

Learning to use your inner core unit stability muscles

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Recent evidence (2014) confirms that having a strong core on its own does not prevent you from having back pain. There are multiple contributing factors to back and pelvic pain and having a weak core or having poor awareness of your core is one of these contributing factors. Learning to use your core correctly may assist in helping you return to activity/sport and decrease your risk of pain reoccurrence.

'Core' is a very broad term. Many people that are performing 'core' exercises have no awareness of how to use their deeper core. To gain optimal core stability it is essential that you learn how to use your inner unit core muscles correctly. Ultrasound studies have shown that these inner unit muscles can become inhibited after just one episode of back pain. One theory is that they provide deep stability to your spine and form the foundations (just like foundations of a building) to which larger, more difficult 'outer unit' exercises/movements can be provided. Clinically, correctly engaging your inner unit core muscles has shown to immediately decrease pain with bending and lifting activities.

Practical tips to using your transverse abdominus muscle (major deep core muscle):

- Lie on your back (on a foam roller if you have one) with your knees bent
- Place your index and middle fingers 2cm inside and 2cm down from the front of your pelvic bones (ASIS)
- Take a breath in, slightly larger than normal. When you breathe out **slowly** draw your lower stomach muscles towards your spine (focus on your lower stomach muscles only). Think about drawing them away from the elastic of your pants)
- At the end of your breathe out release your stomach muscles and feel for the release under your fingers
- Use your fingers to increase your awareness of when your transverse abdominus is contracted and when it isn't

Remember:

- You are not trying to hold your breath. **Breathe** as smooth as a Ferris Wheel (e.g. slowly in, slowly out)
- Relax your shoulders and focus on stomach breathing
- You are not trying to push your back into the floor. Keep it neutral
- Your larger, outer unit muscles (abdominals, obliques) should be relaxed throughout
- You are aiming for a low level contraction (<30% effort). You should only feel a slight change in pressure under your fingers
- Practice at least 10 repetitions daily for best results

Goal 1: Be able to feel the contraction and release of the transverse abdominus under your fingers

Goal 2: To be able to hold a low level contraction (<30% effort) for 10 x 10 seconds whilst breathing

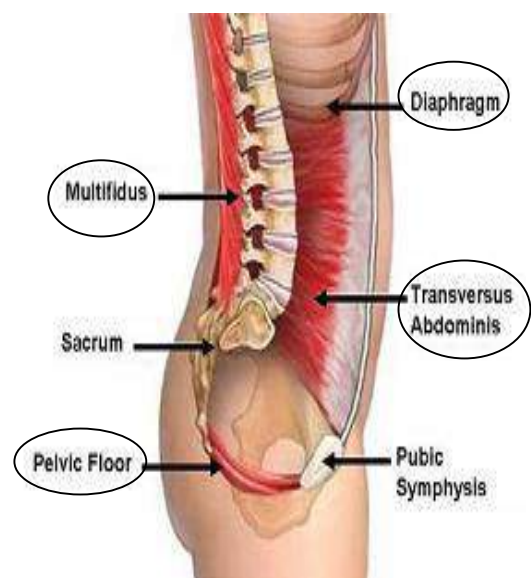
Goal 3: Be able to hold a low level contraction whilst moving your arms and/ or legs



Breathe smoothly!



Major Inner core unit muscles:



This educational hand-out was originally developed by Peter Halstead in 2012. The content is based on the most up-to-date research available at the time and it is reviewed on a yearly bases. The information contained is for the general public. If you have current pain or issues with your health please discuss this with your health professional prior to beginning the exercises discussed. If you have any questions regarding the content of this hand-out please contact Peter at www.PTPete.co.nz

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Other important muscles in your inner unit

Pelvic floor muscles:

Your pelvic floor muscle group forms the base of your inner unit core and pelvis. It is advisable that both men and women learn to use these muscles, as a lack of stability in the pelvis has been linked to low back, pelvic and hip pain. For women, there is now evidence that learning these muscles correctly can **decrease incontinence issues by more than 55% post pregnancy.**

Practical tips on how to initiate your pelvic floor:

- Lie on your back (on a foam roller if you have one) with your knees bent
- Take a breath in, slightly larger than normal. When you breathe out **slowly** contract your pelvic floor muscles by thinking about “stopping the flow of urine” or pulling your tail bones together
- For men: Think about “lifting your balls up”
- For women: Think about “squeezing a tampon in and up”
- At home, place your fingers in the space between your genitals and your anus and as the muscle contracts you should feel for a slight change in pressure under your fingers
- Initially aim to contract at about 30-50% effort, and then gradually build up over a period of weeks

Other tips:

- It is essential that you **slowly** draw these muscles on and off
- Breathe slowly and controlled throughout
- Do not practice this exercise when you are going to the toilet
- You may indirectly be able to feel if your pelvic floor muscles are working by placing your index and middle fingers 2cm inside and 2cm down from the front of your pelvic bones.

****If you have had or are concerned about continence issues please discuss this with your therapist. There are some situations where pelvic floor muscle training is not advised.***

Diaphragm / “Breathing muscle”

Your diaphragm is the main muscle involved in breathing. It also has connections with your other inner unit core muscles and helps provide an optimal level of deep abdominal pressure/support for your spine and pelvis. Low back pain decreases the function of your diaphragm and can change the way you breathe. More commonly, people begin to breathe more from their upper chest than from their lower ribs and chest. This usually occurs in conjunction with overactive outer unit muscles (obliques, rectus abdominus, erector spinae).

Throughout all core muscle training you need to breathe correctly. To gain feedback on whether you are breathing correctly, place 1 hand (or a book) on your chest, and one on your stomach. Breathe slowly and smoothly (like a Ferris wheel up and down). Ideally, both hands should move up and down gradually throughout a breath. Lying on your back with your knees bent is the best place to begin practicing.

Fascia:

Evidence shows that your inner unit core muscles are linked by fascia in your body. Fascia is like tissue paper and different pieces connect different muscles all throughout the body.



If you learn how to use your pelvic floor muscles correctly then in the majority of cases each contraction will pull on this fascia and cause your transverse abdominus to contract. If you learn how to use your pelvic floor and your transverse abdominus muscles together then theoretically each contraction should automatically pull on the fascia and thus initiate contraction of the multifidus muscle (PTO for muscle pictures).

To achieve an optimal inner unit core contraction it is advised you initially learn to contract your pelvic floor and transverse abdominus muscles separately, and then together whilst breathing in a controlled manner. As it is hard to feel (with your hands) whether your multifidus is contracting or not, it is not specifically trained, but it should contract (via fascia) if you learn to use these other muscles correctly.

Optimal core stability:

Learning to initiate all of your inner unit core muscles will allow you to develop a good static core foundation. However, just learning to initiate these muscles in a static/still position does not mean that they will automatically work correctly during activities that involve movement. Therefore, after initially learning to initiate these muscles it is highly recommended that you learn how to use these muscles during basic arm and leg movements, and then eventually during larger, more dynamic sporting and work activities.