THE PSOAS MUSCLE: To Strengthen and to Lengthen
I injured my psoas twenty years ago while training for a marathon. I was at the end of a light run one week before race day and I had a very sharp pain in the psoas/hip area and could not continue running. At the time, I did not know this was my “hip flexor” or “psoas” and after a few doctor appointments and an MRI, the doctor did not know either. Hence, proving the point, that medical professionals (at least twenty years ago) often overlook the psoas/hip flexor group as a very important muscle, that is often tight and weak and can cause great pain. It was a massage therapist who figured out what my injury was and educated me on the psoas and the importance of releasing it through massage and later, I found, strengthening and lengthening the psoas, is also possible through Pilates.

My research has found that twenty years later, while my psoas is still occasionally tight, and could be stronger, it has improved tremendously from a Pilates program that includes lengthening and strengthening the hip flexor group and finding balance in the core muscles surrounding it. My name is Jennifer Talarico, I am a 42 year old female, who spent eighteen years distance running. I do have limitations. I have a tight psoas on both the right and left side, worse on the right. There is slight rotation of my pelvis and I was diagnosed, one year ago, with SI joint dysfunction and weakness in the transverses abdominis and gluteus medius. After a fundamental program with the very basis being abdominal strengthening, especially the TA, hip flexor stretching and strengthening and building my gluteus medius to support an unstable SI joint, I am now much more supple in my hip flexors and I feel the support of my pelvic floor muscles and my TA, because I am in much less lower back pain. I can also use my hip flexors, for abdominal work or walking, without them getting sore and easily fatigued.
Table of Contents

Title Page 1
Abstract 2
Table of Contents 3
Diagram 4
Body 5
Fundamental Program 7
Intermediate Program 13
Conclusion 14
Bibliography 15
As shown in the diagram above, the psoas muscles are the deepest in the “core”. They attach from the 12th thoracic vertebrae to the 5th lumbar vertebrae. These deep hip flexors attach through your pelvis and to your femur bones. The psoas muscles are the only muscles that connect your spine to your legs. The hip flexors include the iliacus, psoas major, pectineus, rectus femoris and sartorial muscles. The psoas muscles are the primary connectors between your torso and your legs, hence you use these psoas muscles to bend your legs towards your chest and they help move your leg forward when you run. These muscles affect your posture and help stabilize your spine.

Liz Koch writes in *The Psoas Book* “If the ‘resting length’ (the ideal length of a muscle when neither stretching nor contracting) of the psoas has shortened, it will pull
on the pelvis, strain the back muscles and close the spacial dimension of the ball and
socket hip joint. When the pelvic hip sockets are constricted, the pelvis and leg move as
a until rather than as an articulated joint. Instead of rotation occurring at the round head
of the femur, which moves within the cup-shaped ilium, or the pelvis rolling around the
head of the femur ball, rotation stops at the joint and occurs by twisting at the knees
and/or low spine (L4 and L5).” She also states that “any constriction in the psoas will
thrust the ribcage forward encouraging thoracic rather than abdominal breathing”. “The
ribcage limits the diaphragm from fully descending and therefore its range of motion is
lost”. I have learned, through a few private lessons with Cindy Reid at FLOW, that my
breathing is constricted and is often chest breathing, instead of diaphragmatic or
optimally lateral breathing while doing Pilates.

The psoas muscle is made of both slow twitch and fast twitch muscle fibers. Fast
twitch muscles defined by dictionary.com are “of or relating to muscle fiber that contracts
relatively rapidly, utilized especially in actions requiring maximum effort of short
duration, as sprinting (distinguished from slow-twitch )”. The definition of slow twitch
muscles defined by dictionary.com is: “of or relating to muscle fiber that contracts
relatively slowly and is resistant to fatigue (distinguished from fast-twitch )”. Since many
medical professionals don’t understand the complex nature of the psoas muscle, people
are often given the wrong diagnosis and treatment for their psoas-related pain, as I was,
for almost a year.

