

LOWER BACK PAIN ESSENTIALS

Lower back pain is one of the most common physical complaints of clients across the world. Anthony Carey examines five common areas of confusion that all personal trainers must be aware of.



With such large numbers of people affected by lower back pain (LBP), it is no surprise that myths and misnomers run rampant. When it comes to musculoskeletal pain, the lower back reigns as king. Approximately 80-85% of people in the industrial nations will experience lower back pain at some point in their lives. In a 2005 survey by the European Agency for Safety and Health at Work,¹ 24.7% of respondents reported lower back ache as a result of their work.

The same report names lower back ache as the most prevalent work-related health problem.

According to the US Department of Health and Human Services,² in 2008 there were 3.4 million emergency room visits – an average of 9,400 a day for back problems. You are either working with a client who has lower back pain, has had lower back pain or will have lower back pain.

LBP is generally classified as either chronic or acute. Chronic pain from any source is historically defined as pain lasting greater than three months. This definition is based on the general healing time for tissue of 8-12 weeks. An acute episode of LBP has a rapid onset and progression and is usually the result of a trauma (such as a muscle strain) or impact.

What you must know

Acute episodes of back pain respond better to ice than heat

One of the predictable responses of the body immediately following an acute back episode is for the surrounding muscles to spasm or 'splint' the involved area to limit motion for protective purposes. This creates a second layer of problems: the classic pain-spasm cycle.

Heat is often comforting and, following an acute back injury, it can relax the spasm. However, along with the application of heat comes an increase in metabolic activity to the area, which is not desirable following an acute injury. Increased metabolic activity translates to increased swelling/edema at the site of the injury.

Ice or cold application has the opposite effect of decreasing local metabolism and reducing swelling/edema. Ice will also have an analgesic effect by impairing the transmission of pain signals.³

Stretching alone gives a 'sugar fix' to back pain

When muscle tension is felt above and beyond a person's normal 'baseline', the instinctive tendency is to stretch that muscle or muscle group. This lengthening of the muscle fibres, and therefore the embedded stretch receptors, is generally perceived as beneficial to the individual performing the stretch. As muscle tension is reduced (temporarily), local blood flow equalises and segmental alignment improves; there is a positive result from the stretching episode.

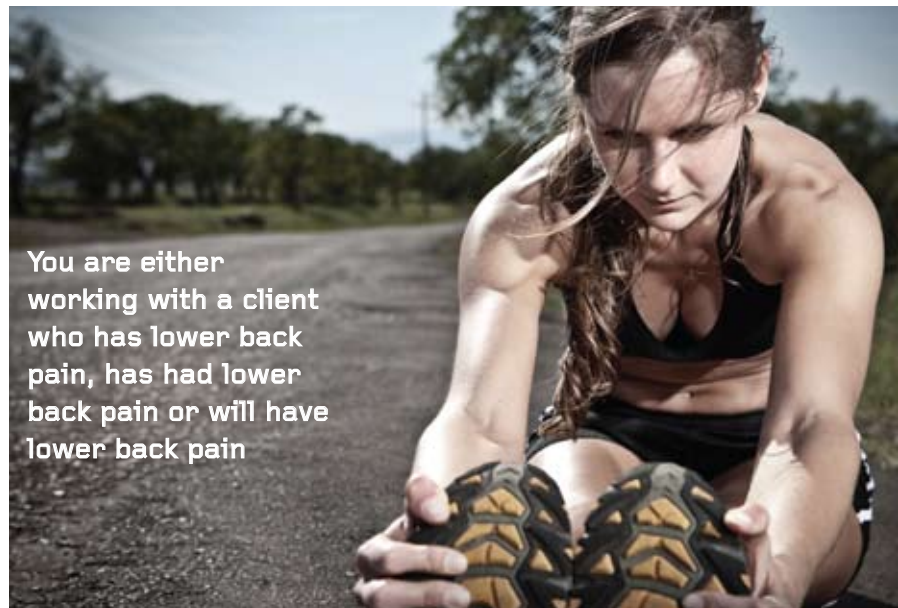
But, just like eating a chocolate bar when you are hungry, the results are short lived. The muscle tension/tightness in the back is typically part of a more complex scenario – a scenario that will also involve the aforementioned guarding response in the spinal musculature, inhibition and/or weakness to antagonistic muscle groups and underlying motor control issues related to functional instability. Add to this any underlying issues contributing to LBP from dysfunctions distant to the lower back, and it is clear that stretching a tight back alone is an incomplete strategy.

Lower back pain can be caused by your feet

The foot with its 26 bones and 33 joints is the body's interface with the ground. As such, issues with the foot will impact on the rest of the kinetic chain from the ankle to the neck. Consider the common foot abnormality of hyperpronation. Hyperpronation causes an increased anterior pelvic tilt as a result of increased medial rotation of the shank and femur. This in turn increases lumbar lordosis.⁴

In the case of unilateral pronation or hyperpronation, a functional leg length can occur in addition to the increase anterior tilt to the pelvis. A leg length discrepancy can cause a sacral tilt in the frontal plane followed by a compensatory scoliosis.⁵

In both of these cases (and there are many more) the biomechanics of the lumbar spine were impacted by the foot. Correcting foot issues with orthotics requires help from a medical provider. As exercise professionals, we should be keenly aware of the long-term neuromuscular and fascial adaptations throughout the body that have occurred over the years in response to the foot issue.



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Never stretch your back first thing in the morning

More specifically, avoid flexing your spine upon waking. It is a common response for people who experience stiffness first thing in the morning in the lower back to want to flex their spine. This may involve standing in unsupported forward flexion, as with touching the toes. According to spine researcher Stuart McGill, the discs are more hydrated and 'full' following a night's rest. As such, the discs are less flexible and the bending stresses are much higher, as is the risk of damage.

Added to this, upon waking and without warming up or exciting the nervous system, motor unit recruitment will be slower.⁶ This translates to poorer eccentric control by the spinal extensors during unsupported forward flexion and greater reliance on the passive ligaments and fascia of the lumbar spine. These structures do not have the same ability to fine-tune motion of the lumbar segments, leaving the lower back further predisposed to injury in the morning.

Muscle endurance is initially more important than muscle strengthening


Ask anyone exercising with a history of LBP why they are exercising and they will usually reply, "To get my back stronger." The reality is that many people with LBP have strong backs because they overuse their backs. A common biomechanical compensation for restricted hip mobility is an increased work load placed on the lumbar spine.

In terms of activities of daily living and most occupational demands, the back muscles are required to maintain low-level contractions over prolonged periods of

time. Lack of lumbar endurance has been shown to be a greater predictor of LBP than lumbar strength⁷ and a characteristic of patients who catastrophise their pain.⁸

Most stability exercises should incorporate an endurance component because clients should not be attempting to contract their stabilisers at high levels of the maximal voluntary contraction (MVC). Dr Craig Liebenson in his book *Rehabilitation of the Spine: A Practitioner's Manual* estimates that during the course of the day we only need to contract our spinal stabilisers at about 5% of MVC.

Summary

Research and clinical experience strongly supports the concept of individualised exercise prescription for those with LBP. As exercise professionals you must ensure that, prior to providing corrective exercise to clients with LBP, they are cleared for exercise by their treating medical professional and you know their health history. Fitness professionals can be instrumental in helping their client identify exasperating movements and activities and in encouraging movements and activities that facilitate function and confidence. 

To view the references in this article please visit www.fitpro.com/references

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