



Core Strengthening

Daniel M. Jayne, MPT, OCS
WAMC IPMC, Fort Bragg

OBJECTIVES

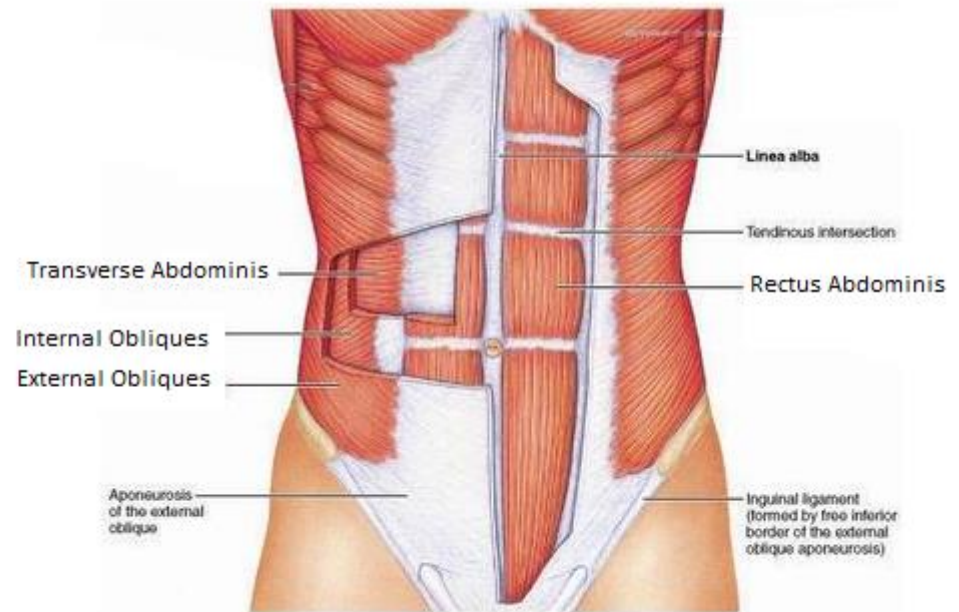
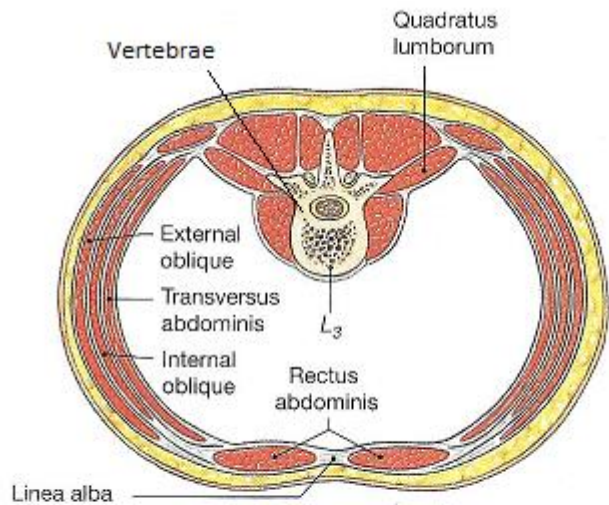
- Identify Core Muscles
- Understand the Importance of Core Strength
- Prescribe a Core Exercise Program
- Correct Faulty Mechanics in a Core Program

