

The Vital Psoas Muscle

Exam Edition

Jo Ann Staugaard-Jones

NielAsher.

Continued Education for Manual Therapists



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Introduction

The Vital Psoas Muscle was written because it explains the only muscle in the human organism that connects the upper body to the lower body. Most people are not actually aware of how important this is.

In teaching and researching the psoas as a major force in the body, I began a journey from the kinesiological point of view, into the realm of body flow, energies, and proprioception. This experience has humbled me.

Physically: As a movement specialist I found the mechanics documented, as recently as a year ago, in a state of flux as to psoas actions and roles. Renowned psoas experts are constantly updating information to help sort everything out. The most simplified statement is this: *the psoas is complicated*. No longer will I call the psoas a major mover of hip flexion, except as part of the iliopsoas muscle group, where the iliacus is the stronger flexor in most cases. In the lumbar spine, there are other muscles that remain the more powerful flexors, mainly the rectus abdominis. The roles of the psoas major as both a lumbar spine and hip stabilizer and a connector to the lower extremity appear more important mechanically and warrant its significance, yet its stabilizing functions are still in question depending on the movement.

Emotionally: In the field of psycho-emotional connection, information on the psoas's relation with the nervous system is mind-boggling, yet very real. I have tried to make this material accessible to a larger audience in a way it can be understood.

Spiritually: Knowledge of spiritual energies has been mostly examined through ancient texts and the science of Kundalini yoga and meditation, which appear thorough and relevant to this day. The psoas remains an important figure within this realm because of its deep location, central placement, and relation to other structures. Even though the "subtle" body is thought of as separate from the anatomical structure, the two are truly related, for how can energy flow without breath and muscular work serving in some way? The skill is in the perception. As the universe is interrelated, so is the body; we are life forms constantly evolving.

How we use the psoas and take care of it is crucial. Everyone is different, but its misuse is overwhelmingly apparent in many people. The psoas has become an innocent culprit in various situations, some explained in this text. Finding a specialist who can diagnose and deal with the psoas is difficult. Treatment and commitment to healing can be frustrating, yet effective, as the psoas is restored to its full potential.

I have found that *freeing* the psoas is more directly a complement to the full body system, with strengthening or stretching secondary, in many cases. This is because the psoas is not just misused – it is abused. Once released it can operate effectively in the very important roles discussed in this book. I love the words used by Liz Koch, an extraordinary psoas expert: “juicy, responsive, supple.” If followed, these words can lead to a healthy psoas that affects so many important modalities in the body.

Jo Ann Staugaard-Jones

Part 1:

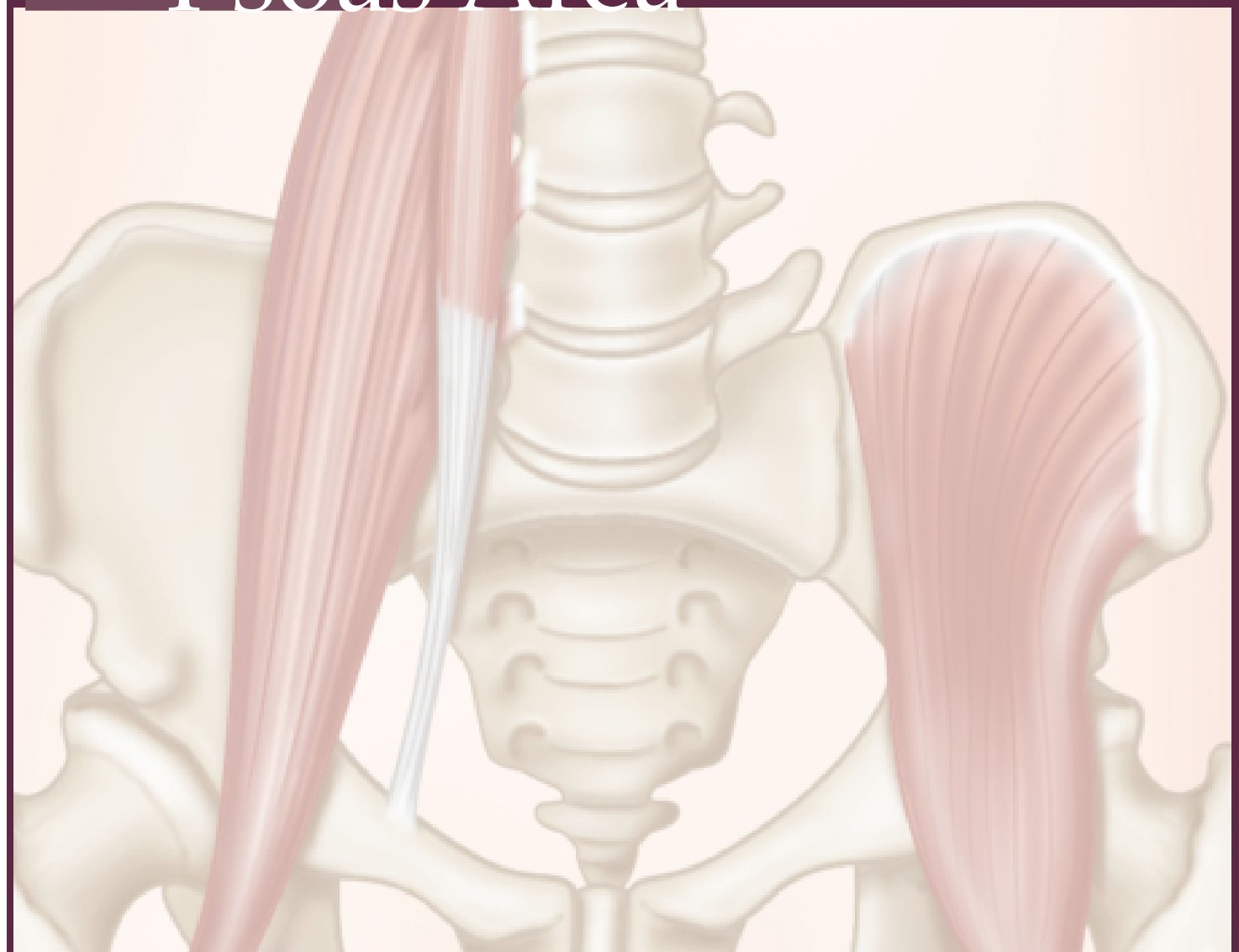
Anatomical Prelude

This text is an attempt to decipher one important muscle, when it is clear that no one muscle works alone. The core area is made up of a group of muscles that girdle the spine to hold it in balance. The psoas major is one of these muscles, and is aided by the rectus abdominis, obliques, transversus abdominis, latissimus dorsi, erector spinae, quadratus lumborum, and deep posterior muscles to stabilize the lower spine. At the iliofemoral joint, it is part of the iliopsoas muscle group, which works with the rectus femoris, sartorius, pectineus, and tensor fasciae latae to flex the hip. With all these muscles helping, the psoas major can be free to perform a most significant function: integral connection.

In this age of core fitness, it is important to remember that all central muscles must be in harmony with each other, and that no one muscle is emphasized. Many fitness instructors rely on the “naval to spine” phrase, mostly to engage the deep transversus abdominis. One must realize that this is only an image, and must not be used in excess to hollow the abdominals or press the back flat. The best alignment in movement is the neutral spine, where the natural spinal curves balance each other and allow the muscles to lithely do their jobs.

With this in mind, the anatomical part of the book can begin.

