BODY WORKS SPORTS PHYSIOTHERAPY

PRESENTS

CORE STRENGTH, FUNDAMENTAL MOVEMENT & GOLF MECHANICS

Capilano Golf Club
July 7, 2014

WHO ARE WE?

bodyworks
SPORTS PHYSIOTHERAPY
working to keep you moving

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WHAT DO WE DO?

We are a small intimate physiotherapy clinic providing one on one physiotherapy services in North Vancouver.

We have extensive experience in assessing how your body moves and how to retrain better movement patterns.

We have years of sporting experience at various events, such as:

- Vancouver 2010 Olympics Short Track Speed Skating,
- Women's National Soccer team,
- Men's volleyball, Men's baseball,
- hockey and figure skating to mention a few.

We apply our experience in sports and body movement to help create sport specific assessment, treatment, exercise prescription and education to address your specific needs.

We are happy to come today to talk with you about the wonderful game of golf!

CORE STRENGTH AND FUNDAMENTAL MOVEMENT

OUTLINE

1. What is the Core?
2. How Does the Core Function?
3. Let's Try!
4. How Pain Changes Movement
5. Performance Pyramids
6. What is Fundamental Movement?
7. Fundamental Movement Patterns for Golfers

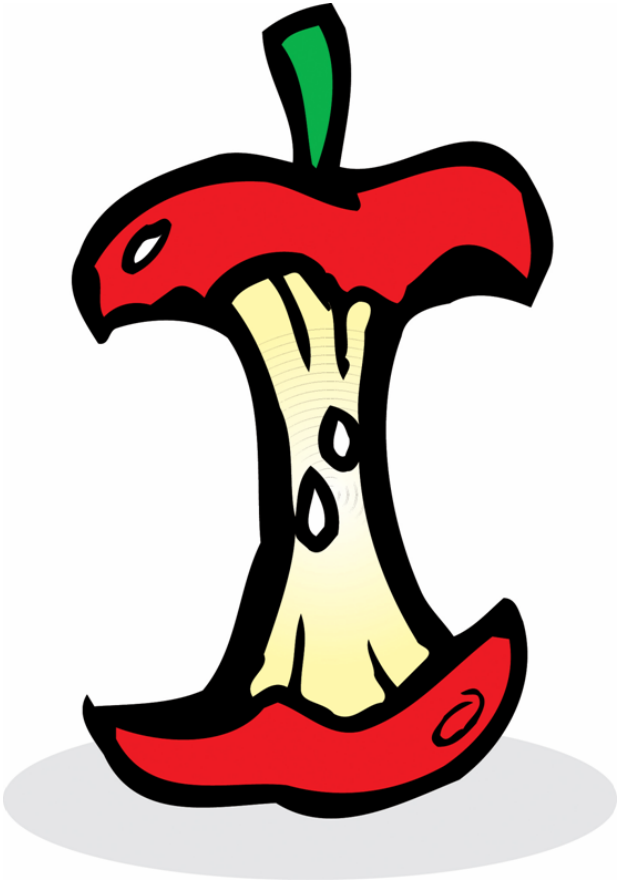
WHAT IS THE CORE?

The Myth of the Core revealed! It's not all about the six pack and planks!

Core has many and often conflicting definitions.

"The Core" can be thought of as anything between the arms and the legs

What do you think "The Core" consists of?



WHAT IS THE CORE?

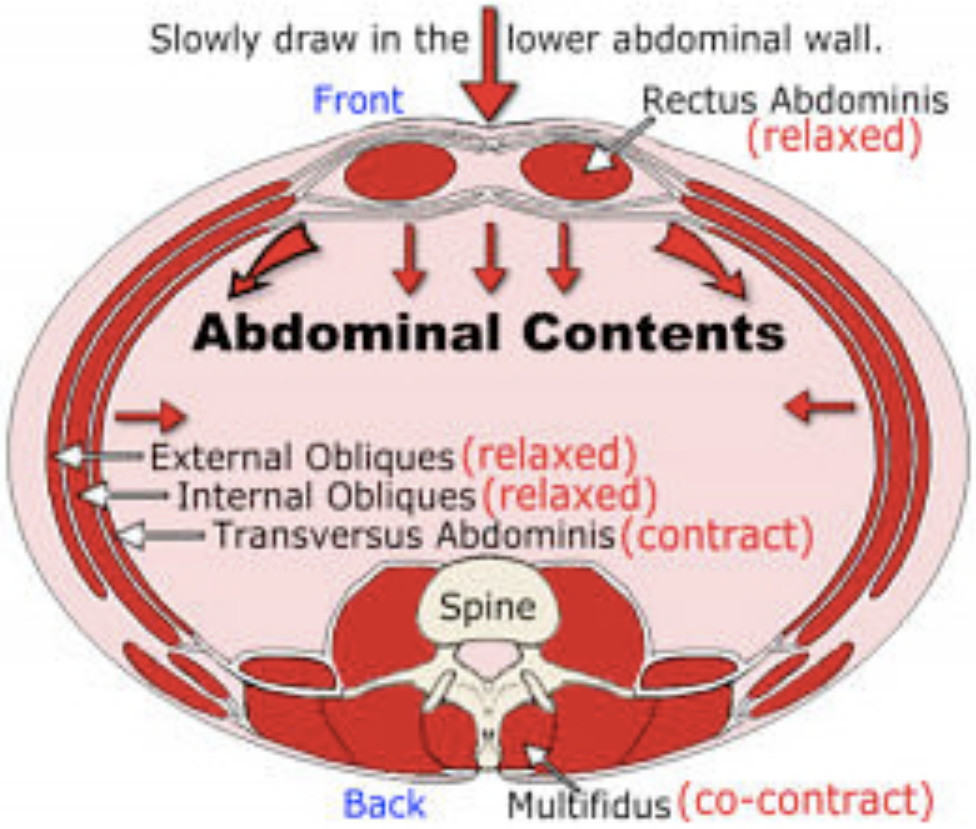
"The Core" has a variety of components that serve different functions, such as:

1. The Spine
2. The Connective Tissue and Fascia
3. The Core Musculature

WHAT IS THE CORE? – THE SPINE

The spine is an extremely important component of our body.

