and tighter, and phasic muscles become inhibited and weaker as the result of articular dysfunction. With long standing dysfunction, anatomic changes in the muscle bundles can take place that are irreversible. The piriformis is one of the most adversely affected muscles in chronic sacroiliac instability (piriformis syndrome). Pelvic wall muscle spasm, or contracture, may lead to pelvic floor dysfunction. Other muscles affected include the iliopsoas, hamstrings, adductors, gluteus, quadratus lumborum and the tensor fascia lata.

5. EFFECT ON NERVES
   Due to long standing spasm, or secondary fibrosis, the chronically shortened piriformis can entrap neurovascular structures that accompany it through the greater sciatic foramen (superior and inferior gluteal nerves, the sciatic nerve and the pudendal nerve).

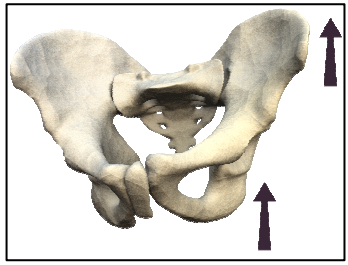
The lateral femoral cutaneous nerve passes just medial to the anterior superior iliac spine. It can be injured as it passes from the pelvis to the thigh by changes in anatomic positioning associated with sacroiliac joint subluxation (meralgia paresthetica).

6. PUBIC SYMPHYSIS INSTABILITY
With chronic sacroiliac joint instability the contralateral sacroiliac joint and the pubic symphysis may destabilize.

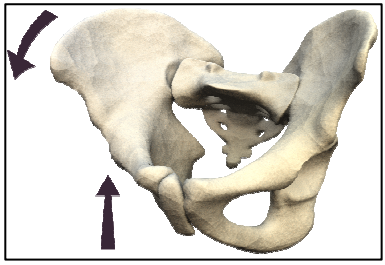


CHAPTER VI

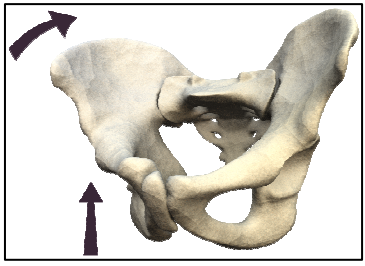
TYPES OF SACROILIAC (SI) JOINT DYSFUNCTION



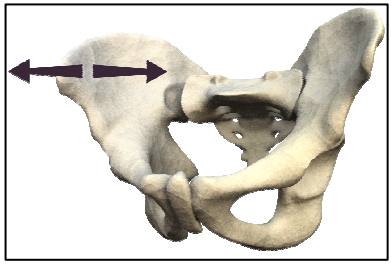
Upslip



Upslip with Anterior Rotation



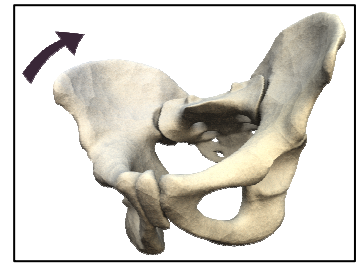
Upslip with Posterior Rotation



Inflare or Outflare

Biomechanical studies have shown the pelvis moves in several directions. If the ilium moves upward and locks, it is termed ilial upslip. An upslip is coupled with either an anterior or posterior rotation of the ilium as well as an inflare or outflare.

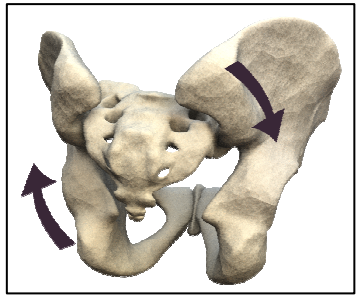
Anterior Rotation



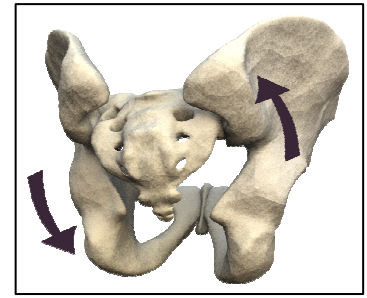
Posterior Rotation

The ilium can move into a posterior or anterior rotation or flare independent of an upslip.

The sacrum moves in very complicated combinations which will not be discussed in detail for this book. For the sake of simplicity, we will identify only left and right sacral rotations.



Left Sacral Rotation



Right Sacral Rotation

CHAPTER VII

CLINICAL FINDINGS

An evaluation by an experienced physical therapist, physician, chiropractor or osteopath will be necessary to diagnose the problem, as it is commonly misdiagnosed. An evaluation may reveal findings as follows:

- Anatomical leg length differences
- Non-equalized right and left pelvic bones when compared to each other (asymmetry)
- Tenderness to palpation of the posterior sacroiliac joint ligaments
- Pain with end range of motion of the hip joints as it stresses the sacroiliac joint, or
- Associated muscle guarding of the muscles in the low back.

Kinetic or movement tests by a practitioner will reveal differences in mobility of the sacroiliac joints when comparing one joint to the other. The practitioner will evaluate generalized motion of the lumbar spine and mobility of its associated joints. The assessment may indicate that the affected joint is moving either too little (hypomobile) or too much (hypermobile). The practitioner should also assess walking pattern deficiencies.

Diagnostic testing, such as X-ray, CT scan or MRI, do not usually demonstrate abnormalities; therefore, they cannot be used for diagnosis of sacroiliac joint dysfunction. A diagnostic sacroiliac joint injection is the only reliable objective test for the identification of the sacroiliac joint as the pain generator.

CHAPTER VIII

CLINICAL TREATMENT

A. GENERAL OVERVIEW

Initial treatment by the practitioner will involve joint mobilization of the affected sacroiliac joint to attain symmetry of the pelvis and improved mobility of the affected joint. The lumbar spine should also be treated according to the deficiencies found during assessment.

Following mobilization, the practitioner will instruct the patient on proper biomechanics to avoid unnecessary and improper strain of the injured joints. Therapeutic exercise should be taught to improve neuromuscular stability of the low back and pelvis. Self mobilization techniques should also be given to the patient. Applications of superficial and deep heat treatment to decrease muscle spasm during the early states of treatment could be utilized.

Too much movement of the sacroiliac joint may indicate a laxity of ligaments that would normally hold these joints within normal range of motion. Therefore, additional stabilization procedures, for example pelvic belt fixation and taping techniques, may be required. Typically the sacroiliac joint dysfunction will stabilize with a good stabilization program over a 6 to 8 weeks period of time.

A home program of self mobilization is necessary: either by self mobilization exercise or by the use of family assisted sacroiliac mobilizations. A combination of physical therapy, self corrective therapies and stretching/strengthening exercise gives the patient the best possible outcome. The purpose of this book is to provide the client with a roadmap for self management of SIJD under the supervision of a health care provider. It is not intended to substitute

for your healthcare provider. Please consult with your physician or physical therapist prior to initiating any exercise program.

Self management of SIJD is ultimately the goal of the patient to prevent reinjury and reoccurrence. Proper realignment of the lumbar spine and pelvic girdle may be necessary by a skilled manual physical therapist if self adjustment can not be achieved.

If the SI joint frequently becomes misaligned during daily activities, self corrections must be performed at least 4 times a day to maintain the joint. It is further recommended that the patient not partake in exercise until he/she is able to adequately manage and self correct any SI joint and lumbar dysfunctions prior to performing exercise.

Family assisted correction techniques are often helpful in realigning the SI joint. The family member is reminded that all techniques outlined in this book should not be painful to the patient. It is important for the patient to alert his or her family member if any family assisted corrections are causing an increase in pain, and the technique should be modified or discontinued.

Self correction techniques and family assisted correction techniques are geared towards maintaining pelvic girdle alignment and thus proper function during gait (walking). Proper alignment removes the stress on the SI ligaments and allows them to heal. Once proper SIJ alignment can be achieved and maintained by the patient, an exercise program can be initiated. The patient should pay careful attention to any exercise or stretches that cause radiating leg pain, sharp shooting pain, and/or numbness or tingling. These symptoms are cause for discontinuation of exercise. Soreness lasting less than 48 hours is normal with exercise.

With those patients who continue to demonstrate hypermobility after failing to attain stabilization by conservative means of rehabilitation, an orthopedic consultation for prolotherapy or surgical stabilization may be necessary.

B. TREATMENT

FAMILY ASSISTED SI JOINT CORRECTIONS

A friend or family member can assist in the care of the patient if self correcting techniques are ineffective or in conjunction with self corrections. Repeat 1-2 times a day.

1. Correction of Ilial Upslip

a. Don Tigney Technique

The subject should lie on his or her back with both knees bent. The caregiver places his or her forearm under the subject's right knee and rests his or her hand directly above the opposite knee. Push and hold down on the right shin with the other hand. Shift weight and give a quick, firm tug on the right hip. **Tug 5 times on each side. Rest, then 5 tugs again.**

b. Leg Pull

The subject should lie on his or her back with legs straight. The caregiver applies traction to the left/right leg then gives a small tug. **Repeat 3 times**. The pull should not cause pain!

c. Sidelying

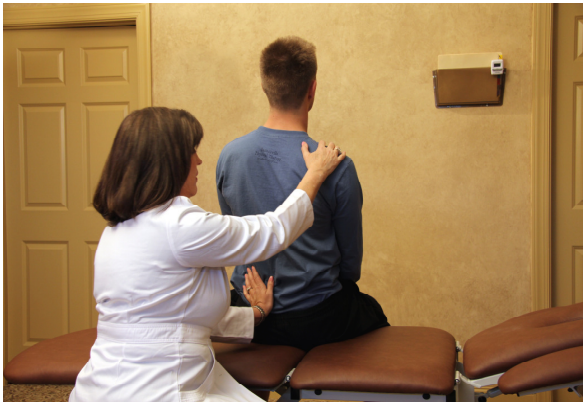
The subject should lie on his or her side with the right/left side up and a pillow between the knees. The caregiver applies traction to the top of the ilium and gently shakes the pelvis in a downward position.
Note: Use this technique with persons who are pregnant or patients with hop problems.

2. Correction of a Right Posterior/Left Anterior Rotation

Subject lies with knees bent up. With a right posterior rotation/ left anterior rotation, the caregiver instructs the subject to **pull** his or her right knee towards the chest while the caregiver resists that motion just above the knee. At the same time, the subject **pushes** his or her left knee downward while the caregiver resists that motion just below the knee.

