Chapter **5**

Pelvic pain

CHAPTER CONTENTS

The reason for creating two chapters instead of one focused on low back pain and pelvic pain is in order to separate those aspects of assessment that relate particularly to pelvic, sacral, sacroiliac and iliosacral symptoms, in contrast to pain deriving specifically from spinal structures.

In reality of course, a restricted sacroiliac joint (SIJ), or a torsioned sacrum, will produce a situation in which spinal tissues and joints will become distressed, and probably painful – just as a restricted segment in the lumbar spine can cause adaptive demands and distress to the sacroiliac joints. So pain in the pelvis and pain in the spine are capable of feeding into each other.

It is also clear that patterns of pain caused by trigger points in the lower abdomen can refer symptoms into the back and/or the pelvic structures (see Fig. 3.1).

From the perspective of a massage therapist, it is important to be able to identify SIJ and other pelvic dysfunctions, because, in some instances, appropriate soft tissue treatment will be able to reduce or normalize the dysfunctional state.

A good working knowledge of the muscles of the low back and pelvis is important, and some of the major ones are to be seen in Figures 5.1 and 5.2

TRIGGER POINTS AND PELVIC PAIN

Pelvic pain, interstitial (i.e. unexplained) cystitis and urinary (stress) incontinence

Pelvic pain, and problems of urgency and incontinence, may at times be related to trigger points. However, there may be many other causes of such symptoms, including infection, gynecological disease, pregnancy, weight problems, etc.

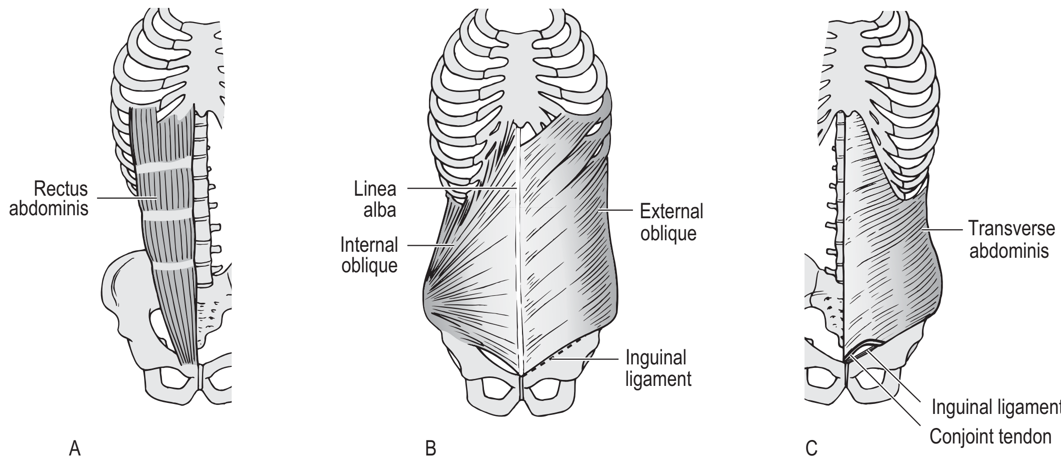


Figure 5.1 (A) Rectus abdominis. (B) Right internal and left external obliques. (C) Left transverse abdominis (Adapted from Braggins 2000 with permission.) (From Chaitow and DeLany 2002.)

As far back as the early 1950s, there were reports that pelvic pain and bladder symptoms, such as cystitis, could be created by trigger points lying in the abdominal muscles (Kelsey 1951).

Travell & Simons (1983), the leading researchers into trigger points, reported that:

> Urinary frequency, urinary urgency and 'kidney' pain may be referred from trigger points in the skin of the lower abdominal muscles. Injection of an old appendectomy scar … has relieved frequency and urgency, and increased the bladder capacity significantly.

More recent research confirms this, and has shown that symptoms such as chronic pelvic pain, and interstitial cystitis, can often be relieved by manual deactivation of trigger points, as well as by injection or acupuncture (Oyama et al 2004, Weiss 2001).

Trigger points and ilio-inguinal nerve entrapment

Understanding how pelvic pain can arise from trigger points (Iyer & Reginald 2000) may be easier if we remind ourselves of the definition:

A trigger point is:

- a hyperirritable focus
- usually found within a taut band of skeletal muscle or in the muscle fascia
- painful on compression
- giving rise to characteristic referred pain, tenderness and autonomic phenomena (Travell & Simons 1992).

Trigger points often appear after tissue injury and are frequently found in the muscles of the anterior abdominal wall and pelvic floor (for example levator ani and coccygeus). Pressure on the trigger points will reproduce the pain symptoms if the triggers are active. Many physicians inject the triggers, or use dry needling or acupuncture to deactivate them, however manual methods are commonly equally effective (Hou et al 2002) and are sometimes more effective (Dardzinski et al 2000).

In some cases, ilio-inguinal nerve entrapment may produce chronic pelvic pain. The nerve may be damaged or entrapped between oblique abdominal muscle fibres, by scar tissue, following surgery. Local anesthetic injections have been shown to relieve this pain in many cases (Hahn 1989).

Trigger points fall into two categories:

1. Close to attachments
2. Close to motor end-points near the bellies of muscles.

This is also true of abdomino-pelvic trigger points, where particular attention should be given to specific junctional tissues, such as:

- the central tendon
- the lateral aspect of the rectal muscle sheaths
- attachment of the recti muscles and external oblique muscles to the ribs
- the xiphisternal ligament, as well as the lower insertions of the internal and external oblique muscles
- intercostal areas from 5th to 12th ribs are equally important
- scars from previous operations.

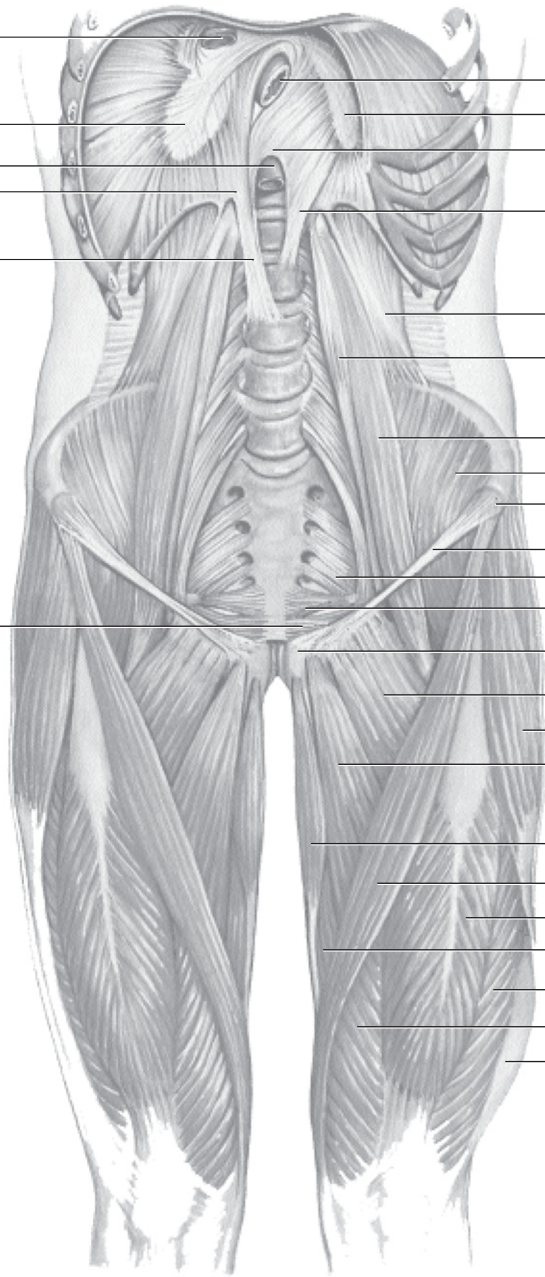


Figure 5.2 Psoas major and minor as well as quadratus lumborum comprise the deep abdominal muscles. Portions of piriformis, coccygeus and levator ani are also shown here. (Reproduced with permission from Gray's Anatomy 1995.) (From Chaitow and DeLany 2002.)