The spine is at the center of our body and is paramount for all human movement.

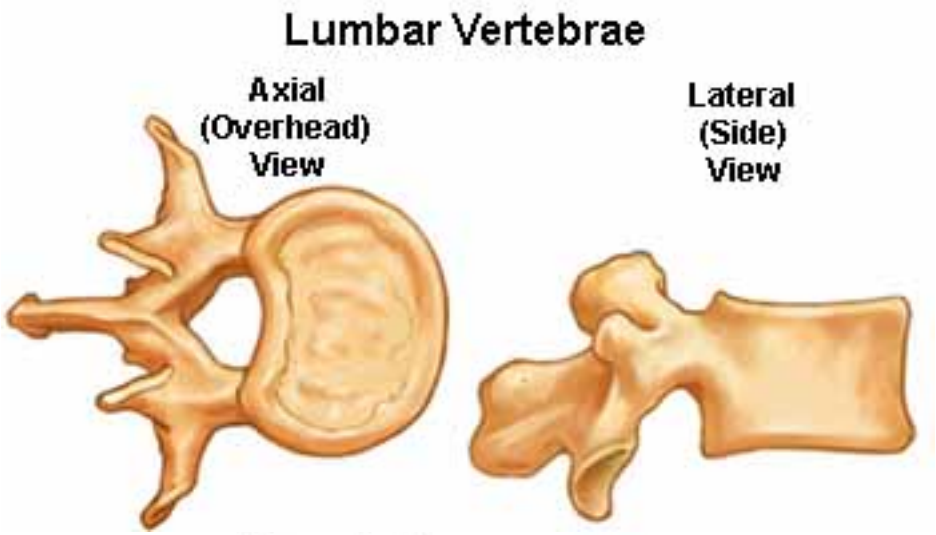


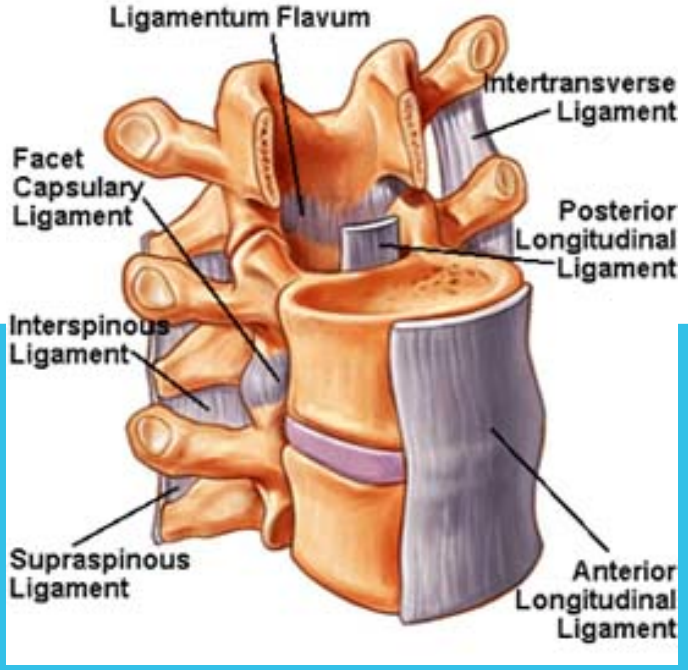
WHAT IS THE CORE? – THE SPINE

The spine consists of various components to help it maintain it's structural integrity.

Namely, the spine consists of:

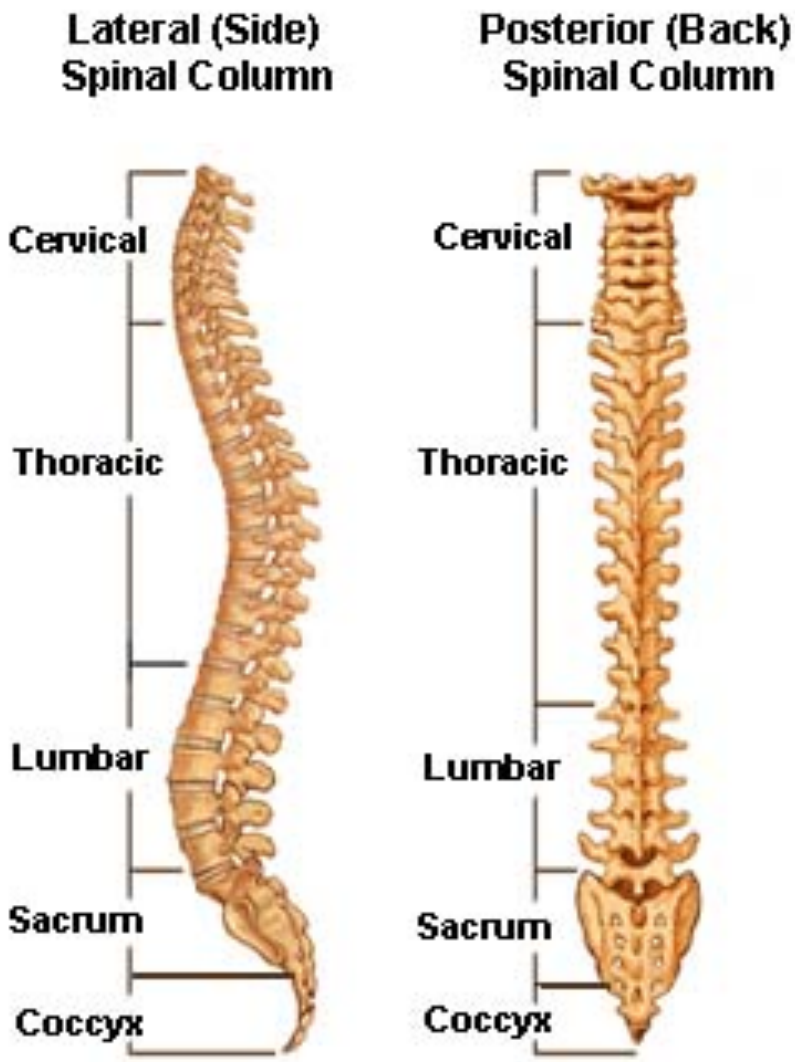
1. The vertebrae (bones)
2. The Intervertebral Discs
3. The Spinal Ligaments
4. The Spinal Joints





