

## Last but not least... The Psoas!

When looking in the index of anatomy books to locate the psoas muscle, one is often advised to look instead under "iliopsoas". And once there, there is unanimous consensus in describing the iliopsoas as the strongest among the hip flexors, a group of muscles primarily responsible for the lifting of the upper leg towards the trunk or pulling the upper body towards the legs.

And yet, independently of its association with the iliacus (a fan-shaped muscle lining the inside of each hip bone as illustrated in Figure 1.41 with the label "3"), the psoas deserves to be mentioned among the core muscles. It is a massive muscle located along the sides of the spine (labeled "1" and "2" in Figure 1.41,) connecting spine to lower limbs, involved in stability, standing, walking, a variety of diverse bodily functions and considered by some authors as the body's deepest and most important axis.

Liz Koch is the author of "*The Psoas Book*" in which she expands on the importance of this muscle. In a thorough and thought provoking article Liz Koch describes:

*"A bridge linking the trunk to the legs, the psoas is critical for balanced alignment, proper joint rotation, and full muscular range of motion. In yoga, the psoas plays an important role in every asana."*

(<http://www.yogajournal.com/practice/170>)

There is often reference to a "psoas major" and a "psoas minor" muscle, both performing different actions. Figure 1.41 shows how intimate their connection is, with "1" identifying psoas major and "2" indicating the location of the psoas minor. In spite of this traditional differentiation, it has been established that the psoas minor is slowly disappearing in upright species and is already absent in more than 50% of humans.



Fig. 1.41: Location of the psoas and iliacus muscles.

*Adapted from Gray's Anatomy, Plate #430*

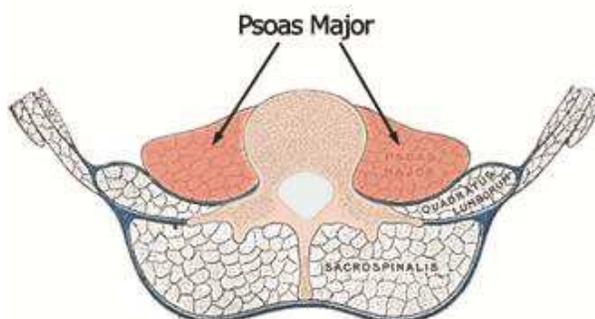


Fig. 1.42: Gray's Anatomy, Plate #388

Figure 1.42 shows the same transversal cut of the spine as described previously for Fig. 1.30. The location of the psoas muscles is indicated.

As can be seen, the psoas is deeply buried in the body, closely connected to the spine and surrounding the lateral parts of the vertebral bodies.

As also illustrated in Figure 1.43 the psoas originates over a large segment of the spine: the transverse processes of all the lumbar vertebrae (L1 to L5), attaching also to the sides of the vertebral bodies and inter-vertebral discs from the fifth lumbar to the lowest thoracic vertebra T12.

From this very deep interior attachment, the muscles transverse diagonally through the pelvis towards the front of the body, passing over the ball and socket of the hip joints, inserting at the inner side of the lesser trochanter of the femur bone as indicated in Figure 1.43.

The psoas is a typical postural muscle dominated by slow-twitch fibers. It flexes the trunk towards the lower limbs, or the thighs towards the upper body. If only one side engages, it can bend the trunk side-ways.



Fig. 1.43: A diagrammatic representation of the psoas, indicating its origin and insertion points.

Anatomography  
(From Wikimedia Commons)

In the words of Liz Koch, *"It supports the free swing of the leg in walking and plays an important role in transferring weight through the trunk into the legs and feet. More importantly, it is a **tensile structure**; a guide wire that stabilizes the spine... The psoas muscle supports the spine as guide wires support a main tent pole."* (In *"The Psoas Book"* pg 27.)



Fig. 1.44

Similar images are the way guide or guy wires support a radio or TV antenna, or the mast of a boat in its vertical position. The antenna or mast will stay upright if the tension of the wires **on all sides** is balanced.

In high quality X-rays it is sometimes possible to barely distinguish as "shadows" the position of the psoas muscles. On the other hand, a computed axial tomography (CAT or CT scan) takes multiple cross-section X-ray images and combines them to generate a single picture that offers a clearer representation of organs, bone, soft tissue, blood vessels, etc. Such an image is shown in Figure 1.44, where white arrows highlight the positions of the psoas in a CT scan.

Figure 1.43 and the CT scan image of Figure 1.44 illustrate why one of the important roles of the psoas muscles in standing is providing stability to the spine and why it is essential to ensure the functionality of these muscles and their balanced performance on both sides of the body.