

**TOPIC**

**Core Strength – no equipment**

**Location**

Classroom & Gym

## Overview & Objectives

Your core muscles not only include your abdominals, but also your back, pelvic, and hips.

Building core muscle strength requires more than just abdominal exercises

The abdominal muscles have very limited and specific action. The "core" actually consists of many different muscles that stabilise the spine and pelvis and run the entire length of the torso.

These muscles help control movements, transfer energy, shift body weight and move in any direction.

A strong core distributes the stresses of weight-bearing and protects the back.



## Why is this important for your clients?

**It is all about abs!!** – Almost everyone who exercises is looking for the best abs exercise routine. There are always new exercises, fitness classes, products, gadgets or routines claiming to strengthen the abdominal muscles. Many are ineffective and may increase your risk of injury.

**Strengthening the Core Reduces Back Pain** - Weak and unbalanced core muscles that are linked to low back pain. Weak core muscles result in a loss of the appropriate lumbar curve and a swayback posture. Stronger, balanced core muscles help maintain appropriate posture and reduce strain on the spine.



**Core Strength Training and Athletic Performance** - The muscles of the trunk and torso allow the transfer of powerful movements of the arms and legs. All powerful movements originate from the centre of the body out, never from the limbs alone.

**Athletic Injuries** - Training the muscles of the core also corrects postural imbalances that can lead to injuries.

**No Equipment Core Strength Exercises** - Body weight exercises are very effective for developing core strength.

## Activities to be completed in this class

**Day 1**

- Objectives of core strength training
- Anatomy of core muscle groups
- Stretches and warm ups
- Basic movements explained
- PRACTICAL – undertake training in gym setting and variations on selected exercises

**Day 2**

- Review previous day
- Brainstorm and create a training workout
- Complete a work out sheet
- Now role play these in pairs at the gym
- Discuss modifications for special populations

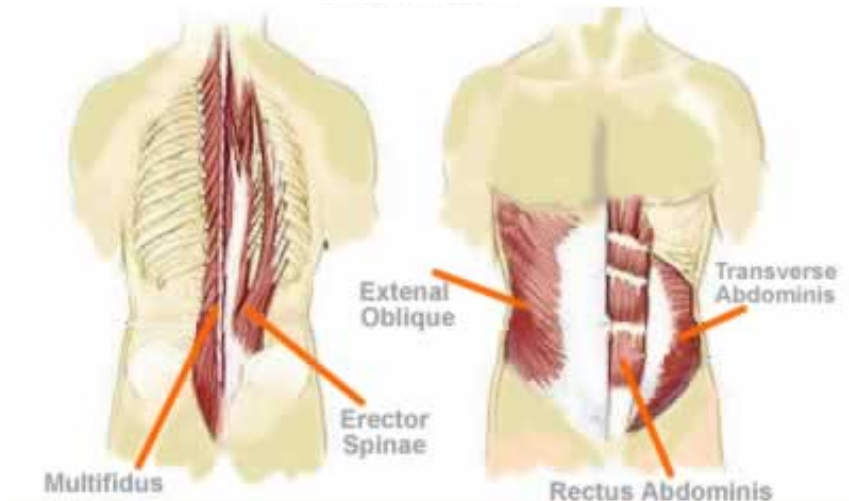
## The Anatomy

What are the Core Muscles?

The list of muscles that make up the "core" is somewhat arbitrary and different experts include different muscles. In general, the muscles of the core run the length of the trunk and torso; and when they contract they stabilize the spine, pelvis and shoulder girdle and create a solid base of support. We are then able to generate powerful movements of the extremities.

The following list includes the most commonly identified core muscles as well as the lesser known groups. The goal of core stability is to maintain a solid, foundation and transfer energy from the centre of the body out to the limbs. Muscles that accomplish this goal include:

- Rectus Abdominis - often referred to as the "six-pack"
- Erector Spinae- runs along your neck to your lower back
- Multifidus - these muscles extend and rotate the spine.
- External Obliques - located on the side and front of the abdomen.
- Internal Obliques - located under the external obliques, running in the opposite direction.
- Transverse Abdominis
- Hip Flexors - located in front of the pelvis and upper thigh.
- Gluteus medius and minimus - located at the side of the hip
- Gluteus maximus, hamstring group, piriformis - located in the back of the hip and upper thigh leg.
- Hip adductors - located at medial thigh.