Examples
Pain in the lower abdomen, such as that of dysmenorrhea, may arise from trigger points in the rectus or the lateral abdominal muscles (Figs 5.3, 5.4).

These trigger points can be located during massage, or by carefully searching the tissues where they are housed, as in neuromuscular evaluation (Fig. 5.5).

VISCERAL 'DRAG' AND PELVIC PAIN

Kuchera (1997) points to various ways in which pain and discomfort can arise in the pelvic and abdominal viscera, due to irritation or inflammation.

- A 'vague, gnawing, deep, poorly localized, and mid-abdominal' pain, may derive from irritation of

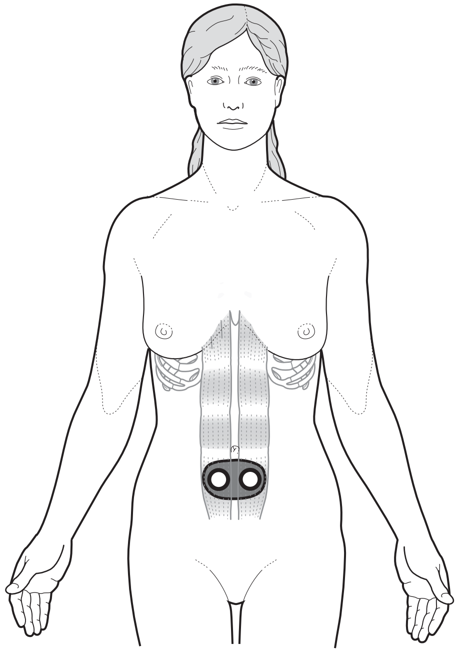


Figure 5.3 Painful or difficult menstruation (dysmenorrhea) may be due to rectus abdominis trigger points. (Adapted from Simons et al 1999, Figs 49.2A–C.) (From Chaitow and DeLany 2002.)

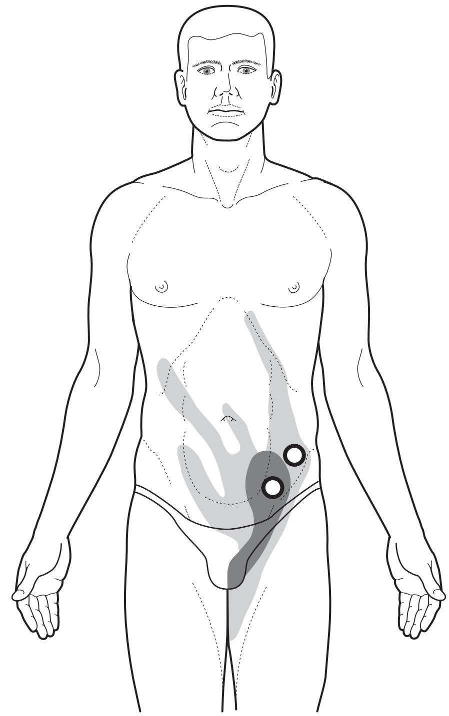


Figure 5.4 Trigger point patterns of lateral abdominal muscles. These patterns may include referrals which affect viscera and provoke viscera-like symptoms, including heartburn, vomiting, belching, diarrhea and testicular pain. (Adapted with permission from Simons et al 1999.) (From Chaitow and DeLany 2002.)

contiguous peritoneal tissues and the abdominal wall

- Abdomino-pelvic pain may be due to reflex pain from different organs, or the spinal cord
- Pain may also derive from a dragging force imposed on the mesentery (the double layer of peritoneal membrane that supports the small intestine) when organs and tissues have sagged (visceroptosis), irritating the peritoneal tissues (Figs 5.6–5.8).

Kuchera (1997) suggests that tenderness and tension in the mesentery can be palpated for tension and treated as follows:

- Place the extended fingers flat over the lateral margin of the ascending or descending colon and moving the viscera towards the midline of the body, monitor for changes in resistance to this movement
- The mesentery of the sigmoid colon is moved towards the umbilicus (Fig. 5.7A)
- Palpate the mesentery, along with the small intestines, by placing the extended fingers carefully into the lower left abdominal quadrant to make indirect contact with as much of the small intestine as possible
- This is moved towards the upper right quadrant of the abdomen (Fig. 5.7B).

To treat restrictions noted in such palpation:

- The patient lies supine, with knees flexed and feet flat on the table
- The therapist's fingers are extended and placed flat over the lateral margin of the mesentery (to be treated) (Fig. 5.8)
- Medial pressure is then applied to the 'restricted' section of bowel, at right angles to its posterior (mesenteric) abdominal wall attachment
- The tension is held as the patient takes a half-breath and holds it. No pain should be produced by this
- After release of the breath the tissues being held should be gently 'turned' clockwise and anticlockwise, to sense their position of greatest tissue freedom
- The tissues are then held for not less than 90 s, or until a sense of relaxation is noted
- When breathing resumes, after this positional release approach, the tissues should be re-palpated.

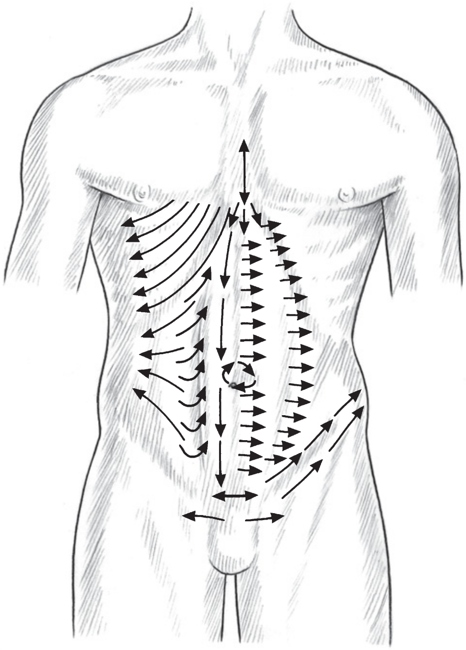


Figure 5.5 Neuromuscular abdominal technique. Suggested lines of application to access primary trigger point attachment sites and interfaces between different muscle groups. (From Chaitow and DeLany 2002.)

