

# ESSENTIAL ANATOMY

## Hip Muscles

Deep

Superficial

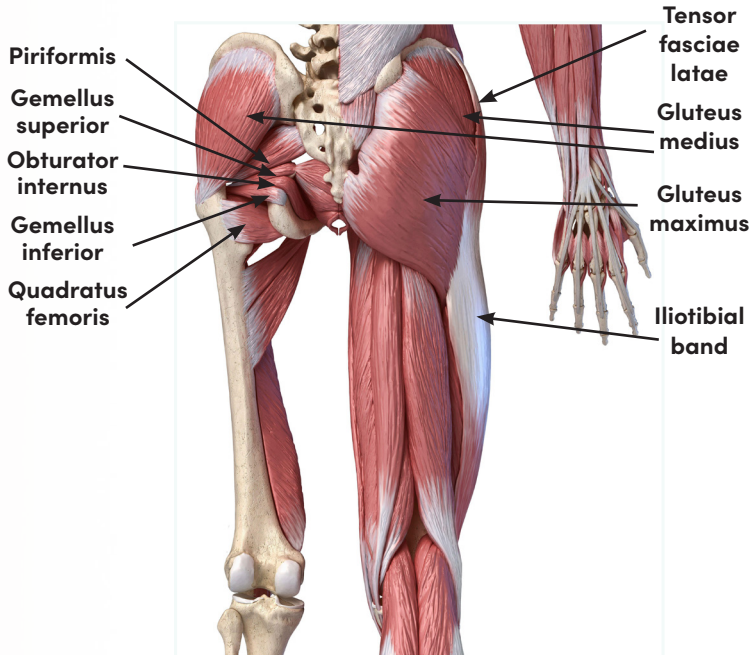


Figure 3-4-11

## Abdominal Muscles

Superficial

Deep

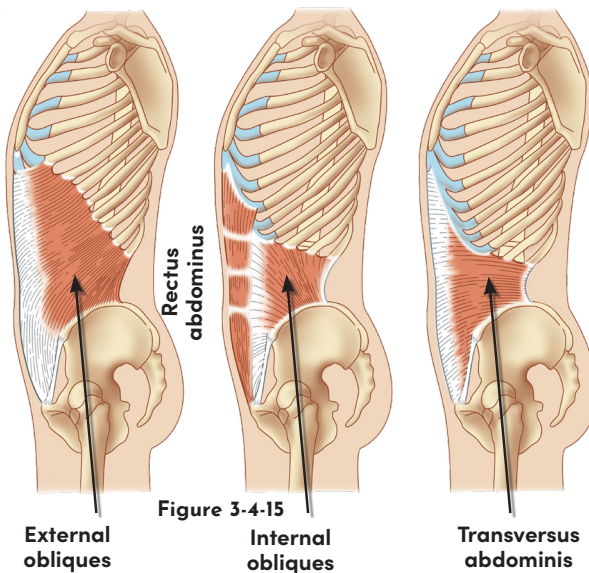


Figure 3-4-15

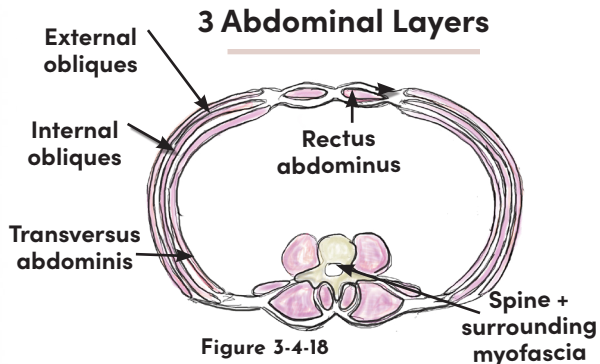


Figure 3-4-18

## Hip Rotation

Internal hip rotation

External hip



Figure 3-4-12



Figure 3-4-13

Internal hip rotation refers to the movement of the thigh bone (femur) as it rotates **inward** toward the midline of the body.

Also known as **medial hip rotation**.



External hip rotation refers to the movement of the thigh bone (femur) as it rotates **outward** away from the midline of the body.

Also known as **lateral hip rotation**.

## Hip Abduction

## Hip Adduction

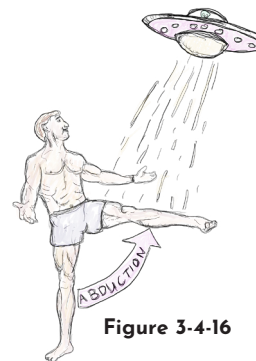


Figure 3-4-16

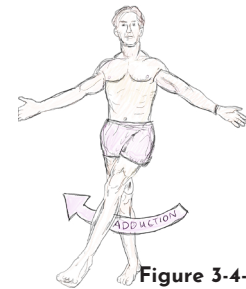


Figure 3-4-17

The **hip abducting** myofascia we want to stretch in a LSBS are the gluteus medius, minimus, and maximus; the tensor fasciae latae (TFL); sartorius; piriformis; superior and inferior gemellus; obturator internus; and quadratus femoris. Five main adductor muscles **adduct** the hip.