WHAT IS THE CORE? – THE SPINE

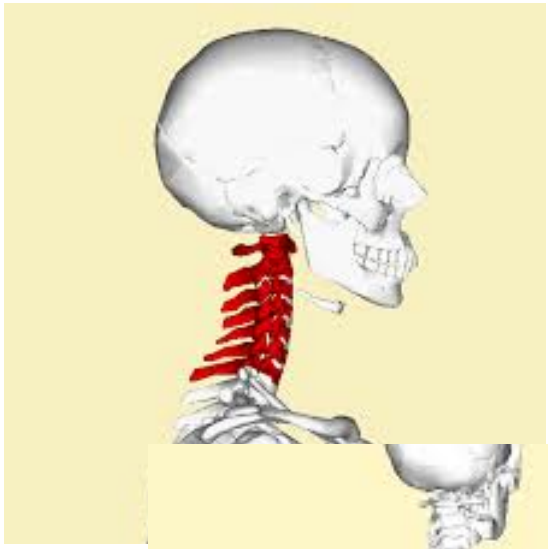
The spine shape and structure changes throughout different regions to allow different kinds of movement and load.

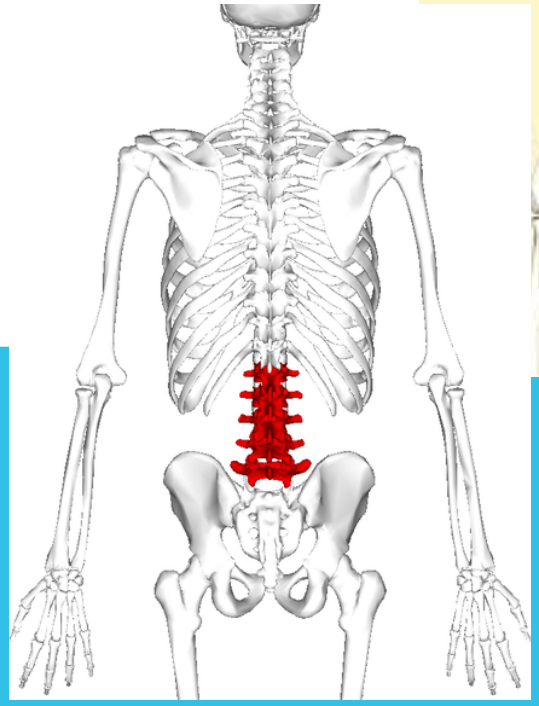


WHAT IS THE CORE? – THE SPINE

The different regions of the spine are:

1. Cervical Spine – needs to be mobile but also needs to be stable to protect vital structures and support head
2. Thoracic Spine – lots of rotation occurs here and most joints of any part of our spine
3. Lumbar spine – very stable, built to tolerate compressive loads





WHAT IS THE CORE? – THE SPINE

Throughout the body there is changing needs of stability and mobility, and these need to be coordinated:

