




Foundations of Core Conditioning

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Benefits of Core Conditioning

Definition of Core Conditioning




"Training and strengthening of the **collection** of muscles that stabilize the spine, pelvis and shoulder complex"

- ❖ Abdominals (abs) ≠ Core
 - Make up *part* of core
- ❖ Commonly neglected area in fitness routines
 - Controversy in research over best way to train
 - Confusion over how to train
 - Training is different than conventional training
 - Ms. Building of more visible mm.

Benefits of Core Conditioning Cont'd

5 Reasons to Train Your Core




- 1 Everyday activities
 - Lifting children, carrying heavy bags, vacuuming, reaching overhead to place suitcase in overhead storage
- 2 Athletic conditioning/Rec Sports
 - ↑ balance, power output from shoulders, arms and legs
 - Superior movement control
- 3 Rehabilitation from injury
 - Back pain, shoulder injuries, knee injuries
 - Deficiencies in core conditioning correlated with knee and low back pain

[Leetun DT, Ireland ML, Wilson JD, et al. Core stability measures as risk factors for lower extremity injury in athletes. Med Sci Sports Exerc 2004; 36 (6): 926-34]

Benefits of Core Conditioning Cont'd


5 Reasons to Train Your Core




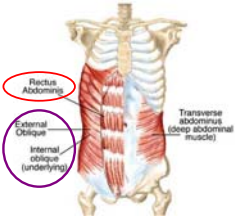
- 1 Helps trim your waistline

*** in ADDITION to aerobic activity!***
- 2 Injury prevention
 - ❖ Healthy core contracts prior to any arm or leg movement.
 - Delayed contraction/tensing of core before limb movement in people with *mechanical* LBP

[Richardson et al. The relation between the transversus abdominis muscles, sacroiliac joint and low back pain. Spine 2002; (27) 4: 399-405.]



Anatomy of the Core: **The Movers**


Rectus Abdominis (6-pack)

- Action: spinal flexion/curling spine forward
- Use: Moving from lying to sitting

Obliques

- Action: side-bending, turning torso to other side, [flexing spine]
- Use: Raking leaves

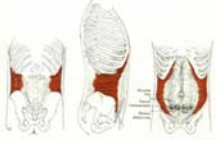
Anatomy of the Core: **The Stabilizers**



- ❖ All have attachments to the vertebrae

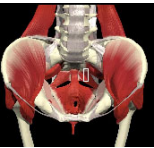
Transversus Abdominis (TrA)

- Deepest of abdominal muscles
- Action: Stabilizes spine over the pelvis before mov't in arms or legs



Pelvic Floor

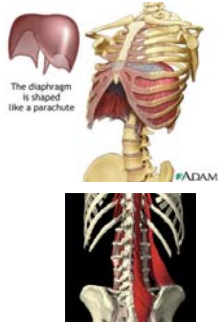
- Hammock of muscles that connect the pelvis at the front to the tailbone and 'sits' bones
- Contracts simultaneously with TrA (bottom of cylinder)



Anatomy of the Core: The Stabilizers Cont'd

Diaphragm

- Involved in breathing
- Action: Maintains abdominal pressure and stabilizes spine



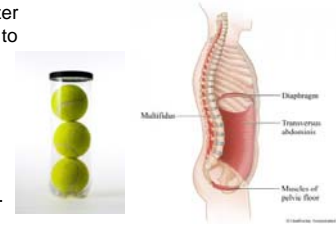
Multifidus

- Action: Keeps spine upright and bends back spine

Anatomy of the Core: The Core Complex

The Movers and Stabilizer
Muscles act as a unit to make up the 'Core'

Visualize a Cylinder
Lid – Diaphragm
Wall – TrA and MF
Base – Pelvic Floor mm.



The Core Conditioning Continuum

Stepping Back to the Basics....

Training core muscles to contract at the right time **before Strengthening** is fundamental to core training

Isolation

- Train individual mm. to activate on cue

Co-contraction

- Train 'The Cylinder' of mm. to activate on cue

Core Stability

- Strengthening and coordination of ENTIRE core
- Adding load
- Endurance ex.

