

## **THE ILIO-PSOAS**

As a postural therapist, I've found there is a muscle that often creates a myriad of dysfunction due to its various roles in physical and emotional stress. Of course, we can never focus on just one muscle in the body. We must remember the body works as a kinetic chain and it's the relationships between all the muscles and joints that need to be addressed in order to create and maintain optimal function. However, the ilio-psoas, (which is actually a combination of the iliacus and psoas muscles), deserves a bit of extra attention, as it connects the upper and lower body, thereby having multiple effects on posture, function and pain.

When the iliacus and the psoas are linked together, they are also known as the "primary" hip flexor and can affect all the muscles into the spine and shoulders as well as the legs and feet. When these muscles aren't engaging or releasing functionally, a multitude of compensatory patterns can occur. This can lead to lower back pain, sacro-iliac pain, sciatica and many other issues. It can also constrict internal organs and respiration.

## **THE ILIACUS / PSOAS CONNECTION**

As you can see in the diagram below, the psoas attaches to the lumbar (lower) spine (T12-L5 transverse processes) and winds through the pelvis before attaching to the lesser trochanter of the femur (the inside of the large thigh bone). Because it joins at the femur along with the tendon of another muscle called the iliacus, they often group these muscles together calling them the iliopsoas. When contracting simultaneously these muscles are the deepest flexors of the hips.



The iliacus attaches from the femur to the iliac bone, while the psoas attaches to each of the lumbar vertebrae. As a result, when the femur is fixed the iliacus provides hip flexion, while the psoas has a greater effect on the lumbar spine. The psoas also has a role in stabilizing the femur and seating it in the acetabulum. Consequently, the iliacus may have a larger role in hip flexion, but the psoas needs to engage simultaneously as a stabilizer. The psoas not only acts as a stabilizer of the femur, but also as a stabilizer of the lumbar spine preventing lordosis and swayback. The psoas can actually play a role in the stability between lumbar flexion and extension. This is why some claim the psoas is more of a stabilizer than a primary hip flexor unless we speak of its combined function with the iliacus. It has a vital role in the transfer of weight through the trunk, feet and legs when we move, while simultaneously positioning and stabilizing the spine, pelvis and femur in relation to one another.

Although not its primary function, the psoas can also be involved in laterally bending the lower spine in conjunction with the quadratus lumborum. It also has a minor role in contracting to produce rotation to the opposite side. As Thomas Myers points out in his book *Anatomy Trains*, the upper psoas appears to act as a lumbar flexor where the lower psoas acts as a lumbar extensor, which can often make exercise prescription quite challenging.

### **OTHER PELVIC STABILIZERS**

For the psoas to function optimally, it is important to first maintain a neutral pelvic position and spinal curves. The surrounding pelvic muscles must be able to do their individual jobs so the psoas is able to function optimally and not overwork. The pelvis must be symmetrical and bilaterally balanced before joining at the sacrum so the stabilizing muscles such as the QL and transverse abdominus can naturally engage, and the psoas can be free to transfer weight from side to side while moving. The psoas acts in accordance with other muscles greatly affecting posture.

## **EMOTIONAL RAMIFICATIONS OF THE ILIOPSOAS**

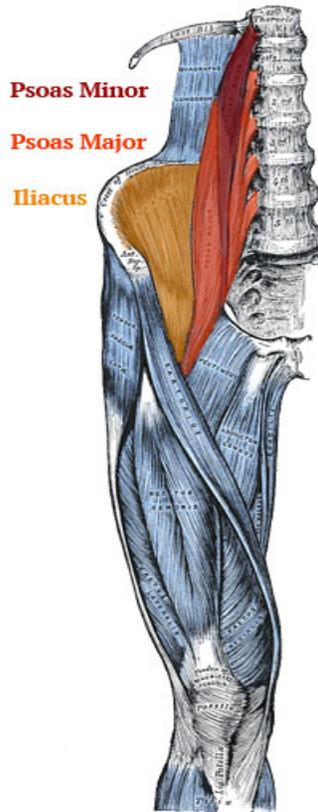
The psoas muscle has been called the "emotional" muscle of the body as well as the "fight flight" muscle. Everytime we receive a real or perceived threat, our brain sends a signal to our body to release adrenaline. The muscle most central to this response is the psoas and the stress hormones that get released can get stored in the body creating many health problems including insomnia, immune issues, anxiety, depression, eating disorders and living in a constant state of alert.