Form, force and the self-locking mechanisms of the SIJ

Two mechanisms lock the SI joint physiologically, and these are known as the 'form closure' and 'force closure' mechanisms (Lee 1997) (Fig. 5.9).

- *Form closure* is the state of stability which occurs when the very close fitting joint surfaces of the SI joint approximate, in order to reduce movement opportunities. The efficiency and degree of form closure will vary with size, shape, age, as well as the level of loading involved
- *Force closure* refers to the support offered to the SI joint by the ligaments of the area directly, as well as the various sling systems which involve both muscular and ligamentous structures. It is important to review these extremely important mechanisms by means of which the muscles and ligaments, often acting via connecting fascia, stabilize the SI joints during different phases of activity.

For example:

- During anterior rotation of the ilium or during sacral counter nutation, the SI joint is stabilized by a tightening of the long dorsal sacroiliac ligament

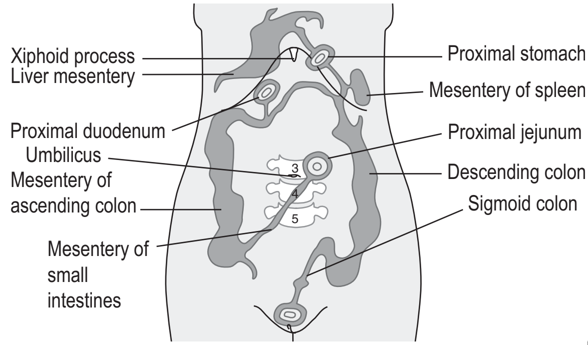


Figure 5.6 Mesenteric attachments as described by Kuchera. From Ward (1997), with permission.

- During sacral nutation, or posterior rotation of the innominate, the SI joint is stabilized by the sacrotuberous and interosseous ligaments.

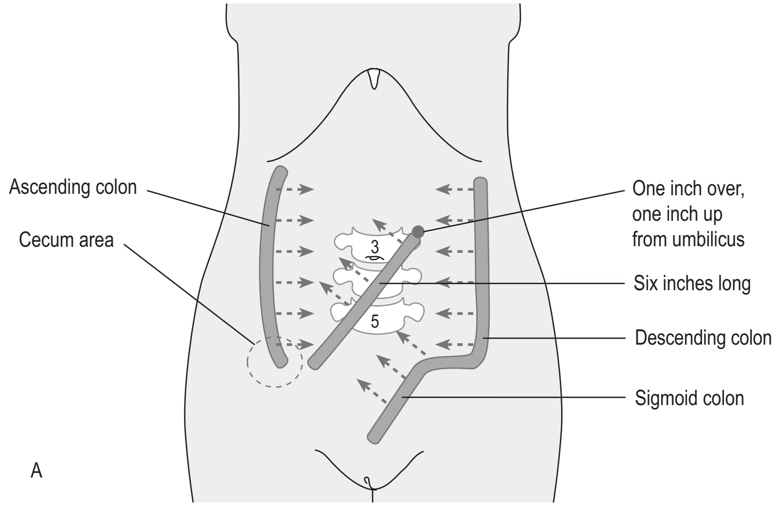
Muscles that support the SIJ

The inner unit includes:

- the muscles of the pelvic floor (levator ani and coccygeus)
- transversus abdominis
- multifidus
- the diaphragm (Fig. 5.10).

The outer unit comprises four 'systems':

- *Posterior oblique system*: latissimus dorsi, gluteus maximus and the lumbodorsal fascia (which links them). When latissimus and contralateral gluteus maximus contract there is a force closure of the posterior aspect of the SIJ (Fig. 5.11)
- *Deep longitudinal system*: erector spinae, deep laminae of the thoracodorsal fascia, sacrotuberous ligament and biceps femoris. When contraction occurs, biceps femoris influences compression of the SI joint and sacral nutation can be controlled (Fig. 5.12)
- *Anterior oblique system*: external and internal obliques, the contralateral adductors of the thigh and the intervening abdominal fascia. The obliques take part in most upper and lower limb and trunk movements, with transversus abdominis stabilizing. The obliques act almost constantly in unsupported sitting, although crossed-leg posture allows them 'timeout' (Snijders et al 1995) (Fig. 5.13).
- *Lateral system*: gluteus medius and minimus and contralateral adductors of the thigh. It has been suggested that, 'although these muscles are not directly involved in force closure of the SI joint they



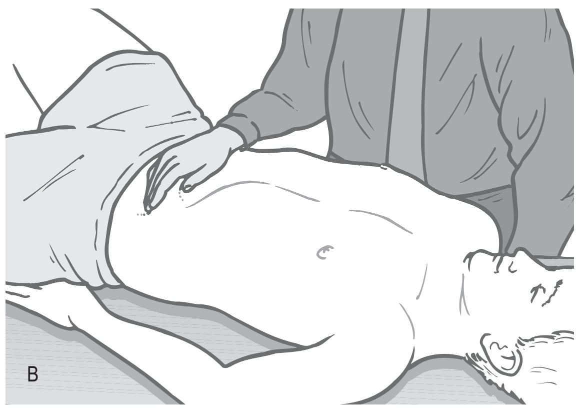


Figure 5.7 (A) Suggested directions of movement in treating intestinal mesentery (after Kuchera). From Ward (1997), with permission. (B) Lifting the small intestine/sigmoid colon to ease mesenteric drag (after Wallace et al). From Ward (1997), with permission.

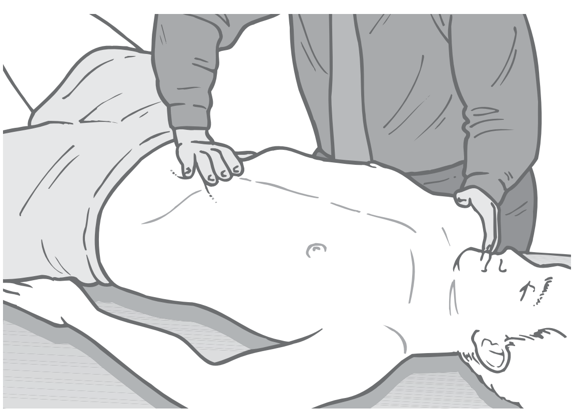


Figure 5.8 Lifting the caecum to ease mesenteric drag (after Wallace et al). From Ward (1997), with permission.

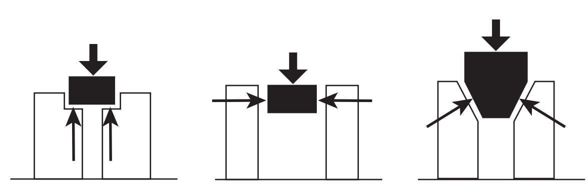


Figure 5.9 Model of the self-locking mechanism: the combination of form closure and force closure establishes stability in the sacroiliac joint (SIJ). (After Vleeming et al 2007.)

