

# “THE CORE”

## PART THREE: The battery of tests

In the previous article we discussed that no one test can properly evaluate the “CORE” as we defined; the body’s ability to control against spine movements.

We also discussed important qualities of the core:

1. capacity / endurance;
2. control against large magnitude loads (direction specific);
3. motor control of the spine during movement.

Therefore without further wait the battery of tests we use to evaluate each “CORE” quality can be found in Table 1: CORE qualities and testing methods.

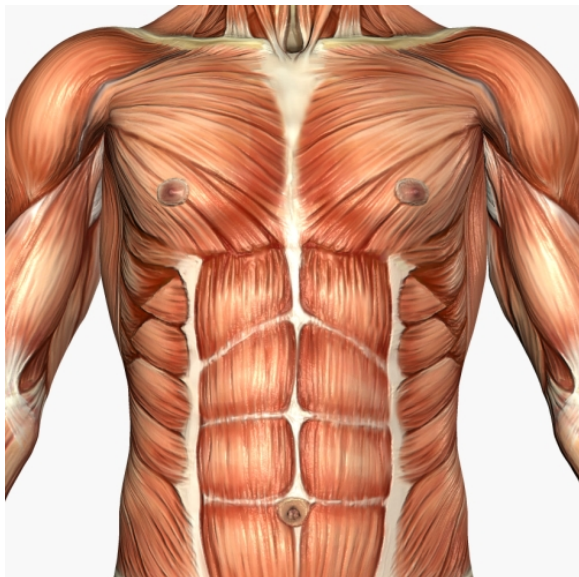


Table 1: CORE qualities and testing methods

Quality	Method of Evaluation
Capacity / Endurance	<ul style="list-style-type: none"><li>• Side Bridge</li><li>• Plank</li><li>• Sorensen Back Extension Endurance test</li></ul>
Control against large magnitude loads	Video motion analysis of the spine during high powered loads: <ul style="list-style-type: none"><li>• Jumping and landing mechanics during the drop jump test, pent jump, and countermovement jumps</li></ul>
Motor control of the spine during movement	Video motion analysis of: <ul style="list-style-type: none"><li>• all movements in our movement assessment: (Overhead squat, squat, single leg squat, and hip hinge)</li><li>• bending and sitting (when the athletes is not looking during when picking and lowering the broom stick during the overhead squat test)</li><li>• integrated shoulder and movements</li><li>• integrated hip movements</li></ul>

During movements we look for the following typical dysfunctions:

- a) Thoracic collapse
- b) Inability to perform a hip hinge
- c) Spine twisting and rotation
- d) Loss of neutral spine position (typically rounding)

You may be asking yourself; especially if you carefully examine Table 1: CORE qualities and testing methods, what does “shoulder movement and hip movement” mean in relation to motor control of the spine during movement?

Appreciate that forces developed during sport require the integrated action of the upper and lower extremities. For example, lower extremity power contributes to over 50% of tennis serve velocity and 40% of throwing velocity in baseball. This is only possible by transmitting the force through the spine during those movements, linking power generated in the legs into the shoulder girdle, through the arm into the fingers, and effecting either the tennis racket or baseball.

These links have definitive paths, which have been referred to as “trains” by Thomas Myers - who describes fascial linkages that connects our entire body together enabling stability and integrative movement.

These links are important and the study of fascial systems is receiving heavy attention by health care practitioners, strength and conditioning professionals and researchers.

Again, using sit-ups to evaluate the “core” is insufficient and fails miserably at assessing the function of the core, which is the body’s ability to control against spine movements, and to transmit forces developed elsewhere in the body.

Take a look at some of these movements and look at how trunk muscles must work to perform these skills.



**The spine must not buckle.** Imagine the loads that are being placed on this world class athlete as they hold over 180 kg over their head.



**I can defy gravity.** This athlete is able to hold their legs horizontal against the force of gravity while balancing on a single limb.



**Separation.** Notice that the shoulders and legs are pointed in different directions, commonly referred to as separation. This athlete must resist against tremendous centripetal force to maintain this position, which is critical for alpine race performance.



**Rings of Power.** This medalist at Beijing is shown here holding an iron cross with their legs held horizontal. Imagine the tension that must exist throughout his body. Notice that his spine is in neutral.



**Lightening Speed.** World class speed requires integrates 5-Sites Integrity to integrate power developed in the legs with opposite arm drive.

To accomplish sport skill without question requires a strong core. How we evaluate and develop the core requires an approach that gives us the proper qualities to support the acquisition of sport skill. Common methods, such as the crunch, plank, and side bridge are but tools that must be used appropriately, but there is much, much more.

In the next part, I'll go over exercises to develop the core, based on a classification method to develop each quality of the core.

Thanks for reading.

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Just to remind you of the key points we discussed in part one about how the "CORE" relates to the body – in particular 5-Site Integrity.

1. The body is made of links / chains where motor control and muscular

capacities are necessary to maintain proper area relationships.

2. If one area is compromised all areas become compromised.
3. Violations lead to injuries and suboptimal performance.  
The **longer** the violation the more difficult it is to correct.
5. Correct anatomical relationship lead to improved joint positions, more efficient movement patterns, reduced risks of injury, and improved performance.
6. Violations are most likely due to deficiencies in capacities as opposed to balance problems.
7. Fatigue or poor work capacity will effect an athletes ability to maintain 5 site integrity.
8. While we look at five key areas other abnormalities may occur.