THE IMPORTANCE OF THE

PSOAS MUSCLE

IN

PILATES PRACTICE

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Abstract

The following paper is based on an exploration into a crucial muscle of the body, the Psoas. This muscle & those that surround it are often blighted with tension and weakness leading to a host of ailments including back pain and poor posture.

Whilst researching all the related medical articles, and explaining the function/definition of the Psoas muscle, and combining with articles that are helping us understand how the Psoas muscle can be rehabilitated through Pilates based exercises by using effective and safe spotting techniques.

We look into how teaching Pilates at a slower pace can help to release the gripping in the Psoas that comes from the body’s stress response, by using an entire series of targeted exercises and stretches from the BASI block system.

The Psoas is a complex muscle, so I needed to come up with a programme to rebalance the Psoas, resulting in full body movement potential for my client.
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Definition of the Psoas

The Psoas muscle pronounced So-as, may be the most important muscle in the body, there may be no muscle more core than the Psoas muscle. Without this essential muscle group you wouldn’t be able to get out of bed in the morning! Christiane Northrup M.D.

The Psoas is a deep-seated core muscle connecting the lumbar vertebrae to the femur.

The Psoas major is the biggest and strongest player in a group of muscles called the hip flexors: together they contract to pull the thigh and the torso toward each other.

Medical definition of the Psoas muscle, Medical Author William C. Shiel Jr., MD, FACP, FACR.

Muscles of the lower back (the loin). There are two Psoas muscles on each side of the back.

The larger of the two is called the Psoas major and the smaller, the Psoas minor.

The Psoas major originates at the spine around the bottom of the rib cage and runs down to the thigh bone (the femur). The Psoas major acts to flex the hip.

The Psoas minor also originates at the spine around the bottom of the ribcage but it runs down to the bony pelvis. It acts to flex the lower (lumbar) spine.

The word “Psoas” is Greek for the lions, the muscle of the lower back.
**Function of the Psoas**

The function of the Psoas muscle is to connect the upper body to the lower body, the outside to the inside, the appendicular to the axial skeleton, and the front to the back, with its fascial relationship. Combined with the iliopsoas muscle, the Psoas is a major contributor of flexion of the hip joint. Unilateral contraction of the Psoas also helps with lateral motions, while bilateral contraction can help elevate the trunk from the supine position. The Psoas muscle also works in conjunction with the hip flexors to elevate the upper leg towards the body when the body is static, or pull the body towards the leg when the leg is in a fixed position.

In day-to-day life whether we walk, sit, run, dance, cycle or read a book on the couch, your Psoas muscles are connecting. The Psoas muscle is the principal connectors between your torso & your legs effecting your posture & pelvis, which in turn stabilize the spine.

The Psoas muscle is formed of both slow & fast twitching muscles as they are major flexors, weak Psoas muscle can cause the majority of surrounding muscles to compensate and become over-stretched or tight and can be the cause of many of our aches and pains involving our lower back & pelvic pain.
Your Psoas muscle are the muscles that flex your trunk forward when we bend over to pick up something from the floor. They also stabilize your trunk and your spine during movement & sitting. The types of movement which can strain your Psoas muscles include standing, poor posture and twisting from your waist without moving your feet or any movement that causes your legs to externally rotate while extended, such as ballet style leg lifts and even doing too many sit ups (your Psoas muscle completes the last half of a sit up).

The Psoas muscle supports your internal organs by working like hydraulic pumps allowing blood and lymph to be pushed in and out of every cell in the body. It creates a muscular shelf on which the kidneys and adrenals rest.

The Psoas muscles are vital, not only for your overall wellbeing of your structure, but also for your psychological wellbeing because of the connection to your breath.

The Psoas helps in moving and stabilising the body which in turn facilitates the breath.

Where the Psoas muscles attach, there are two tendons for the diaphragm called the Crura that extend down and connect to the spine. One of the ligaments (medial arcuate) wraps around the top of each Psoas. Also, the diaphragm and the Psoas muscles are connected through fascia that also connects the other hip muscles.
These connections between the Psoas muscle and the diaphragm literally connect your ability to walk and breath, and also how you respond to your fear and excitement (central nervous system) that’s because, when you are startled or under stress, your Psoas contracts.

The Psoas is so intimately involved in such basic physical and emotional reactions, that a chronically tightened Psoas continually signals your body that you’re in danger, eventually exhausting the adrenal glands and depleting the immune system. In other words, your Psoas has a direct influence on your fight or flight response!
Anatomy of Psoas Muscle

Your Psoas muscles are the deepest muscles in your core. They attach at the bottom of the thoracic spine, 12th thoracic vertebrae to your 5th lumbar vertebrae, through the pelvic bowl, down over the front of the hip joint and attaches at the top of the femur. In fact, they are the only muscles that connect your spine to your legs. Your Psoas muscle allows you to bend your hips and legs towards your chest, for example when you are going up stairs, they also help to move your leg forward when you walk or run.
The Psoas major muscle has a different size: the superior portions are smaller in diameter than the inferior portion and are located more posterior to the axes of flexion-extension of the lumbar segment. The muscle is more substantial on the side of the dominant leg at all four vertebral levels measured. Studies on subjects who reported current low back pain, were found to have larger Psoas muscles when compared with pain-free control subjects with smaller cross-sectional area.

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PILATES & THE PSOAS MUSCLE

In Pilates, the core is our powerhouse, providing us stability and enabling us to move our body more efficiently. Pilates is a fantastic way to learn how to correct muscle imbalances that we have inflicted on our bodies through years of abuse.