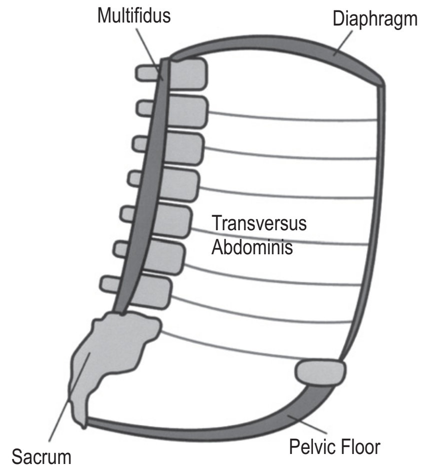


Figure 5.10 The muscles of the inner unit include the multifidus, transversus abdominis, diaphragm and the pelvic floor. (From Lee 2004.)

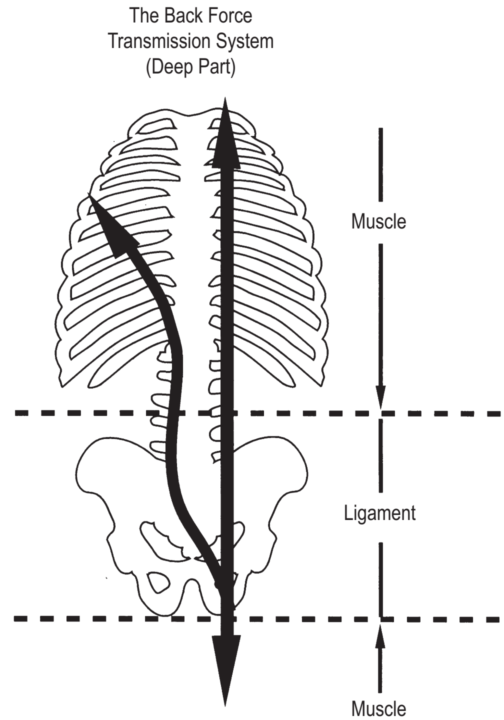
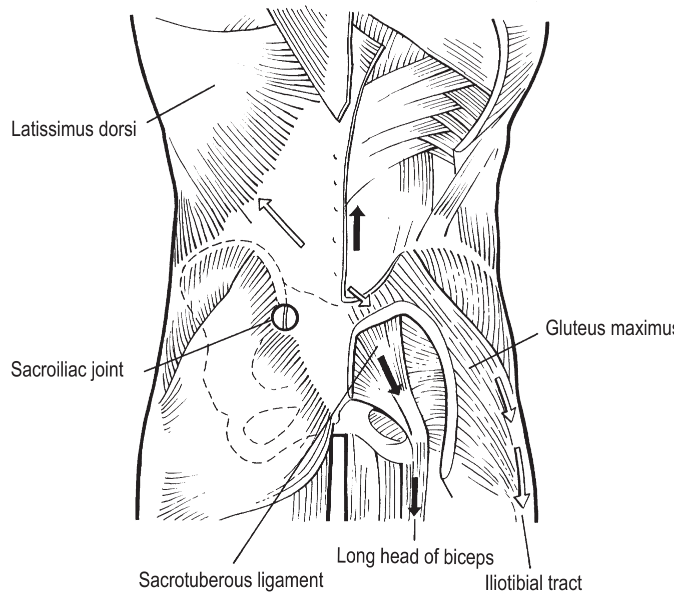


Figure 5.12 The deep longitudinal system of the outer unit consists of erector spinae, the deep laminae of the thoracodorsal fascia, the sacrotuberous ligament and the biceps femoris muscle. (Redrawn from Gracovetsky 1997, from Lee 1999).

Figure 5.11 Schematic dorsal view of the lower back. The right side shows a part of the longitudinal muscle-tendon-fascia sling. Below is the continuation between biceps femoris tendon and sacrotuberous ligament, above a continuation of biceps femoris tendon to the aponeurosis of the erector spinae. To show the right erector spinae, a part of the thoracolumbar fascia ha been removed. The left side shows the sacroiliac joint (O) and the cranial part of the oblique dorsal muscle-fascia-tendon sling: latissimus dorsi muscle and thoracolumbar fascia. In this drawing, the left part of the thoracolumbar fascia is tensed by the left latissimus dorsi and the right gluteus maximus. (Reproduced with permission from Spine). (From Vleeming et al 1997.)



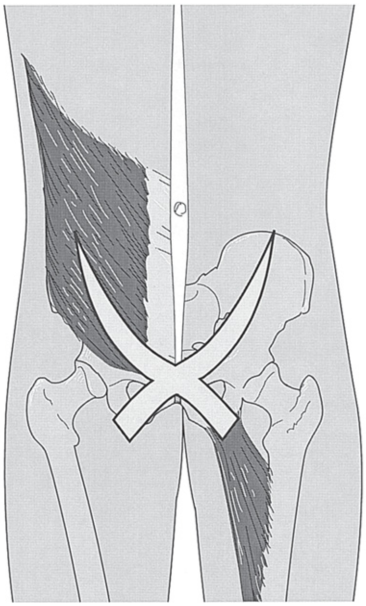


Figure 5.13 The anterior oblique system of the outer unit includes the external and internal oblique, the contralateral adductors of the thigh and the intervening anterior abdominal fascia. (From Lee 2004.)

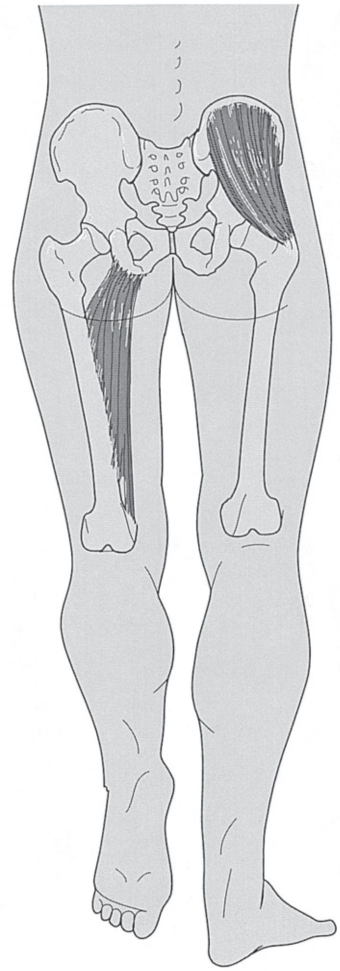


Figure 5.14 The lateral system of the outer unit includes the gluteus medius and minimus and the contralateral adductors of the thigh. (From Lee 1999.)

are significant for the function of the pelvic girdle during standing and walking and are reflexively inhibited when the SI joint is unstable' (Lee 1999) (Fig. 5.14).

Problems

Anything that inhibits or disturbs the main muscles in these processes should be suspect, particularly excessive tone in antagonists to gluteus maximus, minimus and medius, biceps femoris, lumbar erector spinae, multifidus, adductor and abductors of the thigh as well as the oblique abdominals and transversus abdominis.

Inhibition in these muscles may also derive from local or referring trigger points, other forms of local muscular dysfunction (inflammation, fibrosis, etc.) and joint restrictions.

Identification

It is suggested that you examine these important coordinated muscle-ligament-fascia functions, and then carefully read the description (below) of how they function during walking. It is sometimes possible to identify in which part of the gait cycle (for example just before heel-strike, or on toe-off) pain is felt in the SIJ, so implicating a particular phase of the support system that acts to create supportive compressive force in the SIJ.

