PHYSIO TIPS
IN SEPTEMBER

THE MYTH OF CORE STABILITY

THERAPY IN ACTION

Physio Tips is a bimonthly newsletter aimed at educating the public regarding the latest evidence in injury management, without all the medical jargon. We will keep it simple and concise, but full of knowledge gems in order to empower and equip you.

REACH OUT TO US

Good core stability has often been promoted as the solution to many painful conditions. Conversely, the lack of core stability has been blamed as the 'root of all evil' when it comes to injuries - in particular lower back pain. This view is however outdated and now being challenged by more recent research studies. Core stability might not be completely insignificant, but it is definitely not the wonder solution it is often made out to be. Injury or pain management always calls for more individualised recommendations which are based on the latest research evidence. This month we will explore the false claims surrounding core stability and we will offer some evidence based alternatives.

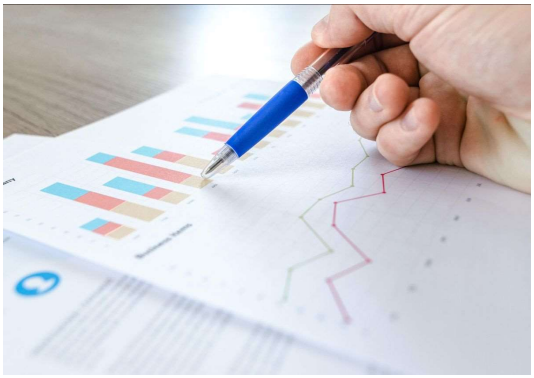
The origin of 'core stability'

In the 1990's, a few prominent researchers investigated the differences between people with back pain, and without. They found that people with back pain had delayed activation of some of the stabilisers in the lower back. This lead them to believe that weakness of these muscles could be a cause of back pain, and if addressed, should alleviate back pain. Further studies then showed that an intervention of core stability training resulted in reduced pain in certain populations with lower back pain.

Inaccurate conclusions

A few false assumptions were made based on these limited research results:

1. Weak abdominal stabilisers lead to back pain and back pain is therefore caused by instability
2. Strengthening abdominal muscles will reduce back pain and a strong core will prevent injury
3. Certain muscles in the core are more important for stabilisation of the spine

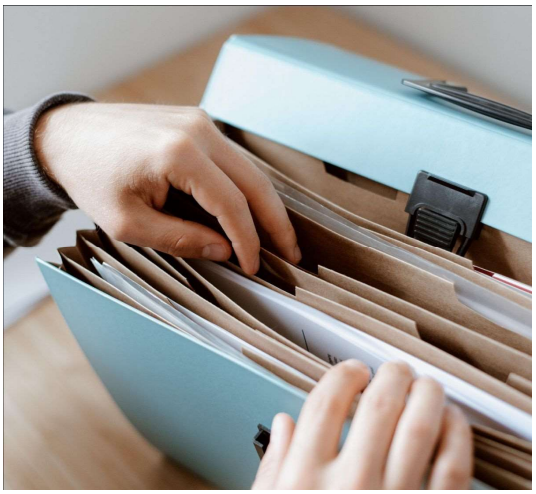


Causation vs Correlation

Sometimes good research can be misinterpreted and the results inaccurately extrapolated. The core stability studies has no way of discerning whether delays in core muscle activation are a cause or a consequence of pain. Pain can reduce muscle activation, but this does not mean that the poor muscle activation was the cause of the pain. The causal link was however made, and as a result the importance of core strength was over emphasized for 20 years.

The myth of a 'fragile' spine

The emphasis on core stabilisation has lead to a belief that our spines are fragile - like a Jenga tower where one bad move can make everything 'collapse'. Our spines are however very robust and resilient. Even when it comes to lifting 30kg, we only require 4-8% of maximal core contraction for sufficient spinal stability. This level of core muscle activity can be generated automatically without active bracing.

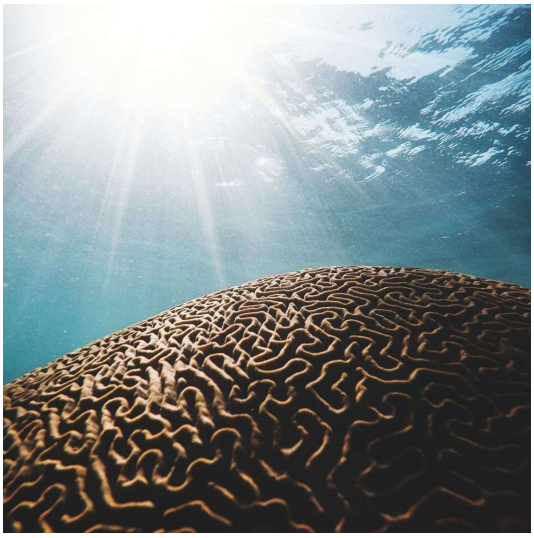


More recent evidence

More recent studies have now shown that there is no association between baseline core activation and the risk of developing lower back pain, and that the presence of delayed muscle activation in people with lower back pain is likely as a result of the pain, rather than being the underlying cause. Conclusive research has also proved that core stability training is not more effective than any other active exercise in reducing lower back pain - therefore the improvement seen is not unique to the training of stabilisers, but rather a benefit of most forms of exercise.