Arm/Shoulders – Mobility

Cervical – Stability

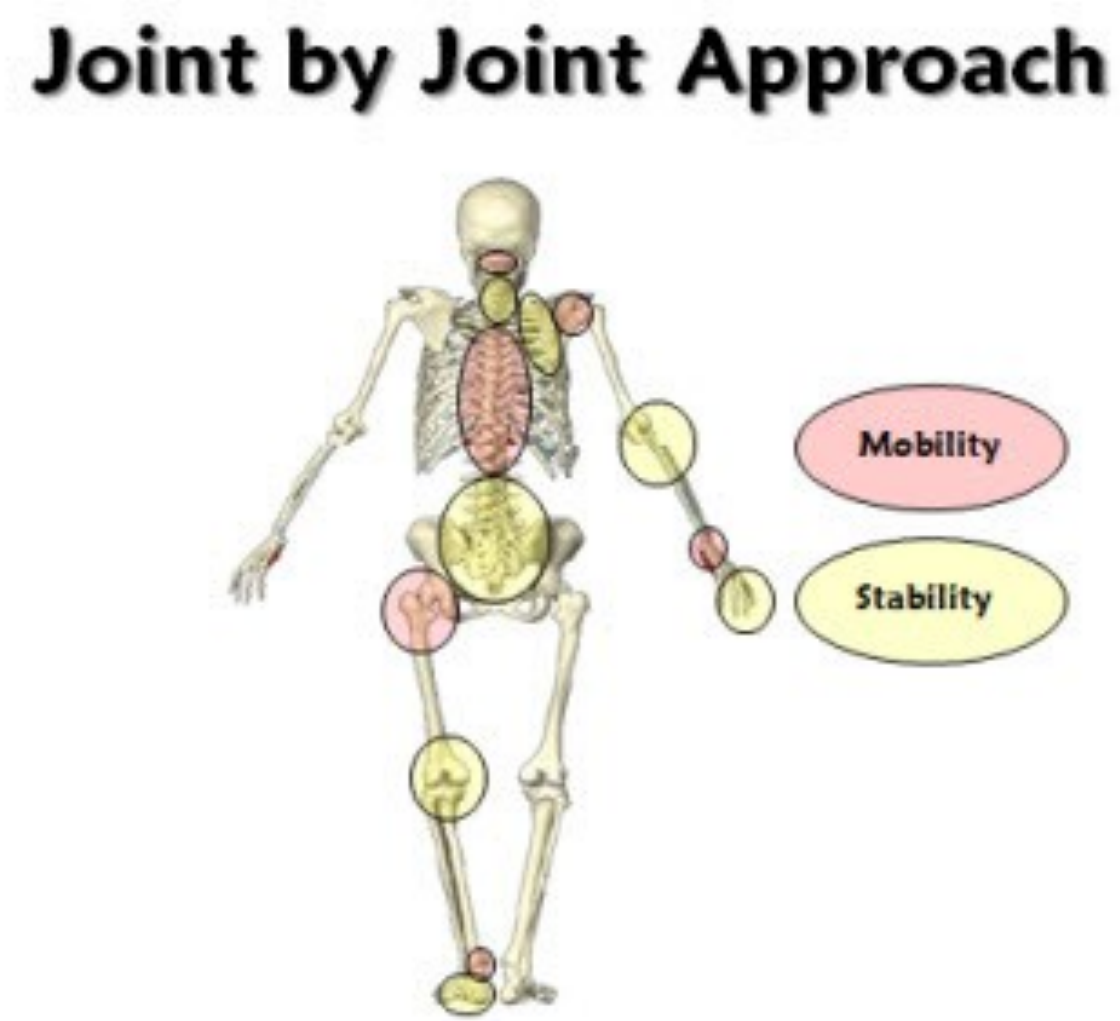
Thoracic – Mobility

Lumbar – Stability

Hips – Mobility

Knees – Stability

Ankle/Foot - Mobility

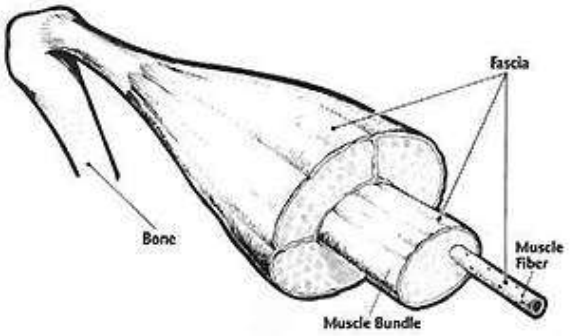


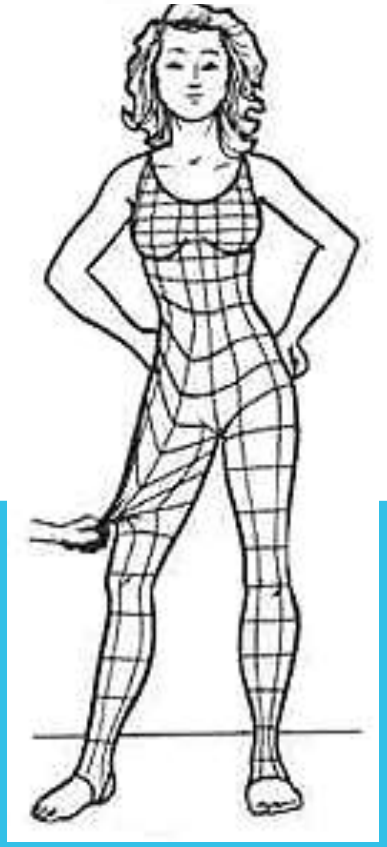
WHAT IS THE CORE? – CONNECTIVE TISSUE AND FASCIA

Any tissue in the body that has a connecting function is considered to be connective tissue. Tendons, ligaments, and even blood are connective tissue.

Fascia is thick, fibrous connective tissue that connects varying structures in our body and covers muscles.

All parts of the body are covered in fascia and they important for transferring loads from one area to another.