## Specific Stretches

### Back/Shoulder Stretch

Take the arms straight out in front of you, palms facing each other. Rotate the arms until the palms face out, cross one arm over the other and press the palms together then stretch the arms out, drop the head and round through the back while contracting the abs to deepen the stretch. Hold for 30 seconds.



### Chest Stretch

Lie face up on the ball and roll down until your back is fully supported. Relax your hips and head and let your arms fall out to the sides for a relaxing chest stretch. Hold for 3-5 breaths.



### Child's Pose Child's Pose

Sit back on your heels and bring your arms down along your body, palms facing up. Relax and breathe for as long as you like



### What are the best exercise types for core strength?

A study done at the Biomechanics Lab at San Diego State University that looked at a variety of common abdominal exercises in order to determine the best ab exercises and what really works to strengthen abs. The study compared 13 abdominal exercises, ranging from the traditional ab crunch to more complicated activities, using at-home and gym equipment.

#### **RESULTS of Study** > Best to Worst Exercises for Core Strengthening

1. Bicycle Crunch Exercise
2. Captain's Chair Exercise
3. Ab Crunch on an Exercise Ball
4. Vertical Leg Crunch
5. Torso Track
6. Long Arm Crunch
7. Reverse Crunch
8. Crunch with Heel Push
9. Ab Roller
10. Plank (Hover) Exercise.
11. Traditional (Basic) Abdominal Crunch
12. Exercise tubing pull
13. Ab Rocker



*Captains Chair*

### With Core – it is more than just brute strength

There is more to a strong core than just strength. “Muscle function” is also needed and this is built up of strength, suppleness and the ability to access this as and when the body needs it within a fraction of a second. The only way to achieve this is to build up the strength of the muscles previously mentioned, stretch them all as regularly as you can and then practice specific core exercises.

### Tips for Designing an Effective Abdominal Exercise Routine

Select 5 to 10 exercises that combine:

1. Spinal flexion - such as:

- Ab Crunch on an Exercise Ball
- Long Arm Crunch
- Reverse Crunch
- Basic Crunch
- Captain's Chair

2. Rotation - such as:

- Bicycle Crunch
- Seated Oblique Twists with Medicine Ball

3. Lateral Flexion - such as:

- Crossover Crunch
- Standing Side Bends

- ⇒ Perform 10 repetitions of each exercise and move to the next exercise.
- ⇒ Change your exercise routine every 2 to 3 weeks.
- ⇒ Maintain good form with each muscle contraction.
- ⇒ Contract your abs and pull your belly button in toward your spine with each contraction.
- ⇒ Maintain a slow and controlled movement.

- ⇒ Support your head when you need to, but don't pull on your head or pull your chin to your chest.
- ⇒ Always keep your head in neutral
- ⇒ Do not hold your breath, exhale on exertion.

## Planning a Routine

Considerations for planning your core strength routine:

- What are your client goals e.g. strength, tone, muscle mass
- What level of fitness and skill is your client
- What time have you got to complete the training session
- What is appropriate warm up techniques
- What is the sequence of exercises

## Templates Core Strength 1

### Bridge - Double Leg

Complete 2-4 sets of 8-12 repetitions. Rest 60s between sets.

### Bridge - Feet On Exercise Ball

Complete 2-4 sets of 8-15 repetitions. Rest 30s between sets.

### Elbow to Knee Crunch

Complete 2-4 sets of 8-12 repetitions. Rest 60s between sets.

### Elbow to Knee Crunch - Exercise Ball

Complete 2-4 sets of 8-12 repetitions. Rest 60s between sets.

### Elbow to Knee Crunch - Alternate Leg Extensions

Complete 2-4 sets of 8-15 repetitions. Rest 30s between sets.

### Pilates Hundreds

Complete 20 sets of 5 repetitions. Rest 0 between sets.

### Plank - Elbows & Toes

Hold for 30-90 seconds. Repeat 2-4 times.

### Abdominal Crunch - Feet Flat

Complete 2-4 sets of 8-12 repetitions. Rest 60s between sets.