3. **Correction of a Right Anterior/Left Posterior Rotation**
With a right anterior rotation/left posterior rotation, the caregiver instructs the subject to **push** his or her right knee down while the caregiver resists that motion below the knee. At the same time, the subject **pulls** his or her left knee toward his or her chest while the caregiver resists that motion just above the knee.

4. **Sacral Rotation Correction**
The subject sits on a firm surface with feet flat on the floor. The caregiver presses his or her left/right hand against the tailbone area while holding the subject's left/right shoulder. The caregiver rotates the subject's torso **10-12 times** in a clockwise/ counter clockwise direction.



5. **Setting the Pubic Bones**
   The subject lies on his or her back with knees bent up. The caregiver places his or her hand between the subject's knees. The subject is to squeeze the knees together giving 80% - 100% effort for **3-5 seconds** for a total of **3 repetitions**.

SI SELF CORRECTION EXERCISES

Corrections can be performed lying down on the floor or bed 3-4 times a day.

1. *SACROILIAL CORRECTION*
   Lie on your back with knees bent. Shift your right hip down and your left hip up, then switch. **Do 20 repetitions**.

2. *SACRAL CORRECTION*: ***Knee Press-Down***
   Lie on your back with your right/left ankle crossed over your opposite knee. Press your right/left knee down into the towel. Hold for 5 seconds. **Do 3 repetitions**.

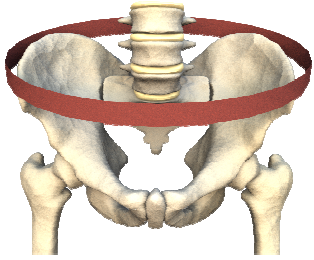
3. *SACRAL ROTATION CORRECTION*: ***Round & Round***
   Sit tall and rotate your torso clockwise 10-20 times. End with rotating your entire body to the right/left and holding for 5 seconds.

4. *PUBIC BONE CORRECTION*
   Lie on your back. Bend both your knees up and place your feet flat on the table or bed. Place and squeeze a ball or any solid object between your knees. Hold for 5 seconds. **Do 3 repetitions**.

C. APPLICATION OF A PELVIC BELT

The COM-PRESSOR™ (A Specific Pelvic Compression Belt Designed by Diane Lee, PT)

Background



Pelvic Girdle Restraining Lumbo-pelvic muscles

Optimal function of the pelvic girdle requires stability of the sacroiliac joints and pubic symphysis (PS). When a load is transferred through the pelvis, movement of the sacroiliac joints and PS are controlled by contraction of the pelvic muscles. These muscles are collectively called "the core" and include the transversus abdominis (deepest abdominal) and the multifidus (deep back) muscles. Compression of the pelvis is produced by contraction of these muscles.

In an unstable pelvis, core stabilization exercises are often required to restore normal function. THE COM-PRESSOR helps provide stability to the pelvis and when combined with professionally supervised retraining of the lumbo-pelvic muscles, a functional corset of compression is restored.

Indications for use

Designed for treatment of impaired core muscle function, THE COM-PRESSOR is indicated for:

- Recent or past pregnancy,
- Recent or past abdominal or back surgery,
- Recent or past low back or pelvic sprain,

- Improper training strategies that have led to imbalanced muscle function,
- Improper posture, or
- Reflex loss of muscle function secondary to visceral pain/ inflammation/infection.

THE COM-PRESSOR consists of an adjustable body belt and four elastic compression bands which can vary the location and amount of compression.

THE COM-PRESSOR – Pelvic Compression Belt

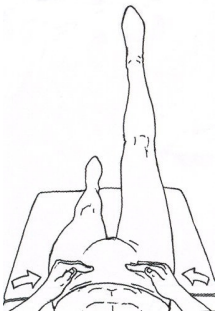
How to wear the belt

First, you need to determine where your pelvis is lacking in compression. The Active Straight Leg Raise Test (Mens et al 1999) will help you determine this.

The Active Straight Leg Raise Test (ASLR)

1. Lie on your back with your legs straight.

2. Keeping your right knee straight, lift your leg up towards the ceiling (no more than 12 inches off the table is necessary). Put your leg back down and note how much effort is



Bilateral Transversus Abdominis

required to lift this leg. Repeat the ASLR if necessary. Does lifting this leg increase your back or pelvic pain?

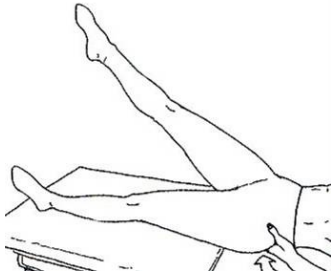
3. Repeat the ASLR with your left leg and compare the difference to the right leg. Is one leg heavier than the other? Is it more or less difficult to lift one or the other?

4. Put your hands on the outside of your hip bones with your fingers pointing towards your navel (or have someone else do this) and compress (squeeze) your hips together.

   Repeat the ASLR on the left and right leg and note any change in:
   - the effort required to lift the leg,
   - the heaviness of the leg, and/or
   - low back or pelvic pain while lifting the leg.

   The location of this compression simulates the action of transversus abdominis.

5. Put your hands on the outside of your hipbones with your fingers pointing towards your back (or have someone else do this) and compress (squeeze) your hips together. Repeat the ASLR on the left and right leg and note any change in:

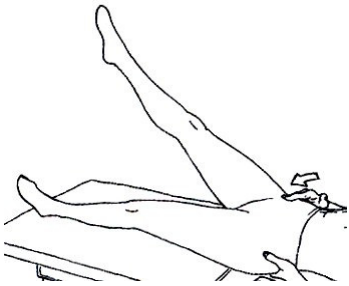


Bilateral Multifidus

   - the effort required to lift the leg,
   - the heaviness of the leg, and/or
   - low back or pelvic pain while lifting the leg.

   The location of this compression simulates the action of the multifidus.

6. Put one hand on the outside of your hip bone with your fingers pointing towards your navel and the other hand on the outside of your hip bone with your fingers pointing towards your back and compress (squeeze) your hips together. Repeat the ASLR on the left and right leg and note any change in:



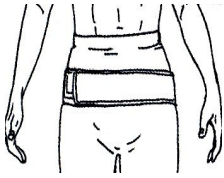
Hip Compression with ASLR

- the effort required to lift the leg,
- the heaviness of the leg, and/or
- low back or pelvic pain while lifting the leg.

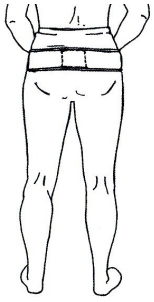
In the figure to the left, the location of the compression simulates the action of the right transversus abdominis and the left multifidus. Change your hands around and repeat the ASLR.

7. Decide where your pelvis requires compression by determining which hand placement (Bilateral Transversus Abdominis, Bilateral Multifidus, Hip Compression with ASLR) makes it the easiest to lift your leg, or which hand placement makes your leg feel the lightest during the ASLR.

8. Wrap the belt around your pelvis with the label "THE COM-PRESSOR" centered over your sacrum, and secure the belt snugly in the front as shown below.



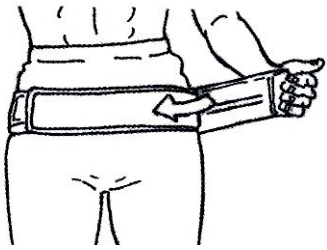
Pelvic Belt Secured in Front

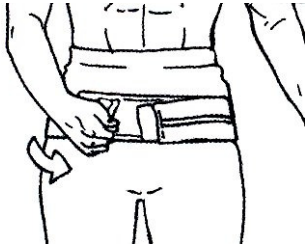


Pelvic Belt Centered over Sacrum

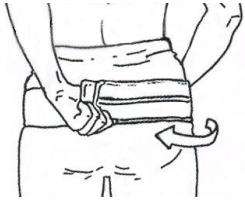
9. Apply the compression bands to the belt according to where you need the compression the most.

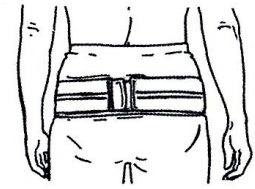
- If you felt best with the Bilateral Transversus Abdominis, secure one end of the compression band to the side of the belt, stretch the band to the front of your pelvis and apply to the belt in the front midline as shown below. Secure one end of a second compression band to the opposite side of the belt, stretch the band to the front of your pelvis and apply to the belt in the front midline. If you need more compression than this, apply a second (longer) compression band overtop of the first one.



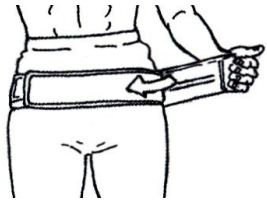


- If you felt best with the Bilateral Multifidus, secure one end of the compression band to the side of the belt, stretch the band to the back of your pelvis and apply to the belt in the back midline as shown below on the left. Secure one end of a second compression band to the opposite side of the belt, stretch the band to the back of your pelvis and apply to the belt in the back midline as shown below on the right. If you need more compression than this, apply a second (longer) compression band overtop of the first one.

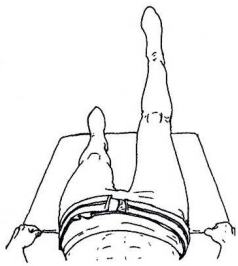




- If you felt best with Hip Compression with ASLR, secure one end of the compression band to the side of the belt, stretch the band to the front of your pelvis and apply to the belt in the front midline. Secure one end of a second compression band to the opposite side of the belt, stretch the band to the back of your pelvis and apply to the belt in the back midline as shown. If you need more compression than this, apply a second (longer) compression band overtop of the first one.



10. Repeat the ASLR with the belt in place and the compression bands secure as shown. You should notice an obvious decrease in the effort required to lift your leg and the leg should feel lighter.



When to wear THE COM-PRESSOR™

Initially, you should wear THE COM-PRESSOR whenever you are active (i.e., standing, sitting or during any activity of daily living). As you regain the strength of your core muscles, you can wean off the belt by reducing the amount of compression (loosen the tension in the compression bands) and finally removing the belt altogether for short periods of time. Ultimately, you should be able to eliminate the need for this belt.