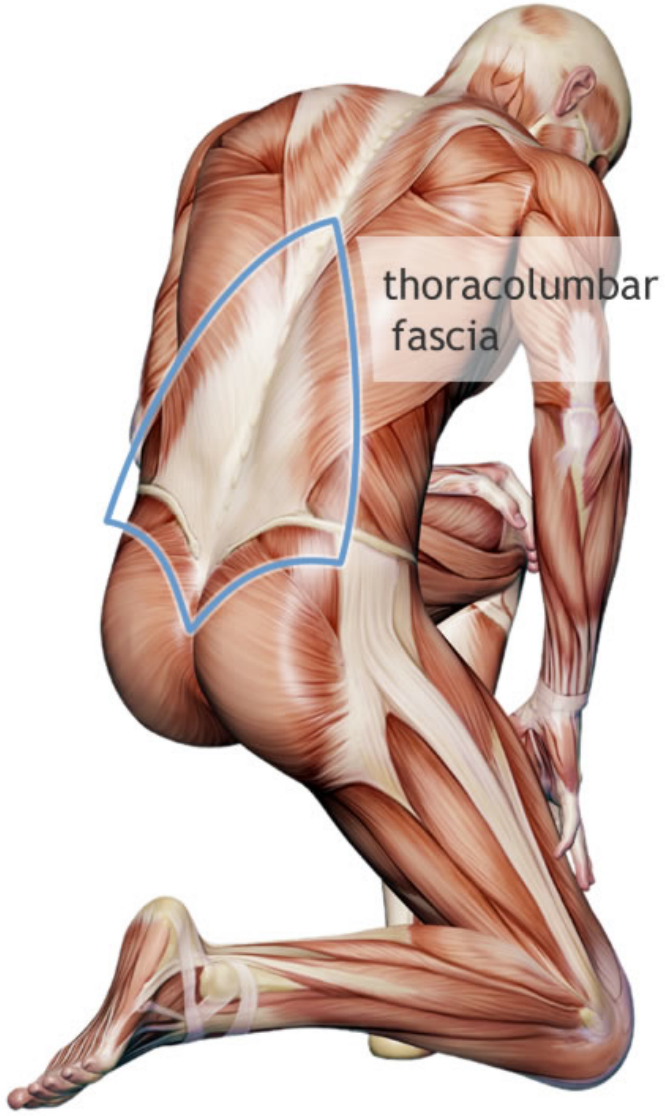


WHAT IS THE CORE? – CONNECTIVE TISSUE AND FASCIA

Examples of important fascia in the body are:

- Thoraco-lumbar fascia
- Iliotibial band

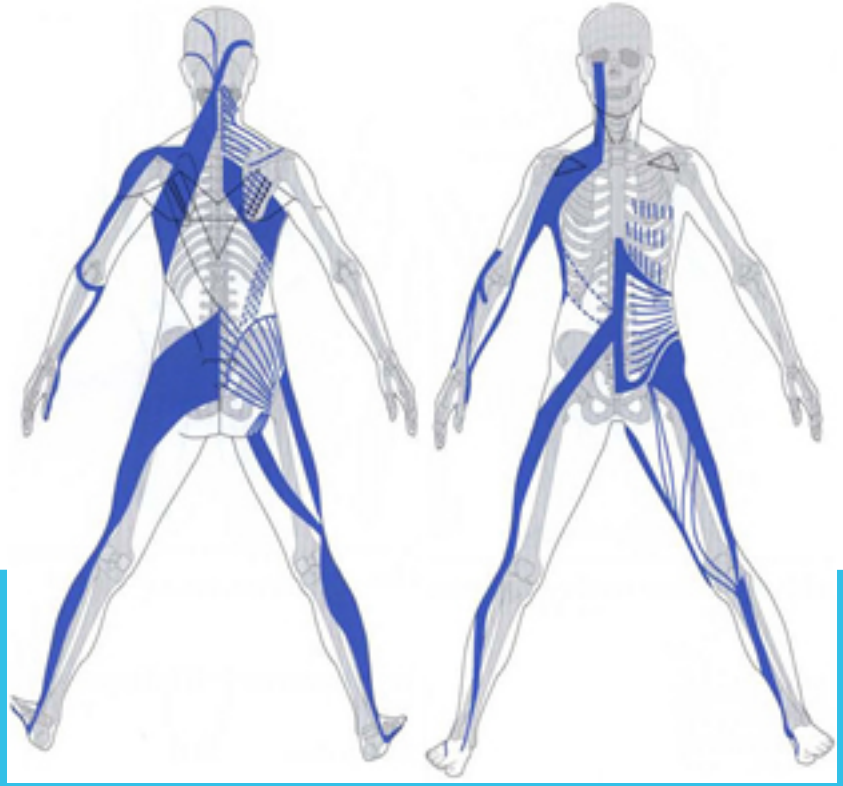
They are often connected throughout our body in what are called “fascial lines”



WHAT IS THE CORE? – THE FASCIA

The fascia in our body is connected in what are called “fascial lines” or anatomy chains. This is one way tightness or dysfunction in one area can impact another area of the body.

- Superficial Back Line
- Lateral Line
- Leg/Jump Rope Line
- Arm Line
- Leg Line
- Deep Front Line

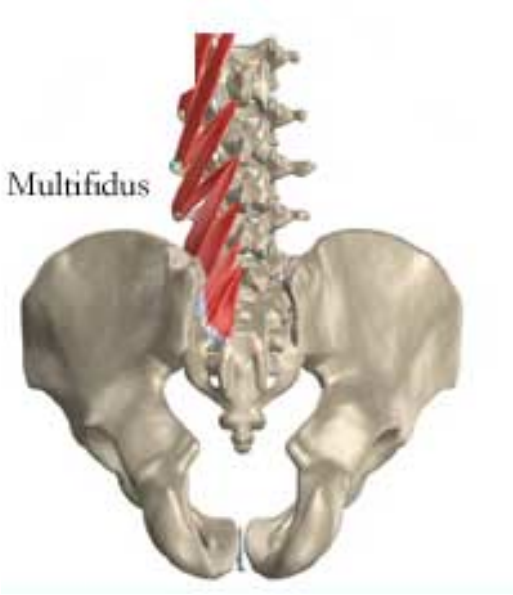


WHAT IS THE CORE? – THE MUSCLES

The muscles of the core are numerous, and often misunderstood.

