Core Training: Working Hard or Hardly Working?

What is Functional Training?
“Function” means different things to different people.
• There are two goals to “functional training:” improving performance and reducing the risk of injury.
• To start, assess client’s level of functional capacity.
• Build a foundation of core strength.
• Add intensity and correct compensations.
• Find exercises that accelerate and decelerate movement both with and without resistance.
• Integrate movements of upper body, lower body and core.

“Functional Training” is not “Strength Training”
• Strength Training
  – Goals are increased strength and/or hypertrophy at a specific muscle group or joint.
  – Examples: Pectoral flies, leg extensions
• Power Training
  – Goal is to lift the maximal amount of weight possible by a specific muscle group or joint.
  – Examples: Maximal leg press, chest press, power clean
• Functional Training
  – Goal is to integrate upper body, lower body and core muscles to improve performance and lower injury risk.
  – Examples: Squats, lunges, deadlifts, standing overhead press, bent over rows

Defining The Core
• The core is the link between the upper and lower body.
• Generally includes muscles of the abdominals, posterior chain, hips, and scapula stabilizers.
• Inner unit muscles provide isometric support of the spine and limit movement of the trunk.
• Outer unit muscles move the spine and provide adequate stability to the vertebral column when under load.

Stability vs. Mobility
• Core stability refers to isometrics holds maintaining neutral core alignment in various postures
• Core mobility refers to maintaining neutral core alignment with concurrent limb movement.
• Both methods require no movement of the spine

Selected Bibliography
• Functional Training
  – Juan Carlos Santana
• Athletic Body in Balance
  – Gray Cook
• Low Back Disorders
  – Stuart McGill
• Bigger, Faster, Stronger
  – Mike Boyle

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Core Stability Research

- The core is essentially divided into stabilizers, mobilizers, and load transferring muscles.
- No one group is more important but all are necessary for injury prevention and proper stability.
- Lack of recruitment of stabilizers (diaphragm, multifidus, TVA, pelvic floor muscles) at the initiation of movement is often found in the deconditioned and those with LBP.
- This prevents adequate spinal stability and proper proprioception.
- *Sports Health* 2013

Core Stability Research Cont...

- A complete core training program must include:
  - Core stability assessment
  - Neuromuscular control and proper muscle recruitment patterns
  - Muscular strength, endurance, and power development

“To Core or Not To Core”
Indiana State University, 2011

- Core training for highly conditioned athletes did **NOT** improve performance OR reduce injury rate.

The Foundation:
Planks, Bridges, Side Planks, Quadrupeds

- Core training for deconditioned or recreational athletes improved performance **AND** reduced injury rate.

Working Hard? Hardly Working?

- Prolonged isometric holds lead to a rapid loss of oxygen to core muscles.
- Try to achieve muscle fatigue (quivering) within 8 – 10 seconds to build core power.
- Short rests between holds allow the muscle to restore oxygen.
- *Ergonomics*, 2010

Assessing the Core

*Can client hold each position for 20 - 60 seconds?*

- Anti Extension
  - Front Plank
- Anti-Flexion
  - Two Foot Bridge
  - Unilateral Bridge
- Anti Lateral Flexion
  - Side bridge, each side
- Anti Rotation
  - Bird Dog
How Do We Progress the Core?

- Resisted Core
- Multi-plane Core
- Vertical Core
- Dynamic Core
- Cardio Core
- Predictive Core
- Reactive Core

Resisted & Multi-plane Core

Anti-Flexion Exercise: Bridge With Core Activation

Anti Extension Exercise: 3 Point Row

Anti Rotation Exercise: MB Plank Roll

Side Plank Rows & Presses
Band Resisted Side Plank
Band Resisted Side Plank with Balloon Tap

Vertical Core
- Once proper stability is attained the goal is to improve strength and power.
- Total body strength is limited when the core cannot support it.
- Power is essential for athletic performance and activities of daily living.

Partnered (or Cable) Push Pull

Standing Anti Flexion Press

Standing Anti Extension Press

Standing Anti Lateral Flexion Press
- These drills will mainly challenge the core in the frontal plane.
- The goal is to see no lateral movement of the spine.
Core Power Training Exercises

- Goal is to focus on quality movement with high velocities.
- Since velocity is the primary goal, resistance used should be low.
- For MB exercises 4-8lbs is recommended.

Proceed With Caution

- In order to progress to these exercises, clients must demonstrate adequate postural stability and foundational core movements.
- Before attempting these exercises assess for adequate core stability AND proper hip and thoracic spine rotation.
- Assess progress properly to avoid injuries and movement dysfunctions.
Band Rotation With Pivot

Monster Band Speed Hops
Monster Band Lateral Hop and Stick

MB Overhead Throws

Kneeling Chops

Rotational Throws

Monster Band Battles, Bosu Med Ball Toss

Try this on an unstable surface, too!