THE COM-PRESSOR is intended to be used as an adjunct for stabilization of the pelvic girdle. *You should not depend on it entirely for support and should be trained how to reestablish the proper function of the core muscles*. The belt will help you decide which muscles require training. *A therapist properly trained in core stabilization exercises will teach you how to do this and how to gradually reduce the need for this belt*.

D. SACROILIAC DYSFUNCTION TAPING

The purpose of taping for sacroiliac dysfunction is to hold the pelvic girdle in the corrected position after manipulation for longer periods of time. You may use the stabilization technique in conjunction with a belt.

Instructions:

1. Spray the skin with Benadryl. Allow the spray to dry.
2. Apply the skin prep. Allow the spray to dry.
3. Apply first, two strips of pre-tape (white) parallel to the spine beginning just medial (inside) of each shoulder blade at the lower border extending down to the PSIS (3 inches below the top of the pelvic bone).
4. Apply two strips of pre-tape (white) in a crossing manner from the top of the pelvic bone to the opposite hip.
3. Apply a layer of tape (dark) over each strip.

Our Clinic uses the following tapes: Hypafix (white) and Leukotape (brown). These can be ordered (see appendix).

Sacroiliac Taping Tips:

1. Have a therapist or family member apply tape once every 36 hours in a standing or lying position with a neural spine.
2. Do not remove tape for 36 hours following your first taping unless you experience skin burning or increased pain.
3. Skin irritation can be avoided or decreased by applying “tenscote and Benadryl” before taping (see appendix).
4. Remove tape before showering and apply after showering to clean, dry skin. NOTE: Taping will withstand showering.
5. Continue to apply tape for a period of 3 to 6 weeks.

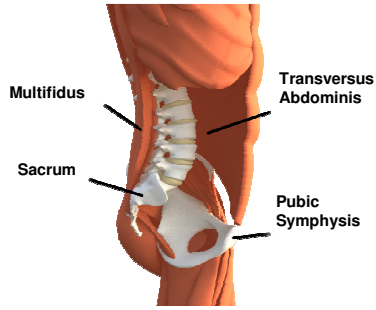
E. PELVIC STABILIZATION EXERCISES

Therapeutic Exercises for the Pelvic Girdle

By David Mesnick, PT, cMDT and Autumn Gehrlich, PTA

Pelvic Girdle stability can be achieved with the proper exercise program. Significant research has focused on the role of the *core muscles* in proper lumbo-pelvic function.

The core muscles include the transversus abdominis, multifidus, pelvic floor, and diaphragm. Their strength and ability to work together during movements of the trunk and pelvis is an integral part of lumbo-pelvic stability.



The core muscles or inner unit

The transversus abdominis is your natural corset or back brace. This muscle is the first to become active during normal lumbo-pelvic movement and limb movements.

The multifidus provides stiffness between individual spinal vertebrae and the sacrum during lumbo-pelvic movement. This stiffness is important because it "holds together" the back and pelvis when placed under stress, such as when heavy lifting and bending.

The pelvic floor muscles work together with the transversus abdominis, connecting and controlling the position of the sacrum and pubic bones. In addition, the pelvic floor muscles maintain proper bladder control and function.

Together the *core muscles, or inner unit,* surrounds the spine and pelvis and provide deep stabilizing forces, which in turn prevent injury to the back and sacroiliac joint. Unfortunately, shortly after you injure your back or sacroiliac joint these muscles become inhibited, or "turn off." This in turn puts your lumbo-pelvic area at further risk for injury.

Additionally, an inhibited or weak core will force your musculo-skeletal system into compensation strategies, which may cause muscular pain and spasm in other areas such as your hip flexors and rotators (psoas and the piriformis).

As the core muscles weaken, the sacroiliac joint becomes more reliant on ligaments to hold it together. In many cases, these are the same ligaments that have sustained the original injury and are already weak.

The ability to learn and retrain the core muscles to contract properly is key to any rehabilitation program for the pelvic girdle. As the muscles become stronger and more coordinated, less pressure is placed on the ligaments of the lumbo-pelvic region. This in turn allows them time to heal properly and once again provide the necessary support for sacroiliac joint stability.

The ability to isolate and co-contract the core muscles precludes the introduction of any further exercise. Once you are able to sustain a strong and controlled contraction of the core muscle system, the lumbo-pelvic region can be further challenged. The progression of these exercises should be followed strictly throughout Phase I and II of the Sims SI Stabilization Exercises.

Once you have mastered these exercises, the program can incorporate more traditional lumbo-pelvic stabilization exercises. These exercises should include, but not be limited to, Phase III while maintaining the core muscle contraction throughout.

You should continue on to more advanced exercises, if possible, after successful completion of Phase III. In our clinic this incorporates basic Pilates and yoga exercises. The patient is encouraged to take classes in both if possible. These classes are usually offered at local recreation centers or gyms.

Additionally, you should incorporate your core muscle contractions while attempting functional activities such as stair climbing, lifting, bending, squatting, repetitive movements and moving from sitting to standing and vice versa to avoid reinjury.

If you experience an increase in your pain level and/or numbness, tingling, or sharp shooting pains into your extremities while performing any of these exercises, you should stop immediately and consult your physician or physical therapist.

SIMS SI STABILIZATION EXERCISES
Phase I: Light Strengthening

TRANSABDOMINALS & PELVIC

Floor Muscles – Kegels

1. Lie on your back.
2. Tighten the buttock and pelvic floor muscles; your abdomen should slowly move up and in.
3. Remember to breathe. Don't hold your breath.

Multifidus

1. Lie on your stomach.
2. Tighten the buttock and pelvic floor muscles. You should feel a gentle contraction of the back muscles.

Abdominals

1. Lie on your back.
2. Bring one knee toward your chest, raising your foot approximately 2 inches off the floor.
3. Lower your foot back to the mat.
4. Repeat motion on opposite side.
5. Relax and repeat.

Bridges

1. Lie on your back with both knees bent and feet flat on the mat.
2. Find the neutral position of your back, hold this position and lift your buttocks off the mat.
3. Do not allow your back to sag.
4. Relax and repeat.

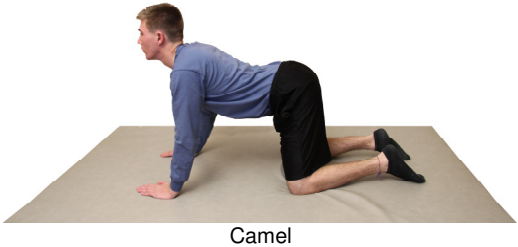
Press Up

1. Lie on your stomach with your hands placed at ear level.
2. Push up so your arms straighten and your back arches.
3. Relax and repeat.
   Modification: Prop on your elbows.

Cat / Camel

1. Get onto the floor on your hands and knees (the all-fours position).
2. Arch your back up like a mad cat while lowering your head, then sag like a camel while raising your head.

Cat



Camel

Child's Pose

1. Lower your back gently onto your hind quarters.
2. Hold the stretch for 30 seconds.

Piriformis Stretching

1. Cross your legs with involved leg on top.
2. Gently pull your opposite knee toward your chest until a comfortable stretch is felt in the buttock area.

Pigeon

1. Kneel on all fours, with your wrists under your shoulders and knees under your hips.
2. Slide your right knee forward until it is close to your right wrist, and flex your foot.
3. Extend your left leg behind you, with your toe pointed.

Modification: Prop on your elbows instead of going into a full extension.

Clam

1. Lie on your side.
2. Keep your ankles together while lifting your top knee away from your bottom knee.

SIMS SI STABILIZATION EXERCISES
Phase II: Flexibility & Strengthening

Back Kicks

1. Lie on your stomach, keeping your entire leg straight.
2. Lift your right leg approximately 3-4 inches off the mat.
3. Relax and repeat with the left leg.

Bridge with March

1. Lie on your back with your knees bent.
2. Raise your hips off the floor using your lower abdominal muscles and buttocks muscles to hold your pelvis while you move your legs alternately in a marching movement.

Knees to Chest

1. Lie on your back with your knees bent and feet flat on a mat.
2. Place one hand on each of your knees and gently pull your knees up towards your armpits.

Do not perform this exercise until advised by your therapist.

Dog Point

1. Get onto all-fours position.
2. Relax your neck and tighten your abdominal muscles to stabilize your spine in its neutral position.

3. Alternate lifting one arm and your opposite leg.

Dead Bug

1. Lie on your back with your knees bent and arms lying at your side.
2. Find your spine neutral position and brace your abdominal muscles.
3. Relax your neck and shoulders as you lift one arm and your opposite leg off of the floor (i.e., right arm and left leg together, then left arm and right leg together).

4. Gradually straighten your leg while raising your arm on the opposite side.

SIMS SENSORY MOTOR PROGRAM

Single Leg Balance

1. Contract your core while standing on a level surface.
2. Stand on one leg while keeping your buttock tucked under, shoulders back and chin tucked.
3. Hold for 15 seconds.

Standing Kicks

1. Stand on one leg while holding your core muscles.
2. Do small kicks forward, sideways and backwards while trying to keep your balance.

ABC's

1. Contract your core while placing one foot on a ball.
2. Write the alphabet with the ball on each leg while keeping your balance and holding your core muscles.

More Advanced

1. Do the **Sensory Motor Program** exercises above while standing on a foam cushion or balance bladder.
2. Close your eyes.

Home Exercise Program

A home exercise program can safely be initiated when the patient is able to confidently self correct his/her SI joint. Self correcting and/or family assisted correcting are recommended before and after exercising.

Muscle imbalance is common with SIJD. Typical patterns of muscle imbalance include inhibition (weakness) of the gluteus maximus on the side of the SIJD, inhibition (weakness) of the gluteus medius on one or both sides, and inhibition of the transversus abdominis, multifidus, anterior pelvic floor and diaphragm.

Conversely, muscles that typically get facilitated (tight) include the hamstrings, quadratus lumborum, piriformis, erector spinae, tensor fascia, iliotibial band, adductors, and iliopsoas.

Our exercise program first addresses competent core contract followed by strengthening of weak muscles and stretching of tight muscles.

Exercise and stretching should be done one time a day for 6 months. If you experience an increase in pain, numbness, tingling, or sharp shooting pains into your extremities while performing any of these exercises, stop immediately and consult your physician or physical therapist.

Patients are encouraged to transition into a more advanced core stabilization program when the SI joint is stable.