Core Muscles

- Anterior



Core Muscles

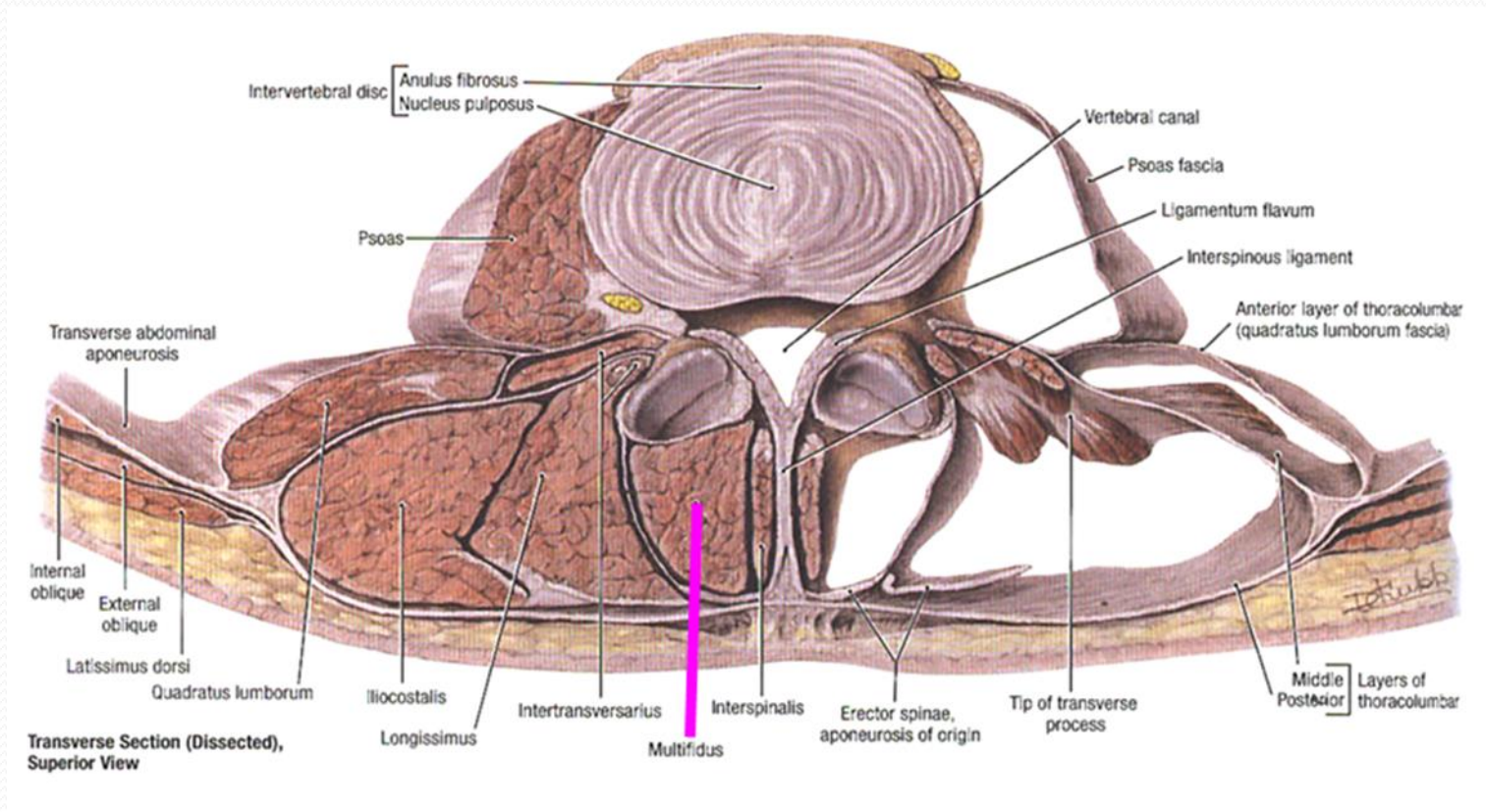


Core Muscles

- Posterior



Core Muscles



Why Care About the Core?



Why Care About the Core?

- Stabilize Trunk During Extremity Work
- Physical Demands of Army Life
- To Maintain the Spine in Neutral
- Support Body Weight
- Lasting Relief From LBP
- (Look Good at the Beach)

Why Care About the Core?

- **Prevention of Low Back Pain: A Systematic Review and Meta-analysis**
 - *JAMA Intern Med.* Published online January 11, 2016.
 - The current evidence suggests that exercise alone or in combination with education is effective for preventing LBP.
 - ...exercise reduced the risk of repeated low-back pain in the year following an episode between 25 and 40 percent.

The Best Core Exercises

Dr. Oz

dr

Fit in Five: Core

Posted on 8/18/2011 | Comments (25)



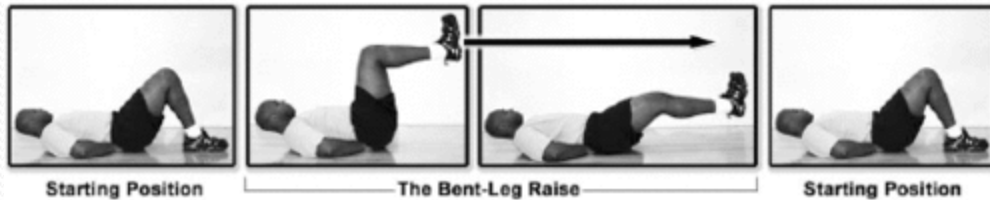
Get washboard abs in no time and feel confident in your bathing suit. Celebrity personal trainer Joel Harper developed a 5-minute fitness series just for you!