Anatomy and Biomechanics of the Psoas Area



The Iliopsoas Muscle Group: Location and Actions

Deep within the anterior hip joint and lower spine lies the **psoas major** muscle. Sometimes called the “mighty psoas,” *it is the most important skeletal muscle in the human body*, as it is the only muscle that connects the upper extremity to the lower extremity (the spine to the legs). This makes it a very significant postural muscle and mover and stabilizer of two different joints: the iliofemoral joint and the lumbar spine. The muscle is also located near the body’s center of gravity, so its role becomes that of regulating balance, and affecting nerve and subtle energies as well.

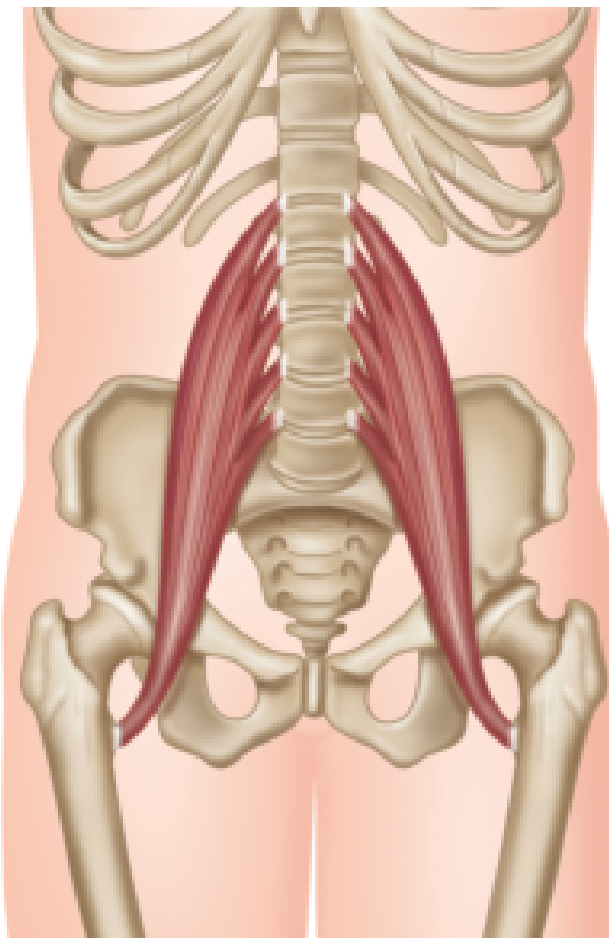


Figure 1.1: Psoas major.

The **psoas** has a **major** and a **minor** muscle, mostly synergistic at the lumbar spine. The difference is in their distal attachments: the major is the one that connects the femur to the spine (lower to upper extremities); the minor connects the pelvis to the spine. Some say the minor will become extinct, as it was important when humans walked on four legs, and not necessarily needed now. It is also a very weak mover. In fact, some people only have it on one side, or do not have it at all. When only the word “psoas” is used, it is generally understood to be the psoas major, or a combination of the major and minor as one muscle group.

Do not pronounce the “p” – phonetically it is “so-az.”

Both psoas muscles are part of a larger muscle group called the **iliopsoas**, which also includes the large **iliacus**. This group, contracting simultaneously, flexes the hip. It is the deepest of the hip flexors, and possibly the strongest as a muscle group. The iliacus attaches from the femur to the iliac bone of the pelvis, while the psoas major distally attaches to the femur, and proximally (nearest to the center of the body) attaches past the pelvis to the transverse processes of the first through fifth lumbar vertebra and sometimes the twelfth thoracic vertebra. Most sources have stated this allows at least part of the psoas to flex the lumbar spine, although it is being debated. If the femur is fixed, the iliacus will act at the pelvis, while the psoas may work on the lumbar spine. It can even use its lumbar fibers to extend the spine. This contradiction is explained in more detail later.

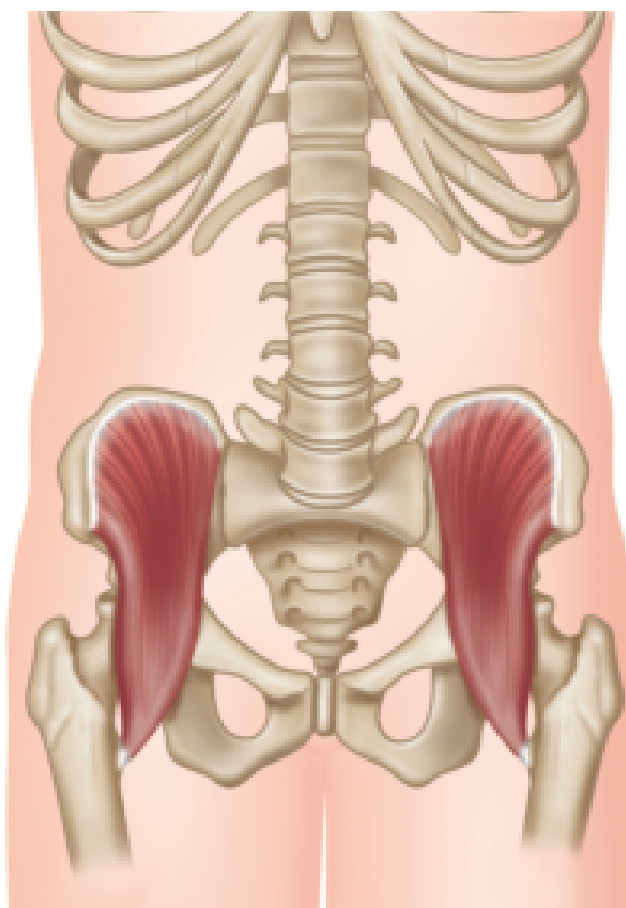


Figure 1.2: Iliacus.

The iliacus can also aid the pelvis in tilting forward, along with other hip flexors such as the rectus femoris. This forward tilt has a tendency to enhance lumbar *lordosis* (anterior curving of the spine), so the psoas must be strong yet pliant enough to help stabilize the area from too much advanced lordosis, or “sway back,” one of the most common conditions of poor posture. The abdominals can also help counteract this (specifically the rectus abdominis), as can the spinal extensors. The psoas becomes its own antagonist in stabilization between lumbar spine flexion and extension.

Centering the pelvis with muscles other than the psoas major and maintaining neutral (natural) spinal curves is key to allowing the psoas to do its many jobs without fatigue.

Research suggests that the psoas muscles, by forming a muscle bundle around the lumbar spine with the lower **transversospinalis** muscles (see figure 1.5), can help erect the lower spine, while other fibers can flex the area. Either way, as a core muscle the psoas is a force in correct body alignment. It is also of utmost importance in the transfer of weight through the trunk to the legs and feet while moving (and even when standing), as it helps to position the spine, pelvis, and femur in relation to one another.