- When walking, as the right leg swings forward the right ilium rotates backward in relation to the sacrum (Greenman 1997)
- Simultaneously, the sacrotuberous and interosseous ligamentous tension increases to brace the sacroiliac joint (SIJ) in preparation for heel strike
- Just before heel strike, the ipsilateral hamstrings are activated, thereby tightening the sacrotuberous ligament (into which they merge) to further stabilize the SI joint (Fig. 5.15)

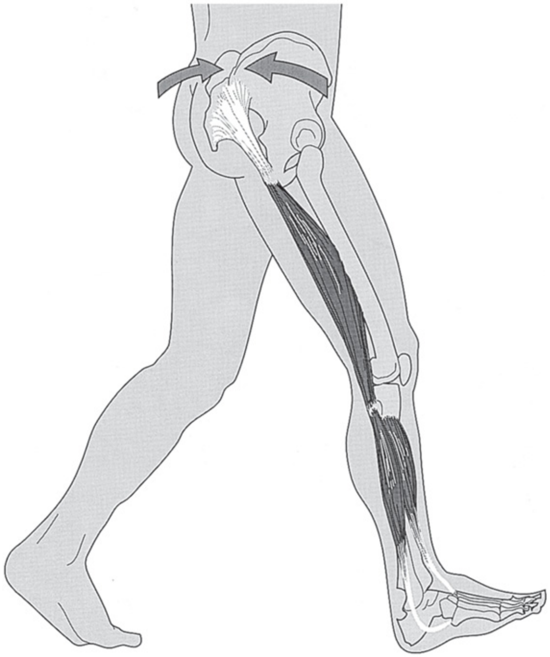


Figure 5.15 At heel strike, posterior rotation of the right innominate increases the tension of the right sacrotuberous ligament. Contraction of the biceps femoris further increases tension in this ligament preparing the sacroiliac joint for impact. (Redrawn from Vleeming et al 1997, from Lee 2004.)

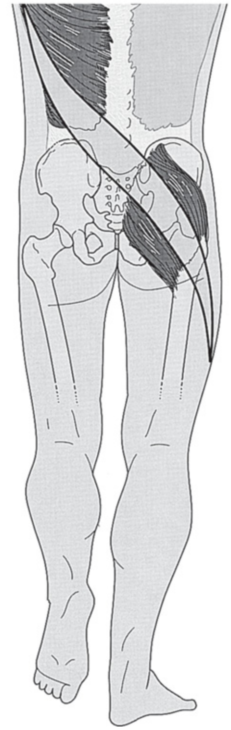


Figure 5.16 During the right single-leg stance phase, contraction of the gluteus maximus and the contralateral latissimus dorsi increases tension through the thoracodorsal fascia and facilitates continued stability of the sacroiliac joint during the weight-bearing phase. (From Lee 2004.)

- As the foot approaches heel-strike, there is a downward movement of the fibula, increasing (via biceps femoris) the tension on the sacrotuberous ligament, while simultaneously tibialis anticus (which attaches to the first metatarsal and medial cuneiform) fires, in order to dorsiflex the foot in preparation for heel strike
- Tibialis anticus links via fascia to peroneus longus (which also attaches to the first metatarsal and medial cuneiform) under the foot; so completing this sling mechanism which both braces the SI joint, and engages the entire lower limb
- Biceps femoris, peroneus longus and tibialis anticus together form the longitudinal muscle-tendon-fascial sling which creates an energy store, to be used during the next part of the gait cycle
- During the latter stage of single support period of the gait cycle, biceps femoris activity eases, as compression of the SI joint reduces and the ipsilateral iliac bone rotates anteriorly
- As the heel strikes, the contralateral arm swings forward – and the gluteus maximus activates to compress and stabilize the SI joint (Fig. 5.16)
- There is a simultaneous coupling of this gluteal force with the contralateral latissimus dorsi by means of thoracolumbar fascia in order to assist in counter-rotation of the trunk on the pelvis
- In this way, an oblique muscle-tendon-fascial sling is created across the torso, providing a mechanism for further energy storage to be utilized in the next phase of the gait cycle
- As the single support phase ends and the double support phase initiates, there is a lessened loading of the SI joints and gluteus maximus reduces its activity, and as the next step starts, the leg swings forward and nutation at the SI joint starts again.

There is ample scope for dysfunction should any of the muscular components become compromised (inhibited, shortened, restricted, etc.). Revisit the assessments in Chapter 4, that allow you to test for weakness and shortness in many of these muscles.

Knowledge of the complex support systems that maintain pelvic and SIJ integrity allows us to use simple tests to evaluate whether pain and dysfunction

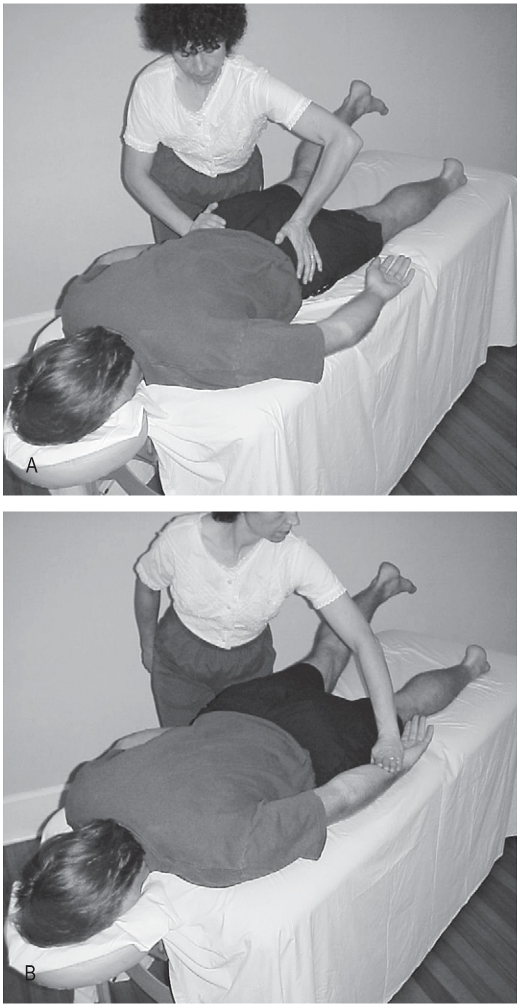


Figure 5.17 Functional test of prone active straight leg raise. (A) With form closure augmented. (B) With force closure augmented. (Adapted from Lee 1999, from Chaitow and DeLany 2002.)

in the SIJ are a result of muscular imbalances ('force') or actual structural problems ('form') in the joint.

Prone active straight leg raising test for the SIJ

- The prone patient is asked to extend the leg at the hip by approximately 10°. Hinging should occur at the hip joint and the pelvis should remain in contact with the table throughout (Fig. 5.17)
- Excessive degrees of pelvic rotation in the transverse plane (anterior pelvic rotation), or marked discomfort when raising the leg, suggests possible SIJ dysfunction
- If *form* features (structural) of the SIJ are at fault, the prone straight leg raise will be more normal when medial compression of the joint is applied by the therapist, bilaterally applying firm medial pressure towards the SI joints, with hands on the innominates, during the procedure
- *Force* closure may be enhanced during the test if latissimus dorsi can be recruited to increase tension on the thoracolumbar fascia. This is done by the therapist resisting extension of the medially rotated (contralateral) arm before lifting of the leg
- If force closure enhances more normal SIJ function, the prognosis for improvement is good, to be achieved by means of exercise, muscle balancing and reformed use patterns (see Chapters 7,8,9).

