Fit to Play™ & Perform – Core Travel Training.

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**ABSTRACT**

This is a Core Stability Training program for travelling players based on our Fit to Play™ & Perform DVD series. Players can maintain and improve upper and lower core stability with functional exercises that work on the muscle slings in closed and partially closed kinetic chain movements. These exercises are versatile, practical, transportable, and affordable. They can be used by a variety of different age groups including junior and senior players.

**Key words:** Core stability, Functional strength, Stability Balls, Stretch band resistance, Travel.

**Received:** 4 September 2009.
**Accepted:** 5 November 2009.
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**INTRODUCTION**

Training for tennis requires the body to move in and rotate around three different planes of motion at the same time. Unfortunately most machine based exercises often involve or isolate a single joint and only allow movement in one plane of motion. Try designing a core training routine that can be easily followed when travelling that works both the upper and lower core muscle systems at the same time. 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, 2006).

Using a stability ball and stretch bands to do exercises that challenge your balance will help keep you Fit to Play™ & Perform. Training this way strengthens the core (trunk) muscles in all directions of motion and makes use of functional exercises. These exercises are versatile, practical, transportable, and affordable and work on upper and lower core stability. We prefer to use the term ‘stability’ rather than ‘strength’ because strength is just one component of the dynamic stability required (Brukner & Khan, 2007).

Many muscles attach to the ‘lower core’ lumbo-pelvic-hip complex and spine and the ‘upper core’ spine, ribs and scapular region. When activated and recruited properly the stability of the upper and lower core forms the foundation for other movements. The first muscle to be recruited prior to any upper and/or lower body movements is the transversus abdominus. Normally it fires in pre-anticipation of any movement but with dysfunction there is a timing delay and studies have shown that without efficient and optimal recruitment, subsequent spinal dysfunction can occur (Richardson & Jull, 1995).

**Benefits of Core Stability Training** (Adapted after Petersen et al., 2006)

- Improves posture, muscle strength, and combines the upper and lower core.
- Improves joint and muscle position sense (kinesthetic awareness), helping to center the joint and absorb stress..
- Improves stability in a functional hip-extended position.
- Improves ability to counter-rotate upper and lower torso and extremities.
- Improves dynamic balance and movement efficiency.
- Adds additional force vectors of resistance to traditional training methods.
- Helps to improve athletic performance.
- Helps the body to be able to react to unexpected events.
- Training on an unstable surface trains balance reactions and coordination at a subconscious level, facilitating these reactions to become automatic.

These exercises are versatile, practical, transportable, affordable and strengthen the upper and lower core (trunk) muscles in many directions of motion. They will provide a big payoff for sports like tennis that require movements involving rotational and deceleration strength in a hip extended position. Following are some selected exercises from our Core Stability DVD series Fit to Play™ & Perform. Try to do 3-4 different
exercises 2-3 sets of 10-15 repetitions every second day when on the road and progress as you develop more stability.

Warm-Up First

Before starting this or any exercise routine do some light dynamic warm-up exercises like leg swings, high knees and crossover runs. Add a rotational component to your warm-up by doing alternating open stance rotations holding the stability ball.

Figure 1 and 2. Leg Swings. Do 2 sets of 10 leg swings front & back, side to side & figure of 8’s.

Figure 3 and 4. Torso Rotation. Warm up torso rotation and challenge balance with these open stance rotation drills. Do 2 sets of 10 repetitions per side.

Figure 5. Seated Shoulder Diagonal Pull. Sit on a stability ball and lift one leg to challenge balance. Then do shoulder diagonal pull exercises in different positions to improve upper core stability.

Figure 6. Sit Downs. These exercises work the abdominal muscles eccentrically. Sit on a stability ball with knees together and feet apart. Now lean back to 45 degrees engaging your abdominals to slow your descent and then pull you back up.

The upper & lower core muscles are connected by muscles that attach in groups of functional slings from the hips through the pelvis and torso to the shoulder girdle. They help to provide a stable platform for the extremities to work off of and protect your entire back and pelvis against injury during activity. By doing exercises with balls and stretch bands that challenge balance can augment the stability of these functional slings.

Figure 7 and 8. Ball & Band Squats. Squat while squeezing a small ball between your knees and doing a diagonal arm pull or external rotation to connect the upper and lower core muscle groups.
Figure 9 and 10. Hip Hikes. Start in a split squat position with the stability ball above your head. Squeeze the ball and pull down as you drive one knee up and across your hip. This works the anterior oblique sling system.

Figure 11 and 12. Single Leg Squat (ball side). Challenge hip strength, stability and balance with this difficult exercise.

Figure 13 and 14. Split Squat with Shoulder Flexion. Start in a split squat position with a stability ball in hands as you squat down raise into shoulder flexion while squeezing it firmly between hands.

Stretch Band & Ball Precautions

- For individuals new to exercise, see your physician.
- When using resistance tubing, ensure it is of high quality.
- Avoid placing stretch bands or stability balls near heat or in direct sunlight.
- Avoid sharp objects and jewellery
- Start gradually and get a feel for the ball and resistance of the stretch band before progressing or increasing the tension.
- Regularly inspect stability ball and stretch band for wear and tear and replace as appropriate.
- Ensure that stretch cord is securely fastened.

Cooldown

Should include some light stretches immediately after the workout. Then later on try stretching all muscle groups used in the strength routine. Be sure to key in on those that tend to get short and stiff like the hamstrings, hip flexors, calves and pectorals. Static stretches prior to exercise did not prevent lower extremity overuse injuries, but additional static stretches after training and before bed resulted in 50% fewer injuries occurring (Hartig & Henderson, 1999). Get your players to try holding each stretch for 60 seconds and repeat 2-3 times. Past research found that the group that performed 60 second stretches produced no better results than the group that performed stretches for only 30 seconds and subsequently proposed that 30 seconds is the most effective time period to hold a static stretch (Bandy & Irion, 1994).

However over 25 years of practical experience has made me realize that most athletes told to hold a stretch for 60 seconds will probably hold for only 30 seconds.
Figure 15 and 16. Whirlpool Stretches. By stretching in a whirlpool you get the added stretching benefit of the heat and the recovery benefit of the underwater massage.

REFERENCES

https://doi.org/10.1093/ptj/74.9.845


https://doi.org/10.1177/03635465990270021001


https://doi.org/10.1054/math.1995.0243

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