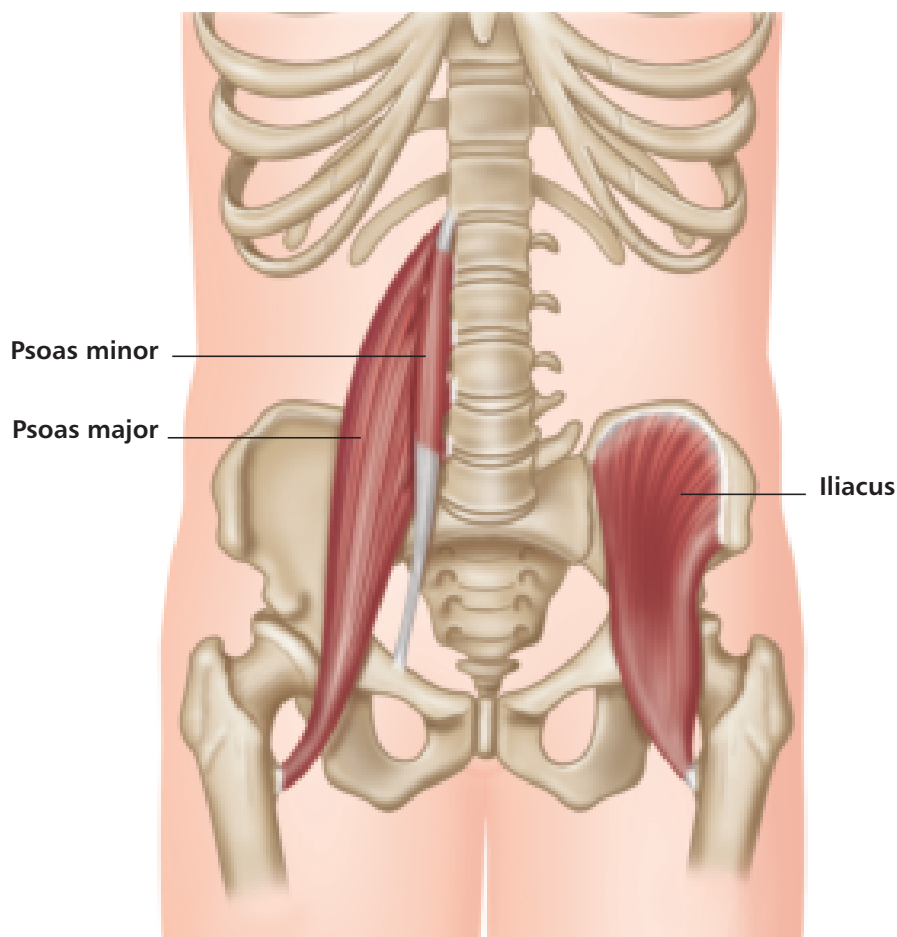


Figure 1.3: The iliopsoas muscle group. Imagine the muscle structure on both sides of the body to realize the full extent of the group.

The deep yet powerful three-muscle group of the iliopsoas working together can bring the thigh anteriorly (flexion of the hip), along with other anterior hip muscles. When the pelvis is stationary, one can isolate the psoas major by lifting the leg up in front of the body, as in the sitting “V-position.” With gravity as resistance, this engages the psoas in strong support of the lumbar spine, as well as some minor work at the hip.

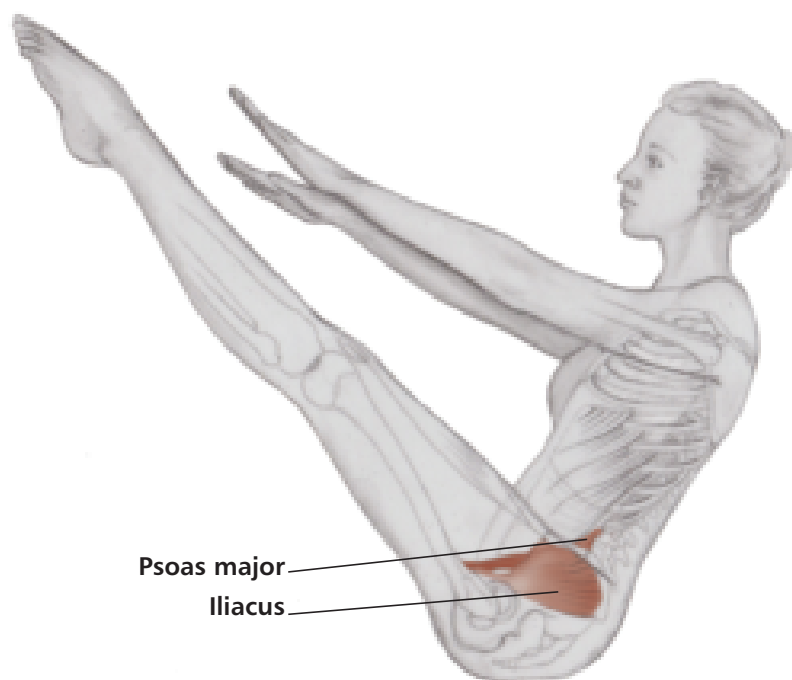


Figure 1.4: V-position, isolating the psoas major.

As with most spine muscles, the psoas can also aid lateral bending of the lower spine (the right psoas will contract to bend the spine to the right, ipsilaterally) and contralateral rotation (the right psoas will contract to produce rotation to the left). These are very minor and weaker contractions of the psoas as compared to those in its other roles.

Proximity of the Psoas Major to Other Structures

The psoas works with many other major muscles to produce and stabilize movement; these will be discussed throughout the book. Here the supporting group of lower spinal extensors will be discussed.

The **transversospinalis** muscle group is part of the deeper posterior muscles, specifically the semispinalis, multifidus, and rotatores muscles. The last two form a bundle around the lower spine with the psoas major and help straighten the spine, which is in conflict with the psoas's action of flexion of the lumbar spine. This is where practical knowledge comes into play and the *Anatomy Trains* work of Thomas Myers (2009). He explains the upper, anterior psoas fibers of the lumbar portion as appearing to help with flexion, while the lower, inner fibers help with extension. Other scientists describe the reverse. While the "jury is still out," the most important thing to keep in mind is that the psoas in an erect spine acts as a stabilizer more than a mover, with stronger spinal extensor and flexor muscles doing much of the contractional work.

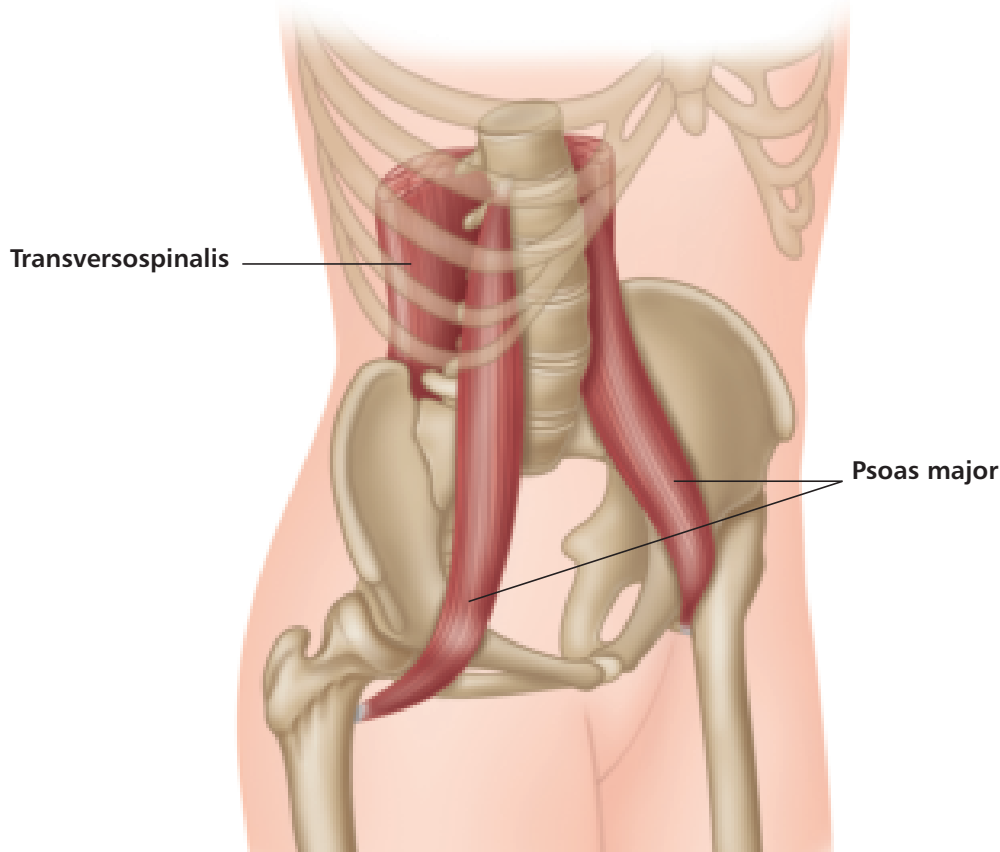


Figure 1.5: The deep posterior muscles in relation to the psoas major.

