

When she clocked on almost two years ago, ambulance officer Lexi had no way of knowing it would be the shift that changed her life. While lifting the stretcher carrying her first patient, she felt a “weird sensation” in her back. “It wasn’t until I got in the back of the van and sat down that I felt excruciating pain through my lower back, into my glute and down my left leg,” says the 33-year-old from Western Australia.

Like many people, Lexi’s job involved complex lifting challenges, such as awkward postures and hard-to-control loads. For decades, manual task training has emphasised using a straight back and bent knees to lift. But new research has highlighted that this has been ineffective for reducing back pain or injury. Furthermore, persistent myths about back pain can perpetuate this all-too-common problem.

In 2017–18, back problems affected 16 per cent of Australians, according to the Australian Institute of Health and Welfare, and were the second leading cause of Australia’s 2015 disease burden. Low back pain is the leading cause of activity limitation and work absence throughout much of the world, according to information from the World Health Organization.

PUT YOUR BACK INTO IT

With back pain estimated to affect 70–90 per cent of people at some point in their lives, it’s no wonder research has focused on its prevention and management.

Lifting is a risk factor for the development and worsening of lower back pain. Meanwhile, “there are very strong beliefs that safe lifting involves a straight back and bent knees,” explains Professor of Musculoskeletal Physiotherapy at Curtin University, Peter O’Sullivan, “and that bending

“WORRY ABOUT HURTING YOUR BACK CAN LEAD TO CHANGES IN THE BRAIN’S WIRING.”

and lifting with a round back is dangerous and increases a person’s risk of back injury. Our study reviewed all the available research on back pain and lifting and found there was no evidence that lifting with a more round or flexed back was associated with (or a risk factor for) back pain,” says O’Sullivan, a specialist musculoskeletal physiotherapist. He explains that this advice comes mainly from “studies of cadavers placed in a vice and repetitively flexed”.

However, “recent studies show that bending with a round back doesn’t place greater load on the discs [in the back] and is more efficient when lifting loads off the ground. Importantly most of the research to date is poor and no-one has looked at lifting over 12 kilograms, so we are doing more research on this at Curtin University now,” he says.

Occupational health physiotherapist Zac Lowth says we should be exploring better ways to lift. “We still see workplaces where people are lifting up to 80 kilos in a single lift by themselves,” says the National Operations Manager at Employ Health.

“I wouldn’t walk into a workplace where people are lifting more than 12 kilos and say, ‘You guys can go for it. Don’t worry about using your legs.’ If you look at Olympic weightlifters, they’re generating the majority of force through their legs when lifting very heavy loads. This approach seems most appropriate with regard to force generation and efficiency in the workplace.”

Lowth adds that numerous factors influence how people experience pain – many unrelated to a task or injury.

He explains that pain usually (though not always) starts with what’s called ‘nociception’ – where a danger sensation in your periphery, such as touching a hot plate or inflammatory chemicals triggered by a torn muscle, activates a reaction in your nervous system. This reaction is transmitted to the spinal cord and into the brain, which interprets the signal as pain.

However, psychological factors can ‘dial up or dial down’ your pain experience, he explains. One of these is hypervigilance, or the tendency to focus excessively on pain. This is frequently associated with fear-avoidance – in which people avoid movements or activities they fear could lead to pain. This can result in disuse, which in turn lowers the threshold at which the person will experience pain. For example,

imagine you injured your back bending to pick up a box. It gets better, but your mind associates bending with injury. You avoid bending, instead reminding yourself to always keep your back straight. This leads to stiffness and more back pain.

Furthermore, worry about moving or hurting your back can lead to changes in the brain’s wiring. Lowth explains that your brain contains ‘maps’ representing the body – one each for the sensory (feeling) system and motor (movement) system. Normally, body areas that are very sensitive (like the tongue) or coordinate fine movements (like the fingers) are represented by larger areas on the map – which scientists call the homunculus.