Pain neuroscience developments

When it comes to chronic pain, a reductionist view of finding a single cause or solution is not realistic. The field of pain neuroscience has clearly proven that pain is a complex phenomenon which is influenced by a multitude of physical and psychosocial factors. Stress, anxiety, depression, fear of movement and hypervigilance have all been linked to chronic back pain. Some studies have also found that people with chronic back pain tend to have hyperactivity in the core muscles. The notion that our spines are unstable and need constant protection can actually cause these maladaptive patterns and lead to chronic pain.



More accurate conclusions

It is clear then that back pain is not caused by instability of the spine and despite weak core muscles, our spines can remain 'stable'. Core stability exercises are no more effective than other forms of exercise and therefore has no additional benefit. Some studies have in fact found a correlation between back pain and INCREASED tone in the trunk and DECREASED mobility in the spine - so focusing too much on adding more 'tightness' could possibly even be detrimental.

THE PRACTICAL IMPLICATIONS

Core exercises can be good

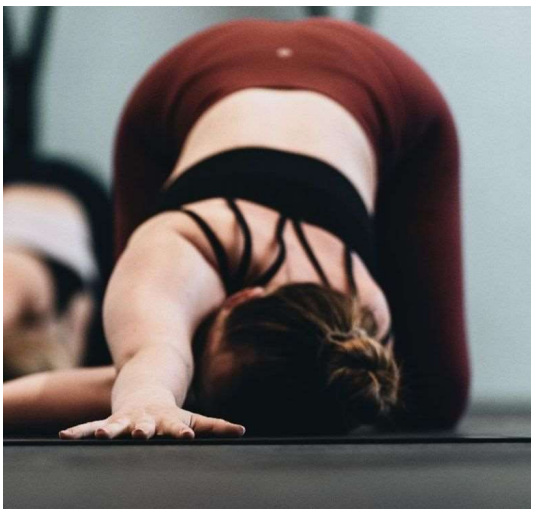
Core exercises can be very beneficial when they are used as a means to move more and get some exercise done, but other exercises might be just as beneficial. Focusing on the core could be indicated in people with low tone and poor trunk control, and should be prioritised less in people who are more stiff and rigid. Furthermore, there is little need to isolate specific core muscles (like the famous transverse abdominis) - global trunk and core strengthening exercises alone are effective.

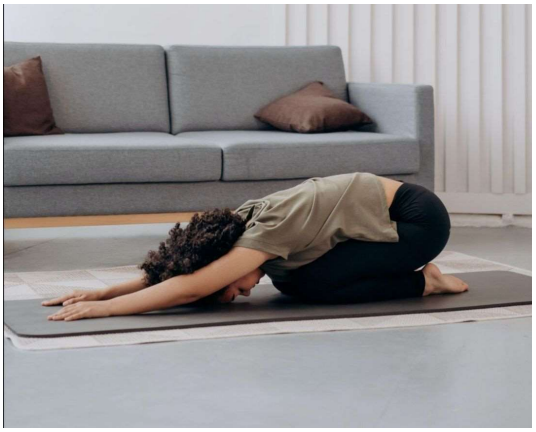
Core 'bracing' is not necessary

We must first differentiate between drawing in and bracing. Drawing in refers to pulling the belly button in while exhaling to engage the deeper core, while bracing refers to global contraction of all the muscles in the core. Bracing has been shown to increase spinal stabilisation more than drawing in and may be appropriate for high load tasks (like strength training or lifting heavy items). If however it is applied for daily tasks, it could have a negative effect on your spine through excessive tension, and could result in loss of functional mobility.

The best exercise for back pain

There is no single exercise that reigns supreme. The only thing the evidence seems to suggest is that doing something you enjoy is more beneficial - this is likely due to the psychosocial benefits, as well as the increased likelihood of actually doing exercise. Since back pain is so multifactorial and often linked with non-physical factors, it would make sense that the benefit of exercise lies in the general psychological effects thereof, rather than the specifics of the physical elements.





Freedom of movement

Some studies have found that people with lower back pain have poor variation of movement, increased trunk stiffness and increased co-activation of muscles. This could be related to fear or protective mechanisms, but ultimately it results in very limited movement options. So perhaps it might be more relevant to ' switch off' some muscles and training the body to move with more freedom in a variety of directions and positions - like our bodies were designed to do.

Do what you enjoy

Given the fact that specific core stabilisation is not any more beneficial than other forms of exercise, one has the freedom to choose a form of exercise that you enjoy. If pilates is what you love and it makes you feel good, stick with it. If however pilates and core strengthening bores you, opt for something more exciting. If you have a need for relaxation and mobility, then yoga might make you feel better than a pilates class. The bottom line - if reducing pain and preventing injury is your goal, the world of exercise is your oyster!

IT IS ABOUT MORE THAN JUST THE CORE

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