It's also been nicknamed the "muscle of the soul". Due to the postural ramifications of a dysfunctional psoas, the internal organs can become constricted. When the psoas is released, this can often bring up old emotions that were stored deep in the tissues. In Chinese medicine, it's believed the organs house different emotions and the psoas has a central location near the kidneys (which are related to fear), the liver (related to anger) and the spleen (related to anxiety and worry). In Indian Yogic traditions the psoas is believed to coordinate with the first 3 chakras, which provide a great deal of physical and emotional stability. In applied kinesiology the psoas is associated with the kidneys. The adrenal glands sit above the kidneys and are heavily involved in the body's stress response; therefore, we see a myriad of connections to the psoas and chronic stress.

The psoas muscle is located near the lower Dantien, which according to Chinese Medicine is the storage center for our life force energy (Qi) and houses our first 3 Chakras. This of course makes its physical location of prime importance. The psoas also has attachments at what's called "the gate of life" (ming-men GV4) point. This is the hub of breathing, walking, elimination, assimilation and digestion.

Due to the proximity of the psoas muscle to the stomach it can affect the gut; and with its anatomic relationship with the diaphragm at the solar plexus, it has a significant affect on respiration and sense of "calm". The solar plexus has a major influence on energy flow through the body, and when energy is stagnated disease can occur. As indicated, the psoas can have a

massive effect on all of our energy systems, so it's important when working to correct imbalances of the psoas muscle, we look at emotional and energetic issues as well as the physical and structural manifestations if we want to truly address any dysfunction.



*Liz Koch, Author of the Psoas Book states:*

*Because the [psoas](#) is so intimately involved in such basic physical and emotional reactions, a chronically tightened [psoas](#) continually signals your body that you're in danger, eventually exhausting the adrenal glands and depleting the immune system. As you learn to approach the world without this chronic tension, [psoas](#) awareness can open the door to a more sensitive attunement to your body's inner signals about safety and danger, and to a greater sense of inner peace. To work with the psoas is not to try to control the muscle, but to cultivate the awareness necessary for sensing its*

*messages. This involves making a conscious choice to slow down and become somatically aware.*

## **ASSESSMENTS**

In order to find the right exercise prescription to rebalance the iliopsoas muscle, there are a few important assessments to take into consideration:

### ***ANTERIOR PELVIS***

When you see an anterior pelvic tilt (the forward tilt of the pelvis), you will “typically” find an excessive arch in the lower back and often externally rotated feet. The anterior pelvic tilt is usually indicative of tight hip flexors. Typically in a pelvis that tilts forward the lower back and hip muscles will be tight, whereas the abdominal and glute muscles will be weak. This means compensatory muscles must kick in to perform the function of the tight and weak muscles and these are not muscles that are biomechanically best suited to perform these functions. All postural deviations serve a purpose. Our bodies are smart and they will find the best way to achieve whatever action we set out to accomplish. The more we move with tight hip flexors, the more they pull on the lumbar muscles. Therefore, to relieve tension we compensate by turning the feet out and slumping the shoulders. Although this may temporarily relieve some of the tension on the tight lumbar spine, it can create dysfunction through the rest of the kinetic chain.