To palpate (touch) the psoas area, one would have to begin at the front of the body about 3 inches below and to the side of the naval, then travel past the abdominals, some organs, and other muscles (which is almost impossible). There in the deep

core lies the psoas, one on each side of the lower spine. It is a difficult muscle to reach because of its proximity to organs, arteries, and nerves, so this is usually not advised. The muscle moves down the front of the pelvis and femur neck to attach on the lesser trochanter on the inside of the upper femur. It goes behind the **inguinal ligaments** that run from the anterior superior iliac spine (ASIS) of the pelvis to the pubic tubercle, which are both prominent points that jut out to the front of the pelvis and can be easily found. One can feel the contraction of the hip flexors by finding the lower outside rim of the ASIS and pressing there, as the thigh is lifted forward in hip flexion.

The **ilioinguinal nerve** supplies sensation to the area and must be considered in the careful treatment of the muscle, as well as the proximity of the **external iliac artery** along the medial border of the muscle. The direct continuation of the external iliac is the **femoral artery**, which supplies blood to the greater part of the lower extremity. The **genitofemoral nerve** can also be affected by closeness of the psoas and taken into account in treatment.

As mentioned before, organs can be associated with the psoas because of its central location. The **kidneys, ureter, and adrenals** are very prominent in the mid-section and must be addressed with care during therapy for the psoas.

Fascia covers the psoas, as it does other muscles. Fascia is a connective tissue that surrounds and separates muscle. Lumbar fascia (called lumbar **aponeurosis**) blends with psoas fascia, which extends from the first lumbar vertebra toward the sacrum, and from the crest of the ilium to the quadratus lumborum and iliacus muscles. The iliac fascia then connects and accepts the tendon of the psoas minor (if present) as well as the inguinal ligament. On toward the thigh, the psoas and iliacus fasciae form a single structure called the **iliopectineal fascia**. This fascia passes behind the femoral vessels, but the **lumbar plexus nerve** branches are posterior to it, making it an extremely complex area.

There is a large **bursa** (fluid-filled sac that provides cushioning) within the hip joint cavity. This bursa usually separates the psoas major tendon from the joint capsule and the pubis.

The positioning of the psoas in relation to the leg, pelvis, and trunk is most important. It acts as a structural conduit, guiding the support of the spine as its muscle fibers travel down and outward. However, these muscle fibers then travel back in toward the thigh, making the psoas major a **fusiform** muscle. This is a spindle-shaped muscle, wider at the middle and thinner at both ends, not unlike the biceps brachii. It appears to have an elongated trapezium shape, but must be observed three-dimensionally as it slightly spirals along with the pelvic structure it enhances.

The suspension of the psoas from the trunk to the legs helps channel movement from the spine, and aids the transfer of weight from the torso to the thighs in locomotor movements such as walking. If the psoas on one side is unbalanced

with the other side, imagine what this might do to the gait or stride of a walk. If both psoas muscles (right and left sides) are healthy and can move freely, there is a steady flow to the movement and the energies that happen within the body systems.

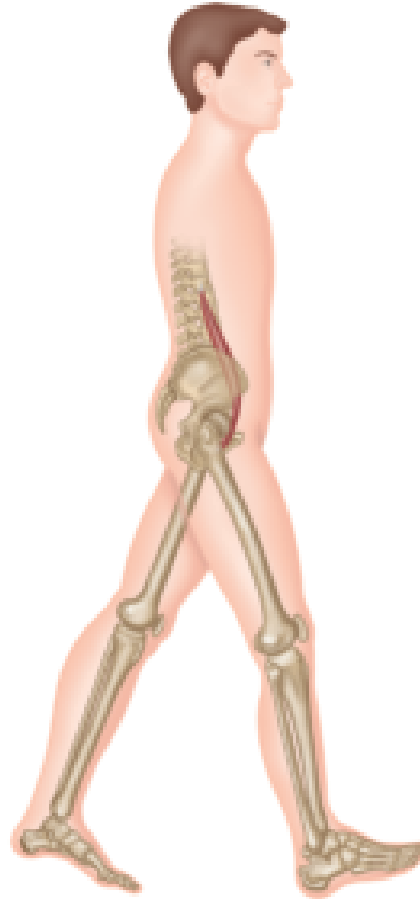


Figure 1.6: The psoas in balance while walking.

The Psoas as a Major Mechanism

The psoas is considered a core muscle that acts as a keystone, central and superior to the “flying buttresses” of the femurs and thigh muscles. This major architectural concept is also apparent in the skeletal pelvis/leg relationship, and supports the human body much like an arch does in building structures.

The psoas travels vertically from the spine to the leg, and diagonally across the pelvis. As a skeletal muscle that passes across more than one joint, it becomes *bi-articulate* (a muscle that works two joints). This is a most important concept, but it is interesting to note another role of the psoas: a shelf, supporting internal organs, along with the pelvis as a basin, and the pelvic floor.

Thus, any force of the psoas (muscular contraction) can stimulate and massage organs such as the intestines, kidneys, liver, spleen, pancreas, bladder, and/or stomach. Even reproductive organs are affected. Some deep, central, internal organs are referred to as *viscera*, so communication from organs to the brain can be called *visceral messaging*. The psoas, because of its proximity to major organs, can play a role as a reactor to these stimuli, thus affecting what is commonly termed “gut feelings.”