Supine active straight leg raising test for the SIJ

- The patient is supine and is asked to raise one leg
- If there is evidence of compensating rotation of the pelvis *towards* the side of the raised leg during performance of the movement, or if there is appreciable discomfort in raising the leg, SIJ dysfunction is strongly suggested
- The same leg should then be raised as the therapist imparts compressive force medially directed across the pelvis, with a hand on the lateral aspect of each innominate, at the level of the ASIS (this assists form closure of the SIJ)
- If *form* closure *as applied by the therapist* enhances the ability to easily raise the leg, this suggests that structural factors within the joint may require external help, such as a supporting belt
- To test *force* closure, the same leg is raised with the patient slightly flexing and rotating the trunk toward the side being tested, against the practitioner's resistance – applied to the contralateral shoulder
- This activates oblique muscular forces and force-closes the SIJ being tested
- If initial leg raising suggests SIJ dysfunction, and this is reduced by means of force-closure, the prognosis is good if the patient engages in appropriate rehabilitation exercise (see Chapters 7,8,9).

Tests for iliosacral and sacroiliac restriction

There are several simple tests that can help to indicate whether pain in the sacroiliac region is being caused by a restriction in that joint.

Further testing can show whether the problem has more to do with iliac, or with sacral, influences (that is, whether this is an iliosacral or a sacroiliac dysfunction).

Why is it important to distinguish between iliosacral and sacroiliac dysfunction?

Imagine a door that is not able to open or close normally due to warping of its structure.

- It is possible that the problem lies with the door itself having warped. Think of the sacrum as the door, which would mean that in this case we would have a sacroiliac joint (SIJ) dysfunction
- Or, it is possible that the frame of the door may have become distorted. Think of the ilia as the frame, which would mean that in this case we would have an iliosacral joint (ISJ) dysfunction
- It is also conceivable that both the door and the frame are contributing to the problem.

There are very simple methods (see Chs 7 and 8), using positional release and/or muscle energy methods, or mobilization with movement (MWM), that can commonly help to normalize such problems, but before using these it is necessary to identify what the problem is.

TESTS

The main tests used to identify ISJ and SIJ problems are the standing and seated flexion tests, with some additional refinements as described below.

A caution is necessary however, as the evidence gained from the standing flexion test, as described below, is invalid if there is concurrent shortness in the hamstrings, since this will effectively give either:

- a false negative result on the side of the shortened hamstrings and/or
- a false positive sign on the side opposite the shortened hamstrings, if there exists unilateral hamstring shortness (due to the restraining influence on the side of hamstring shortness, creating a compensating iliac movement on the other side during flexion); or
- false negative results if there is bilateral hamstring shortness (i.e. there may be iliosacral motion which is masked by the restriction placed on the ilia via hamstring shortness).

Hamstring length testing should therefore be carried out before the standing flexion tests, and if this proves positive, these muscles should be normalized, if appropriate, prior to use of the assessment methods described here.

At the very least, the likelihood of a false positive standing flexion test should be kept in mind if there are hamstring influences of this sort operating.

Similarly, if one or both quadratus lumborum muscles are short, this may distort the accuracy of the test.

Standing flexion (iliosacral) test

- With the patient standing, any apparent inequality of leg length, as suggested by unequal pelvic crest heights, should be compensated for by insertion of a pad ('shim') under the foot on the short side (Fig. 5.18)

Figure 5.18 Standing flexion test for iliosacral restriction. The dysfunctional side is that on which the thumb moves during flexion. (After Chaitow 2001.)

- This helps to avoid errors in judgment as to the end-point positions, for example when assessing the end of range during the standing flexion tests
- The therapist stoops or kneels behind the upright patient, with thumbs placed firmly (a light contact is useless) on the inferior slope of the PSIS
- The patient is asked to go into full flexion while thumb contact is maintained, with the therapist's eyes level with the thumbs
- The patient's knees should remain extended during this bend
- The practitioner observes, *especially near the end of the excursion of the bend*, whether one or other PSIS (thumb) 'travels' more anterosuperiorly than the other (Fig. 5.18).

Interpretation of the standing flexion test

If one thumb moves a greater distance anterosuperiorly during flexion it indicates that the ilium is 'fixed' to the sacrum on that side (or that the contralateral hamstrings are short, or that the ipsilateral quadratus lumborum is short; therefore, all these muscles should have been assessed prior to the standing flexion test).

If both hamstrings are excessively short, this may produce a false negative test result, with the flexion potential limited by the muscular shortness, preventing an accurate assessment of iliac movement.

At the end of the flexion excursion, the patient comes back to upright and bends backward, in order to extend the lumbar spine. The PSISs should move equally in an inferior (caudal) direction.

Note: Both the standing flexion test (above) and the 'stork' test (below) are capable of indicating *which side* of the pelvis is most dysfunctional, restricted, hypomobile. They do not however, offer evidence as to *what type* of dysfunction has occurred (i.e. whether it is an anterior or posterior innominate rotation, internal or external innominate flare dysfunction, or something else).

The *nature* of the dysfunction needs to be evaluated by other means, including aspects of supine pelvic assessment as described later.

Standing iliosacral 'stork' or Gillet test

Following the standing flexion test, this test should be performed.

- The therapist places one thumb on the PSIS and the other thumb on the ipsilateral sacral crest, at the same level
- The standing patient flexes knee and hip, and lifts the tested side knee so that he is standing only on one leg
- The normal response would be for the ilium on the tested side (the side where the leg is raised) to rotate posteriorly
- This would bring the thumb on the PSIS caudal and medial (Fig 5.19).

Interpretation of the stork test

Lee (1999) states that this test (if performed on the right), 'examines the ability of the right innominate to posteriorly rotate, the sacrum to right rotate and the L5 vertebrae to right rotate/sideflex'.

If, upon flexion of the knee and hip, the PSIS on that side moves cephalad in relation to the sacrum, this is an indication of both pubic symphysis and iliosacral dysfunction – on that side. This finding can be used to confirm the findings of the standing flexion test (above).

This 'stork' test may also indicate sacroiliac dysfunction on that same side (Petty & Moore 1998). Treatment approaches are discussed in Chapters 7 and 8.

