

CORE STRENGTH

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Core training has recently become a “buzz word” in rehabilitation and training settings. The core refers to the muscles surrounding the hips, pelvis, and fronts, sides and back of the lower spine and trunk. Basically, it is the bridge between the upper and lower body¹. A strong core allows a stable base during sports and daily activities, decreasing risk of injury and improving overall performance.

Basketball requires dynamic stabilization and balance when jumping, landing, running, picking, rebounding, and during sudden stop and go movements. Core strength allows the athlete to quickly and efficiently perform these necessary tasks by maintaining the center of gravity in any given position. An athlete with a weak core will often appear slow as they are unable to control their center of gravity with sudden position changes. One with a strong core will be able to adjust their balance in any position quickly and become a more effective player.

Not only is trunk stability vital for improving dynamic control during quick transitional movements, but it has been shown to improve the vertical take-off velocity (vertical leap) when tested against leg strengthening alone and a combination of trunk stabilization and leg strengthening. After 3 weeks, only the athletes in the trunk stabilization group improved their vertical leap.² Core strength is also vital in decreasing risk of injury by coordinating muscles of the lower trunk, hips, and pelvis. With an unstable core, underlying structures such as the spinal joints, discs and ligaments are at risk for injury during explosive movements required during basketball.

The following represent a list of general core exercises that would benefit most athletes. Please consider that these are only recommendations for healthy individuals without injury, and those with injuries should consult with their Physician, Physical therapist and/ or Athletic Trainer before initiating any of these exercises:

- **Bridging:** lie on back with knees bent and feet on the floor. Raise buttock off floor. Perform 10x, 3 sets. **Progression:** same position, raise buttock off floor, lift Left foot off floor, lower, then Right foot. Repeat 10x then lower buttock. Repeat 3 sets.
- **Drawing – in Maneuver:** lie on back with knees bent. Pull navel toward the spine (suck in the stomach like you're at the beach) and try to flatten out the spine. Perform 10x, 3 sets. **Progression:** same position, once your spine is flat, slide one heel out so the leg is straight and then bend the knee; repeat with other leg. 10x each, 3 sets. **Progression:** same position with knees bent, draw in navel and raise both knees toward chest while keeping the spine flat. Lower legs slowly to bent knee position while maintaining flat spine. Perform 10x, 3 sets.
- **Side Plank:** Lie on Right side with weight on Right elbow. Lift hips off of floor so that your weight bearing on the elbow and the feet. Hold 5 seconds, perform 10x, 2 sets.
- **Prone Plank:** Lie on elbows face down, lift hips off of floor so that the back is completely flat while keeping the abdominals tight. All the weight is on the elbows and feet. Hold 5 seconds, 10x, 2 sets.
- **Quadruped Bird Dog:** Begin on hands and knees, tighten abdominals and lift right arm in front of body and left leg behind body, keeping the elbow and knee straight. Repeat with opposite arm and leg. Perform 10x, 2 sets.
- **Oblique crunches:** lie on back with knees bent and arms crossed over chest. Perform drawing – in maneuver and curl Right shoulder toward left knee and then left shoulder toward right knee. Perform 10x, 2 sets.
- **Superman:** Lie on stomach with arms by side. Contract glute muscles and lift shoulders and legs from floor so that only the hips are in contact with the floor. Perform 10x, 2 sets. **Progression:** perform with fingers interlocked behind head.

References:

¹ Higuera, Jeff. "Creating Strength From The Inside Out." www.powerbasketball.com/050815

² Butcher, Scott J; Craven, Bruce R; Chilibeck, Philip D; Spink, Kevin S; Grona, Stacy Lono; Sprigings, Eric J. "The Effect of Trunk Stability Training on Vertical Takeoff Velocity." Journal of Orthopaedic and Sports Physical Therapy. 2007;37(5):223-231.