F. SIX WEEK PROTOCOL FOR SACROILIAC STABILIZATION

WEEK 1

(1) Self corrections 3 times per day
(2) Family assisted corrections at bedtime, 1, 2, 3
(3) Tape: 2 days on, 1 night off

Avoid:

(1) Prolonged walking
(2) Prolonged sitting
(3) Stair or hill climbing
(4) Bending and twisting techniques

WEEK 2

(1) Self corrections 3 times per day
(2) Family assisted corrections at bedtime
(3) Tape: 2 days on, 1 night off
(4) Same restrictions
(5) Add the following exercises:

A. TA contraction		20 Build to 40
B. TA with march		20 Build to 40
C. Press Up		20
D. Back Kicks		20 Build to 40
E. Cat / Camel		20
Cat	10 Child's Pose	40 seconds
Camel	10 Child's Pose	40 seconds
F. Dog Point		20
G. Bike		15 minutes or
Swimming		

No weight bearing aerobic exercise.

WEEK 3

(1) Self corrections 3 times per day
(2) Family assisted corrections once per day
(3) Taping: 2 days on, 1 night off
(4) Same restrictions
(5) Add exercise:
    A. Bridge Arch first 20 Build to 40
    B. Piriformis Stretch
        Pigeon or traditional, 3 each leg, 30 seconds
    C. Piriformis Strengthening
        Clam 20 Build to 40 each side
    D. Increase bike to 20 minutes

WEEK 4

(1) Self corrections 3 times per day
(2) Family assisted corrections once per day
(3) Taping: 2 days on, 1 day and 2 nights off
(4) Exercise: Add sensory/motor exercise:
    A. Single leg balance 30 seconds 3 times each leg
        Note: If it destabilizes, stop
    B. Write ABC's

WEEK 5

(1) Self corrections 2 to 3 times per day
(2) Family assisted corrections once per day
(3) Taping: 2 days on, 2 days off
(4) Exercise:
    A. Abdominal bracing with arms
        Advancement from TA with March
    B. Bridge with March
        Advancement from Bridge
    C. Double knees to chest (?? if no increased pain)
    D. Standing Kicks – Sensory/Motor 20
        1. Forward, side, back
(5) Sensory/motor exercise

WEEK 6

(1) Self corrections at least once per day
(2) Family assisted corrections as needed
(3) Taping: once per week, 2 days on and 1 night off
(4) Exercise:
    A. Start walking – 10 minutes
        Build 5 minutes per week until 30 minutes
    B. Add any pelvic stabilization exercise you want, except:
        No sit-ups
        No jumping exercise
        No twisting exercise
        No walking in pool
        No bending at the waist exercise

G. ACTIVITIES OF DAILY LIVING

Sacroiliac stabilization will be more likely if it is accompanied by the practice of good body mechanics during regular daily activities.

These are the things you do every day of your life: brushing your teeth, getting in and out of bed, cooking a meal, and walking the dog.

It is vital that your routine activities are conducted with good body mechanics which will help prevent sacroiliac subluxation.

As you consider each activity, observe where you are making mistakes and begin changing your habits. Your reward will be less back pain, prevention of back injury and increased function in everything you do.

Three instructions apply to many activities:

1. Don't bend or twist at the waist – bend your knees and kneel or squat.

2. Don't reach unnecessarily – get close to the activity. But when you must reach, a "golfer's reach" (raise one leg out behind you as you reach) is easier on your back.

3. Avoid prolonged walking, uneven terrain walking and stairs.

4. Avoid prolonged sitting.

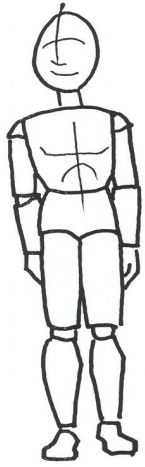
Some conditions – knee pain or poor balance for example – may make it hard or even impossible to practice good body mechanics. In that case, the use of the following assistive devices is helpful:

1. A reacher: an all-purpose, long-handled gadget that has pinchers, a hook, and usually a magnet at the furthest end. This device assists in reaching items without effort.

2. A long-handled shoehorn and elastic shoelaces, so you can put on and take off your shoes without untying them.

3. A long-handled bath brush, so you can reach without twisting or bending.

STANDING

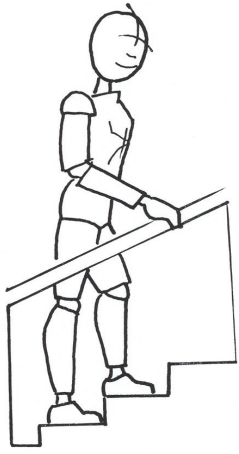


To improve your body alignment (posture), press your hips forward over your knees and under your shoulders.

If you have to stand for a long time–which can place stress on the lower back causing pain–wear flat shoes and maintain good body alignment. Distribute weight evenly between both legs.

Stairs

Stay close to the railing and use it as needed. Wear shoes that give stable support. Avoid stairs or uneven terrain walking when possible.



SITTING

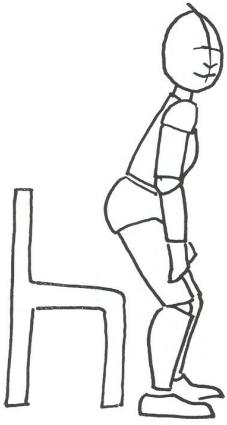
Sit upright and support your lower back with a rolled-up towel or lumbar support in the hollow area of your lower back. Relax your shoulders. Do not slouch and do not cross your knees for very long.

Sitting at the Computer

Support your lower back as shown. Make sure your head is not tilted upwards.

Reading

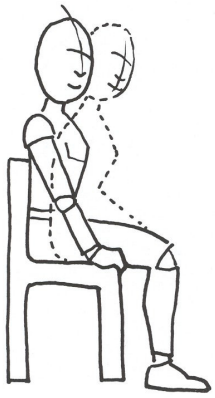
Sit upright; rest reading material on a pillow or a tilted support. When seated in a recliner or easy chair, support your elbows on the armrests. This will help support your back. Change positions frequently. Get up to stretch at least once each hour.



Sitting Down (from standing)

Bend your knees as you lower your body onto the chair; stick out your tailbone toward the back of the chair. Use your hands for support and sit down gently.

Standing Up (from sitting)



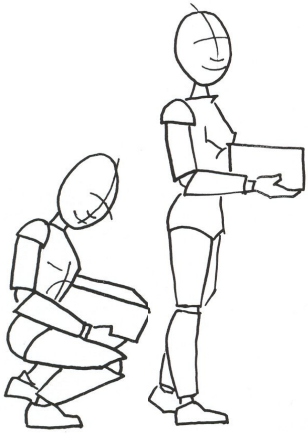
Move to the front of the chair. Place one foot slightly in front of the other, bend at the hips (like a jackknife) and keep your back straight as you stand up. Use your hands and keep your chest up.

LIFTING, PUSHING, PULLING, CARRYING

The rules for lifting are the same, no matter how light the item is. Body position is what matters.

- Stay close to the item.
- Keep your feet shoulder width (or further) apart or place one foot in front of the other.
- Always bend your knees (kneel or squat), to avoid strain on the back.
- Bend your knees when reaching (or use a reacher).
- Pushing is better than pulling.
- Keep objects as light as possible (remove part of contents, if you can). If the item is heavy, get help.
- Do not twist or bend your back. Turn by moving your feet, not pivoting and twisting on one leg.

To Lift from the Floor



Slide the item up onto one thigh. Use both hands to hold it close to you at waist level and then stand up.

To Lift and Move

Stay close to the item. Keep your back in good alignment and let your leg muscles do the work.

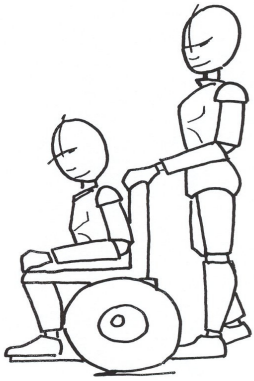
To Move Furniture

Move furniture very carefully following the rules for lifting (above). When lifting with another person, both lift at the same time. Do not move heavy furniture by yourself.

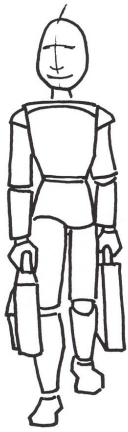
Pushing vs. Pulling

Pushing is better than pulling. Keep your back in good alignment, and let your leg muscles do the work. Keep your elbows at your sides and use total body weight and leg strength.

Pushing a Wheelchair



Stay close to the chair; do not bend your back or lean forward. Bend your elbows and keep your arms close to your sides; use your legs and push with your whole body.



Carrying a Suitcase

Use wheeled luggage or a cart. If you must carry a suitcase, use your body as one unit with weight distributed evenly on both sides. Do not twist your trunk.

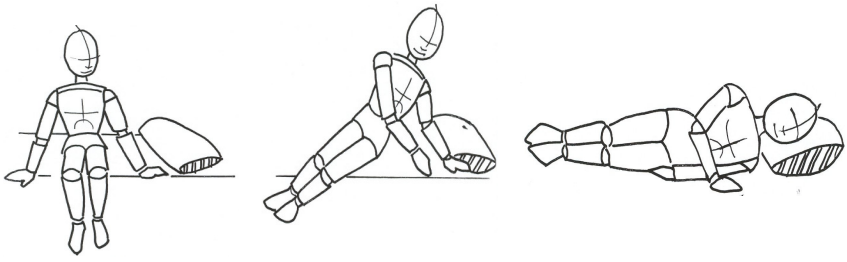
Carrying a Pocketbook

Keep the pocketbook light–check contents periodically and take out unnecessary items. If you use a shoulder bag, alternate shoulders or place the strap across your chest. If you use a fanny pack, wear it in the back; this helps keep your arms free and improves your body mechanics.

IN THE BEDROOM

Getting Into/Out of Bed
These are the safest ways with the least compression on your back.

SIDEWAYS METHOD:
Sit on the edge of the bed. Lower your body down onto one side. Support yourself on your arms as you bend your knees and bring your legs and feet up onto the bed. Now roll over on your back.

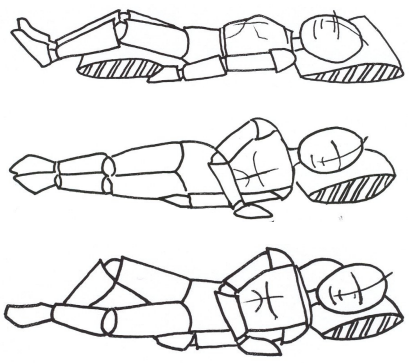


To get up, reverse the movements.