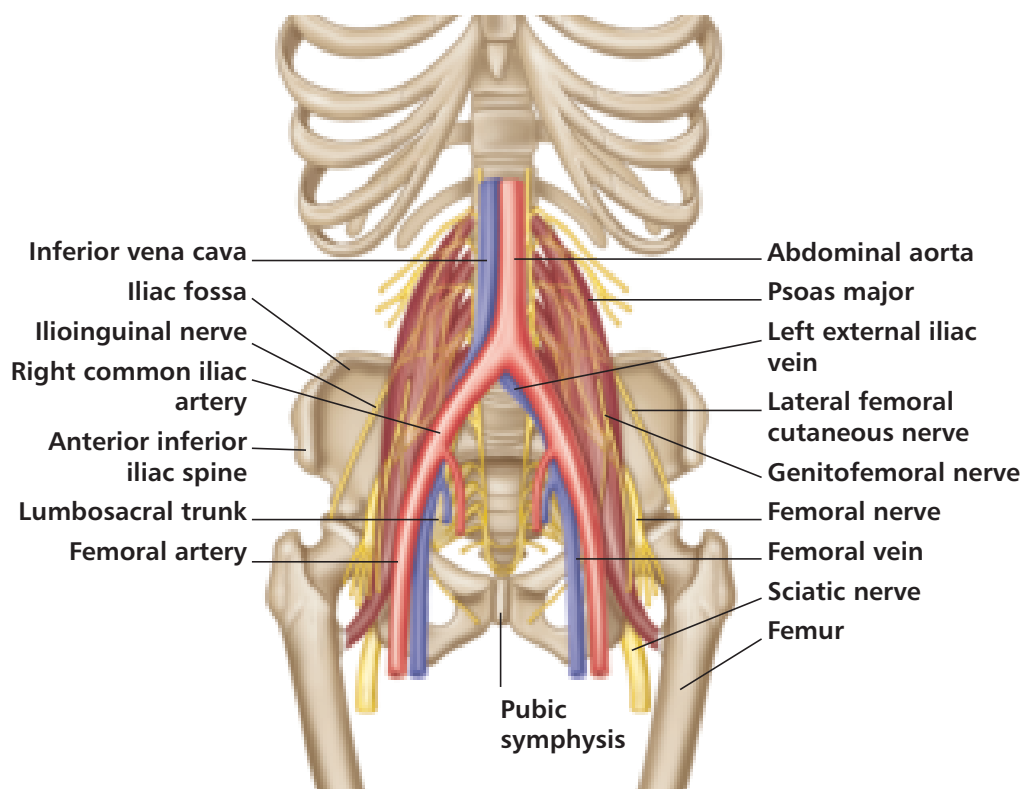


Figure 1.7: The proximity of nerves (lumbar nerve complex) and arteries to the psoas.

It can also affect nerve innervation, especially the **lumbar nerve complex** that passes through it. The **aorta** (the largest artery) lies in a similar path to the psoas, so body circulation and rhythms can become intertwined with the psoas as well.

Another remarkable fact is that the psoas and the **diaphragm**, a major breathing muscle, come together at a junction point known as the *solar plexus*. This is not an actual anatomical object like an organ, a bone, or a muscle; it is more an area behind the stomach, centered near the naval and in front of the aorta and diaphragm, which houses a nerve network. It is associated with the ancient chakra system and discussed in more depth in the spiritual section (Part III) of this book.

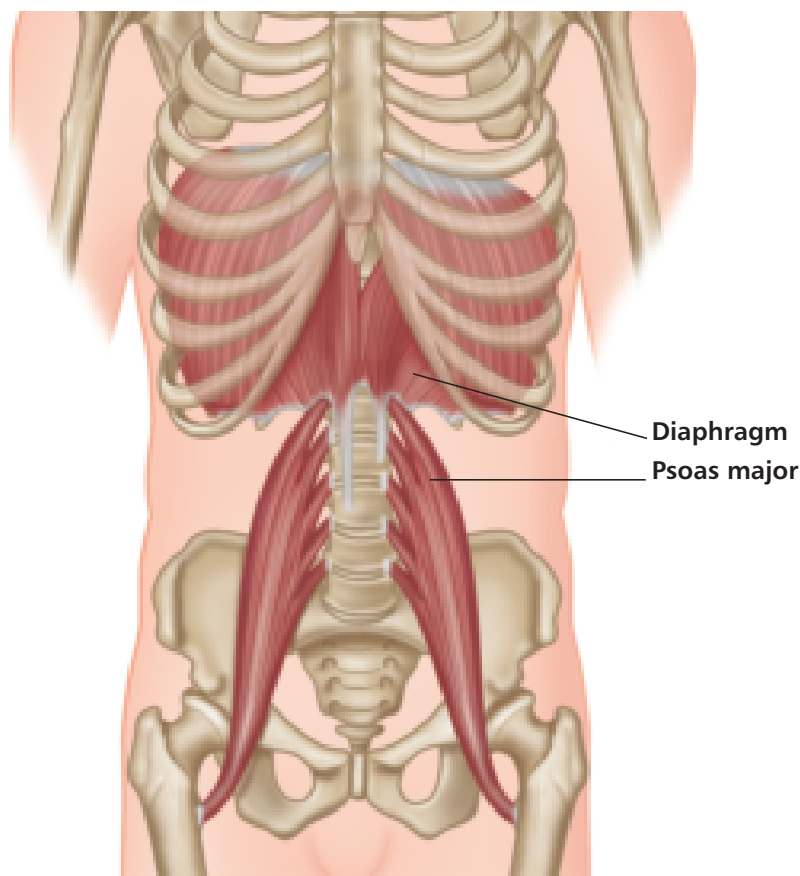


Figure 1.8: The psoas and the diaphragm come together at a junction point known as the solar plexus.

No wonder the psoas is so special. It has been called the “hidden prankster,” the “opinionated psoas,” the “great pretender,” a “conductor,” and the “fight or flight muscle,” among other things. My wonderful physical therapist, Dr. Gary, calls it the “front butt.” What a marvelous identity!

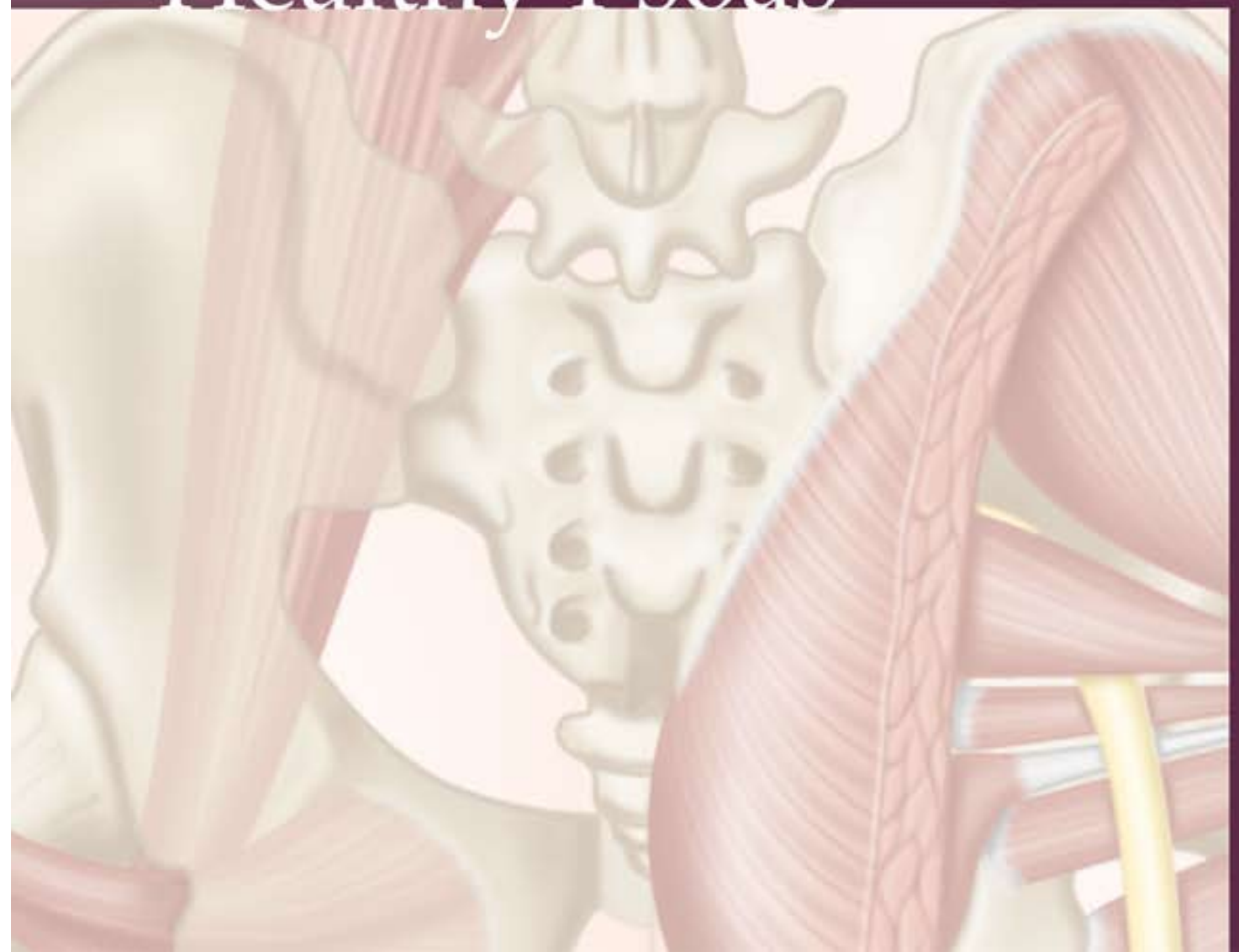
The psoas can:

