

Don't let a weak core keep you from elevating to greatness

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It is of utmost importance to achieve equilibrium through integration for optimal performance. This places a lot of emphasis on the importance of core stability and how it assists in injury prevention and forms the foundation for improved performance. It is very important to achieve this equilibrium through the incorporation of power, core stability, balance, proprioception, reaction time, agility, techniques and functional strength (to name a few).

The core muscle group includes large muscle areas at the trunk and hip region. These muscles provide the basis of strength for production of forces during an explosive movement. Anatomical components of core can be described as a box consisting of 29 pairs of muscles, forming front (abdominals), back (paraspinals and gluteals), top (diaphragm) and bottom (pelvic floor and hip girdle) areas.

Your Transversus Abdominus (TA) is the deepest of all the abdominal muscles which lie underneath the oblique abdominals and rectus abdominus. This is the main core muscle that provides stability. It connects to the lumbar spine (lower back) and wraps around to meet in the middle of the front of the abdomen (like a corset). When contracted it increases the pressure inside your abdomen and pulls tight on the lower back to provide excellent stability to your back.

Your Multifidus lies deep on your back on either side of the spine and connects to the whole lower back. Its main function is to provide stability during back extension as well as providing your upright posture.

Your Diaphragm is the primary muscle for breathing. Its domed shape provides the top of the cylinder of your core. When the TA contracts, the diaphragm tenses up to maintain pressure in the abdomen and therefore providing stability to the spine.

Lastly your Pelvic Floor. Renowned among pregnant women, the pelvic floor muscles provide a sling running from back to front, from the bottom tip of

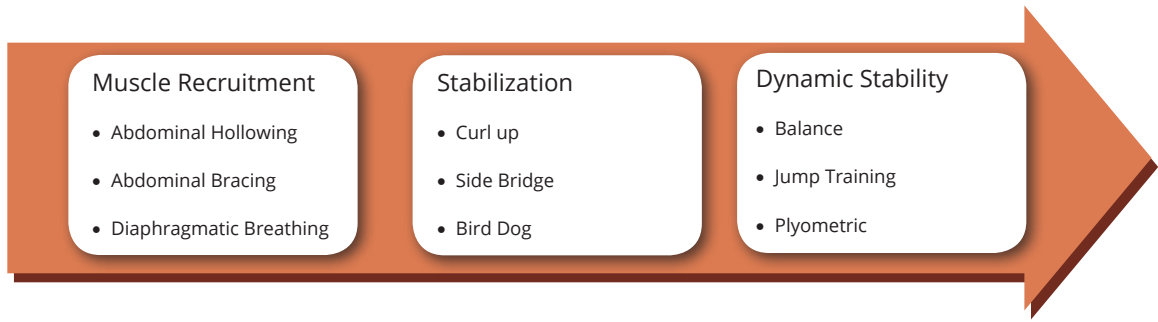
the spine (tail bone) to the front of the pelvis. Your pelvic floor and your TA contract concurrently to form the bottom of the cylinder of muscles.

Power is not produced by the core but rather in the hips and then transferred through a stable or hardened core. Kibler, Press and Sciascia (2006) established that core stability is the ability to control the trunk to allow the greatest transfer of torque to the external segments. Therefore the ability to stabilise the anatomical box "core" could have a significant influence on athletic propulsion performance by avoiding bending and loosening.

Core stability can be achieved through stabilisation of the torso, therefore allowing optimal production, transfer and control of force and motion to the segment throughout a kinetic chain movement. Research has shown the importance and contribution of core stability in everyday human movements, while producing efficient trunk and limb actions for the generation, transfer and control of forces or energy during integrated kinetic chain activities.

It has been hypothesised that optimal sports performance (or we can say elevating to greatness) is closely related to the athlete's core strength, endurance, coordination, flexibility, balance and is an ongoing area of research. The medical literature supports the importance of a strong, balanced core in the prevention of injury. Thus, targeted exercises to promote neuromuscular re-education in athletes with evidence of core dysfunction are crucial to preventing and treating injury, optimizing functionality, and promoting athletic longevity.

Cross-sectional study done by Prieske *et al.* (2016) revealed that inclusion of unstable elements in core-strengthening exercises produced increases in trunk muscle activity and thus potential extra stimuli to induce more pronounced performance enhancements in youth athletes.



A progressive programme that begins with neuromuscular control of the local stabilizers, moves to stabilization exercises to promote co-contraction of local and global stabilizers, and then progresses to dynamic functional activities that require and challenge core stability may be the most effective. The difference between having the edge in your chosen sport will time and time again come down to your ability to maintain the most efficient functioning of your core muscles, hence the reason why people call it the **Powerhouse of an Athlete**

Therefore your core plays a very important role in linking your upper body to your lower body. When your core stability is weak, your ability to efficiently transfer force through the torso to the

upper body or lower body will be reduced, losing force generated during movements utilising your entire kinetic chain. This energy loss compromises the efficiency during competitive sports. This reason alone indicates the importance of core stability for athletic conditioning. So whether you a recreational runner or cyclist, or whether you're an elite sports person, core stability should be the foundation of your initial training regime.

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