My program does not only take place in the studio. I have had to retrain my
posture and work on it constantly. My tight psoas has created a forward head and a
hyperlordotic posture in my spine. Since my TA was not as strong as it should be, my
quadratus lumborum and back extensors were often “fired” and very tight. Other than the psoas being the main muscle I want to lengthen and strengthen. There are other core muscles I must balance as well. The muscles this fundamental plan targets are: the pelvic floor, transverse abdominis, internal and external obliques, rectus abdominis, multifidus, hip extensors, adductors, abductors and gluteus medius. Getting stronger abdominals will take some pressure off of my psoas, which has been working over time.

When I am starting a program for someone like myself, an injured runner or a client who does a lot of cardio, I would start with the questions “what do you do for a living?” Do you sit all day? Sitting all day will be a good indication that they are short in the hip flexors. I will then ask if they have/had any injuries and or acute pain. I will ask them to perform a “roll down” of the spine to check the alignment of the spine to be sure we can rule out scoliosis and check out the curves of the back. I will ask them to walk across the room to analyze their posture and gait to the best of my ability.

I will lay the client down on the Cadillac or mat and draw each knee into the chest to see how he or she feels with the hip in flexion. I will keep in mind that a tight psoas muscle can rotate the pelvis forward and cause an internal rotation of the leg on the “tight” side. The other leg may rotate externally to counter-balance the “affected” leg. I will ask if there is any hip flexor pain when I pull the knee into the chest. There is also the possibility that knee or low back pain can be coming from a tight psoas, due to a “stuck” femur in the hip socket. This prevents rotation in the hip, so the knee and back can twist or rotate counter productively. Also noting, if the psoas is weak, it can flatten the natural curve of the lumbar spine because tight hamstrings are pulling the sitz bones down. In my case, my psoas is both tight and long, my pelvis is pulled forward in front of
my center of gravity, causing my lumbar curve to be exaggerated into a sway back posture and my head pokes forward. (Source: http://drnorthrup.com/psoas-muscle-vital-muscle-body/), however this may not be the case for everyone with a tight, yet weak psoas.

My initial sessions are used to engage and build strength in the deepest abdominal layer, the transverse abdominis, and find some length in the psoas and hip flexor group. I still work every day on finding my true “neutral pelvis” and “neutral spine” alignment. I try to stay cognizant while standing and walking throughout my day, that I am not in hyperlordotic posture. I want more abdominal strength, so my psoas does not have to work overtime for weak abdominals. I would love less pain in my low back from my Pilates program.

I start my first session by rocking through neutral pelvis and a posteriorly tilted pelvis on the mat five times. I then practice Pilates breathing or lateral/intercostal breathing. I put my hands on my rib cage and intercostal muscles to feel them expand and contract. We want to encourage lateral/intercostal breathing to “maintain the abdominal wall pulling inward”. This breath helps maintain abdominal contraction, especially during the inhalation.

After a few rounds of breath, I go into the first official exercise of the BASI fundamental warm up: the Pelvic curl. I curl my pubic bone toward my sternum for a bridge-like position, trying to focus on both the abdominals and my hamstrings (which are harder for me to target). After this one exercise, I try to do more engaging and pulling up of the pelvic floor. “Kegels” are challenging for me, so this is part of my
homework, to practice kegels outside of the studio. I take a few more pelvic curls, this time starting with a “draw up” of the pelvic floor.

I move on to the Spine Twist Supine on the mat, continuing the discussion in my mind of abdominal engagement. This time adding spinal rotation, and recruiting the obliques and adding the very important cue of pelvic lumbar stabilization. I then bring the feet back down to the mat for the chest lift. I recommit to “neutral pelvis”, while working my abdominals and trying to keep my pelvis stable. Repeating the chest lift five times, and on the fifth chest lift, adding rotation-side to side leading with the rib cage, not the elbows and trying to stay away from lateral flexion. It is difficult to move the head, shoulders and chest together, so this will take a few sessions to master.

Moving onto the reformer for footwork, remaining in neutral pelvis and holding onto a stable pelvis. I start with medium resistance for the first session. Beginning with Parallel Heels x 10, Parallel Toes x 10, V Position Toes x 10, Open V Heels x 10, Open V Toes x 10, Calf Raises x 10, Prances x 10 on each leg, Prehensile and finishing with Single Leg Heel x 10 on each leg. After the footwork block, I go into The Hundred Prep x 5, maintaining neutral pelvis followed by The Hundred, repeating for 10 breath cycles, five sipping breaths in and five sipping breaths out. During this abdominal block, I check in with my hip flexors, that feel a little tight, but continue. I begin thinking about shoulder extensor control, while lowering and/or pumping my arms.