OPRAH



The Best Core Exercises

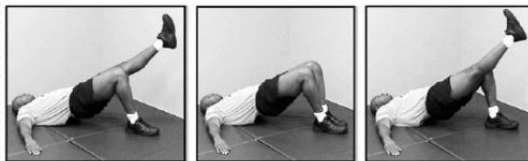
- Army: 4 for the Core FM 7-22



Modified Side Bridge (on knees)



Starting Position Back Bridge Position



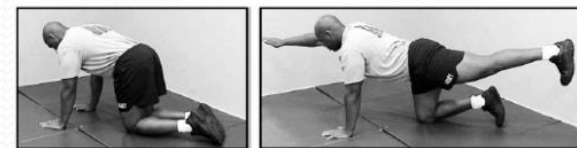
Left Leg Back Bridge Back Bridge Position Right Leg Back Bridge



Back Bridge Position Starting Position



Starting Position Left Quadruplex



Starting Position Right Quadruplex

The Best Core Exercises

- The ones that your patient will do.



Wrong Six Pack

The Best Core Exercises

- **Effect of Core Stability Training on patients with chronic low back pain, Wang X, Zheng J, Bi X, Liu J, HeathMED 2012; 6(3): 754-759**
 - Ex involving coordination of core mm and correct posture (finding neutral, bridge, planks) better than ex focusing on one mm grp (SU, SLR, prone trunk ext)

The Best Core Exercises

- Things to avoid
- **Electromyographic studies in abdominal exercises: a literature synthesis.**
 - [J Manipulative Physiol Ther.](#) 2009 Mar-Apr;32(3):232-44. doi: 10.1016/j.jmpt.2009.02.007.
 - active hip flexion and fixed feet
 - do not pull with the hands behind the head
 - a position of knees and hips flexion during upper body exercises.

The Best Core Exercises

- The Danny Jayne Collection
 - Emphasize neutral position using the pelvic tilt.
 - Keep transverse abdominis (TrAbs) contracted
 - (pull belly button in towards the spine)
 - If it hurts, you're not ready for it yet

Anterior-Posterior Pelvic Tilts



- Sit on the edge of the mat with your feet flat on the floor.
- Slump sit so your weight shifts to the back of your pelvis.
- Sit up tall so your weight shifts to the front of your pelvis.
- Rock back and forth to get comfortable with the motion.
- Sit up tall so your weight shifts to the front of your pelvis.
- Relax down 10% - this should be neutral.

Anterior-Posterior Pelvic Tilts



- Lie on back with knees bent.
- Tilt pelvis anteriorly by arching your lower back, making space between your lower back and the table.
- Then tilt pelvis posteriorly by pressing lower back into table.
- Gently repeat the rocking motion.
- Find neutral in the middle of the motion.

Transverse Abdominis Activation



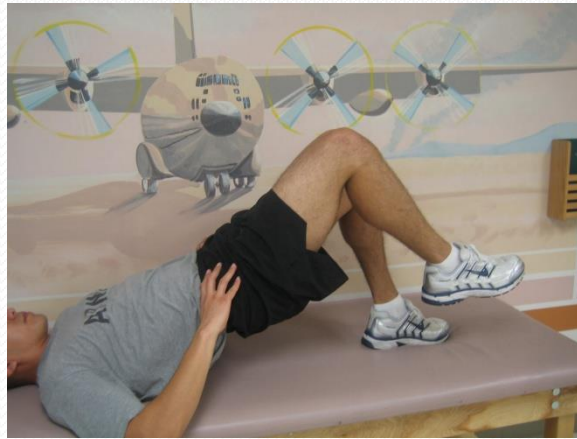
- Lie on back with knees bent.
- Do the pelvic tilt to find neutral.
- Pull belly button down towards the table.
- Hold contraction for as long as you can.