- balance the core;
- stimulate organs and nerves;
- contract, release, stabilize, neutralize, or deteriorate like any other muscle;
- connect the upper body to the lower body;
- create movement and flow to be transmitted throughout the body.

It can also adapt to differences in many ways, as long as it is in a state of release (not tight or “frozen”) and it is healthy. The following chapters will demonstrate how to keep the muscle in balance through various types of exercise, and discuss its role in the emotional and spiritual state of the human being.

The psoas affects the whole person.

Maintaining a Healthy Psoas



It has been established in Chapter 1 that the psoas major plays many roles. It is located in the core, but mostly overworked because of this. It is important to note again that other muscles have to be strong yet flexible to allow the psoas to remain healthy and adaptable. Those muscles are the abdominals, spinal extensors, and posterior antagonists such as the gluteus maximus. Any muscle that can aid in the centering and balance of the pelvis, like the quadratus lumborum and deep rotators, also helps relieve the psoas to connect the torso to the legs and act as a messenger in an economic fashion. The following exercises may help restore vitality to the psoas.

The “Give the Psoas a Break” Exercise: Constructive Rest Position for Everyone

This is a supine position that has been taught for many years. The system was developed by Mabel Todd in the early part of the twentieth century in Boston and then in New York City as an alternative to strict military physical education. She called this method *Natural Posture*. Her ideology was later termed *Ideokinesis*, an idea of movement used to improve muscular coordination through imagery. Creative yet scientific, it is based on functional anatomy with ease and repatterning of movement, and was embraced by major universities such as Columbia, NYU, and Juilliard.

Lulu Sweigard, a student-turned-colleague of Todd’s, named this certain exercise *constructive rest position* (CRP) in New York in the late 1920s. Other students, such as Barbara Clark, Sally Swift, and later Irene Dowd, became renowned teachers in the field of Ideokinesis, and people around the world have studied and embraced it as a way of rebalancing misguided physical efforts in a more natural way. This is also a concept that Joseph Pilates became aware of after the war, when he moved to New York and began work with singers and dancers; the Alexander Technique also teaches it.

Today this position is widely practiced; it is hard to find a professional dancer or body worker who has not been exposed to its benefits. This author was taught the CRP as the *horizontal rest position* at NYU many years ago, and still uses it for reasons ranging from abdominal and uteral cramping, to relaxing many muscles, specifically the psoas. It is a great way to release muscle contraction, as it allows the skeleton (and gravity) to do the work of neutral alignment in a restful state.

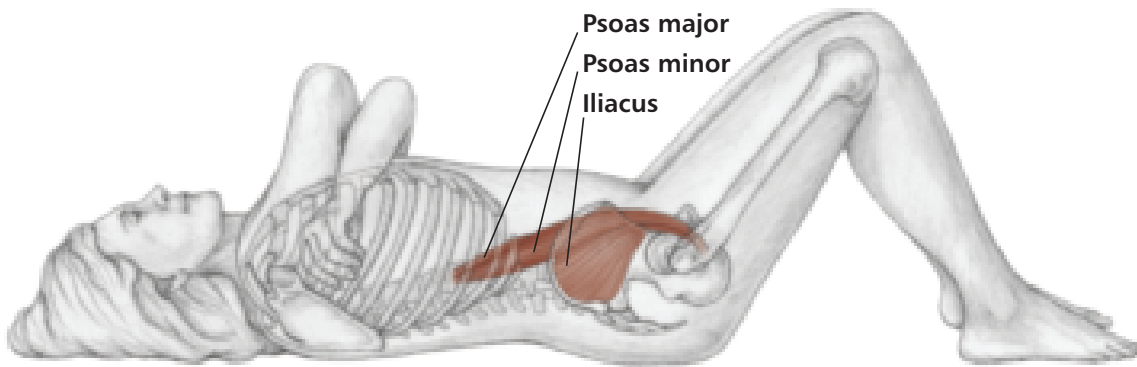


Figure 2.1: The Constructive Rest Position.

Technique: Begin lying on the back (supine) on a firm, flat surface. Bend the knees with the feet flat on the floor, hip width apart. The head can be supported so that it is in line with the spine. Some prefer to keep the hips, knees, and feet in line with each other; if this is hard to do and causes muscle tension, then let the knees rest against each other with the feet slightly wider and toes turned in.

The femur will rest gently into the hip socket, releasing the “grip” of the hip flexors. The spine will follow its natural curves. Both arrangements free the psoas.

Arms can be crossed at the elbows and lie across the chest; if this is uncomfortable, they can relax on the floor. (Remember, this is a rest position!)

Imagery:

1. Close the eyes and envision the full length of the spine.
2. Imagine a line of energy traveling down the spine, then curving up between the legs, moving up the front of the body and back down the spine again.
3. A cyclical energy line is engaged; inhale as it flows down the spine, exhale as it comes up the front, not unlike a “zipper being pulled up to close a jacket” around the torso.
4. Feel the weight of the head melt into the surface – not back, but in line with the neutral spine.
5. Relax and let the aligned vertebrae and pelvic bones support the body without using the muscles.
6. Feel as if the knees are draped over a hanger, the thighs hanging on one side, the lower legs on the other, with the hanger supported from above.

7. Bring mental attention to the thighs and imagine a small waterfall flowing down from the knees into the hip sockets, releasing the thigh muscles.
8. Imagine another waterfall trickling from the knees, down the shins, to the ankles. Take your time.
9. Feel the feet, as well as the eyes, relaxing in cool pools of water.
10. Repeat this full set of imagery over and over, slowly, for at least 10 minutes. When done, do not sit up, but simply roll over to one side and come to a sitting position slowly, so as not to disrupt any alignment achieved.

(This author cannot begin to remember all the wonderful teachers who taught her this strategy, but gives thanks to the mentors Andre Bernard and Irene Dowd.)

The psoas is in a relaxed state at the lumbar spine. While doing this position, it might be helpful to have someone read the imagery list slowly to help guide you. It is released at the hip; even though there is hip flexion, it is not active against resistance, so the psoas is at rest. This exercise can be done daily, anytime during the day, and by anyone, and allows the psoas to “take a break.” When first practicing the technique, one may experience physical discomfort, even emotional feelings (see Part II).