We move into the important “Hip Work Block”, I change the springs and place the feet in the large loops. Frog, Circles (Down and Up), and Openings should feel good on the hips, if there is any tension we can lessen the range of motion. I monitor my
adductors during openings, ensuring the hip adductors are feeling strong and not overworked, I note, I will need to stretch the adductors as well, they just worked hard!

Another crucial part of my Pilates lesson is a focus on psoas flexibility and eventually, building strength in the psoas, is the “Stretches Block”. I start with the Standing Lunge in the Hamstring Stretch Group. Changing the springs to a light-medium resistance. I will be very mindful while cueing a hip flexor stretch, I do not want to “overstretch” the muscle group. I ease into this hip flexor and hamstring stretch and we will take it a little deeper, with each lesson, as long as I continue to gain flexibility. I also focus on the hamstrings in the Standing Lunge Stretch, I note, that I will work on finding balance between the quadricep and the hamstring. Not surprising that my quadricep is tighter, because the rectus femoris is part of the quadricep that attaches at the ilium and therefore is a hip flexor. Often, in runners, the quadricep is stronger than the hamstring or there is an imbalance. After the standing lunge stretch on the reformer, I move to the ladder barrel for additional stretches. I will start with Shoulder Stretch 1, as I get ready to go into arm work. I will focus on the shoulder extensors during this stretch. Moving on to Shoulder Stretch 2 to stretch the shoulder flexors. I will then move to the fundamental stretch for “Gluteals”. I will ease into this stretch as well, hopefully to get more flexible each day of my program. Also, on the ladder barrel, we will stretch the “adductors”, since they really felt the work in the hip work block.

After the “Stretches” block, we move into Arm Work with Arm Supine Series on the Reformer. I am practicing strengthening my TA while in neutral pelvis. I really feel my abdominals working. I remember, my other focus of scapular stabilization. The latissimus dorsi is the muscle focus during the Arm Supine Series. The order of
exercises are: Extension, Adduction, Up Circles, Down Circles, and Triceps. I monitor my hip flexors, they are working with my legs in table top, but they feel okay.

Next up is the Leg Work block, where I will introduce the Wunda Chair. I love the Wunda Chair for building strength and encouraging balance. A lot of core strength is required for chair work, so I proceed slowly. On the chair we will start with the Hamstring Curl to target the hamstrings. I remind myself about pelvic lumbar stabilization and maintaining neutral pelvis. We will keep the resistance light as we move into Hip Opener. This is an intermediate exercise, but I believe working my hip external rotators is important for the balance of my pelvic muscles. I choose this exercise, because I have a hard time turning on these rotators. After a few sessions, they start to wake up! It will also be a good place to practice the external rotation of the femurs in the hip joint. My external rotation is limited on both sides, presumably due to a tight psoas. I move into Leg Press Standing to continue to work the hamstrings for our final section of leg work. I have a harder time engaging my hamstrings during this exercise while standing and am determined to improve. It could be that my neutral posture is not perfect. I will ask for feedback from another instructor at my next session. Postural alignment is crucial while performing Standing Leg Press, and I will need to continue to work at my standing neutral alignment. During Standing Leg Press, I am profile in the mirror and be sure to avoid leaning forward.

I stay on the chair for one of my favorite exercises and one that will eventually prepare me for other side stretch and side over exercises. I stay on one spring, however, I make it a bit heavier (still a light tension) to perform Side Stretch on the Wunda Chair for the Lateral Flexion/Rotation block to laterally flex the trunk and focus
on abdominals, specifically, the obliques. I think of pelvic stabilization and I remember
the visual cue, that I am moving between two planes of glass or I am a piece oftoast in a toaster and they do not want to feel the hot coils!