### Abdominal Crunch - Knees Up

Complete 2-4 sets of 8-12 repetitions. Rest 60s between sets.

### Abdominal Crunch - Toe Touches

Complete 2-4 sets of 8-12 repetitions. Rest 60s between sets.

### Abdominal Crunch - Toe Touches - Medicine Ball

Complete 2-4 sets of 8-12 repetitions. Rest 60s between sets.

### Abdominal Crunch - Mini Curl Ups - Cross Legged

Complete 2-4 sets of 8-15 repetitions. Rest 30s between sets.

### Arabesque Position - Hold

Complete 2-5 sets of 30-60 repetitions. Rest 60s between sets.

### Arabesque - Touchdowns

Complete 2-4 sets of 6-12 repetitions. Rest 60s between sets.

### Arabesque - Torso Rotations

Complete 2-4 sets of 8-12 repetitions. Rest 60s between sets.

### Abdominal Brace - Foot Slides

Complete 2-4 sets of 8-15 repetitions. Rest 15s between sets.

### Abdominal Brace - Large Leg Circles

Complete 2-4 sets of 8-12 repetitions. Rest 30s between sets.

### Abdominal Brace - Leg Fall Out

Complete 2-4 sets of 8-15 repetitions. Rest 15s between sets.

### Abdominal Brace - Leg Lower - Figure 8

Complete 2-4 sets of 5-10 repetitions. Rest 30s between sets.

Templates Core Strength 1

Exercises	Sets	Reps	Rest	Load				
Bridge - Double Leg	2-4	8-12	60s					
Bridge - Feet On Exercise Ball	2-4	8-15	30s					
Elbow to Knee Crunch	2-4	8-12	60s					
Elbow to Knee Crunch - Exercise Ball	2-4	8-12	60s					
Elbow to Knee Crunch - Alternate Leg Extensions	2-4	8-15	30s					
Pilates Hundreds	20	5	0					
Plank - Elbows & Toes	2-4	30-90	0					
Abdominal Crunch - Feet Flat	2-4	8-12	60s					
Abdominal Crunch - Knees Up	2-4	8-12	60s					
Abdominal Crunch - Toe Touches	2-4	8-12	60s					
Abdominal Crunch - Toe Touches - Medicine Ball	2-4	8-12	60s					
Abdominal Crunch - Mini Curl Ups - Cross Legged	2-4	8-15	30s					

Exercises	Sets	Reps	Rest	Load				
Arabesque Position - Hold	2-5	30-60	60s					
Arabesque - Touchdowns	2-4	6-12	60s					
Arabesque - Torso Rotations	2-4	8-12	60s					
Abdominal Brace - Foot Slides	2-4	8-15	15s					
Abdominal Brace - Large Leg Circles	2-4	8-12	30s					
Abdominal Brace - Leg Fall Out	2-4	8-15	15s					
Abdominal Brace - Leg Lower - Figure 8	2-4	5-10	30s					

## Templates Core Strength 1

### Bridge - Double Leg

---

- Lie face up, knees bent, feet flat on floor
- Preset lower abdominals
- Lift hips to align with shoulders & knees
- Pause for 2-3 seconds, lower & repeat
- Hold neutral spine position throughout



Complete 2-4 sets of 8-12 repetitions. Rest 60s between sets.

### Bridge - Feet On Exercise Ball

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- Lie face up, feet on stability ball, knees & hips bent to 90 degrees
- Preset lower abdominals
- Press heels into the exercise ball, lift the hips to align with shoulders & knees
- Maintain neutral spine position



Complete 2-4 sets of 8-15 repetitions. Rest 30s between sets.

### Elbow to Knee Crunch

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- Lie on back, one foot flat on the floor
- Other foot resting across knee
- One hand across body, other behind head
- Keep legs still, crunch forward & rotate
- Touch elbow on opposite knee



Complete 2-4 sets of 8-12 repetitions. Rest 60s between sets.

### Elbow to Knee Crunch - Exercise Ball

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- Lie with lower back on crest of ball
- One foot flat on the floor, other leg extended
- Hold for support with one hand, other hand behind head
- From an extended position over the ball
- Crunch forward, touch elbow to opposite knee



Complete 2-4 sets of 8-12 repetitions. Rest 60s between sets.