Sitting Up In Bed

Do NOT sit straight up in bed. This movement causes too much stress on the vertebrae. Instead, use the sideways method pictured above.

Turning Over In Bed



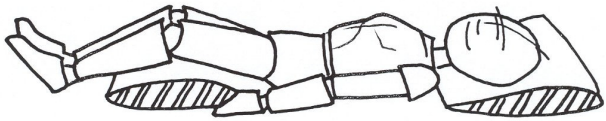
Always move your body as one unit when turning over in bed. If you are lying on your back, bend your left knee, place your left arm across your chest, and roll to the right. Bend your right knee and keep your knees together when on your side.

Reverse the movements to turn the other way.

Lying In Bed

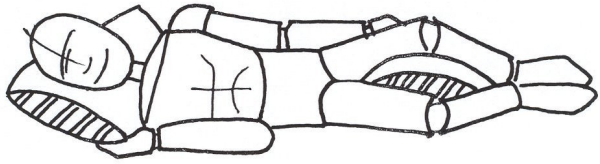
LYING ON YOUR BACK:

Place small pillows under your knees and neck, and possibly a towel roll under your waist. Lie in this position several times a day, especially when your back aches. As a preventative measure, you should lie on your back *BEFORE* your back starts to ache. You will have more success at relieving the pain than if you wait until you are in severe pain.



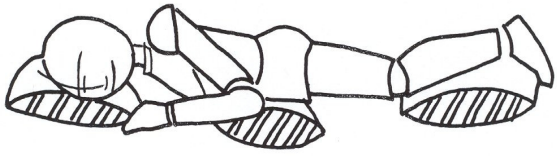
LYING ON YOUR SIDE:

Do not curl up into a fetal position because it causes too much bending of the spine and hips and contributes to postural problems and spinal compression. To reduce strain on your lower back, place a pillow between your knees to prevent the upper leg from falling forward onto the bed. Use a support under your neck and around your waist. A pillow wedged behind or under you and perhaps a pillow in front will help you maintain good body alignment.



LYING ON YOUR ABDOMEN:

Place a pillow under your lower legs and under your stomach, chest, and/or hips as needed. Rest your head on your chin, forehead, or on your hands with hands turned palms down, or turn your head to the side supported with a small pillow.



IN THE BATHROOM

Using the Sink

When brushing your teeth or washing your face, do not bend your back–bend your knees instead. For putting on make-up or shaving, use a mirror on a stand that you can bring closer to you instead of leaning toward the mirror over the sink.

Using the Toilet

Follow the rules for correct sitting (page 61). Bend your knees as much as possible as you sit down. You may need to install grab bars for hand support (the sink, toilet paper holder and towel rack are NOT good supports). Place the toilet paper where you can reach it without twisting. If you have trouble getting up and down, consider installing an elevated toilet seat.

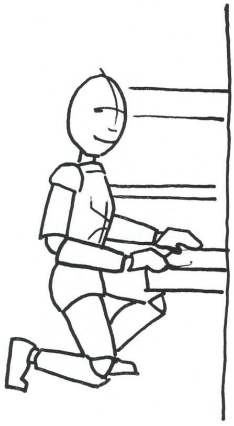
Taking a Shower

Standing in the shower is safer than getting into the tub for a bath. If standing is a problem, get a shower chair. Consider using a hand-held shower and/or a long-handled back brush. Use a non-skid mat in the tub and on the floor outside of the tub.

Getting Dressed

Never dress while standing on one leg, especially if you have balance problems. Sit to put on pants, and then stand to pull them up. To put on your shoes and socks, bring your foot up instead of reaching down to your feet.

IN THE KITCHEN



Refrigerator

Keep frequently used and heavier items on an easy-to-reach shelf (waist level). Have the door open so you can place items from the refrigerator onto a counter next to it. Bend your knees or squat down to reach the lower shelves; do not bend your back. Store vegetables and fruits in plastic bags and use a reacher to put them into/out of the crisper.

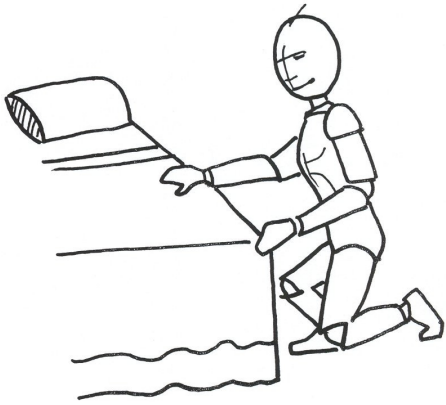
Load/Unload Dishwasher

Place dishwasher items to load on the counter so you don't have to bend, twist, or reach. Consider using just the top shelf or kneel.

HOUSEWORK

Making the Bed

Squat down; don't bend your back. Walk around the bed; don't reach. If your bed is against the wall, place one hand and one knee on the bed to reach pillows or straighten covers or use a reacher. Use lightweight bedding, such as a down comforter and extra-depth fitted sheets.



Getting Items from a Low Shelf

Don't bend over; squat down or kneel. Instead, raise one leg out behind you ("golfer's reach") as you reach down into a cabinet. Use a lazy susan to keep items within reach. Use a reacher.

Getting Items from a High Shelf

Shift your weight from your front foot to the back foot as the item is lifted off the shelf. Don't stand on your tip-toes; use a sturdy stool, preferably one that locks as you stand on it or one that has a handle for support.

Loading/Unloading the Washer

To load the washer, place the basket where you won't have to bend and twist.

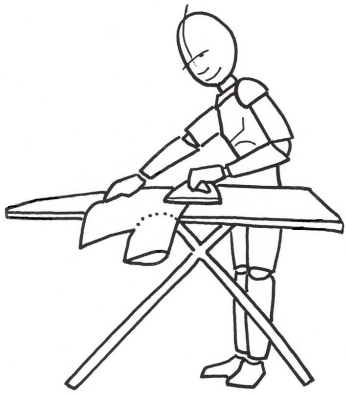
To unload items from the bottom, reach into the washer with one arm and lift the opposite leg behind you ("golfer's reach"), or use a reacher.

Loading/Unloading the Dryer

For a front-loading dryer, place items on the open door. If the door does not form a shelf, kneel or squat, use a stool as a shelf, or use a reacher. Do not bend your back.

Ironing

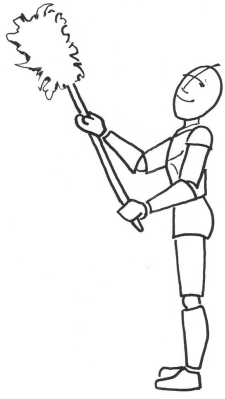
Proper height of the ironing board is very important; it should be high enough so you do not have to lean forward as you iron. Shift your weight from one leg to the other as you iron.



HOUSEWORK

Dusting/Cleaning

Stay as close to your work as possible. To reach further away, kneel or squat and use your knees instead of your back. Use a long-handled duster or window-washing sponge.



Sweeping

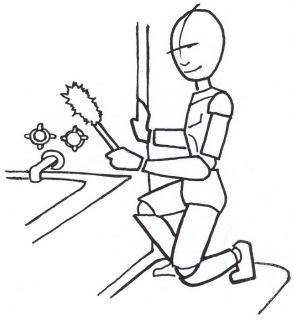
Hold the broom close to you. Do not reach or twist; walk over to the dirt. Use a long-handled dustpan and don't bend over.

Vacuuming

Hold the vacuum close to you at hip level. Do not reach or twist; step back and forth with the vacuum instead of bending forward and backward.

Cleaning the Tub

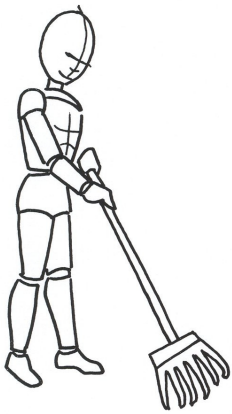
Kneel on one or both knees or squat down; don't bend your back. Reach the corners with a long-handled sponge or brush.



YARDWORK

Raking

Place your upper hand under the handle. Stay close to the work area. Keep your back straight and stable and use arm movements to do the work. Do not reach or twist.



Shoveling (dirt or snow)

Push from the end of the handle and shift body weight back and forth so that you are using as much body weight as possible to help. Keep your knees slightly bent and avoid twisting your back.

Pulling a Cart

Pull the cart alongside of you while walking. Do not bend your back or twist.

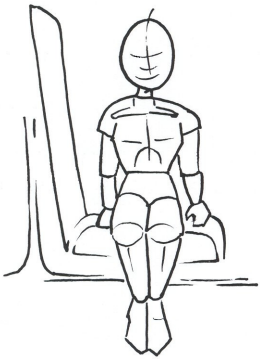
Planting and Weeding

Squat or kneel down instead of bending your back. Use kneepads or a kneeling pad with handles. Use lightweight, long-handled tools that are designed for easy handling.

THE CAR

Getting In/Out of the Car

Lower your body onto the seat. Move back on seat, and then bring one leg into the car at a time. Reverse movements to get out of the car.



Driving

Before driving, adjust the seat and steering (if you have tilt control) to ensure good posture. Knees should be lower than hips if possible. Use a towel roll or lumbar support behind your back.

Getting Items from the Trunk

Try to maintain the curve of your lower back when reaching into a deep trunk. Use one hand for support. Reach into the trunk with the other hand and raise the opposite leg behind you ("golfer's reach"). Have groceries packed in small bags. Slide items close to you before lifting.

Shopping

When reaching into the grocery cart with one hand, lift the opposite leg behind you. Stabilize yourself by holding onto the cart.

H. PROLOTHERAPY

By Alan B. Lippitt, M.D.

If you continue to have an unstable sacroiliac joint after conservative treatment of mobilization, taping and exercise, you may need to consider a trial of prolotherapy.

Prolotherapy is a somewhat controversial procedure based on the theory that soft tissues, especially ligaments and tendons, can be stretched or torn and do not always heal back to their normal length, becoming lax and cause pain because of relative abnormal movements in the bones or joints to which they insert or attach. By injecting certain substances into the ligaments or tendons, one can promote proper healing, strengthening the ligaments and therefore relieving pain. Any irritating substance that will cause the tissues to become inflamed will set in motion a reaction that will promote tissue healing.

