

# CORE STABILITY



*- What's it all about??*

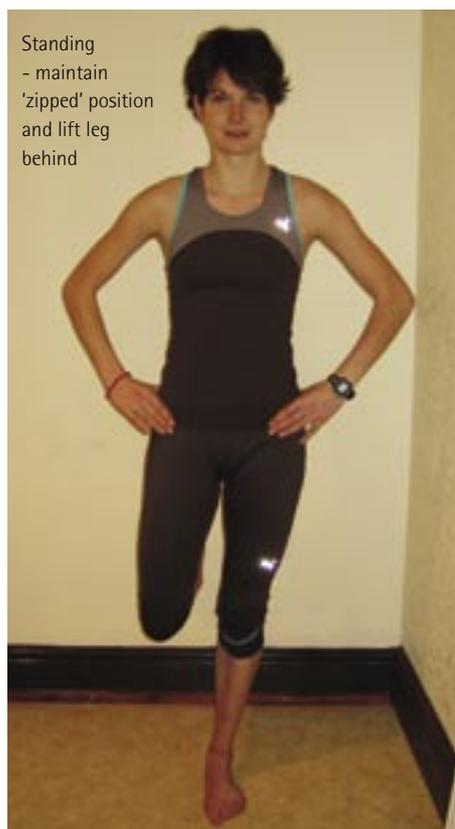
## Core Stability

'Core stability', 'Pilates' and 'The Alexander Technique' are hot phrases at the moment, but as a runner, do you understand and realize the importance of these types of exercises to you? The terms refer to exercise programmes which focus on the correction of body alignment and posture during routine daily activities but also more active sports related activities.

I have been teaching these types of exercises for over 20 years. The ideas aren't new, but the fitness world has recently introduced them into classes and videos making people and athletes more aware of their importance.

I intend to spread this subject over 2 articles. There is plenty of information available both published and on the web for anybody who wants to research it further.

The core muscles are the ones which are deep in the centre of the body mainly attaching to the spine, pelvis and scapulae (shoulder blades). They act as a solid foundation whilst the limbs move around the torso – they are stabilizers of the body – hence the term - core stability. You can test this by putting your fingers onto your low back and then practice stepping forwards and backwards – as you place your right foot down on the floor – the muscles on the left of your spine contract to stabilize your body as you take the weight. This occurs without you even thinking about it.



If you consider the number of steps in a 10 mile run – the core muscles have to work for a long period of time maintaining the stability in the centre of the body – if they aren't trained appropriately they will not support you adequately for this duration of time and fatigue can set in. This can then lead to an altered running style, possibly resulting in injury. To run, your core stability muscles require specific endurance training to maintain the correct body alignment for every step - for the whole duration of the run. It is easy to focus on cardiovascular training, upper body training, speed/strength/stamina training, but how many of you incorporate 2-3 core stability sessions per week? From the athletes I see – from club level to international level - very few of you incorporate these types of exercises yet they should be an essential part of your training.

The 'core' muscles are the transverses abdominis, multifidus, internal oblique, paraspinal, and the pelvic floor muscles. They are nature's corset. As I've said – these muscles are stabilizers – not movers – doing 100 sit-ups focuses on the rectus abdominis muscle down the centre of the abdomen which gives you a 6-pack, but unless the core stability muscles are specifically targeted prior to the exercise, the core stability muscles won't be working effectively.

## How to Contract the Core Stability Muscles.

To be able to train these muscles, it is important to recognize how to contract them effectively. Whilst it is something which you have to practice initially, it will eventually become 2<sup>nd</sup> nature. It is like learning to drive a car, you initially have to think about every action – mirrors, gear, hand position on the wheel etc. but eventually you do it without even thinking.

### This first exercise is the most important and must be perfected before progressing.

- 1 Lie on your back with your knees bent but your feet fixed on the floor.
- 2 Place a small pillow under your head or a rolled up towel under your neck to offer some light support.
- 3 Position your hands on your abdomen and make them rock up towards your chest by flattening your back against the floor, then rock them back down towards your feet by lifting your spine away from the floor (if you have a back problem, do not push too far into this position).
- 4 Now position your abdomen so that it is central to these 2 movements – your pelvis should now be in a 'neutral' position with a small gap between the floor and your lower back.
- 5 Breathe in and relax your stomach muscles.
- 6 As you breathe out, pretend that you are zipping up a pair of tight jeans (Pilates instructors refer to this activity as 'zipping up'). Draw your abdomen

in as though your belly button is going towards the floor, but keep your hands on your stomach to make sure that the pelvis itself doesn't move - you are hollowing your abdomen but the pelvis must stay in its neutral position and not rock up or down. You can also pretend that you are trying to stop yourself passing urine which helps you to focus on which muscles you need to contract (or as 1 guy once said to me – pretend you are on the way home from the pub after 10 pints and desperately need a wee, you are just about to relieve yourself when a policeman appears around the corner – the muscles you would contract to stop yourself are the ones you need to focus on!)