There are a variety of muscles that have a variety of functions:

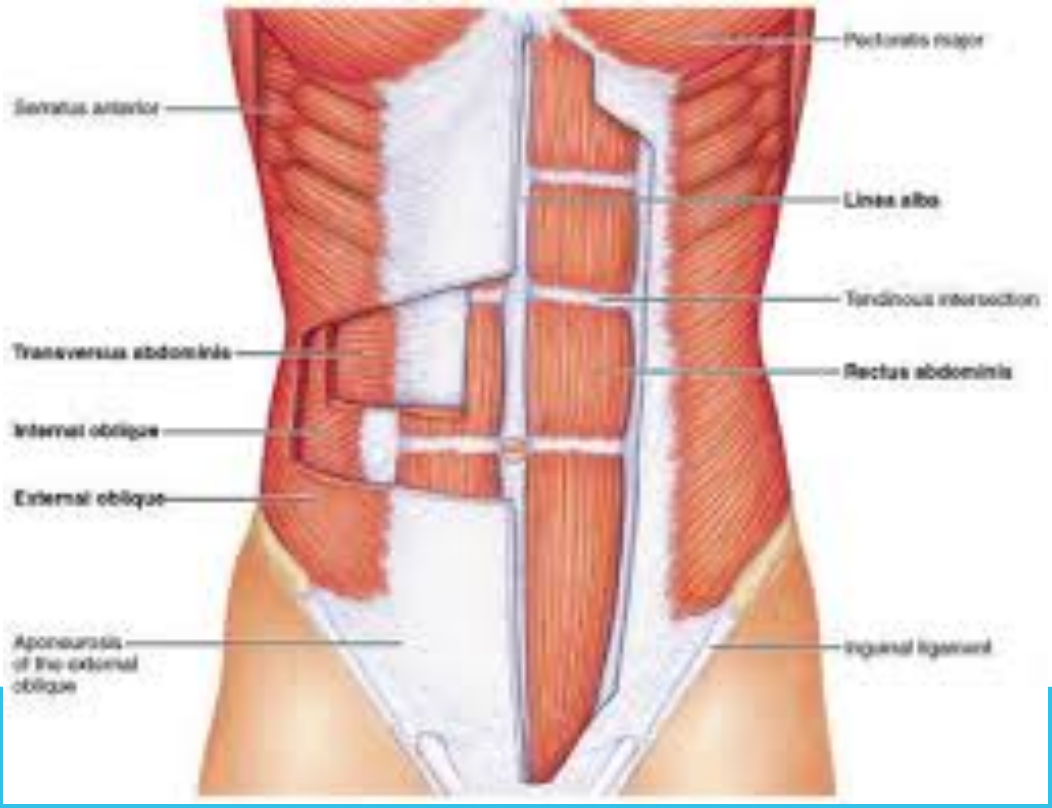
- some are small stabilizing muscles only meant to control movement between two vertebrae
- some are large muscles that cross a large area that transmit force from the legs to the arms or vice versa



WHAT IS THE CORE? – THE MUSCLES

The core musculature can be broken down into:

- The Inner unit and
- The Outer unit

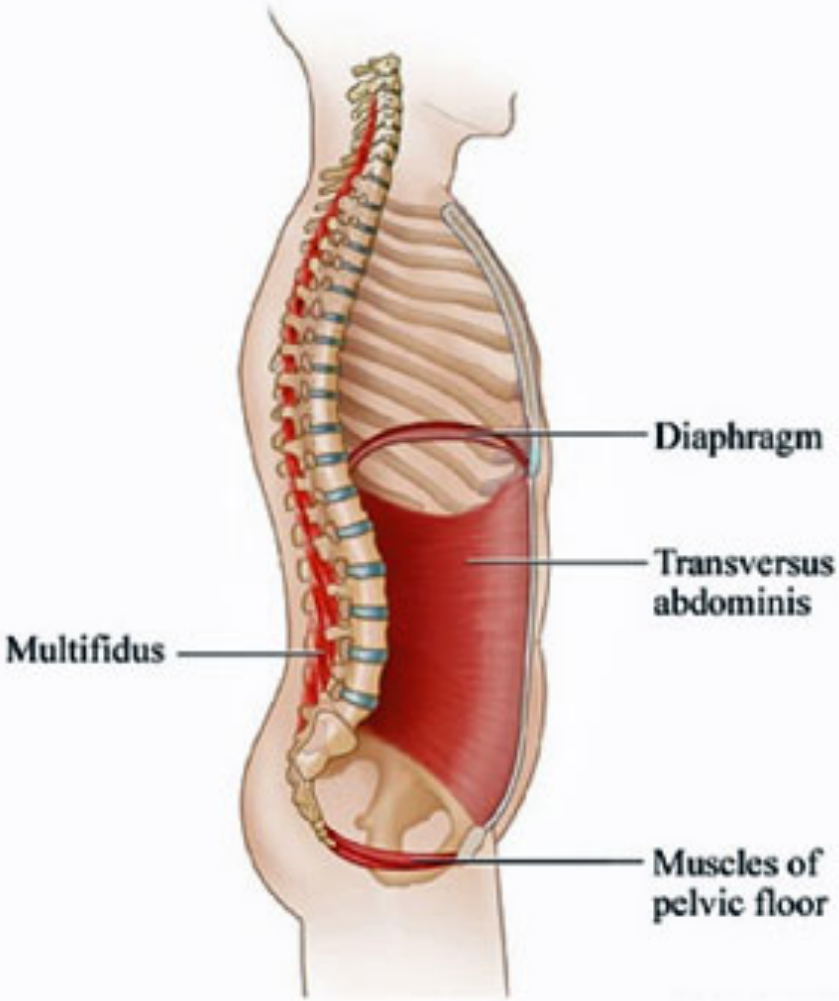


WHAT IS THE CORE? - THE INNER UNIT MUSCLES

The inner unit is deep in the abdomen and lies close to the spine and abdominal viscera. The Inner unit includes:

1. The Diaphragm
2. The Transversus Abdominus muscle
3. The Multifidus muscle
4. The Pelvic Floor muscles

Efficient breathing is often overlooked as an important function of the core.