Bridge



- Lie on your back with knees bent.
- Do the pelvic tilt to find neutral.
- Lock in neutral by contracting the transverse abdominis (pull belly button down towards table).
- Slowly lift hips off of mat, keeping the core muscles activated, lift toes off mat and dig heels into mat.
- Hold the bridge for as long as you can.
- When this becomes easy progress to marching (see next exercise)

Marching



- Lie on your back with knees bent.
- Do the pelvic tilt to find neutral.
- Lock in neutral by contracting the transverse abdominis (pull belly button down towards table).
- Slowly lift hips off of mat, keeping the core muscles activated.
- Lift one foot off of the mat, then slowly lower it back down.
- Alternate feet as if you are marching.
- When this becomes easy progress to single-leg bridges (see next exercise).

Single-Leg Bridge



- Lie on your back with knees bent.
- Do the pelvic tilt to find neutral.
- Lock in neutral by contracting the transverse abdominis (pull belly button down towards table).
- Slowly lift hips off of mat, keeping the core muscles activated.
- Keep your thighs together and raise one foot. Slowly lower the foot back down.
- Alternate legs.

Crunch



- Lie on your back with your knees bent.
- Crunch forward just far enough to get your shoulder blades off the mat.
- Do not raise your feet off the mat. We do not want to engage your hip flexors.
- Hold in the up position for 3-5 seconds, repeat.

Side Plank



- Lie on side, with the bottom knee either bent (Picture 1) or straight (Picture 2). Prop weight through bottom elbow and extend top arm along side.
- Activate core muscle by pulling belly button in towards spine.
- Slowly lift hips off of mat, keeping the core muscles activated. Keep head, shoulder, hip, knee and ankle all in one straight line, as shown above with the arrow.
- Hold the plank for as long as you can.
- When this becomes easy add the leg lift (see next exercise).

Side Plank with Leg Lift



- Lie on side, with the bottom knee straight. Prop weight through bottom elbow and extend top arm along side.
- Activate core muscles by pulling belly button towards spine.
- Slowly lift hips off of mat, keeping the core muscle activated. Keep head, shoulder, hip, knee and ankle all in one straight line.
- Then lift top leg, keeping the knee straight.
- Lower the top leg.

Plank



- Lie on stomach, propping body up on both elbows and knees (figure 1) or elbows and toes (figure 2).
- Activate core muscles by pulling belly button towards your spine.
- Slowly lift body off of mat, keeping the core muscle activated. Keep head, shoulder, hip, knee (and ankles) in one straight line.
- Hold this position.
- When this becomes easy raise one leg without allowing the pelvis to drop. Alternate legs.

Cat-Dog Stretch



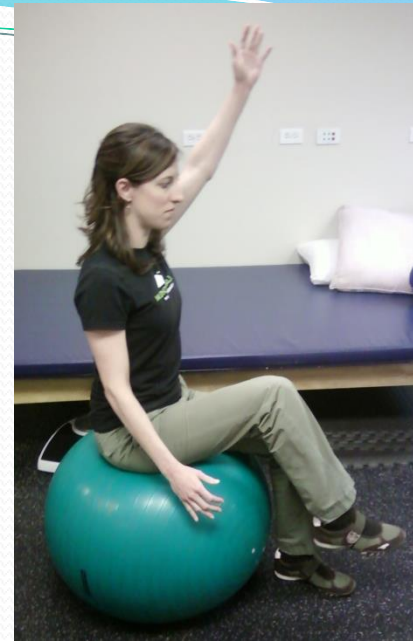
- Start on hands and knees. Hands under the shoulders and knees under the hips.
- Arch back towards ceiling, looking toward the floor.
- Lift head and drop back towards the floor, forming a “U”.
- Gently repeat the rocking motion.
- Find neutral in the middle of the motion.

Quadruped Alternate Leg/Arm Lift



- Do the cat-dog stretch to find neutral.
- Activate transverse abdominis to lock in neutral.
- With the spine in neutral and core muscles activated slowly raise one leg behind you and the alternate arm in front of you.
- Hold for five seconds, return to neutral then repeat using the opposite leg and arm.

Seated Marching on Physioball



- Sit on appropriate sized physioball so your knees are bent at 90 degrees.
- Pelvic tilt to find neutral. Activate transverse abdominis to lock in neutral.
- While maintaining the spine in neutral and the core muscles activated, lift one knee as if marching (figure 1).
- Alternate left and right legs.
- When this becomes easy raise the opposite arm while marching (figure 2)

Bridging on Physioball



- Lie on your back with your arms by your side and palms down.
- Place feet on physioball.
- Contract your transverse abdominus.
- Raise your hips off the ground forming a straight line from your ankles to your shoulders.
- Hold this position.

Questions?