Functional Training

- Activity-related

To Hollow or Not to Hollow?

- Controversy exists as to the best technique to train the core
 - Depends on where you are on the Continuum
 - Goals – General conditioning? Sport specific?
 - Participant injured or 'healthy'

Abdominal hollowing - commonly cued as "drawing-in of the navel toward the spine"

Abdominal bracing – "tightening the abdominal muscles as if preparing for a punch in the stomach"

Learn Core Skills

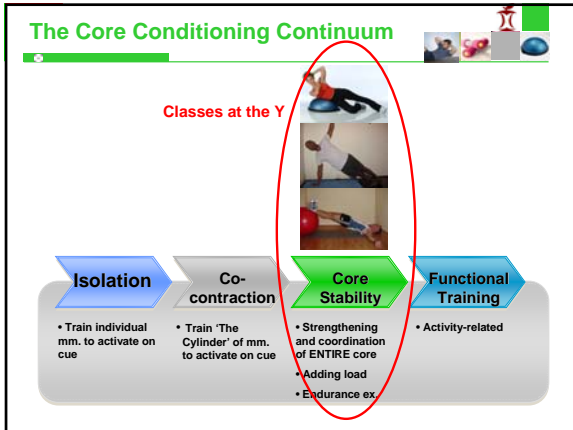
Activity #1: Activate your Transversus Abdominis

Activity #2: Activate your Pelvic Floor



Self-Assessment

- Posterior tilting of the pelvis?
- Bulging of the abdomen?
- Depression of the rib cage?
- Breath holding ?
- Fingertips being pressed out by a strong muscular contraction (internal oblique)?



5 Most Common Training Errors

1. Neck deviation from Neutral Posture

- Most stable, ↓ risk of injury
- When abs fatigue, body cheats by pulling on the head to complete the ROM
- Neck Pain?
 - Wt. of head (N) supported by spine; lying on back no support for the head

Figure 1

5 Most Common Training Errors Cont'd.

How to Avoid Neck Pain

- ❖ Lead to the ceiling with your chin and don't lift with the head, lift with the chest.
- ❖ ROM too far. Sit-up instead of crunch
 - Hip flexor over-activity
- ❖ Maintain Neck Alignment
 - Push tongue to the roof of mouth
 - Place fist under chin to maintain ideal neck alignment and avoid head mov't
- ❖ Low level of neck fatigue and discomfort normal
- strengthens

5 Most Common Training Errors Cont'd.

Crunch Progressions

5 Most Common Training Errors Cont'd

2. Hip flexor over-activity

- Feet or low back leaving the mat while completing a rep
- ROM too large

5 Most Common Training Errors

3. Arching/hyperextending spine during limb mov't

- Low back leaves mat
- Try this Test: Single Leg Stretch

#ADAM

5 Most Common Training Errors

4. Compromised force distribution

- Hamstring Pain? Contract glutes 1st instead of tensing hamstrings



5 Most Common Training Errors

2. Losing Core Activation during Reps

- Feet raising off the ground during crunches
 - Reps too quick, relying on momentum
- ❖ Try this Test: Clam



Tips to Maximize Your Training

1

- Fight gravity on the way down from crunches – slow, controlled mov'ts

Remember to Breathe!

2

3

Maintain correct form – Master the beginner exercises before progressing

Monitor the *QUALITY* of your Reps vs Quantity.
Rest if you're losing form or feeling fatigued.

4

Key Points To Remember

Personalize your Workouts

Participants enter at all different levels – choose exercises that are suitable for your level

- "No Pain, No Gain" (during exercise) does not apply! Review/correct form to avoid unnecessary strain through supporting structures
- Always engage your core prior to beginning an exercise



Consult a Health Professional if you experience:

- Limited joint movement/stiffness
- Symptoms that are 'spreading'
- Worsening pain or pain that does not go away after a few hours
 - "2-Hour Rule": *any joint pain experienced during or after activity lasting more than 2 hours should be subject to further investigation.*
- Pins and needles sensations or numbness
- Burning, stabbing pain
- Pain that wakes you up at night
- Swelling, redness

THANK YOU!



Happy Training!

Any Questions?



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