In CRP, the body will give in to gravity – let go, and become balanced and receptive to its natural alignment and posture.

There is another position that is very effective for releasing the psoas, as described by the *Egoscue method*, a system of exercises designed by Pete Egoscue to alleviate chronic joint pain (see bibliography). Similar in principle to the CRP, one lies on the floor with one or both lower legs resting on a block or support. The support should be as high as the length of the femur. The support holds the weight of the lower leg and allows the thigh to fall directly into the hip socket, thereby releasing the psoas and other hip and spine muscles. This position is held for as long as possible to achieve the desired relaxation. If no support is available, the feet can rest against a wall, hip width apart, with the knees bent and the hips directly underneath them. Abdominal crunches can be added without engaging the psoas too much.

Understanding “Center”: Pelvic Stability Exercises – Level I

To understand and feel the concept of a stable pelvis, try the following:

1. **Deep Breathing:** Lie on the back with knees bent, feet on the floor, hip width apart, and hands on the front hip bones to make sure they are in line with each other. Breathe naturally but deeply, engaging the transversus abdominis on a strong exhalation – one will feel as if the waist is “cinching” on the exhalation. Do this for at least five full breaths, keeping the pelvis stable.
2. **Pelvic Tilts:** Assume the same position as above, with arms by the sides. On the inhalation allow the pelvis to tilt forward; the front hip bones (ASIS) release upward, while the tailbone remains on the floor. Exhale and press the naval toward the floor as the pelvis tilts backward. Do this slowly five times, then return to normal position, which is the neutral spine curvature. The sacrum, not the lower back, will be resting on the floor, with the pelvis centered.

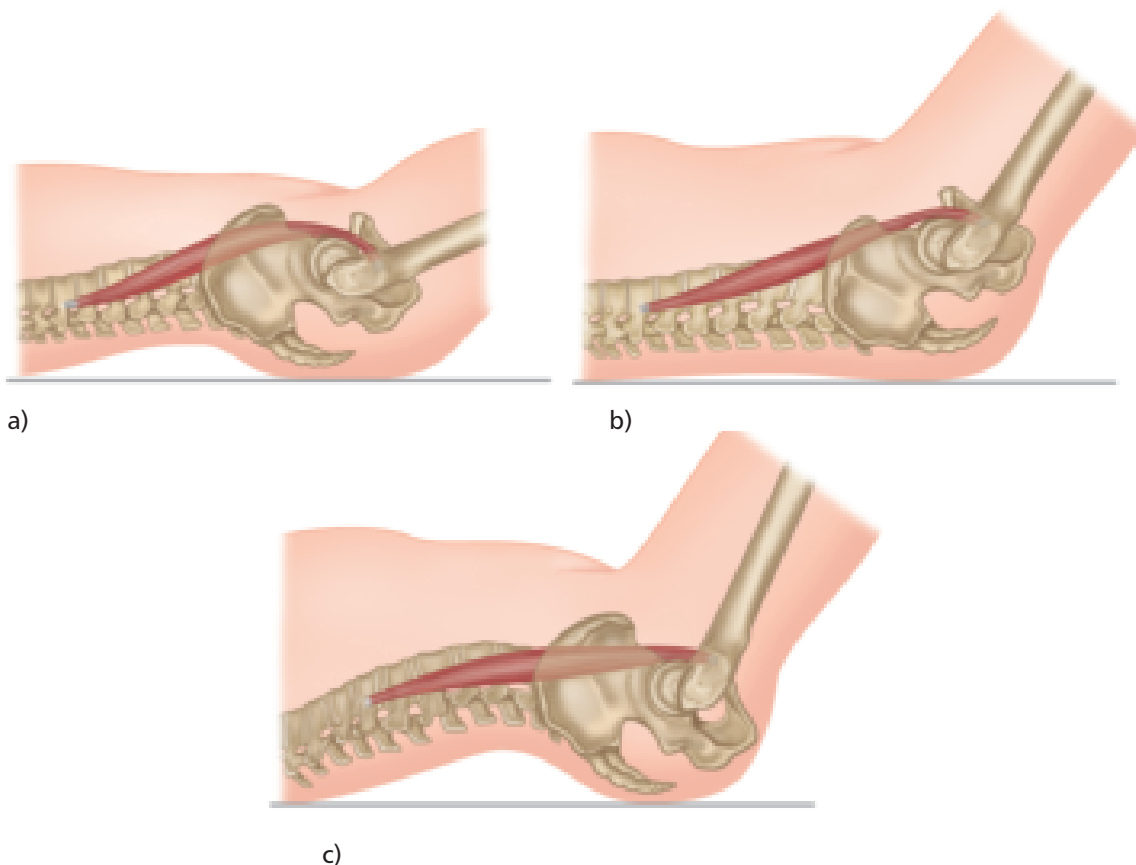


Figure 2.2: Pelvic tilts; a) neutral spine, b) backward tilt, c) forward tilt.

3. **Rotational Pelvic Exercises:** Lie on the back in the position of exercise 1 with arms by the sides. Push the hips up about 2 inches off the floor, as the feet press into the floor. Try these three movements:
 - a. “Hike” the hips side to side 6 times.
 - b. Roll (rotate) the hips side to side 6 times.
 - c. Draw a figure 8 with the hips 6 times.
 To end, roll down through the lower spine and rest the pelvis in the neutral position. One cannot help but feel where the center is after this exercise.

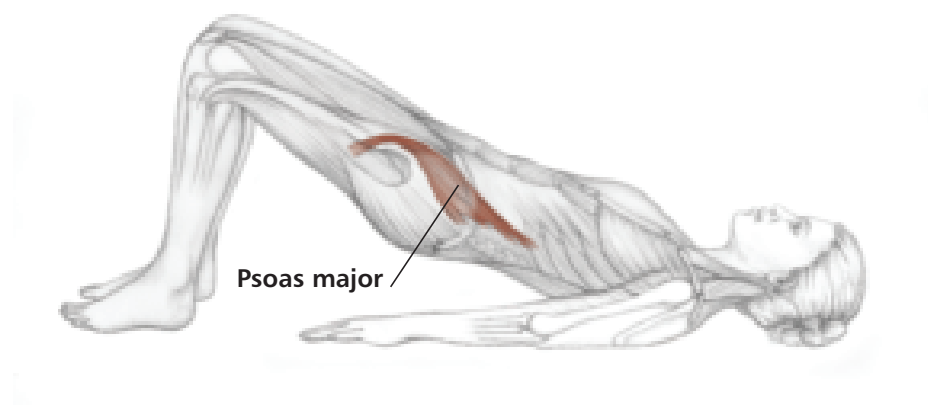


Figure 2.3: Rotational Pelvic Exercises.

To help visualize pelvic movement in exercises 2 and 3 above, use the reference in the following figure.