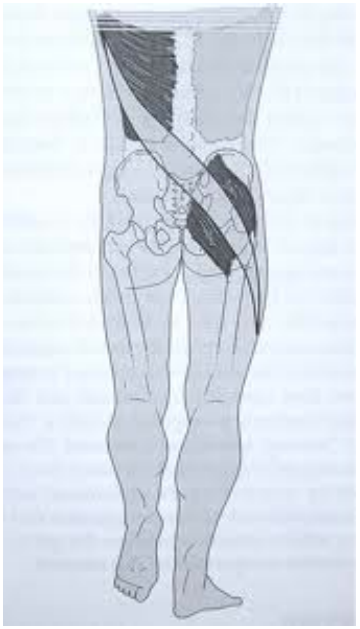


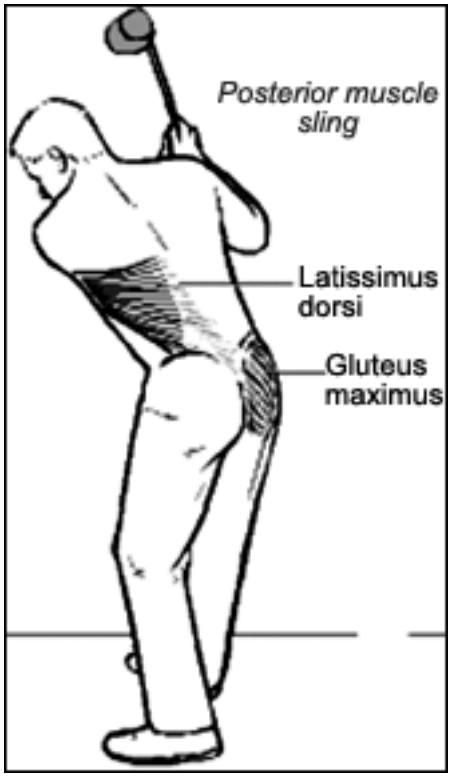
WHAT IS THE CORE? – THE OUTER UNIT MUSCLES

The outer unit muscles are the larger global muscles that control functional movement.

These muscles can be organized according to myofascial slings of function:

- <u>Posterior Oblique Sling</u>
  - gluteus maximus and latissimus dorsi on the other side of the body

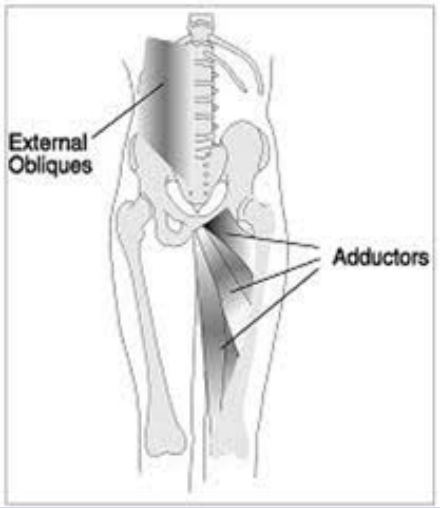


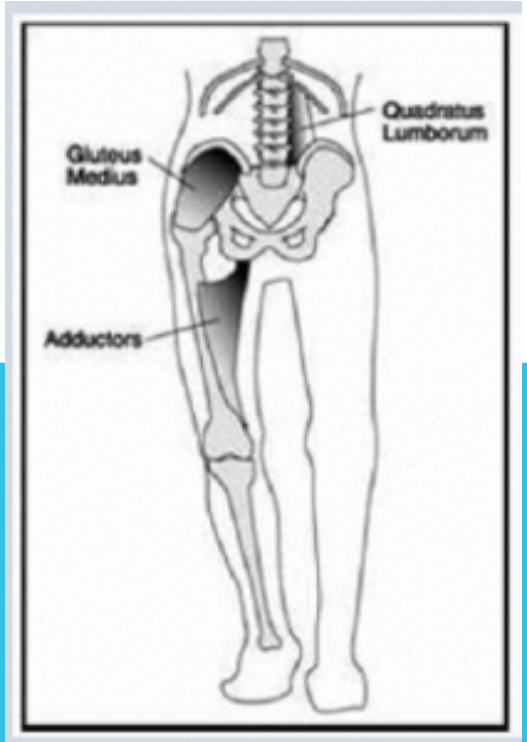


WHAT IS THE CORE? – THE OUTER UNIT MUSCLES

- Anterior Oblique Sling
  - external oblique muscle and opposite adductor muscle group

- Lateral sling
  - Quadratus lumborum muscle and opposite deep gluteals and hamstings





HOW DOES THE CORE FUNCTION?

The core is meant to transfer kinetic and potential energy from the legs to the arms and vice versa. It provides a stable base for our big, global moving muscles to create movement.

The inner core operates with an anticipatory function. Before a movement of the extremities happens, the core activates to provide stability. Timing of the inner unit is important!!

Example: EVERYBODY STAND UP AND FIND SOME SPACE ON THE GROUND

HOW DOES THE CORE FUNCTION?

The inner unit of the core provides important spinal stability.

The transversus abdominus and multifidus muscles are extremely important in the stability of the spine for movement. Timing of their activation is important.

Both muscles lie close to the spine and can help control individual spinal segments. This doesn't mean that they restrict movement, but they CONTROL movement.