**Anterior pelvic tilt**

### ***POSTERIOR PELVIS***

A posterior pelvis is a posture in which the pelvis tilts under. This is a seriously dysfunctional position, as the functional S shape curve of the spine has now been removed creating a C shape curve, which cannot functionally support the body. The C curve creates rounded slumping shoulders and a head that juts significantly forward. This can lead to back pain, shoulder pain, a lack of energy flow, as well as other symptoms such as headaches, TMJ etc. In a posterior tilt, the hip flexors are typically weak and the hip extensors can't function, as they are stuck in a constant contracted position.



**Posterior pelvic tilt**

### ***SWAYBACK***

Although not necessarily a tilt of the pelvis, it's also important to consider the swayback posture when assessing the primary hip flexors function. Swayback is a posture in which the shoulder sits behind the hip and typically the hip sits ahead of the knee. Swayback postures usually indicate a weakness and instability within the primary hip flexor function.



### **Femur position:**

When assessing tight or weak hip flexors it's also important to look at the position of the femur at the hip joint. If someone has knees that turn out this is termed "external femur rotation," whereas knees that turn in are termed "internal femur rotation". Be careful not to mistake this with bowlegged (varus) or knock kneed (valgus) stress. We are just looking at the position of the knee joint. Pretend you have a laser beam in the middle of your knee and ask yourself whether it's facing to the outside (external femur rotation) or inside (internal femur rotation). Typically external femurs are indicative of tight primary hip flexors, as the iliopsoas muscle can also act as an external rotator; whereas, with internal femurs the hip flexor is in the opposite of a short position even if seen with an anterior pelvic tilt. This is why we often prescribe exercises to engage the hip flexor when we see internal femurs even when in conjunction with an anterior pelvic tilt.



Internal Femurs

External Femurs

### ***Lumbar position***

It's also important to assess your lower back position and ask whether you have what we term a "flat back" or an excessive arch, otherwise known as "lordosis". Usually a flat back is seen with a posterior pelvic tilt, while lordosis is seen with an anterior pelvic tilt, but not always. It's important to also look at glute development. It is possible to have an anterior pelvic tilt and a flat back and butt which can mean the secondary hip flexors such as the quadriceps may be tight and it's possible the psoas muscle could actually be weak.



Flat Back

Lordosis

### **Functional Test for the Hip Flexors - - Thomas Test:**

The Thomas Test can often be an effective test in determining proper range of motion in the hip flexors. There are three main muscles that come into play in this test: The iliacus, the psoas, and the rectus femoris. The iliacus and psoas are both one joint hip flexors, whereas, the rectus femoris (quadriceps) is a two joint hip flexor, as it attaches to both the hip and knee.

To conduct this test, lie on a bench and pull one knee toward the chest. The lower back and sacrum should remain flat and the pelvis should naturally move into a posterior position. If you pull the knee too far and the sacrum lifts off the bench, this can give faulty results.

In a normal Thomas Test, as the knee is pulled toward the chest, the lower thigh of the opposite leg should remain on the table. If the lower thigh lifts, we can ascertain there is tightness in the single joint hip flexors, being the ilio-psoas musculature (figure 1)

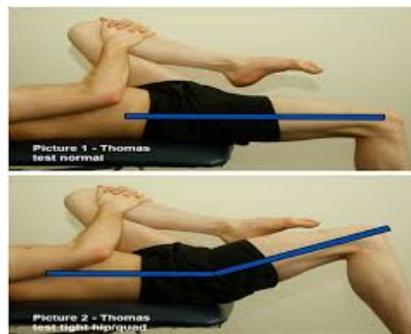


Figure 1

It's important to remember, that you can have a tight quadriceps muscle and normal range of motion in the single joint hip flexors (psoas musculature) and vice versa. To assess the rectus femoris, which connects over two joints (the hip and knee), you want the knee of the down leg to remain in flexion slightly outside of 90 degrees. Figure 2 below illustrates a tight quadriceps with reasonably good ROM in the single joint hip flexors. You can see the thigh remains on the table, but the knee goes into extension and does not rest at 90 degrees.



