

Pilates & Corrective Exercise

Core Stabilising Muscles and Core Strength

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Aim:

- To provide the Pilates instructor with the knowledge and detailed understanding of the core stabilising muscles and core strength

Duration

- 1.5 hours

Core Stabilising Muscles & Core Strength

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Objectives:

- To identify core stabilising muscles
- To demonstrate detailed understanding of the importance of core strength

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Learning Outcomes

At the end of this session you will be able to:

- Describe the core and its role in stabilization.
- Identify the core stabilising muscles.
- Identify inner and outer unit muscles.
- Demonstrate an understanding of the importance of core strength.

Core Stabilising Muscles & Core Strength

What is the core?

- The core of your body is simply everything between the shoulders and hips
- The core is a crucial group of muscles, not only for sports but for normal daily life activities, it comes into play every time you move
- The core acts to produce force
- Where all movement begins and is the body's centre of gravity

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What is Core Stability

- Core stability is the effective use of the core muscles to help stabilize the spine, allowing your limbs to move more freely
- Good core stability means you can keep your mid-section rigid without forces such as gravity affecting your movements.
- The positive effect of this include reducing the chance of injury, better posture, greater flexibility and improved coordination & balance

Core Stabilising Muscles

- The muscles of the core are divided into two Categories.
- The Stabilisation system also know as the **Inner Unit muscles**
- The Movement system also called the **outer Unit muscles**
- Also called intrinsic muscles (slow twitch)

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Identifying the Core Muscles

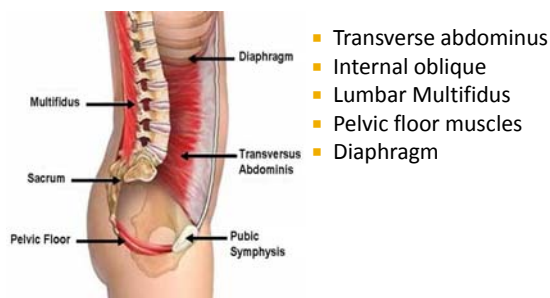
The muscles you need to know about for improving stability are those that are arranged around your torso

The inner core muscles

- **The Diaphragm:** Your primary breathing muscle attached to the lower ribs and spine
- **The Pelvic Floor:** Attached to the bony ring of the pelvis from the tailbone to the pubic bone (sit bones)
- **The Lumbar multifidus:** Deep in the lower back
- **The Transverse abdominis:** The deepest layer of the abdominal muscle

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The Inner Unit Muscles



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The Outer Unit Muscles

- Erector spinae
- Latissimus Dorsi
- Iliopsoas
- Hamstrings
- Rectus Abdominus
- External Obliques
- **Hip adductors**
 - Adductor Magnus
 - Adductor Longus
 - Adductor Brevis
 - Gracilis
 - Pectineus
- **Hip abductors**
 - Gluteus Minimus
 - Gluteus Medius
 - TFL

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The Outer Unit (Movement System)

The outer unit have an important stability function when the body is under load (lifting weight) or during high speed movement.

The outer unit controls the range:

- Motion
- Generates movement
- Provides stability
- Also called extrinsic muscle ---- fast twitch

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Kinetic chain

- The "Chain" that these term refer to is the Kinetic Chain ,which simply means that all of your bones and muscles are connected in a "Chain" and therefore the movement you make are also part of a kinetic chain
- **Kinetic Chain:** The joints that are involved in the movement of a limb.

Open Kinetic Chain

- Open Kinetic Chain: When the distal segment of a limb is mobile and not fixed {when your hand or foot is free to move} These types of movement tend to isolate a single muscle group and a single joint.
- Example: The one joint involved during a leg extension is the knee and the muscle it isolates is the quadriceps

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Closed Kinetic Chain

- Closed Kinetic Chain: When the distal segment of a limb is stabilised or fixed .
- During these movements, your hands or feet are in constant fixed position, they do not move {usually on the floor} during the exercise
- Closed chain exercises work multiple joints and multiple muscles groups at once

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So Why does this matter ???

- Closed chain exercises better mimic activities of daily living, which means they improve your functional fitness
- They are great for athletes too ,since sports require multiple joint & muscle movement to happen at once
- Very few movements in every day life or in athletics isolate joints & muscles like open chain exercises do

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CONT

- Closed chain exercises work many muscles groups at once. that's great for the reasons given but also because you get greater benefit in less time
- Closed chain exercise are safer for your joints – especially the knee joint ,which is very vulnerable

Thoraco-Lumbar Fascia

- Also known as TLF
- Plays an essential role in the functional stability of the lumbar spine.
- splits into 3 layers
 - Anterior
 - Middle
 - Posterior

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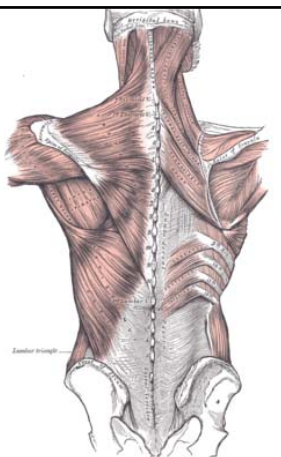
Thoraco-Lumbar Fascia

- Encloses the deep muscles of the back
- Thin and transparent over the thoracic region
- Thick and strong in the lumbar region

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Thoracolumbar Fascia

- Superficial muscles of the back (pink area)
- Thoracolumbar fascia is the grey area of bottom centre



To summarise.....

- The Core and its role in stabilisation
- The core stabilising muscles
- Inner and outer unit muscles
- Acquired an understanding of the importance of core strength

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