- 7 Learn to 'relax' in this position – breathe in and out normally but keep the abdomen hollowed maintaining the co-contraction of the core stability muscles for 10 seconds. Remember - this isn't a forceful movement – it is a gentle contraction of the muscles as the aim is to train the muscles for endurance not strength. If you can see your abdominal muscles bulging or your 6-pack you are using the rectus abdominis muscle – not the right muscle – your abdomen should be hollowed.

This exercise can take weeks or months to perfect, but this must be mastered before moving onto the more complex exercises.

## Basic Core Stability Exercises

Once you feel you have mastered the ability to contract the core stability muscles and can remain relaxed whilst breathing normally, try these other exercises :

- a) In the same position as before, straighten one leg down to the floor then slide it back again whilst maintaining that neutral 'zipped' position. Try doing alternate legs.
- b) Same position as previous, take alternate arms above the head and then back to the abdomen. Be aware of keeping the shoulder blades against the floor, if your chest rises away from the floor as you do it the core muscles aren't maintaining that 'zipped' position. Don't worry if you can't get your hands onto the floor above your head, it is better to maintain the hollowed abdominal position.
- c) Still on your back with your knees bent and feet on the floor, 'zip up', then lift one leg off the floor towards the chest until the hip and knee are approx at 90°, hold for 5 seconds then lower. Repeat with the other leg – keeping 'zipped' all the time.
- d) Same starting position, this time let one knee roll out to the side and back in again. Keep 'zipped' and make sure that the other knee doesn't move during the exercise. Repeat with the other leg.

- e) Lie on your stomach, arms by your side, 'zip up', then lift 1 leg up behind, hold for approx 5 seconds then lower and repeat with the other leg.
- f) Practice standing in the 'zipped' position. The feet should be slightly apart, hips over the feet, abdomen 'zipped', knees relaxed and slightly bent – not locked straight, shoulder blades down, chin parallel to the floor, then pretend that a piece of elastic is pulling from the top of your head towards the ceiling making you as tall as possible.
- g) Once you can stand in the 'zipped' position, lift one foot off the floor and bend the knee behind – maintain the position and don't let the pelvis move **at all!!!!** This can be progressed by closing 1 eye, then 2 eyes whilst maintaining the position. This is an excellent exercise to improve your balance, co-ordination and control for running. How many times do you lift your foot off the floor when out running? Can you maintain your 'zipped' position whilst doing it in a controlled situation at home? If not – what's happening to your running style whilst out training and racing?

These are very basic exercises, but they are important to master before moving on. The 'zipped' position is one which you should be able to achieve whatever activity you are doing.



Keep abdomen 'zipped' and raise leg behind – do not allow any back movement – only leg lift!

### Food for Thought!

Runners are often advised to get orthotics because they pronate. If the core stability muscles are weak – or not strong enough for your particular style of running - the torso isn't being stabilized whilst your arms and legs are moving. This could result in other problems :-

- 1 in the pelvis and gluteal muscles (in the buttocks) resulting in poor hip and pelvic control,
- 2 in the hamstrings because the pelvis isn't in a neutral position so they are either being pulled tighter or aren't under the appropriate tension
- 3 in the ilio-tibial band and lateral quadriceps problems due to the lack of hip and pelvis control

- 4 in the knee due to poor control from the quadriceps, gluts and hamstrings resulting in a tendency to let the knee drift inwards
- 5 in the foot and ankle due to the increased pronation as a result of the mal-alignment of the leg due to the lack of stability from the core!!!!!!

I am a supporter and supplier of orthotics at the right time and in the right place – but before jumping to the conclusion that you need orthotics, you may need to do some core stability exercises to help to correct the alignment of your lower limb!

### Proof of the Pudding

Research has shown that core stability training is essential to reduce the incidence of sports injuries. I work closely with an international athlete and over the last 18 months we have focused on improving the core stability. Initially this was only for a few minutes per day as the muscles fatigued quickly, but as the strength improved this was changed to 2-3 half hour sessions per week. The result - a long-term injury has resolved, the running style has improved and there have been some excellent race results.

Try it and see – start with just a few minutes each day so that you are ready to move onto the next stage by the next article. It will definitely make a difference to your performance and subsequently your results.



Starting position



Leg raised so hip and knee at approx 90 degrees