## Knee Flexion & Extension

## Hip Flexion & Extension

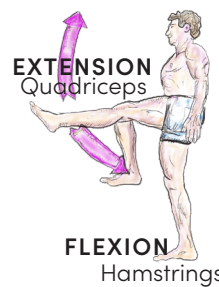


Figure 3-4-19

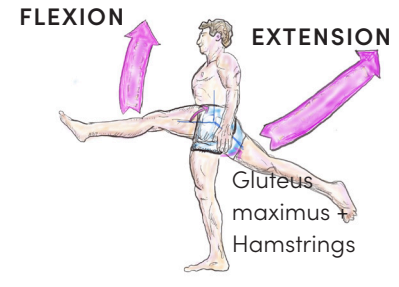


Figure 3-4-20

## Obliques: 3 Anatomical Movements

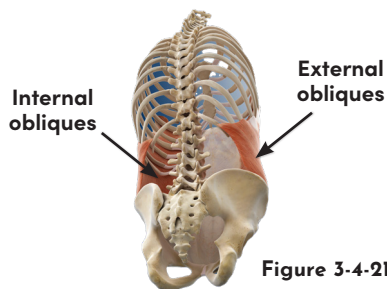
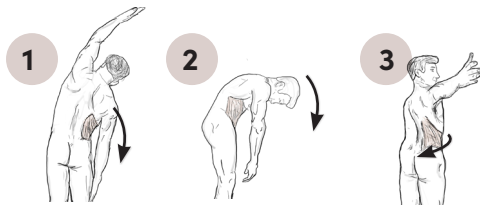


Figure 3-4-21



- 1 lateral spinal flexion when one side fires
- 2 spinal flexion when both sides fire
- 3 spinal rotation when internal obliques fire on one side & external on the other

### Obliques Create Spinal Rotation



The white arrow indicates how obliques create to rotate the spine

The blue arrow shows how oblique flexibility is required for spine rotation

Figure 3-4-22

Whether twisting the spine to strike a golf ball or in yoga, the obliques are the main players



### Lateral Side Body Stretches De-Prioritize

- Twisting spine to your maximum end range
- Aligning arms or shoulders with walls
- Creating unnecessary spinal flexion as you rotate the spine
- Binding the hands or reaching for the floor when it creates excessive compression in your joints

Asana Deep Knowledge

## The Obliques

Look to **Figure 3-4-15** to see the three abdominal layers from the side (sagittal) view. In **Figure 3-4-16** you see the top-down, superior view of these three abdominal layers. From deep to superficial, they are the transverse abdominis, the internal oblique, and the external oblique.

In a world obsessed with aesthetics, it is easy to think of the abdominals only in relation to core strength, but they also have three more important roles: to *bend the spine forward and to the side* and to *rotate the spine and trunk*.

When the obliques, transverse abdominis, and, to some degree, the rectus abdominis all fire on one side unilaterally, they create a *side bend*, or lateral flexion. When both the left and right sides fire together, they pull the spine into *flexion*. Lastly, the obliques are very important for *spinal rotation*. If the golfer in **Figure 3-4-22** can understand the function of the obliques to create the spiraling rotation necessary for driving power, it will help their game immeasurably.

### The Obliques Are Important Steering Wheels for Our Spines

A key point to help us understand Lateral Side Body Stretches is that the obliques are the primary muscles that create spinal twists. To generate trunk rotation, the internal and external obliques work synergistically with the transversus abdominis, erector spinae, quadratus lumborum, and multifidus muscles. We can't talk about twisting without them.

Lastly, because the obliques create **1** side bends (lateral flexion) and **2** forward bends (spinal flexion), notice that in **Figure 3-4-23**, the spine is bending forward and to the side, removing the tension on the obliques. This allows the bottom right hand to touch the floor, but the **obliques are not being stretched**. They are taking the path of least resistance to avoid the stretch.

By contrast, **Figure 3-4-24** **elongates the obliques** and creates a more precise stretch on them. This allows for more stability and disperses the load on the spine during a twist.

### De-Prioritize Twisting Spine Without Support of Lateral Side Body

As we progress through this section, you will see that a common approach to twisting poses is to allow lateral and front-body flexion by removing tension from the LSBS DUO lines.

The most common way to remove this tension is to let the pelvis passively hike toward the right shoulder, like **Figure 3-4-23**. Creating this **1** side bend eliminates the tension from the oblique myofascia. However, in the process, we also remove the space, stability, and stretch of DUO.

In the coming pages, you will see that pressing the right hip back and inward, like **Figure 3-4-24**, is a better stretch and an intelligent way to create spinal rotation.

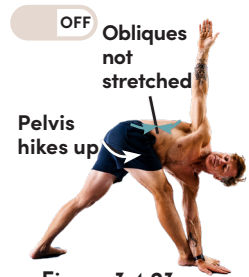


Figure 3-4-23



Figure 3-4-24

LATERAL SIDE BODY STRETCH