Figure 2

You may find people have both single and double joint hip flexor shortness. In these cases, the thigh of the down leg will lift from the table and the knee will not rest in 90 degree flexion as seen in figure 3:



Figure 3

Another issue to mention is if you see the thigh abduct and externally rotate such as in figure 4, the TFL and IT band may be short and tight. However, if this occurs while the knee drops nicely into flexion, it could be the bicep femoris or sartorius in a shortened position, as both sets of muscles can have an effect in laterally rotating the tibia.



Figure 4

Once you have determined which muscles are inhibited, you can prescribe exercises to release, stretch or strengthen the appropriate musculature to regain proper alignment and function.

### **COMPENSATORY PATTERNS**

When our hip flexors are tight or dysfunctional, we can't just stretch and strengthen the individual muscles we first need to release compensatory patterns. For example, if the primary hip flexor on one side is not engaging, the quadriceps as a secondary hip flexor may compensate leading to excessive tightness. We must first release the tight quadriceps muscle in order to wake up the primary hip flexor. The lumbar erector muscles and thoracic back can also be involved, and in many cases these compensations must first be addressed before successfully going after the underlying dysfunction at the hip flexor.

Another important point to consider is in some cases there is so much compensation and dysfunction that there is very little connection between the foot, knee and hip. Therefore, a hip flexor release such as the "Egoscue Tower," which I speak of below, may have little effect if the body's load bearing joints have lost the ability to communicate with one another.

### **Exercises to release and engage the hip flexors:**

#### **90/90**

A wonderful position for releasing the psoas is lying with your legs at a 90 degree angle over an ottoman or chair. The support holds the weight of the lower leg allowing the thigh to fall directly into the hip socket which releases the psoas muscle and simultaneously releases compensatory patterns in the other hip and spine muscles as well as the scapulae. Exercises such as abdominal crunches, foot circles, and movements for the shoulders and upper back can be very helpful additions while spending the time in the 90/90 position and allowing the hip flexor to release. Notice if you have an arch in your lower back as you lay with your legs at 90 degrees and then pay attention after laying for 5 minutes in this position to whether the lower back is flatter to the floor.



90/90

### **Towels Settle**

Lying with a towel under your neck and one under your lower back is a great way to engage the psoas especially when you see internal femurs. Often when someone is anterior with internal femurs the anterior tilt is usually coming from overused and over-engaged erector muscles. Towels will allow the psoas to engage so the back muscles can let go, while promoting the natural curves of the lumbar spine.

When we see internal femurs along with valgus stress and an anterior pelvic tilt, there is often a lack of lateral hip stability and an inability to achieve true hip flexion and extension. If the femur can't rotate when going into hip extension, then other joints are forced to over-rotate instead to get extension. When we see internal femurs with an anterior pelvic tilt, valgus stress and foot pronation we can almost always be assured there is also a paraspinal dysfunction.



