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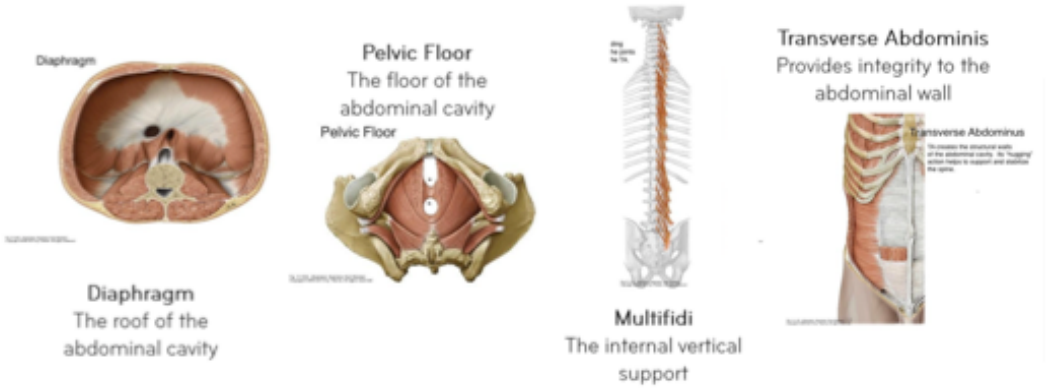
Kinetic Core
From the ground up, the kinetic chain is linked through the core: A missing link for many. Form follows function: if you train to enhance function, you'll not only look better, but also improve posture and alignment. Learn multi-level strategies from the ground up, an integrative approach to core training

Anatomy Review
The Inner Unit: A cooperative quartet!
Diaphragm
Pelvic Floor
Mulitidi
Transversus Abdominis



The **Inner Unit** acts to stabilize the spine, pelvis and rib cage while the torso is challenged with activities such as in lifting, walking, running or performing most daily or athletic tasks

The **Outer Units** are responsible for creating and maintaining lumbopelvic stability during movement

Lumbopelvic stability is the ability of the neuromuscular system to maintain balanced support between the ribcage, lumbar spine and pelvis during movement

Good inner unit or core activation of the 4 outer units is required for lumbopelvic stabilization

The Four Outer Units
Deep Longitudinal, Lateral, Anterior Oblique, Posterior Oblique

Myofascial Slings

- The muscular system has been described as being designed to distribute forces throughout the human body (Myers, 2008)

    - The body generally distributes reactive forces over large surface areas to reduce excessive forces on individual muscles or joints

    - This process reduces the potential for injury by transferring forces to other muscles, tendons, ligaments, fascia, joint capsules and bones that lie in parallel to actively moving joints or muscles, creating continuous lines of action called **myofascial slings.**

The Four Myofascial Slings: The Outer Unit

Myofascial Sling	Muscles Involved
Deep Longitudinal	Peroneus longus, tibialis anterior, biceps femoris, sacrotuberous ligament, contralateral erector spinae
Lateral	Gluteus medius and minimus, adductor complex and contralateral quadratus lumborum
Anterior oblique	Adductor group, ipsilateral internal oblique, contralateral external oblique and intervening anterior fascia
Posterior oblique	Gluteus maximus, contralateral latissimus dorsi and intervening thoracolumbar fascia

Isolation Vs. Integration

Thomas w. Myers …"Whatever else they may be doing individually, muscles also influence functionally integrated body-wise continuities within the fascial webbing"

Law of Facilitation

The Law of Facilitation: The neurophysiologic principle that activity over a synaptic pathway increases with repetition of the stimulus, which translates as either: Long-tem potentiation or short-term potentiation. Thereby movement patterns feed movement patterns. The body always seeks to move efficiently and will move in the path of least resistance.

Length-Tension Relationships

- The resting length of a muscle and the tension the muscle can produce at this resting length.
- The optimal muscle length where the actin and mysin filaments in the sarcomere have the greatest degree of overlap.

Force-couple

The synergistic action of muscles to produce movement around a joint

Optimal Neuromuscular Control

- Normal Length-tension relationships - Normal force-couple relationships – Normal joint arthrokinematics
    - Optimal sensorimotor integration
    - Optimal neuromuscular efficiency
    - Optimal tissue recovery

"The perfecting of a movement is achieved by improving the ability of the muscles to generate force during the transition from eccentric to concentric work" – Siff, 2003

Human movement begins from a position of static posture and includes a number of components leading to inefficient movement patterns - ACE

Movement
Motor program = Coordination – Balance – Mobility/Stability – Strength, Flexibility, Endurance

Stability

- Synergistic action of the muscles, ligaments, and connective tissue to maintain or control joint position; must never compromise joint mobility.

Mobility

- Synergistic actions of skeletal (joints) and neuromuscular systems to allow uninhibited range of motion around a joint or body segment; must never compromise joint stability

Stability Mobility Relationships of Joints

Joint	Function
Foot	**Stability**
Ankle	**Mobility**
Knee	**Stability**
Hip	**Mobility**
Lumbar Spine	**Stability**
Thoracic Spine	**Mobility**
Scapulothoracic	**Stability**
Glenohumeral	**Mobility**

Stability Core
Inner Unit Stability: Fundamental Movements

- Dead Bug
- Baby Walks
- Supine Opposite Arm/Leg
- Prone Plank
- Bridge/Single Leg Bridge/Bridge Walks
- Side Bridge
- Side Plank
- Quadruped Arm Raises
- Quadruped Leg Raises
- Bird Dog
- Bear Holds & Walks

Stability Core
Inner Unit Stability: Advanced Movements

- Foam Roller Dead Bug
- Foam Roller Baby Walks
- Foam Roller Supine Opposite Arm/Leg
- Stability Ball Forearm Prone Plank
- Stability Ball Plank Leg Raises
- Stability Ball Walk-out Plank: Hands on floor, feet on ball
- Stability Ball Plank Pikes
- Stability Ball Prone I-Y-T-W
- Tubing Sagittal Chop (Anti-rotation)

Mobility Core
Outer Unit Mobility: Movement Fundamentals

- Supine Bicycle
- Plank with Rotation
- Plank with Downward Facing Dog
- Plank with Downward Facing Dog and Diagonal Reaches
- Stability Ball Spinal Extension
- Stability Ball Bird Dog
- Stability Ball Supine Bridge/Bridge and Shift
- Quadruped Rotation
- Standing Tubing Rotation
- Standing Tubing Chop

Explosive Training
Integrated Advanced Movement Focus

- Medicine Ball Russian Twist
- Medicine Ball Golf Chop
- Medicine Ball Diagonal Chop
- Medicine Ball/Slam Ball Sagittal Slam
- Medicine Ball/Slam Ball Side-to-Side Slam
- Dumbbell Overhead Front Lunge
- Kettlebell Swing
- Kettlebell or Dumbbell Snatch
- Kettlebell or Dumbbell Windmill
- Kettlebell or Dumbbell Turkish Get Up

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