Finally, we will move into our Back Extension Block, which should help correct my
forward head posture. I have been taught, by Cindy to press the jaw line back, so that I
start this exercise with a more “neutral alignment”. I continue with will Swan Basic and
engage my abdominals and back extensors to lift the chest and extend the spine. I need
to focus constantly during this exercise, or I lose my abdominal and back extensor co-
contraction. I also need to watch dramatic extension due to my SI joint instability. I
conclude my session with “body scan” a roll down with the assistance of light tension on
the Wunda Chair Pedal. Once I am standing, I see how I feel after the session. Finding
more of a neutral alignment is helping me come out of my hyperlordotic posture. The
strength in my TA is going to let me call on my hip flexors, when I need them and they
will be supported, instead of being over-stressed because the hip flexors are working
double time for my abdominals. My homework is: 20 times per day pressing the jaw line
back, standing in neutral spine and drawing up on my pelvic floor and engaging my TA
doing 10 pelvic curls and 10 chest lifts per night.

After progression of this Fundamental program, I will continue to work on
strengthening the abdominals, back extensors and will start to add in more psoas, hip
extension and gluteus medius strengthening exercises. I am motivated to strengthen my
psoas, so I can soon do the more challenging abdominal exercises, like Teaser without
tension in the hip!
After my initial ten sessions, I move into an intermediate program that builds on the fundamental exercises previously mentioned. After eleven to twenty sessions of the fundamental program listed above, I have moved on to add more psoas strengthening, reverse knee stretch being my favorite!

**Intermediate Warm-Up:** I start with five of each of these warm up exercises: Roll Up, Spine Twist Supine, Double Leg Stretch, Single Leg Stretch, and Criss Cross. I don’t feel the gripping of my psoas, my hip flexors must be getting stronger! I add a roll down with the assistance of the long box on the reformer and a light spring tension. I push the box out with a flat back and round the spine to bring the carriage back home.

**Foot work on Reformer:** I add an additional spring.

**Abdominals:** I add Coordination to our Hundred Prep and The Hundred.

**Hip Work:** Single Leg Supine Hip work on the Cadillac will add a bigger hip extensor control challenge. We will continue to work on the hamstrings to balance their strength with the quadriceps.

**Spinal Articulation:** Add in Bottom Lift and Bottom Lift with Extensions. Always checking in with lumbar spine, but the extension in front of the hip feels great. I believe my hip extensors and hip flexors are living together more harmoniously.

**Stretches:** All done on the Ladder Barrel. Gluteals, Hamstrings, Adductors, Hip Flexors, Shoulder Stretch 1, Shoulder Stretch 2.

**Full Body Integration:** Knee Stretch Group to focus on hip extensor control and strength. Round Back, Flat Back and Reverse Knee Stretch, which is a great hip flexor strengthener.
**Arm Work:** Progress to the Arms Sitting Series on the Reformer. Practice trunk stabilization and keeping the trunk upright. Also, a great place to test, if you can sit and not have the hip flexors grab. I can do it!

**Leg Work:** Single Leg Side Series (Changes, Scissors, Circles forward and back). I will be very mindful during this series, since it is advanced. I want to focus on the hip adductors, as well as practice hip adductor control and pelvic lumbar stabilization. External rotation of hip is also important, and as I have stated, mine is limited due to a tight psoas, but improving. The Scissors will help me find the balance between the hip flexors and hip extensors, this exercise focuses on both muscles.

**Lateral Flexion/Rotation:** Side Kneeling Stretch on the Wunda Chair. This is a progression from the Side Stretch and unlocks my intercostal muscles, it feels great.

**Back Extension:** Pulling Straps 1 and Pulling Straps 2 on the Reformer. I am still working on my upper back extension and feeling it in this position. I continue to practice, as my upper back still needs strengthening. I end with a roll down to conclude our intermediate session.

In closing, it is crucial to start with exercises that will bring muscles back to their original form. Educating the client on neutral pelvis and neutral spine, is also crucial. Starting with the basics of neutral alignment will make the BASI fundamental exercises that much more effective in strengthening the abdominals, back and deep core, such as the psoas. Consistency in any program is everything. Giving the client “homework” in between sessions, gentle stretches at home, as well as the fundamental warm up exercises, to maintain strength and flexibility in between sessions can help maintain their motivation. Maintaining open communication with the client, measuring their
progress and asking if they feel improvements in their body and/or pain level, will be key to the client’s success relating to Pilates. I believe sharing your own personal story of how you came to need Pilates, the obstacles you had to overcome and explaining that self practice is key to staying strong in mind and body, will help motivate your clients to make the changes we know will benefit them.
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