## Elbow to Knee Crunch - Alternate Leg Extensions

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- Lie face up, hands behind low area of neck
- Bend knees to 90 degrees, feet off floor
- Curl up through the mid section & touch opposite elbow & knee
- At the same time extend the other leg
- Maintain the curl up position & repeat action on other side



Complete 2-4 sets of 8-15 repetitions. Rest 30s between sets.

## Pilates Hundreds

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- Lie face up, knees & hips bent, ankles slightly above knees
- Arms by side, tuck chin to chest & curl up
- With shoulders off mat, extend the legs
- Exhale in time with the bouncing action of the arms
- Perform five small exhalations & one inhalation, then repeat
- Maintain abdominal control & curl up position throughout
- The term hundreds is in reference to 20 sets of 5 Complete 20 sets of 5 repetitions. Rest 0 between sets.



## Plank - Elbows & Toes

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- Lie face down, support body on forearms & toes
- Ankle, hip & shoulder in alignment
- Maintain neutral spine position



Hold for 30-90 seconds. Repeat 2-4 times.

## Abdominal Crunch - Feet Flat

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- Lie face up
- Knees bent, feet on the floor, hands on thighs
- Crunch forward, slide fingers to knees
- Return shoulders to floor

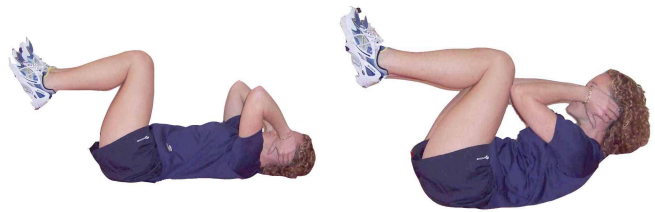


Complete 2-4 sets of 8-12 repetitions. Rest 60s between sets.

## Abdominal Crunch - Knees Up

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- Lie face up, feet off the floor
- Knees above hips, hands on ears
- Keep legs still, crunch forward
- Touch elbows on thighs
- Return shoulders to floor



Complete 2-4 sets of 8-12 repetitions. Rest 60s between sets.

## Abdominal Crunch - Toe Touches

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- Lie face up, legs vertical, extend arms toward feet
- Curl up & touch feet
- Return shoulders to floor
- Legs remain vertical throughout

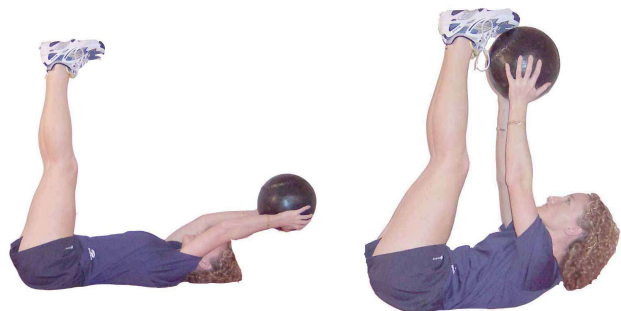


Complete 2-4 sets of 8-12 repetitions. Rest 60s between sets.

## Abdominal Crunch - Toe Touches - Medicine Ball

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- Lie on back, extend legs vertically
- Hold medicine ball overhead
- Curl up & touch medicine ball on feet
- Return shoulders to floor
- Legs remain vertical throughout



Complete 2-4 sets of 8-12 repetitions. Rest 60s between sets.

## Abdominal Crunch - Mini Curl Ups - Cross Legged

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- Lie face up, knees bent, one leg crossed on other thigh
- Place hands on the lower neck area
- Preset lower abdominals
- Repeat mini curl ups, maintain leg position



Complete 2-4 sets of 8-15 repetitions. Rest 30s between sets.

## Arabesque Position - Hold

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- Adopt the arabesque position
- Shoulders, hips, knees & ankles aligned & close to horizontal
- Maintain balance

Complete 2-5 sets of 30-60 repetitions. Rest 60s between sets.