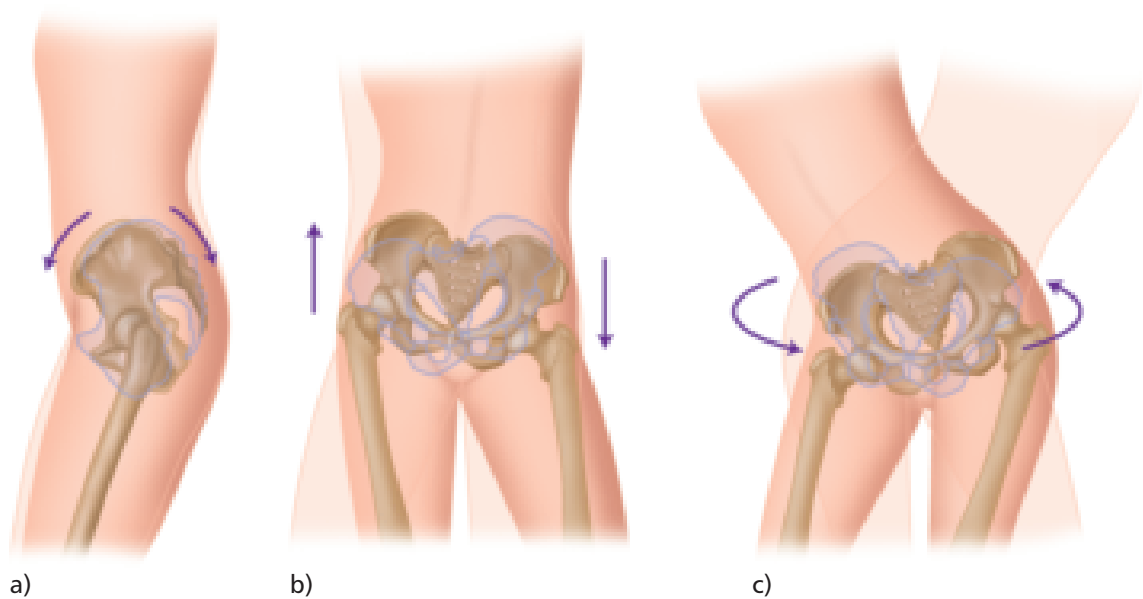


Figure 2.4: The pelvis can move in three planes; a) sagittal (plane 1), b) frontal (plane 2), c) horizontal (plane 3).

Plane 1

In the sagittal plane, it can move forward and backward, which is usually called pelvic tilt (see figure 2.2). Use the anterior superior iliac spine (ASIS) as a reference point. This point can be felt by placing the hands on the front hip bones. Move the pelvis forward and backward. The lumbar spine will hyperextend and the hips will flex with forward movement of the pelvis. With posterior or backward tilt, the lumbar spine will flex, engaging the psoas and abdominals.

Plane 2

In the frontal plane, the pelvis will move laterally and medially, as in “hiking the hip up.” The lumbar spine will also move laterally and the hips will abduct and adduct.

Plane 3

In the horizontal plane, the pelvis rotates inward and outward, although it is very limited and cannot happen without help from the sacroiliac, lumbar, and hip joints. It is similar to “twisting.”

These exercises mobilize the pelvic region without overstretching. If sensitive areas such as the sacroiliac joint become too loose, the result can be irritating at the very least, and may develop into chronic lower back pain. When ligaments overstretch they do not retain their firm hold to keep the joint together, so there is a “shifting” of joint stability, and muscle tendons will work overtime to keep the joint stable. *The psoas also compensates for sacroiliac problems, which leads to it being overworked.*

To explain in more detail, the pelvis has two important joint areas: the **sacroiliac (SI) joint** and the **iliofemoral (common hip) joint**. The SI joint, where the sacrum and iliac bones (the two sides of the pelvis) articulate, is the least moveable. It is considered a gliding joint and becomes more active during childbirth.

There are strong **ligaments** that connect the iliac bones to the sacrum. Therefore, it seems reasonable to assume that many women after childbirth can experience a sacroiliac shift because of loosened ligaments. This can cause discomfort in the lower back area that can be addressed through some strength exercises to compensate for the laxity. The squat exercise described on page 28 is an ideal strength move for this area if done in the position of outward rotation of the hip. Grand plies from ballet are also helpful.

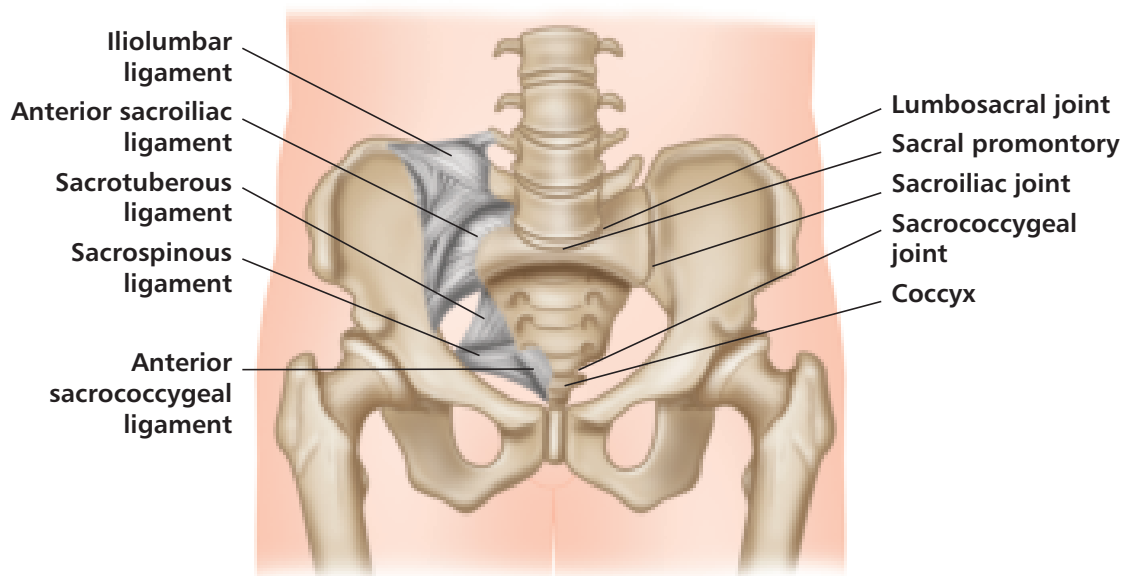
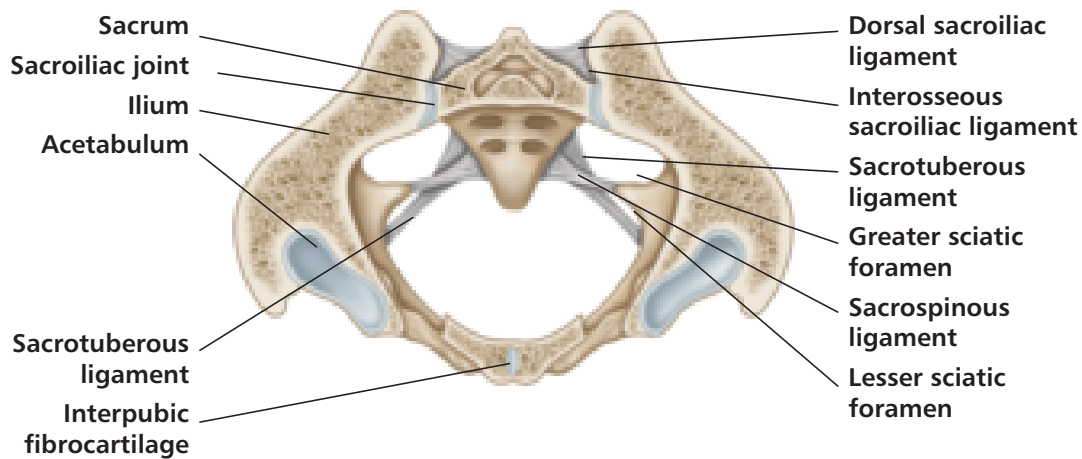


Figure 2.5: The sacroiliac joint; a) transverse section of the pelvis, b) pelvic ligaments.