Towel Settle with strap

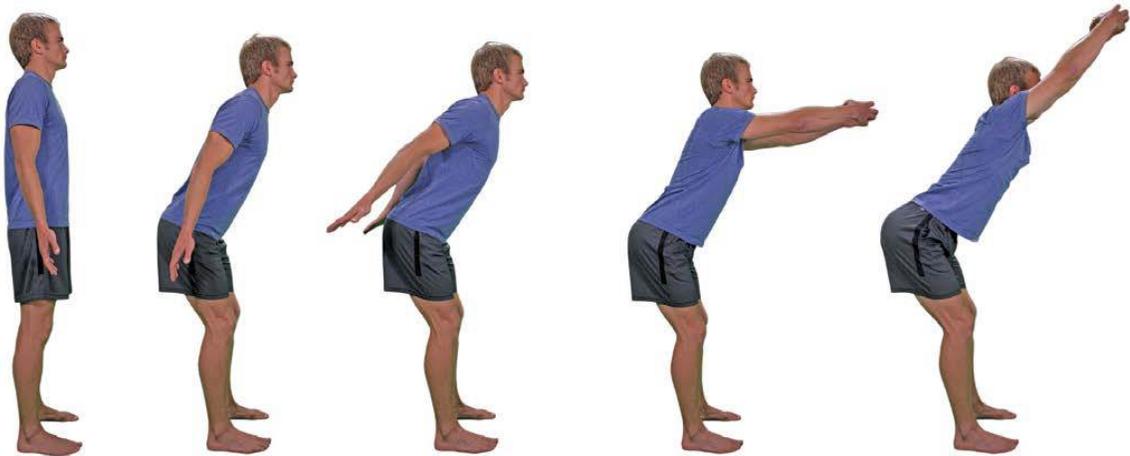
## The Founder

The founder is an amazing exercise taken from the Foundation Training program to help teach proper engagement of the primary hip flexor. This exercise enables the hip flexor to function by anchoring the lower body via the internal rotators while expanding the ribcage through diaphragmatic breathing in order to facilitate decompression of the spine. It does this while engaging the posterior chain of the body, which for many can be inherently weak. The internal rotation of the femur in this exercise helps many people achieve a more functional hip hinge and the activation of the posterior chain can help facilitate pelvic extension. In turn this exercise can assist in finding the proper engagement of the iliopsoas musculature for functional movement.

## FOUNDER

[www.FoundationTraining.com](http://www.FoundationTraining.com)

1. Stand with your feet hip-distance apart and your weight on your heels.
2. Let your knees unlock and pull your hips back as you push your chest forward.
3. Without moving your feet, pull your heels together to activate your adductor muscles.
4. You should feel tension in your low back, adductors, glutes and hamstrings; these muscles let you know your Posterior Chain is active.



1. Chest is high with arms back and your thumbs out to the side, shoulders pulling back and down. Hold for 15 seconds.

2. Bring your arms out in front as you pull your hips away from your ankles. Hold for 15 seconds.

3. Bring your arms all the way up as you lift your chest slightly higher. Hold for 15 seconds.

## **Static Extension Position**

This can be another wonderful position for specific postures to engage the primary hip flexor and reconnect the communication between the upper and lower body while restoring the functional "S" shape curves of the spine. This exercise also comes from "The Egoscue Method." When looking to truly resolve dysfunction, it's important we use methods that look at each individual's unique alignment and address the entire kinetic chain.



Static Extension Position

## **Best Hip Flexor Release Ever**

Pete Egoscue has invented what is in my opinion one of the only true releases for the iliopsoas called the Egoscue Tower. If you can't get your hands on a tower (although I recommend you do, as it can be extremely beneficial in releasing the iliopsoas due to the dorsiflexion and stability at the foot), supine groin stretch can also be effective. In this stretch you will lay with one hip in flexion at 90 degrees over a block. Be sure you line your femur up with your hip and your foot is positioned straight with a block so it can relax without turning out. Lie with your arms relaxed at your sides until your lower back releases into the floor. You can test this stretch by tightening your quadriceps muscle on the leg that's on the ground. When you feel the contraction closer to the hip than the knee and the lower back releases into the floor, you will know your hip flexor has released.



SUPINE GROIN STRETCH



SUPINE GROIN PROGRESSIVE TOWER

If you have any questions regarding this article, or are interested in receiving an individual postural assessment, feel free to contact Aligned Fitness at [www.alignedfit.com](http://www.alignedfit.com).

*Lisa Decker is the owner of Aligned Fitness in Los Gatos, CA. She began her work as a personal trainer, but decided it was more important to reduce muscular compensation and dysfunction before strengthening. She educated herself in postural alignment, biomechanics and corrective exercise before working for the Egoscue clinic of San Jose. She specializes in postural analysis and alignment for chronic pain symptoms. She has a masters degree in Human Movement and is a certified personal trainer, corrective exercise specialist, performance enhancement specialist, postural alignment specialist, and is also certified in Medical Qigong and Foundation Training.*