Various substances have been used over the years, the most common being a combination of dextrose (a type of sugar), glycerine (a component of some fats found in the body) and Phenol. This solution is called P25G and has been used in more than 100,000 injections without any permanent, serious side effects or adverse reactions. In addition, sometimes sodium morrhuate or cod liver oil can be used, assuming that you are not allergic to fish or shellfish.

By injecting these irritants into the affected tissues, an inflammatory reaction is set in motion. This will cause pain. As a matter of fact, some prolotherapists feel that the more pain that is induced, the better the tissue reaction. This fortunately wears off after a few days and then often the patient will feel markedly improved. During this period of time, you should avoid any aspirin, steroids, or anti-inflammatory medications such as Motrin as these medications inhibit the repair process. If aspirin has been recommended for a heart or blood vessel condition, however, it should not be stopped. You will still get benefit from the

prolotherapy. Injections are repeated every 10 – 14 days until one gets a positive response. We recommend six injections.

We recommend that the sacroiliac joint be in correct alignment while undergoing prolotherapy.

Below are websites with more detailed information on prolotherapy.

Prolotherapy – Related Websites

www.prolotherapy.com is a very comprehensive site which provides the general public with a host of information relative to prolotherapy, including research data, articles, and testimonials. The site is the property of Dr. Donna Alderman, DO, who is Medical Director of Hemwall Family Medical Center in Glendale, CA and Alameda, CA.

www.caringmedical.com is another good site which contains good information about prolotherapy. This is the site of Dr. Hauser's Caring Medical & Rehabilitation Services in Oak Park, IL. This website includes actual pictures of prolotherapy procedures which is very educational for viewers.

www.dormanpub.com/dormanpub.com/Articles/Articles.html is the website of Dr. Thomas A. Dorman, MD, of Kent, WA. Dr. Dorman provides a lot of great information on this site. He includes a search engine which allows viewers to search for prolotherapy doctors throughout North America and beyond. Dr. Dorman also provides a host of great articles, many on prolotherapy.

I. SACROILIAC JOINT STABILIZATION

By Alan B. Lippitt, MD

TECHNIQUE OF SACROILIAC JOINT STABILIZATION

Injuries to the sacroiliac joint can be intra-articular (fracture or "sacroilitis") or extra-articular (ligamentous). The primary lesion that we are discussing is concerning extra-articular ligament disruption with subsequent destabilization of the sacroiliac joint. These lesions cannot be demonstrated with normal imaging studies. The diagnosis is made purely with clinical means based on thorough knowledge of manual medicine. Various techniques have already been discussed concerning the treatment of extra-articular sacroiliac joint destabilization via physical therapy means. If these fail, more drastic measures must be taken. Sacroiliac joint surgery is drastic if it is done incorrectly. The major cause of the failure of surgery is the failure of the surgeon to understand the presence of secondary lesions that also need to be treated or failure to understand that the cause of the problem in the first place is a tearing of the ligaments, not a joint injury. Stabilization of the joint by reinforcing these ligaments is the most important aim of treatment. Joint fusion is much less important and need only be done if there is evidence of joint injury. It is essential that the joint be fixed in its normal anatomic position. Thus a thorough knowledge of manual techniques is required for anyone contemplating doing sacroiliac surgery.

TECHNIQUE

The patient is placed prone on a radiolucent table to allow the use of an image intensifier. The aim of the operation is to insert cannulated screws from the ilium into the sacrum while monitoring proper screw placement with the imaging intensifier. The procedure can be done percutaneously. A point three-finger breadths inferior and at a 45 degree angle distal to the posterior sacroiliac spine is chosen for insertion of a spinal needle through the skin and

subcutaneous tissues down to the outer tail of the ilium, inserting it at approximately a 30 degree angle, aiming towards the posterior sacroiliac spine. Image intensification will confirm that the needle is appropriately placed. Several minor modifications may be necessary before it is determined that the needle is placed appropriately. AP and lateral views are taken to insure proper needle placement. Once it has been confirmed, two parallel Steinmann pins are inserted across the outer tail of the ilium and through the sacroiliac joint percutaneously. This should be done with EMG monitoring to make sure that there is no violation of nerve tissue. Once it is determined that the pins are properly placed, stab wounds are made over the pins, the depth of the penetration measured and 6.5 cannulated screws screwed across the joint on the Steinmann pin. Once it is determined that the screws are appropriately placed, the Steinmann pins can be removed and the small incisions irrigated and closed with interrupted nylon sutures. If it is determined that there is intra-articular pathology, then the next step is to make an incision just lateral to the posterior sacroiliac spine extending proximally and distally for approximately 3 to 4 inches in the same plane as the skin incision subcutaneous tissues are incised to identify the posterior sacroiliac spine and the ilium. With careful dissection, the lumbodorsal fascia is separated from its insertion on the inner table to expose the underlying sacroiliac joint ligaments and the depths.

Using an osteotome mallet, gouges and curettes, a portion of the inner table overlying the sacroiliac joint is removed and set aside for bone grafting. This not only allows for bone grafting, but also allows exposure of the ligaments and cartilage. Care is taken as one curettes the ligamentous and cartilaginous portion of the joint to avoid penetration into the sciatic notch. One should stay approximately 1 cm superior to the sciatic notch to avoid the superior gluteal artery and to avoid going through the anterior sacroiliac ligament. Once the joint is debrided, the harvested bone graft is packed into the defect. It may be supplemented with allograft. Closure is made in the usual orthopedic manner. Post-op immobilization is not necessary. The patient increases his/her

activity as tolerated. Problems with muscle imbalance and spasm are frequent and must be addressed with physical therapy. Associated conditions also need to be treated. These include conditions that occured as the result of the initial injury such as herniated disc, annular tear, nerve root entrapment, facet arthropathy or instability. Secondary problems, which come about as the result of the chronicity of the problem, include meralgia paresthetica and, especially, a piriformis problem. Piriformis tightness is the most common post-op problem and often needs to be dealt with surgically.

CHAPTER IX

RELATED BOOKS AND ITEMS

Products

Order from Gainesville Physical Therapy (770) 297-1700

TAPING: Benadryl
Skin Prep
Leukotape
Hypafix

SACROILIAC BELT

LOW BACK – VIDEO: Demonstrating the exercises, SI corrections and taping techniques used in this book.

UNDERSTANDING SACROILIAC JOINT PAIN AND WHAT YOU CAN DO ABOUT IT – DVD

SAFE YOGA LOW BACK – VIDEO

References

Aitken GS 1986: Syndromes of lumbopelvic dysfunction. In: Grieve G. (ed): Modern Manual Therapy of the Vertebral Column. Churchill Livingstone, Edinburgh, 473-478.

Anderson G 1981: Epidemiological aspects of low back pain in industry, Spine 653-60.

Avillar M, Sims V, Keating J, Stinchcomb P, Herrberg J 1995: The effect of a seven week sacroiliac joint mobilization and stabilization program on a low back pain population. In: Vleeming A, Mooney V, Dorman T, Snijders C (eds): Second interdisciplinary world congress on low back pain. San Diego, CA, 9-11 November, 305-321.

Baer S 1912: Sacroiliac strain. Bull John Hopkins Hosp, 28:159.

Beal MC 1982: The sacroiliac problem: a view of anatomy, mechanics and diagnosis. J Am Osteopathic Assoc 81:667-679.

Bernard T, Cassidy D 1993: The sacroiliac joint syndrome: pathophysiology, diagnosis, and management. In: Vleeming A, Mooney V, Snijders C, Dorman T (eds): First interdisciplinary world congress on low back pain and its relation to the sacroiliac joint. San Diego, CA, 5-6 November, pp 120-143.

Bernard TN, Kirkwaldy-Willis WH 1987: Recognizing specific characteristics of non-specific low back pain. Clinical Orthopedics and related research. 217: 266-280.

Beatty RA 1994: Neurosurg, 34:512-514.

Campbell WC 1927: An operation for extra-articular fusion of the sacroiliac joint. Surg Gynecol Obstet, 45:218.

Carpenter DM, Graves JE, Pollock ML et al 1991: Effect of 12 and 20 weeks of resistance training on lumbar extension torque production. Physical Therapy 71: 580-588.

Cibulka M, Delitto A, Erhard RE 1993: Pain patterns in patients with and without sacroiliac joint dysfunction. In: Vleeming A, Mooney V, Snijders C, Dorman T (eds): First interdisciplinary world congress on low back pain and its relation to the sacroiliac joint. San Diego, CA 5-6 November, 363-370.

Coventry MV, Tapper EH 1972: Pelvic instability: a consequence of removing iliac bone for grafting. J Bone Joint Surg 54A:83-101.

Cresswell AG, Grundstrom A, Thorstensson A 1992: Observations on dominal pressure and patterns of abdominal intramuscular activity in man. Acta Physiol Scandinavica, 144: 409-418.

Cresswell, AG, Oddsson L, Thorstensson A 1994: The influence of sudden perturbations on trunk muscle activity and intra-

abdominal pressure while standing. Experimental Brain Research 98: 336-341
Donelson R, 1980: The McKenzie Approach to evaluating and treating low back pain. Orthopaedic Review 19(8): 681-686.
Dreyfuss P, Cole AJ, Pauza K 1995: Sacroiliac joint injection techniques. Physical Medicine and Rehabilitation Clinics of North America, 6:4: 785-813.
Farfan HF 1980: The scientific basis of manipulative procedures in clinics in rheumatic disease. Philadelphia, W.B. Saunders, Co, 6:159-177.
Farfan HF, Kirkaldy-Willis WH 1981: The present status of spinal fusion in the treatment of lumbar intervertebral joint disorder*s.* Clin Orthop 158:198-214.
Fortin A, Dwyer S, West J, Pier J 1994a: Sacroiliac joint: pain referral maps upon applying a new injection/arthrography technique. In: Asymptomatic volunteers. Spine 19(13): 1475-1482.
Fortin A, Aprill C, Ponthieux B, Pier J 1994b: Sacroiliac joint: pain referral maps upon applying a new injection/arthrography technique. 2: Clinical evaluation. Spine 19(13): 1483-1489.
Fortin JD, Dwyer AP, West S 1992: Sacroiliac joint: pain referral maps. In: Proceedings of the North American Spine Society. Boston Paper 78: 83.
Fortin JD, Falco FJ 1997: The fortin finger test: an indicator of sacroiliac pain. AM J Orthop 26: 477-480.
Foster D, Fulton M 1991: Back pain and the exercise prescription. Clinics in Sports Medicine 10(1): 197-209.
Fowler C 1986: Muscle energy techniques for pelvic dysfunction. In: Grieve G (ed.): Modern Manual Therapy of the Vertebral Column. Churchill Livingstone, Edinburgh, 805-818.
Frymoyer J, et al 1989: Posterior support structures. In: Frymoyer J, Gordon SL (eds.): New Perspectives on Low Back Pain. American Academy of Orthopedic Surgeons, 241.
Frymoyer JW, Howe J, Kuhlmann D 1978: The longterm effects of spine fusion on the sacroiliac joints and ilium. Clin Orthop 134:196-201.

