



# Core fundamentals in tennis.

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## ABSTRACT

This article focuses on the importance of incorporating core stability exercises in to a tennis player's work out program. It concentrates on the function of the core, exercise examples and why it is specific to improving tennis performance and injury prevention. Exercises are taken from My PocketCoach (2012) to highlight ways to improve this area and demonstrate exactly how to train the core. Movement in tennis begins, and ends at the core of the body.

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## INTRODUCTION

Tennis is a unique sport whereby players are constantly adjusting and adapting to each ball received. In tennis, there is no guarantee that two balls will be received in the same way, demanding a player to consistently change direction and modify their position in relation to each ball. Tennis is played on various surfaces which alters the way in which a tennis player moves and responds to a ball. Quicker surfaces such as a hard courts command players to prepare more rapidly than perhaps a slower court, like a clay court would and thus in turn changing their movement patterns.

Tennis demands a player to employ multi-directional movement patterns that can be dictated by the style of player or opponent. "Upper and lower core strength training provides a stable three dimensional power platform from which the extremities can work during multi- planar, multi-joint and multi-muscle activities that involve acceleration and deceleration forces" (Petersen, 2005, p 98). Upper and lower extremities work together during tennis strokes and movement patterns to ensure that a player arrives to the ball on time, balanced and in the best position possible to hit the ball. The extremities move at contrasting speeds and in different directions, making it extremely important to ensure the foundation of the movement is strong to allow for synchronisation of different movements to occur. Movement in tennis begins, and ends at the core of the body.

The 'core' refers to the base layer of muscles within the body where they inter-connect from the spine to the shoulders, pelvis and back. Core stability describes the strength and activation of the muscles that support the central region of the body, allowing range of motion in the arms and legs and the transfer of power. Without strengthening these muscles in the

trunk of the body, the transfer of power and the creation of fluid movement will be hindered. It is these deeper muscles, that when functioning successfully, allow tennis players to recover and hit optimal shots. During activity these muscle kick in to support the lumbar spine and provide stability to the pelvis and lower back to generate energy and force that in turn creates movement. It is vital for an athlete that these muscles are strong in order to increase range of movement and decrease the likelihood of injury.

My PocketCoach gives players the ability to focus on exercises that aid strengthening of the core area and highlights the significance of having a strong core. Activation of these muscles is not visible and therefore the technique of the shot and the movement of the extremities often overshadows the intricacies of the core. At a subconscious level, both balance and coordination is being practised when completing exercises on unstable surfaces, making activation of the core muscles instinctive (Adapted after Petersen et al., 2004). My PocketCoach not only educates players of the importance but also provides one hundred exercises to promote strong core stability.

## MY POCKETCOACH EXERCISES/CORE EXERCISES

### Exercise 1: The 'Seated Diagonal Torso Twist'.

This is a very relevant exercise to tennis, imitating the rotational movement of a groundstroke. This exercise is to be performed in a controlled manner and challenges the athlete to stay balanced while twisting sideways, emulating the action of a groundstroke, while balancing on a ball. The twisting of the torso while on the ball, an unsteady surface, means that the core muscles are forced to activate in order to stabilise the movement; otherwise, the athlete's action would not be

smooth and would cause loss of balance and in turn the athlete would topple over. With the added resistance of the medicine ball, the upper body is being trained to work with the core muscles activated, exactly what is necessary when hitting tennis strokes. By using the ball as part of the exercise the core muscles are emulating the activation that would be present during the coiling and uncoiling of the body during a groundstroke on court. It is imperative to practise and work on this movement because it is evident in every groundstroke, despite the player's technique. According to Vera- Garcia et al completing exercises on unstable surfaces has been proven to increase muscles activity; in this exercise the ball provides the unstable surface (Vera- Garcia et al., 2000).



**Figure 1. and 2. Starting and rotated position of the 'Seated Diagonal Torso Twist'.**

**Exercise 2: 'Sit Downs with Medicine Ball in Hand'**

This exercise looks at the importance of core stability when practising movement overhead. This is essential in strokes such as the serve and the overhead smash. In this exercise the abdominals are lengthened and shortened throughout the exercise, very similar to the action of overhead shots. The core muscles are crucial in allowing the server to align themselves as throughout the service motion the abdominal and core muscles contract and lengthen to support the spine as it bends backwards to allow the upper body to position itself accordingly (Roetert and Ellenbecker, 2007). It is important to recognise that core stability is important as a base in all strokes.

When teaching tennis to beginners, one of the main struggles is to hit a moving ball, and even harder when overhead. Players suffer with coordinating the movement of their body to reach the contact point of the ball; often players lose balance and struggle to keep technique. This exercise enables the player to work on improving actions overhead while maintaining balance.



**Figure 3. and 4. 'The Supine Bridge & Upper Torso Twist Holding a Ball'.**

**Exercise 3: 'The Supine Bridge & Upper Torso Twist Holding a Ball'**

The Supine Bridge & Upper Torso Twist Holding a Ball exercise tests the athlete's ability to perform exercises while in the bridge position. While lying, with core muscles switched on and feet on the ball, the exercise demands an athlete to rotate slowly from one side to the other while maintaining posture and balance. This is a challenging exercise because the athlete is performing the exercise on an unstable base and then moves in a rotational way with the added weight of the medicine ball. It is important to remain in a consistent position, with core muscles activated, in order not to strain the spine or surrounding muscles. It also trains the players to sustain their strength through the contact point as the exercise requires the players to twist as if they are preparing for a stroke and then follow through. Quick activation of the core supports the lumbar spine and provides stability to the pelvis and lower back to generate energy to create movement.



**Figure 5. and 6. 'Sit Downs with Medicine Ball in Hand'.**

**CONCLUSION**

The impact of core stability training in a professional athlete is imperative to their athletic performance and injury prevention. It is vital to include this type of training in a program to ensure that a solid base is acquired.

Points are often lost by players being out of position or off balance when they hit the ball. A factor playing a large part of this is the lack of core stability to allow the player to recover or

remain in control of the body in order to reach the next ball. Tactically one of the fundamental ways of winning the point is to hit the ball to a place where the opponent is going to struggle to hit the shot comfortably or in their optimal position.

Core stability is vital to preventing injury and is important to be included in a tennis player's fitness program. Core stability contributes to the range of movement in the upper and lower extremities and protects the spine by providing support during activity, this is vital in tennis. Every shot in tennis requires the player to activate their core muscles to make sure that they control their action and recover quickly and effectively.

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