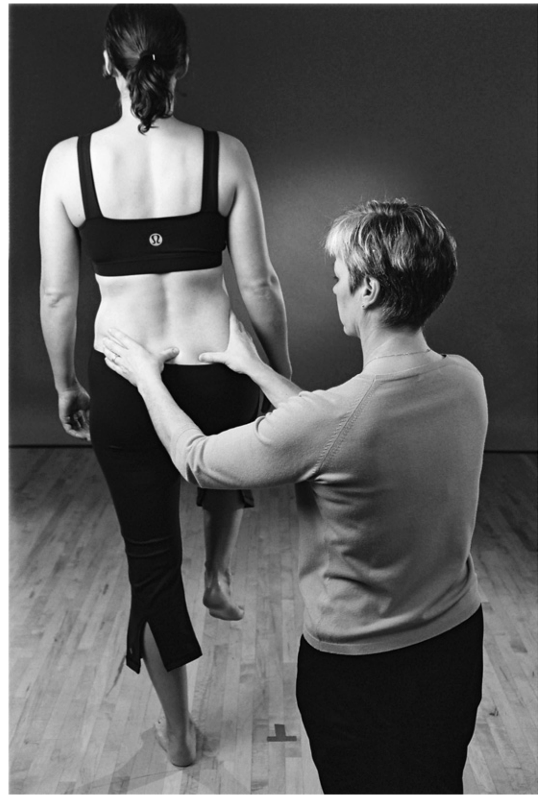


Figure 5.19 Ipsilateral posterior rotation test (Gillet). Note the inferomedial displacement of the PSIS, on the right. (From Chaitow 2006.)

Following the standing flexion test and the stork test, the seated flexion test should be performed.

Positional assessment based on standing flexion test

Once an *iliosacral* dysfunction has been identified by means of the standing flexion test and/or during the stork test, it is necessary to define precisely what type of restriction exists. This depends on observation of landmarks.

Iliosacral dysfunction possibilities include:

- anterior innominate rotation
- posterior innominate rotation
- innominate inflare or outflare
- innominate superior or inferior shear (subluxation).

ROTATIONAL DYSFUNCTIONS

- The patient lies supine, legs flat on the table, and the practitioner approaches the table from the side that allows her dominant eye to be placed directly over the pelvis

- The therapist locates the inferior slopes of the two ASISs (Fig. 5.20) with the thumbs, and views these contacts from directly above the pelvis with the dominant eye over center line (bird's eye view) (Fig. 5.21A)
- The therapist asks her/himself the first question. 'Which ASIS is nearer the head and which nearer the feet?' In other words, is there a possibility that one ilium has rotated posteriorly or the other anteriorly?
- The side of dysfunction will already have been determined by the standing flexion test, and/or the standing hip flexion test (Gillet's stork test). These tests define which observed anterior landmark (left or right) is taken into consideration (the side on which the therapist's thumb moved on flexion)
- If the ASIS appears inferior on the dysfunctional side (compared to the 'normal' side) it is assumed that the ilium has rotated anteriorly on the sacrum on the dysfunctional side (Fig. 5.21B)
- If, however, the ASIS appears superior on the dysfunctional side, then the ilium is assumed to have rotated posteriorly on the sacrum on that side.

Figure 5.20 Points of palpation of the innominate showing anterior superior iliac spines. (From Chaitow and DeLany 2002.)

See pages 121 and 122 for treatment methods for rotation dysfunction.

FLARE DYSFUNCTIONS

- While observing the ASISs, note is also made as to the positions of these landmarks in relation to the midline of the patient's abdomen by using either the linea alba or the umbilicus as a guide (Fig. 5.21C).
- Is one thumb closer to the umbilicus, or the linea alba, than the other?
- *Remember*: The ASIS on the side on which the PSIS was observed to move superiorly during the flexion test, or during the stork test, is the dysfunctional side
- If the ASIS on that side is closer to the umbilicus it represents an inflare, whereas, if the ASIS is further from the umbilicus, it represents an outflare on that side, and the other side innominate is normal

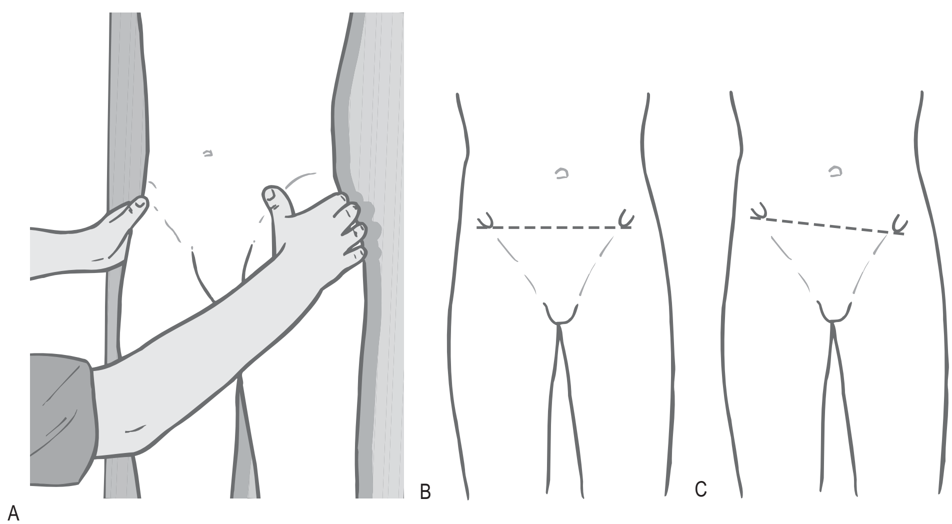


Figure 5.21 (A) Practitioner adopts position so that bird's eye view is possible of palpated ASIS prominences. (B) The ASISs are level, suggesting no rotational dysfunction of the ilia. (C) The right ASIS is higher than the left and if the right thumb had been noted to move during the standing flexion test, this would suggest a posterior right innominate tilt. If the left thumb had moved it would suggest an anterior rotation of the left ilium. (Reproduced with permission from Chaitow 2001.) (After Chaitow and DeLany 2002.)

Figure 5.22 Seated flexion test for sacroiliac restriction. The dysfunctional side is the side on which the thumb moves on flexion. (Reproduced with permission from Chaitow 2001.) (After Chaitow and DeLany 2002.)

- Flare dysfunctions are usually treated before rotation dysfunctions.

See page 122 for treatment methods for flare dysfunction.

Note: It is stressed that the MET iliosacral treatment methods as described in Chapter 7 should always be preceded by normalization (as far as possible) of soft tissue influences such as short, tight or weak attaching musculature, including trigger point activity.

Seated flexion (sacroiliac) test

- The patient is seated with feet flat on the floor for support (Fig. 5.22)
- The therapist is behind the patient with thumbs firmly placed on the inferior slopes of the PSISs, fingers placed on the curve of the pelvis, index fingers on the crests, in order to provide stabilizing support for the hands
- The seated flexion test involves observation of thumb movement, if any, during full slowly active flexion.

Interpretation of seated flexion test

Since the weight of the trunk rests on the ischial tuberosities during the test, the ilia cannot easily move, and if one PSIS moves more cephalward during flexion, it suggests a sacroiliac restriction on that side.

A false positive result may be caused by shortness in quadratus lumborum on the side of dysfunction, emphasizing that QL and hamstrings should be evaluated and if necessary treated/stretched before these tests are performed.

See page 121 for treatment method for sacroiliac dysfunction.