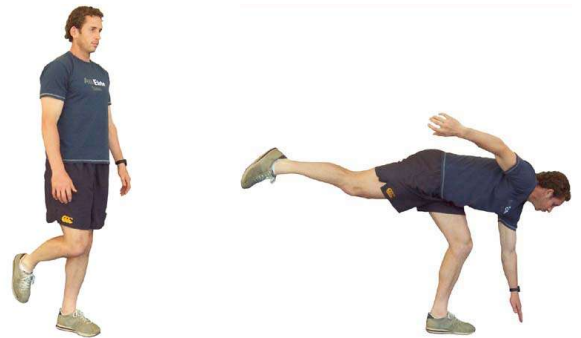


## Arabesque - Touchdowns

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- Stand on one leg
- Slowly bend forward from hip, extend other leg backward in Arabesque position
- Shoulders, hips, knees & ankles aligned
- Reach forward with one hand & touch the floor
- Stand & repeat
- Maintain balance

Complete 2-4 sets of 6-12 repetitions. Rest 60s between sets.



## Arabesque - Torso Rotations

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- Adopt the arabesque position, arms out wide
- Shoulders, hips, knees & ankles aligned & close to horizontal
- Rotate trunk so hand is pointing to upward
- Return to start position & repeat
- Maintain good balance & alignment throughout

Complete 2-4 sets of 8-12 repetitions. Rest 60s between sets.



## Abdominal Brace - Foot Slides

---

- Lie face up, knees bent, feet on the floor
- Preset lower abdominals
- Slowly slide one leg out & back along the floor
- Maintain neutral spine position

Complete 2-4 sets of 8-15 repetitions. Rest 15s between sets.



## Abdominal Brace - Large Leg Circles

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- Lie face up with legs straight
- Preset lower abdominals
- Lift & rotate one leg at a time in a circular path
- Maintain neutral spine position



Complete 2-4 sets of 8-12 repetitions. Rest 30s between sets.

## Abdominal Brace - Leg Fall Out

---

- Lie face up, knees bent, feet on floor
- Preset lower abdominals
- Slowly allow one leg to rotate outward towards the floor - relax adductor muscles
- Hold neutral spine position - control pelvic rotation



Complete 2-4 sets of 8-15 repetitions. Rest 15s between sets.

## Abdominal Brace - Leg Lower - Figure 8

---

- Lie face up
- Preset lower abdominals & lift both legs to about 45 degrees
- Ensure the legs are straight & feet together
- Move the feet to draw an imaginary figure 8
- Maintain neutral spine position, eliminate arching of low back



Complete 2-4 sets of 5-10 repetitions. Rest 30s between sets.

**“Ab-solute Facts:” Abdominal Myths Dismissed**  
**By Brent Brookbush NSCA & IFPACPT, ACSM H/FI, NASM CPT/IFS/SFS**

Research facilities all over the world work diligently to bring us up-to-date information about our bodies, exercise, and health/fitness.

So, why does the American popular media feel a need to ignore or somehow taint this information?

The individuals, who write and edit popular books and magazines, appear on talk shows, and bring us the latest break through via infomercial, are intelligent people. Why do they refuse to research credible sources and bring you, the reader, one step closer to the truth? The harsh reality is, many books and magazines are endorsed or owned by product manufacturers. Research in magazines, books, talk shows, or even the news, is often paid for by the product's manufacturer. (How's that for unbiased market research.) So much of the information pumped out by our popular media is a scam, ads in disguise and trumped-up press releases, that its hard to sift through all the misinformation and find a fact in this sea of fiction.



The truth is not always easy to hear, and even harder to “sell” to the public. However, hard truth is hardly hopeless. Every myth that you get conned into is a step in the wrong direction, and we all know the shortest path between any two points is a straight line.

It is about time that the American public and fitness professionals alike stood up and made the media back up their “B.S.”. We need to force the media to lead us down the path of fastest possible, not fastest profitable. Abdominal, waist line, midsection, and “how to get a six-pack” information might be the most shrouded in myth. There is no lack of creativity or energy in promoting any one of hundreds of products that supposedly improve your midsection, but why is it that only a handful of individuals sport that sexy six pack?