HOW DOES THE CORE FUNCTION?

LETS PRACTICE ENGAGING OUR INNER UNIT MUSCLES

See handout on the inner core muscles, or check our website at www.body-works.ca under resources, or you can go directly to http://body-works.ca/resources/physiotherapy-exercises/

THE EFFECT OF PAIN ON MOVEMENT

Pain has varying and sometimes unpredictable effects on movement.

Pain is our bodies warning signal to stop doing something or risk further injury.

Often subconsciously, our bodies change the way we move or engage our muscles in the presence of pain. The patterns of muscle activity change to provide more stability to a certain area, or a muscle may not engage if it is injured.

This leads to COMPENSATION!

THE EFFECT OF PAIN ON MOVEMENT

Example: Low Back Pain

In the presence of low back pain, the inner unit does not engage, and loses its anticipatory function. Following back pain the anticipatory function doesn't always return.

Instead a high threshold strategy is produced. All of the muscles around the core are engaged even when they are not needed. This leads to excess compressive forces transmitted through the spine and can perpetuate low back pain.

This can create a bracing pattern! And can drastically effect our natural breathing pattern, effectively holding our breath.

THE PERFORMANCE PYRAMID AND MOVEMENT

Functional Movement

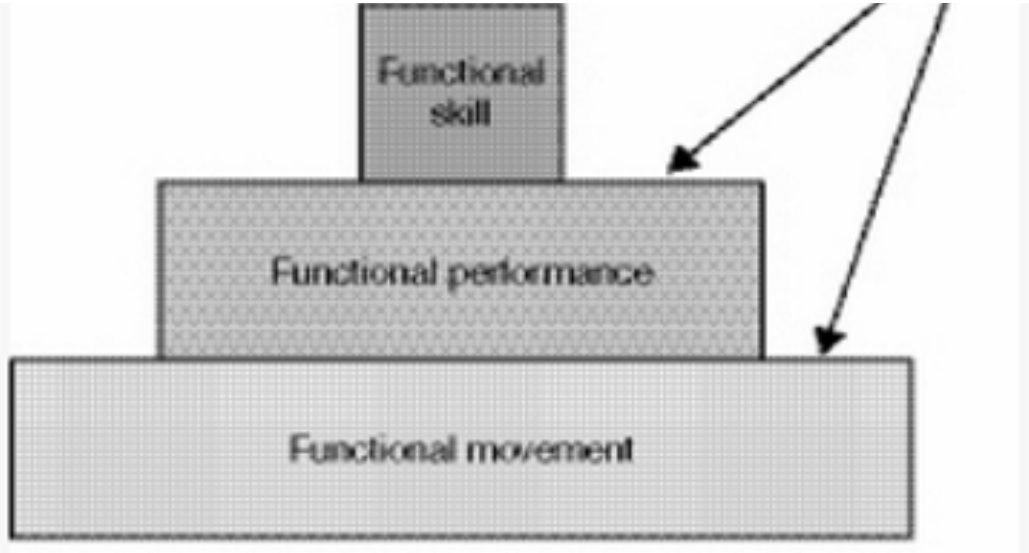
- Good core strength and stability.
- Good ability to complete all fundamental movement patterns.

Functional Performance

- How strong are you?
- How well can you run or walk? How fast? How far?

Functional Skill

- The specifics of the golf swing!



FUNDAMENTAL MOVEMENT

The human body is built to allow certain types of movement.

Lunge

Squat

Twist

Bend

Pull

Push

Walking

Running

These are the major movement patterns that our body is primed to do. And most of our activities and sports are made up of components of these movements

FUNDAMENTAL MOVEMENT

If you have great functional/sporting skill and are strong, but have poor functional movement this can lead to breakdown and lead to overuse injuries

ITS LIKE FIRING A CANNON FROM A CANOE

FUNDAMENTAL MOVEMENT – HOW DO WE TEST THIS?

The Functional Movement Screen

7 big, functional movements:

1. Overhead Squat
2. Lunge
3. Stability Push-Up
4. Active Straight Leg Raise
5. Hurdle step
6. Shoulder mobility
7. Core stability test

FUNDAMENTAL MOVEMENT – HOW DO WE TEST THIS?

And also the Selective Functional Movement Assessment

- an assessment of overall movement of the body to discover where the dysfunction lies
- may be in an area of the body not near the area of pain or perceived dysfunction.

FUNDAMENTAL MOVEMENT – HOW THIS APPLIES TO GOLF

Address Position - Overhead Squat, and core engagement

Take Away - Shoulder mobility and core engagement

Forward Swing/Acceleration - Transferring the energy from the legs to the arms and to club head

- Core engagement and symmetrical mobility

Follow Through - Spinal stability, core engagement and shoulder mobility

Thoracic Rotation - Ability to create symmetrical movement and not overuse one area of the spine

BACK TO THE CORE!

MORE INNER UNIT ENGAGEMENT PRACTICE

For progressing to function, we work with activating the core with more functional movement and activities.

Progressing from easier to harder. For example, activating your core:

- with active movement of the legs
- with active movement of the arms

- with active movement of the legs and arms
- in functional positions

- try with a poor pattern, try bracing

THE CORE AND HOW IT WORKS

For exercise prescription specific to your needs, please call us to schedule an assessment of how you move and what you specifically need to do.

This gives you the best chance of spending your time wisely with respect to taking the time to get stronger and move better for life and for golf.

THANK YOU!

WE APPRECIATE YOUR TIME AND ATTENTION

QUESTIONS?

PLEASE FEEL FREE TO CALL US AT
604-983-6616
OR EMAIL INFO@BODY-WORKS.CA