When we think about the muscles in our core, there may be no muscle more core than the Psoas muscle. The Psoas is not like many of the surface muscles we are familiar with. We can't see it, and most of us can't flex or release it at will, as we might a quad or bicep. It is a deep muscle, involved in complex moves through the core and lower part of the body.

The Psoas also promotes good posture along with a coordinated team of core muscles – Abdominals, Transverse Abs, Obliques, lower back the Psoas helps stabilize your Powerhouse and Pelvis. If the muscle is compromised, either by injury or tightness, it inhibits movement bringing pain.

Pilates exercises for Psoas pain should include both the stretching of the muscles in the lower back and strengthening the muscles that support the pelvic floor, deep upper & lower abdominals. The key is to help your client understand and learn stabilization, as these muscles are our powerhouse providing stability for the whole lumbar-pelvic region. A neutral spine is the first focus – to work to stabilize your pelvis (hips) including the sacrum in proper alignment.
Since the Psoas is a muscle of flexion, exercises that incorporate those kinds of moves are said to strengthen it, when the leg is in a fixed position, the Psoas helps flex the torso. A Pilate’s chest lift/roll-up would be an example of such a move, as pictured above. When the torso is fixed, the Psoas helps bring the thigh to the torso. Every time you lift your knee, the Psoas contracts. When your leg swings back, the Psoas lengthens.
CASE STUDY

Client: Jack McEvoy

Occupation: Inter County footballer (Under 20’s)

Age: 19 years old

Gender: Male

Issues/Ailments: Lower back pain, tight hamstrings & stiff hips.

Client suffers from over-training, tight hamstrings, thoracic tightness resulting in rounded shoulders and weak abdominals.

Reasons for conditioning programme: Physio Therapist referral recommending Pilates for strength & conditioning.

Goals: To build core strength & improve overall flexibility throughout the body by relieving tight hamstrings, in turn releasing tension and tightness throughout the body but paying particular attention to the lower back.
CONDITIONING PROGRAMME USING THE BASI BLOCK SYSTEM

**WARM UP:** Roll downs (to assess the body, alignment & posture)

Pelvic curl (to establish neutral pelvis, alignment & spinal articulation)

Spine twist supine

Chest lift

Chest lift with rotation

I felt that by doing the footwork on the Cadi it gave Jack more control, stabilization of the pelvic lumbar region and we started in a modified version a little less than 90 degree angle to establish more length, progressing to 90 degrees. My objectives were to stretch & strengthen the hamstrings, work into building strength in the knee extensors, while also focusing on pelvic lumbar stabilisation and correcting foot alignment & creating stabilisation in this area.

**FOOTWORK: (Cadi)**

Parallel Heels / Toes

V position Toes

Wide open V-heels & Toes

Calf Raises

Prances

Single leg Heel /Toes
AB WORK: (Cadi) Roll Up with RUBar - Modify to dorsi flexion with heels pressing up against the poles which enables Jack to open up from the Psoas/hip joint. Working to maintain abdominal control & trunk stabilisation.

Progress to Roll Up Top loaded - Working on abdominal strength & shoulder Strength & Stretch.

HIP WORK: (Cadi) In the hip section we worked on strengthening & stretching the hip adductors, hip extensors & hamstrings while maintaining pelvic lumbar stabilisation.

Frog

Circles (Down & Up)

Openings

Progressing to Extended frog & extended frog reverse

SPINAL ART.: (Cadi)

Tower Prep - Focusing on hamstring stretch & control with greater spinal mobility.

Progressing to Monkey original

STRETCHES: In this section my client felt the benefits of stretching the different muscle groups - hamstrings, gluteal, adductors & the hip flexors.

(Barrel) Gluteal, Hamstrings, Adductors, Hip Flexors.
(Reformer)  Standing lunge (Hamstring Stretch Group) - Focusing on a greater Hip flexor & hamstring stretch.

F.B.I. (cadi)  Sitting forward - Focusing on abdominal strength, stretching the hamstrings & improving spinal mobility.

Side Reach - Working on creating abdominal control while stretching the obliques & shoulder adductors.

ARM WORK:

(Cadi)  Standing Arm Series - to maintain ideal posture & alignment, trunk stabilization & creating shoulder extensor strength while increasing ROM in the shoulder joint.

F.B.I. A/M  -

LEG WORK:

(Reformer)  Side splits - Maintaining pelvic lumbar stabilization while strengthening & stretching the Hip adductors (Psoas works as stabilizer)

LAT. FLEX/ROTATION:

(Wunda Chair)  Side Stretch - Focusing on the abdominals & obliques strength while stretching the lateral flexors.

Progressing to Side over on reformer.
BACK EXTENTION: (Wunda chair)  Swan Basic - The muscle focus is the back extensors, so we worked on good abdominal control & strength, scapulae stabilisation & back extensor strength.

(Progressing to full Swan)

I always concluded each session with 2/3 standing roll downs to assess any changes & evaluate how my client responded to his practice.
Conclusion

Overall my Client responded very well to the BASI Pilates programme I compiled for him and he felt an improvement after each full body workout.

He became more body aware and his posture had improved from working on a deeper core connection - he felt less back pain after each session.

Initially, Jack had very tight hamstrings as is very common with a lot of sports people and in this case footballers, so we focused more on stretching his hip flexors & the lower back which correctly aligned his pelvis, then in turn took the pressure off his hamstrings.

With a guided structured Pilates programme over a 12-week period practicing twice a week and a stretching programme done at home; my client felt much stronger throughout his body but particularly in his lower back alleviating any lower back issues he had previously experienced.

To conclude my client felt a profound improvement in his overall well-being with greater strength and flexibility throughout his whole body, which allowed for better Range of Motion which improved his lifestyle but, in particular had a profound effect on his footballing performance.
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