**“Ab-solute Facts & Myths Dismissed”**

**Fact:** The majority of individuals do not have a visible six pack because the muscle is covered by belly fat.

**Fact:** No amount of abdominal exercise is going to specifically target that stubborn belly fat

**Fact:** The primary focus for those looking to get a sexy waist line should be on total body fat reduction.

**Fact:** Everyone is born with the six-pack muscle, known as your rectus abdominis or “abs” for short.

**Fact:** Your abs do not attach to your legs, so your abs cannot raise, lower, or twist your legs in any way.

**Myth:** You can target your upper or lower abs.

**Myth:** Electric stimulation will get you the abs you always wanted.

**Myth:** You should train your abs every day.

**Fact:** In five separate studies using electromyography to compare several abdominal exercises, the standard crunch was found to create significantly larger EMG activity.

**Fact:** In three separate studies doing crunches on a stability ball created more EMG activity than the standard crunch.

**Myth:** We should all have six-packs.

# what is by Dr. John Spoto core strength?

Core strength is a difficult concept to define but easy to recognize. The explosive power of a Michael Jordan dunk, the distance of a Tiger Woods drive, the balance and control of Wayne Gretzky, or an awesome header by Abby Wambach are all examples of athletes demonstrating core strength.

We all have core muscles. They are your strongest and largest muscles which produce movement around your center of gravity. They connect your upper and lower body movements when running, jumping, pushing, pulling, climbing, or throwing. They also constitute your "power zone" which radiates outward in concentric circles during power movements in sport, work, or everyday activities

Why is core strength important? Because the ability to move with power is a distinct advantage to an athlete, laborer, or homemaker. To optimize an individual's ability to move and act with power, movements must be coordinated and performed with balance. Your muscles must be flexible to move through a full range of motion. Power enhances the ability to accelerate through a movement or change of direction

Whether you are a basketball player attempting an ankle-breaking cross over, an "industrial athlete" pushing a lawnmower, or a homemaker mopping a floor, core strength is essential to accomplish your task efficiently with less chance of injury.

But don't confuse power with strength. Exercises such as the bench press, seated arm curls, or sit ups tend to increase strength, but do little to improve core strength and therefore power. These tend to isolate individual muscle groups and are not ground-based, so there is no transfer of power from the lower extremities through the core to the upper extremities. They may be important, but they do not increase power production significantly. By contrast, systems like Pilates, yoga, tai chi, or step aerobics do include most or all of the components necessary to improve power.

The training programs of many college and pro athletes may utilize some of the above systems, but the emphasis will be on ground-based activities requiring full body movements against resistance. This type of "sports performance" training includes plyometrics, ballistics (medicine balls), and free weights. It also emphasizes Olympic and accessory lifts. This approach to training stimulates power production and enhances coordination, balance, flexibility, and agility. And the good news is that the training concepts these elite athletes utilize are now available to the general public.

WANT TO IMPROVE YOUR OWN CORE STRENGTH? Stand about a foot from a wall with your spine flat against the surface and your feet shoulder-width apart. Tighten your abdominal muscles to flatten your spine to the wall. Slowly slide down until your knees are bent to 90 degrees keeping your head, spine and pelvis against the wall. Hold for 10 seconds and return to standing by pushing off your heels. Relax and repeat.



ABOUT THE AUTHOR Dr. John Spoto graduated from SUNY Cortland with a BS in Physical Education and Athletic Training. While there he played football and lacrosse. He obtained a Doctor of Chiropractic degree in 1982 and is now the CEO of Star Physical Therapy and Sports Performance. He is married to Dr. Marcia Miller and they have six children. Dr. Spoto can be contacted at [starsportperformance@hotmail.com](mailto:starsportperformance@hotmail.com).

## EXPLOSIVE POWER



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## Core Strength Training for Endurance Athletes

**Dougal Allan (BPhEd [Hons])**  
**23rd May 2008**

It is widely recognised within endurance athlete circles that having a 'strong core' or building 'core strength' is an important ingredient in a weekly training schedule. However, what is less clearly understood is the What? Why? And How? Of core strength. In this first of two articles I will address the former first, then look at why and how.