Gowers S 1904: Lumbago: Its lessons and analogues. British Medical Journal 1: 117-121.
Graves JE, Pollock ML, Carpenter DM et al 1990: Quantitative assessment of full range-of-motion isometric lumbar extension strength. Spine 15(4): 289-294.
Graves JE, Pollock ML, Leggett SH, Carpenter DM, Vuoso R, Jones A 1990b: Effects of training frequency and specificity on isometric lumbar extension strength. Spine 15(4): 504-509.
Graves J, Webb D, Pollock M et al 1994: Pelvic stabilization during resistance training: its effect on the development of lumbar extension strength. Archives of Physical Medical Rehabilitation 75: 210-215.
Greenman P 1991: Osteopathic manipulation of the lumbar spine and pelvis. In: White A, Anderson A (eds.): Conservative Care of the Low Back. Baltimore, Williams and Wilkins, 210-215.
Greenman P 1989: Principles of Manual Medicine. Baltimore, Williams and Wilkins, 230.
Greenman P, Tait B 1988: Structural diagnosis in chronic back pain. Journal of Manual Medicine 3: 114-117.
Greenman PE 1990: Clinical aspects of sacroiliac function in walking. J. Manual Med. 5: 125-130.
Grieve GP (ed) 1981: Common vertebral joint problems. Churchill Livingstone, Edinburgh, 282.
Grieve GP 1988: Common vertebral joint problems. (2nd ed), Churchill and Livingstone.
Hackett GS, Hemwall GA, Montgomery GA 1991: Ligament and tendon relaxation treated by prolotherapy. (5th ed), Gustay A Hemwall.
Hodges PW 2002c: Science of Stability: Clinical Application to Assessment and Treatment of Segmental Spinal Stabilization for Low Back Pain, course notes, Durham Hilton, Durham, NC USA, September 29,30.
Iglarsh ZA, Richardson JK 1994: Clinical Orthopedic Physical Therapy. Philadelphia, PA, WB Saunders Company, 119-154.
Janda V 1986: Muscles, central nervous motor regulation and back problems, in Knorr (ed). The Neurobiologic Mechanisms in Manipulative Therapy. Plenium Press. London 27-41.

Keating JG, Sims V, Avillar MD 1995: Sacroiliac joint fusion in a chronic low back pain population. In: Vleeming A, Mooney V, Dorman T, Snijders C (eds): Second interdisciplinary world congress on low back pain. San Diego, CA, 9-11 November, 361-365.

Kelsey JL, White AA 1980: Epidemiology and impact of low back pain. Spine 5(2): 133-140.

Kermond W 1995: Early intervention low intensity exercise therapy in work related acute lumbar sprain injuries. Presented at Exercise Rehabilitation of the Spine: update '95, Orlando, FL, 6-8 April.

Klein RG, Eek BC, Delong WB, Mooney VA 1993: Randomized double blind trial of dextrose-glycerin-phenol injections for chronic low back pain. J Spine Disorders 6:23-33.

Kuchera WA, Kuchera M 1991: Osteopathic Principles and Practice. (2nd ed), Kirksville, Missouri, KCOM Press.

Laslett M, Williams M 1994: The reliability of selected pain provocation tests for sacroiliac joint pathology. Spine 19(1): 1243-1249.

Lee D: The Pelvic Girdle. Churchill Livingstone, 1989.

Lee DG, Vleeming A 1999: The Pelvic Girdle, (2nd ed), Churchill Livingstone, Edinburgh.

Lee DG 2002c: The Pelvis Restoring Function, Relieving Pain, course notes, Holiday Inn Roswell, Roswell, GA USA, May 17,18.

Lippitt AB 1997: Percutaneous fixation of the sacroiliac joint. In: Vleeming A, Mooney V, Snijders CJ, Dorman TA, Stoeckart (eds): Movement, Stability and Low Back Pain. Churchill Livingstone, Edinburgh, 587-594.

Lippitt AB 1995: Recurrent subluxation of the sacroiliac joint: diagnosis and treatment. Bull Hosp for joint diseases 54:2:94-102.

Lippitt AB 2001: The effect of sacroiliac dysfunction on the musculoskeletal system. In: Vleeming A, et al (eds): Montreal Nov 8-10. 4th interdisciplinary World Congress on Low Back and Pelvic Pain. ECO 296-299.

Lippitt AB 1984: The facet joint and its role in spine pain management with facet joint injections. Spine 9(7): 746-750.
Macnab I 1971: Negative disc exploration. J Bone Joint Surg 53A: 891-903.
Magee JD 1997: Orthopedic Physical Assessment (3rd ed): Philadelphia, PA. WB Saunders Company, 428, 460-505.
Matta JM, Saucedo T 1989: Internal fixation of pelvic ring fractures. Clin Orthop Rel Res 242:93.
Mckenzie RA 1981: The lumbar spine mechanical diagnosis and therapy. Walkamae, Wellington, New Zealand. Spinal Publications, 1-3.
Mens J M A, Vleeming A, Snijders C J, Stam H J, Ginai A Z 1999: The active straight leg raising test and mobility of the pelvic joints. European Spine 8:468
Mixter WJ, Barr JS 1934: Rupture of the intervertebral disc with involvement of the spinal canal. New England Journal of Medicine 211: 210-215.
Mooney, V 1994: Understanding, examining for, and treating sacroiliac pain. The Journal of Musculoskeletal Medicine, July, 42-44.
Nelson B, O'Reilly E, Miller M, Hogan M, Wegner J, Kelly C 1995: The clinical effects of intensive, specific exercise on chronic low back pain: a controlled study of 895 consecutive patients with 1-year follow-up. Orthopedics 18(10): 971-981.
Ongley MJ, Klein RG, et al 1987: A new approach to the treatment of chronic low back pain. Lancet 2:143-146.
Piedallu P 1952: Problemes Sacroiliaque. In: Homme Sain. Bordeaux, France, Biere.
Polatin P 1990: The functional restoration approach to chronic low back pain. Journal of Musculoskeletal Medicine 7(1): 17-30.
Pollock M, Leggett S, Graves J, Jones A, Fulton M, Cirulli J 1989: Effect of resistance training on lumbar extension strength. American Journal of Sports Medicine 17(5): 624-629.
Potter N, Rothstein J 1985: Intertester reliability for selected clinical tests of the sacroiliac joint. Physical Therapy 65: 1671-1675.

Reeves KD 1995: Prolotherapy present and future application in soft tissue pain and disability. Physical Med and Rehab Clinics of N America 6: 917-926.
Retzlaff EW, Berry AH, Height AS, et al 1974: The Piriformis syndrome. J Am Osteopath Assoc. 73: 799-807.
Richardson CA, Jull GA, Hodges PW, Hides JA 1999: Therapeutic exercises for spinal segmental stabilization in low back pain. Churchill Livingstone, Edinburgh.
Risch S, Norvell N, Pollock M et al 1992: Lumbar strengthening in chronic low back pain patients. Spine 18(2): 232-238.
Rissanen A, Kalimo H, Alaranta H 1995: Effect of intensive training on the isokinetic strength and structure of lumbar muscles in patients with chronic low back pain. Spine 20: 333-340.
Salvatli E 1987: The levator ant syndrome and its variants. Gastroenterol Clin North Am. 16: 71-78.
Schwarzer A, Aprill C, Bogduk N 1995: The sacroiliac joint in chronic low back pain. Spine 20(1): 31-37.
Shaw JL 1993: The role of the sacroiliac joint as a cause of low back pain and dysfunction. In: Vleeming A, Mooney V, Snijders C, Dorman T (eds): First interdisciplinary world congress on low back pain and its relation to the sacroiliac joint. San Diago, CA, 5-6 November, pp 67-80.
Sims V, Avillar MD, Keating JG, Stinchcomb P, Herrberg J: The effectiveness of a seven-week sacro-iliac joint mobilization and stabilization program on a low back population.
Smith-Peterson MN, Rosey W 1926: Arthodesis with tuberculosis of the sacroiliac joint. JAMA 86:26-30.
Smith-Peterson MN, Rogers WA 1920: End results of arthodesis of the sacroiliac joint for arthritis, traumatic and untraumatic. J Bone Joint Surg 8:118-136.
Solonen KA 1957: The sacroiliac joint in the light of anatomic, roentgenological and clinical studies. Acta Orthop Scand 27 (Suppl): 100-115.
Stanhope WD, Onesti ST 1999: The sacroiliac joint – an overlooked cause of low back pain. The Pain Clinic. October, 13-17.
Theile GH 1937: Coccydynia and pain in the superior gluteal region and down the back of the thigh: causation by tonic spasm of the

levator ani, coccygenus, and piriformis muscles and relief by massage of these muscles. JAMA 109: 1271-1275.
Theile GH 1963: Coccydynia: cause and treatment. Dis Colon Rectum. 6: 422-436.
Twomey L, Taylor J 1995: Exercise and spinal manipulation in the treatment of low back pain. Spine 20(5): 615-619.
Ungaro Alycea: Pilates body in motion. A Dorling Kindersley Book, Minneapolis.
van Deursen LL, Pitijnj JM, Ockhuysen AL, Vortman BJ 1990: The value of some clinical tests of sacroiliac joint. J Manual Med 5:96-99.
Verrall PJ 1926: A bone graft for sacroiliac fixation. J Bone Joint Surg 8:491.
Vleeming A, Mooney V, Dorman T, Snijders C, Stoeckart B: Movement, stability and low back pain – The Essential Role of the Pelvis.
Vleeming A, Mooney V, Dorman T, Snijders C 1995: The Integrated Function of the Lumbar Spine and Sacroiliac Joint, San Diego, November 9-11.
Vleeming A, Mooney V, Gracovetsky S, Lee D, Maeu E, Sturesson B, Videman T 2001: 4th Interdisciplinary World Congress on Low Back & Pelvic Pain – Moving from Structure to Function, November 8-10.
Vleeming A, Snijders CJ, Stoeckart R, Mems JM 1997: The role of the sacroiliac joints in coupling between spine, pelvis, legs, and arms. In: Vleeming A, Mooney V, Snijders CJ, Dorman TA, Stoeckart R (eds): Movement Stability and Low Back Pain, Churchill Livingstone, Edinburgh, 53-71.
Vleeming A, Stoeckart R, Snijders C 1993: A short history of sacro-iliac research. In: Vleeming A, Mooney V, Snijders CJ, Dorman T (eds): First interdisciplinary world congress on low back pain and its relation to the sacroiliac joint. San Diego, CA 5-6 November, 5-11.
Waddell G 1980: Nonorganic physical signs in low back pain. Spine 5(2): 117-125.
Waddell G 1987: A new clinical model for the treatment of low-back pain. Spine, 12(7): 632-643.