SACRAL TENDER POINT ASSESSMENT FOR STRAIN/COUNTERSTRAIN TREATMENT

Two sets of sacral tender points used in positional release treatment of SI and sacral dysfunction are described below:

1. One set lies on the midline of the sacrum or close to it. These are the so-called ‘medial tender points’. They all lie in soft tissues which overlie the bony dorsum of the sacrum so that when digital palpating pressure is applied to them there is a sense of ‘hardness’ below the point. The characteristic dysfunctions which have been linked to these points are described below as are appropriate treatment approaches. The medial points, as a rule, require a vertical pressure towards the floor, applied in a way which ‘tilts’ the sacrum sufficiently to relieve the palpated tenderness
2. The other set of sacral points lie over the sacral foramina, and so when pressure is applied to these, there is a sense of ‘softness’ in the underlying tissues.

In 1989, a series of sacral tender points were identified as being related to low back and pelvic dysfunction. These points were found to be amenable to very simple SCS methods of release (Ramirez 1989).

Subsequently, additional sacral foramen tender points which are believed to relate to sacral torsion dysfunctions were identified (Cislo et al 1991).

LOCATION OF THE SACRAL MEDIAL POINTS

The cephalad two points lie just lateral to the midline, approximately 1.5 cm (3/4 in) medial to the inferior aspect of the PSIS bilaterally, and they are known as PS1 (PS, posterior sacrum).

The two bilateral caudal points (PS5) are located approximately 1 cm (just under 1.2 in) medial, and 1 cm superior to the inferior lateral angles of the sacrum.

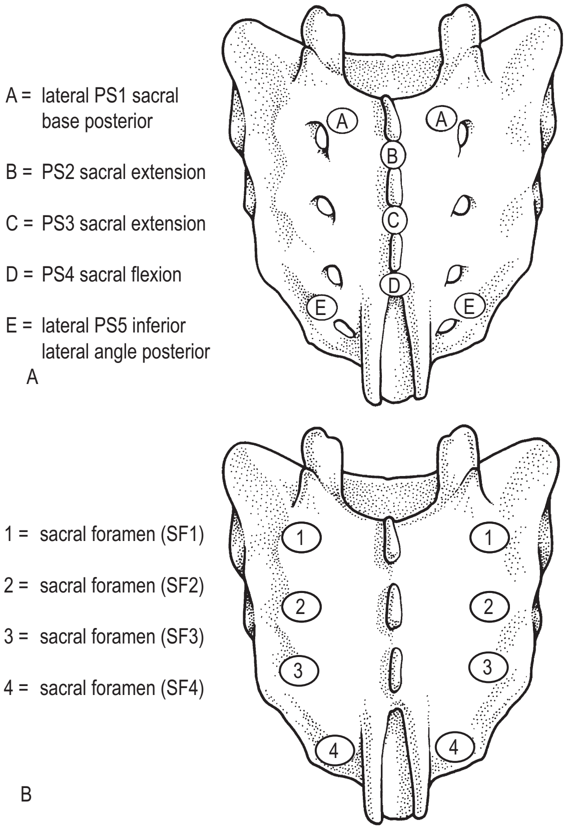


Figure 5.23 (A) Positions of tender points relating to sacral dysfunction (reproduced with permission from Chaitow 1996). (B) Sacral foramen tender points as described in the text (reproduced with permission from Chaitow 1996). (From Chaitow and DeLany 2002.)

The remaining three points are on the midline: one (PS2) lies between the 1st and 2nd spinous tubercles of the sacrum, another lies between the 2nd and 3rd sacral tubercles (PS3), both of which are identified as being involved in sacral extension dysfunctions, and the last point (PS4) lies on the cephalad border of the sacral hiatus – which has been identified as a point relating to sacral flexion dysfunctions.

If you can locate areas of tenderness on the sacrum where the underlying tissues are hard and bony, rather than having a soft feeling just below the surface, you are palpating a sacral medial point. Establish the level of sensitivity when mild pressure is applied and subsequently treat two or three of the most sensitive points (Fig. 5.23).

Treatment of medial sacral tender points:

- Patient prone, press on the sacral tender point being treated
- Pressure is towards the floor, in order to induce rotation/tilting of the sacrum, to ease pain/discomfort by at least 70%
- PS1 points require pressure at the corner of the sacrum opposite the quadrant housing the tender point (i.e. left PS1 requires pressure at right inferior lateral angle)
- PS5 points require pressure near the contralateral sacral base (i.e. right PS5 point requires to the floor pressure at left sacral base, medial to the SI joint)
- Release of PS2 (sacral extension) tender point requires pressure to the floor to the apex of the sacrum in the midline
- Lower PS4 (sacral flexion) tender point requires pressure to the midline of the sacral base
- PS3 (sacral extension) requires the same treatment as for PS2
- Once 'ease' has been achieved, hold the pressure for 60–90 seconds and slowly release.

SACRAL FORAMEN TENDER POINTS

The clinicians who first noted these points reported that a patient with low back pain, with a recurrent sacral torsion, was being treated using SCS methods with poor results. When muscle energy procedures proved inadequate, a detailed survey was made of the region, and an area of sensitivity, which had previously been ignored, was identified in one of the sacral foramina.

If you can locate areas of tenderness on the sacrum where the underlying tissues are 'soft' and spongy, rather than having a feeling of bone just below the surface, you are palpating a foramen point. Establish the level of sensitivity when mild pressure is applied, and subsequently treat two or three of the most sensitive points.

Treatment of sacral foramen tender points:

- The most sensitive of the foramen points are treated. Palpation of the foramina, using skin drag (see Ch. 6 for details) can reveal dysfunction, even if the precise nature of that dysfunction is unclear. If there is obvious skin drag over a foramen, and if compression of that point is painful, sacral torsion exists
- The patient lies prone and you stand on the side of the patient contralateral to the foramen tender point to be treated
- That is, you stand on the right when a left sided foramen point is treated
- Standing on the right, the right leg, flexed at the hip, is abducted to ~30° allowing it to fall slightly over the edge

- While applying pressure to the foramen with your caudal hand, now apply antero-medial pressure to the right ilium, using your right forearm or hand
- Your contact should be ~1 inch (~2.5 cm) lateral to the patient's right PSIS
- Modify angle of pressure on the ilium until the degree of relief of sensitivity at the foramen point is at least 70%
- Hold for 90 seconds before a slow return to neutral.

KEY POINTS

- A great deal of pelvic pain derives from active trigger points
- Pain in the pelvis and low back can be caused by drag on the mesenteric structures, caused by organs that have sagged, or where adhesions exist
- Complex systems of muscular, ligamentous and fascial slings and pulleys support and stabilize the pelvic structures during movement and at rest
- Sacroiliac joint 'force' problems relate to instability caused by muscular imbalances or hypermobility
- Actual structural ('form') features within the joint can also be responsible for SI problems
- Simple tests can establish which is operating in any given situation
- Iliosacral and sacroiliac dysfunction affect precisely the same joint area, but can be primarily caused quite differently, and standing (IS) and seated (SI) flexion tests can help to establish which is which
- Strain/counterstrain methods of treatment utilize 'tender' points located on the sacrum, either on the body surface or over sacral foramina
- Before trying to make sense of the various tests described in this chapter, it is important to normalize as far as possible imbalances (shortness, weakness) in muscles attaching to the pelvis, particularly hamstrings, quadratus lumborum, tensor fascia lata and piriformis.

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