### *What...?*

When we typically think of the 'core' we tend to think about the abs. "Let's finish with some core" usually instigates a few crunches and sit-up movements. However the core must include any muscle groups that work to stabilise the trunk, because this is the *function* of the 'core'. If this is the case, then the core can include all abdominal muscles (both deep and superficial, lateral and medial, superior and inferior etc), the gluteal group (i.e. the hip extensors), hamstrings, posterior muscles of the back (particularly lower, e.g. *erector spinae*), hip flexor muscles, the quad group; basically any muscles located between the chest and the knees – stabilising the hips and pelvis. So it soon becomes apparent that building core strength can actually be a lot more complex than a five minute sit-up routine at the end of a workout.

### *Why...?*

So *why* is core strength important? When you look at the way the human body moves through space it soon becomes obvious why core strength is so important. The core is the foundation of any movement. The body moves in segments and the first segment to contribute to a movement is always the core. Let us take throwing a tennis ball as an example. Think about how you would throw a ball. You take a step forward (left foot if you are right handed), then your shoulder moves forwards, followed by your elbow, then the wrist, finally the fingers thrust in the same direction and the ball is released and

propelled forwards. But if we return to the beginning, before the foot even started its forward movement, what had to be engaged first? That is right, the core. More specifically in the case of throwing a ball, the obliques (left side if right handed), the L hip flexor, the TA's (*Transverses abdominis*) and of course the good old '6-pack' (*Rectus abdominis*).

So if all movements should begin with appropriate activation of the core, what happens if the core is not developed sufficiently to cope with the demands of an athlete's training regime? Well, there are many potential problems that may occur. Let's just look at a couple of important ones. Posture is very important for any aspect/form of endurance sport. Without good posture the body cannot function properly, for example the lung capacity is compromised and therefore oxygen supply becomes hindered. It is possible that injury risk is also increased significantly. Take a runner who has not included a specific core strength plan in her weekly schedule. Her obliques are one of many muscle groups that may be under-developed. Her lateral and rotational stability is therefore likely to be hindered. Her hips may drop excessively during her running action and will thus compromise the level of stress on the iliotibial (IT) band, her patella tracking, her foot and ankle position during the weight bearing phase of her gait and so on. In other words, if the core is weak – any structure below (and often above) the weakened area is placed at a greater risk of injury.

### *How...?*

So *how* is core strength developed for endurance sport? This question is not easily addressed within the constraints of an explanation as brief as that intended for this article. However the athlete should always start by asking "what are the demands of my sport?" If a multisport athlete wants to improve his core strength he must ensure



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the movements he performs during the core session are specific to the movements involved in running, cycling, and kayaking/swimming. Let us focus on kayaking for this example.

Kayakers need enormously strong core muscles to support the rotation and counter-reactive movement of paddling. The obvious aspect of core strength for kayaking is abdominal strength because how do kayakers move fast? By pulling their paddle through the water to move the kayak forwards. Without 'abs' a kayaker would fall forwards as she pulls backwards. This is where the abs comes in, they counter this action. Remember Newton? "For every action there is an equal and opposite reaction". The efficient and economic kayakers also use a fair amount of rotation during their paddle stroke. Basically this is aimed at recruiting the 'bigger' muscles of the core and back rather than relying on the arms which are much smaller relatively and will fatigue very fast. Therefore the rotational muscles of the core must be appropriately developed also, especially the *obliques*.

Finally, it is important to realise that core strength for endurance purposes must be just that – *endurance focussed!* How would 5 minutes of core each day help a marathon runner maintain a stable platform through her core during a two hour training run? I believe a core session should be included in

a similar way to any other session in the weekly schedule. I.e. for a triathlete training 14 hours a week with each session varying in duration from 45 minutes to 3 hours, I would suggest an hour-long core session should be included once or twice a week – no more. I say no more because there is little evidence at present that more than one or two solid core strength sessions each week provides any significant advanced benefit for endurance athletes – you are better doing another run or better still, resting...

So, if you remember anything from this article, please try to remember these two things:

Core exercises must be functional, i.e. the movements must be in some way relevant or specific to the movement requirements of the sport.

Factor one or two hour-long core sessions in each week if you are serious about improving your endurance performance.

In the second article I will outline how to structure a core strength session and suggest some specific exercises that will benefit endurance athletes with a focus on multisporters. In the mean time if you have any further questions on core strength or multisport in general, please just email a coach at [www.one2onemultisport.co.nz](http://www.one2onemultisport.co.nz). We would be happy to help!

