

PA 5 – Improve Muscle Activation

Did you know there is *a stack* of scientific research that has demonstrated chiropractic care can positively affect many different aspects of health and function?¹ Let's explore some of this research.

First up, let's take a look at a study involving muscle function for stabilising the body, in which young healthy students were the research subjects.² To set the scene, you need to know that muscles deep in the abdomen are part of your core stabilising system, and they need to be 'turned on' before you lift your arms, so that you remain stable. This should happen very fast and without your conscious awareness. This is called 'feed-forward' activation, because it is pre-planned by the central nervous system. It ensures that movement of the body is balanced, so that no injury takes place. The researchers found that in a group of 90 healthy students, 17 of them could not pre-activate their abdominal muscles before they moved their arms. That meant they were more prone to injury. Six months later, the researchers tested 13 of the affected students again, and found that they still couldn't do it.

So, what was going on with these students? To find out, they were given chiropractic assessments, and it was discovered that they all had tightness and restriction of joints in their pelvis. They were subluxated. So, these 13 students received chiropractic adjustments of their pelvis. And guess what? There was an almost **40%** improvement in their ability to pre-activate their core abdominal muscles. That's pretty phenomenal!

This study is really important because it has big implications. These students had no existing pain at all. But scientists think that poor control of the core muscles may be the cause of people developing pain or sustaining an injury in the future. We know from other research studies that people who have low back pain often have delayed activation of their core abdominal muscles when performing various movements³. We also know that the brains of people with low back pain are much less aware of what is going on in their lower backs⁴. This means that for many people with low back pain, their brains are not receiving or processing accurate information from the small muscles close to their spine, so their brains have to guess what is going on, and therefore may not be controlling the lower back in an ideal way, which can damage the back further.

This is why chiropractic care is so important. It can restore proper communication between your brain and your body, so your brain knows accurately what is going on, and can control your whole body in the best way possible.

References

1. Hawk C, Khorsan R, Lisi AJ, et al. Chiropractic care for nonmusculoskeletal conditions: A systematic review with implications for whole systems research. *The Journal of Alternative and Complementary Medicine* 2007;13(5):491-512.
2. Marshall PW, Murphy BA. Muscle activation changes after exercise rehabilitation for chronic low back pain. *Archives of physical medicine and rehabilitation* 2008;89(7):1305-13.
3. Hodges PW, Richardson CA, Hodges PW, et al. Inefficient muscular stabilization of the lumbar spine associated with low back pain. A motor control evaluation of transversus abdominis. *Spine (03622436)* 1996;21(22):2640-50.
4. Brumagne S, Cordo P, Lysens R, et al. The role of paraspinal muscle spindles in lumbosacral position sense in individuals with and without low back pain. 2000;25(8):989-94. doi: 10.1097/00007632-200004150-00015