Wadsworth CT 1988: Manual examination and treatment of the spine and extremities. Baltimore, Williams and Wilkins, 82.
Wallace K 1994: Female pelvic floor dysfunctions and behavioral approaches to treatment. Clin Sports Med. 13: 459-481.
Weisl H 1954: Ligaments of the sacroiliac joint examined with particular reference to their function. Acta Anatomica 20:201-213.
Weisl H 1955: The movements of the sacroiliac joint. Acta Anatomica 23:80-91.
Wilder DG, Pope MH, Frymoyer JW 1980: The functional topography of the sacroiliac joint. Spine 5: 575-579.
Williams P, Warwick R: Gray's Anatomy, 26th British Ed.

TESTIMONIALS

"As I entered my early sixties the pain I felt in my lower back and right hip had become nearly constant. An active lifetime, with several motorcycle accidents and many weekends spent water skiing or running in 10K races, was seemingly taking its toll on my body.

An appointment with Vicki Sims, PT for her evaluation of my condition was recommended to me by two dear and valued friends, a kindness for which I am still in appreciation. After just a few visits to Vicki at the Gainesville Physical Therapy Clinic, I noticed a remarkable reduction in my pain and an increase in my mobility.

Now, after two years, I am 98% pain free. The therapy I have received from my series of visits to Vicki have played a significant part in my healing for which I will be eternally grateful."

Your friend, former patient (and admirer),
Tommy P.

"I tell my friends, 'she changed my life.' It's great to do the things I like – golfing, gardening, walking, and yoga –without having to take a break from them because of my back pain. My therapist has taught me how to take care of my back by listening to it and by doing specific exercises. I'm a very lucky person to have been treated by your clinic."

Always, Sylvia

"Not a day goes by that I am not thankful that I had the SI surgery. I feel so fortunate to be able to get out of bed, do my exercises, get dressed and go to work. These things that average people take for granted, I cherish. Thank you for making this possible for me. I look back to a year ago and I am amazed with how far I have come. I swim daily, do my exercises daily, go to work, cook dinner and play with my new puppy. I feel I got a gift to really see what is important in life and live everyday to the fullest. Thank You! I am so grateful for you, Vicki, and Dr. Lippitt."

Sincerely, Stacey
Surgery Nov. 2002

"I suffered from a SI dysfunction for four years after being thrown off a horse. In the last years before I had SI surgery, my pain had become constant and interfered with most of my daily activities. I could not walk very far before the pain became unbearable. I could not exercise or do any housework without increasing pain driving me to rest. I am four years after SI surgery and I have been pain free since six weeks after surgery. What a blessing. I have a normal life!"

Crystal R.
Surgery Aug. 2000

"For 10 years I have suffered chronic low back and hip pain. I also had pain in my left buttock and pain radiating down my left leg. I could never have a day without pain! I could not find a comfortable position too long. I had to take rest breaks while climbing stairs. I have been through numerous MRI's, x-rays, injections, and physical therapy. I have been to 3 different Orthopedics and 2 pain clinics. I've been in the deepest depression possible with thoughts of suicide. I've been addicted to Lortab.

My brother has also suffered with chronic low back pain for over 20 years. He had also been through numerous routes of treatment trying to relieve his constant pain. His life changed when he walked into Gainesville Physical Therapy and met Vicki Sims, PT. He begged me to not give up before the miracle and go see Vicki Sims, PT, at GPT. I was extremely reluctant because nothing had worked to relieve my pain. I finally agreed because he convinced me that his pain was completely gone.

I've been in therapy with Vicki Sims, PT, now for 6 weeks. I am NOT in chronic pain anymore! I found someone to address the issue of what's causing my pain. She has taught me about sacroiliac joint dysfunction. She has showed me how critical it is to have a stable sacroiliac joint with correct alignment. I've found out why my left buttock and hip hurt so much. She has applied proven techniques and given me exercises to do during these 6 weeks. I have not felt this good in 10 years. She is a miracle worker to me! I'm begging you not to give up before the miracle. If you feel that

you have tried it all, please make one more appointment at GPT with Vicki Sims, PT. Your life will change forever! I am forever grateful!"

Janet D.

"Dear Vicki, There are no words to express how grateful I am for your help. In my odyssey to find help for my sacroiliac, you have been the most devoted and knowledgeable person I have come across. Your enthusiasm to help with every aspect of my pain has led me to living almost pain free within only 5 days! My bursitis seems to be completely gone and all that is left of the SI problem is a slight pinch in the piriformis muscle and an occasional sting. It is hard to believe that only a week ago I had so much pain that I could not do a single move without hurting. Thank you ever so much for all you have done for me."

Beverly

"Vicki, you don't know me from Adam, but I want to thank you for my recovery from a chronic SI joint problem. A problem that after 9 months of pain, 3 MD's, a MRI, and one physical therapist here in Montgomery couldn't diagnose or treat. It wasn't until I started going to a chiropractor that I heard the words SI joint dysfunction. While researching the problem and its treatments on the internet, I found your book and even after all I had tried, I thought "what could it hurt." I was much better after seeing the chiropractor for several weeks, but he kept telling me that for some reason the joint just wasn't stable. He had me doing some exercises and limiting certain other things I did and I am very obedient. I believe that I am responsible for my own recovery with the help of professionals.

I even called your facility and spoke with someone about possibly coming for an evaluation. He suggested I try your book, and possibly the DVD if I needed it, first. I have been doing the complete exercise routine and 2 of the self adjustment techniques as you recommend for the past 2 weeks and am **SOOO** much better. I

have very little pain in general and sitting is not as problematic as it was, even though I can still feel that piriformis/sciatic problem if I sit for a long time. I have gotten back to my Yoga, a little power walking, and some of my other workout regimes, though nothing with any impact. I'm not 100%, but so much better than I was. I will continue your prescribed regime gladly.

I just wanted to thank you for putting that information out there for us to have access to and for writing the book. My physiatrist is even ordering a copy so he can begin recommending it to other patients."

Sincere thanks,
N.D., Senior Archivist

"Dear Vicki, On several occasions I sat down to write you a thank you letter to update you on my progress from my SI joint fusion/fixation surgery in April 2009, but could not put my thoughts into words without crying. My emotional experience with this disorder is still at the surface and is healing slowly.

To update you, I am 22 weeks post-op and am back to work full time. I am more active than I have been in 10 years. I am more confident in public without fear of being startled, bumped into, or uneven terrain. I have also resumed my exercise program which gives me the greatest joy and self-confidence. There is still occasional pain and discomfort, but for the first time in my life, I am in control of it and have the tools to alleviate and live with pain.

The pain, emotional defeat, and chronic dysfunction had affected me to the core both physically and mentally. It had paralyzed my whole being, and there had been days that I wished for no tomorrow.

Somewhere, I found the inner strength to find your clinic and follow through with my gut instinct of surgery despite recommendations of Cleveland Clinic and Strong Memorial of Rochester, NY, who were not in agreement that I would benefit from a SI joint fusion.

I am so grateful for your knowledge, expertise, and empathy to help those who suffer with this disorder. Your accurate diagnosis

and surgical resolution has been life changing to me and my family. Without this surgery, I cannot bear to think of the continued suffering and poor quality of life I would have to endure.

I want you to know that I wish you the richest blessings of both health and happiness to you and your family. I hope you continue your work and share your knowledge and training with other professionals to continue to give those who suffer the chance to live free of chronic pain."

Sincerely,
Amy J.

"Vicki, Hi. I just wanted to say THANK YOU for all your help. It has been ten months since my husband and I visited the clinic. Things are going well. I just finished my first ten mile walking road race and placed second. Currently, I am training to walk a half marathon in Disney 2008. It is something I would have never been able to do without your help and support. I thank God everyday for bringing me to you."

Thank You again,
M.R., Wakefield, RI

THE AUTHOR

Vicki Sims, PT, CHT is a physical therapist who has practiced physical therapy since 1977. She specializes in the treatment of sacroiliac joint dysfunction and back pain. She has treated thousands of patients traveling from all over the world seeking relief from their suffering.

The author has developed a unique and highly effective program for the treatment of sacroiliac joint dysfunction. For the pa twenty years, she and Jeff Skorput, PT, have been training physical therapists and physical therapist assistants across the country to apply the program effectively.

Her outpatient orthopedic clinic has been associated with orthopedic surgeons for over 28 years, who do sacroiliac surgery for those who fail the conservative approach. Vicki developed and implements the pre and post-operative protocol for rehabilitation of the patient undergoing surgical intervention.

She has been involved in research for many years and has published and presented her work. She is currently involved in a multi-year study of the effectiveness of sacroiliac stabilization surgery.

Sims is still in practice in Gainesville, Georgia. To schedule a personal phone consultation or evaluation with Vicki Sims, PT, CHT, please call Gainesville Physical Therapy at (770) 297-1700. For additional information, please visit us on the web at www.gainesvillept.com, www.sidysfunction.com, and www.sacroiliacsurgery.com.

Vicki is married and has three children. She lives in Gainesville, Georgia.