“Your back naturally doesn’t take up too much of the space in the homunculus,” he says. “However, if a particular body area has more input than others over time, the amount of space that it represents will increase. Therefore, when you have even minor input to that area, it may cause a larger pain sensation to be felt.” This means usually normal movements or sensations, such as bending forward or light touch, can be interpreted as dangerous, and therefore painful.

OVERTHINKING PAIN

Another factor that can amplify the pain experience is an unhelpful thinking style called ‘pain catastrophising’. In this scenario, the person experiencing (or fearing they might experience) pain believes it will result in the worst possible outcome. For example, someone who has a mild back injury will assume they’ll have severe, unrelenting pain their whole life.

For Lexi, beliefs have been vital to recovery. “I’ve had a lot of doctors and other people tell me I won’t [get back to full strength] but I don’t like that limiting belief,” she says. Seeing a somatic experience counsellor (one focussed on relieving the symptoms of post-traumatic stress disorder and other mental and physical trauma-related health problems by focusing on the client’s perceived body sensations) has helped her deal with the trauma of injury, pain and surgery, she says.

Furthermore, Professor David Baxter, from the University of Otago’s Division of Health Sciences, says strong evidence shows taking time off work increases the disability associated with back problems.

Professor Baxter explains reduced physical activity, including being off work, often becomes part of a vicious cycle leading to poor outcomes.

“Many people, if they’ve had an episode of back pain, think their back is weak or at risk,” he says. “But your back is incredibly strong, despite how we sometimes abuse it – we don’t exercise as much as we should, [and] we get ourselves into strange postures and get stiff.”

Evidence almost universally shows that remaining physically active, even when your back hurts, will help you get better, Professor Baxter says. “Staying active might mean going for a walk or cycling part of the way to work rather than going to the gym. We always recommend that someone who hasn’t exercised before and is in pain see a healthcare professional to get advice on their exercise program before starting,” he adds. “A professional can advise on adapted forms of exercise that will help you build up your strength, power and stamina in particular muscles without putting them at risk.”

He notes that a health professional will screen for red flags that might indicate a back problem is more serious, as was the case with Lexi, who had loss of sensation and weakness in her leg and required surgery to relieve nerve compression. However, such cases are rare, says Professor Baxter.

Health professionals might also screen patients for the unhelpful thoughts or beliefs that can increase risk for developing chronic pain.

Zac Lowth restates the importance of movement for back pain. “A catchphrase we use is that ‘motion is lotion’. The type of exercise or movement doesn’t matter too much, so long as it’s meaningful to you and you’ll do it.”

Although Lexi hasn’t returned to work as yet, she keeps moving.

Some of the exercises her physio prescribed involve bending towards her toes or picking something light up off the floor.

With regards to back care in the workplace, Lowth advocates “working smarter and not harder”.

With manual tasks such as lifting, a risk assessment should be undertaken that examines the task’s ergonomics and how they can be improved, by using mechanical lifting devices, for example. He says workers should be involved in coming up with solutions through a participative ergonomic process.

SOME BACK PAIN MYTHS

Lifting is bad for your back – “Lifting on its own isn’t bad for your spine,” Zac Lowth says. “If anything, your musculoskeletal health can benefit from lifting when it’s done with the right design and dose.”

Pain means tissue damage – not true, says Lowth. Pain is the brain’s interpretation of danger, which can be influenced by various non-physical factors.

People with back pain need X-rays – David Baxter explains there is minimal correlation between pain and imaging findings. “If your physician says you don’t need an X-ray, don’t take that as trivialising the pain or not believing you. It’s just that you actually don’t need it.”

He adds that suitable workplace training is vital, especially for people doing hazardous manual tasks, such as those involving sudden or high force, vibration, awkwardness, repetition or long durations.

“The best thing you can do with a hazardous manual task is eliminate it,” he says. “However, I don’t think you want to eliminate all manual tasks because not all manual loading is hazardous.” He points out that while some jobs involve heavy, awkward work that tends to cause injuries, many other people experience negative health effects from sedentary work. “There has to be a sweet spot in the middle, where you’re loading your body in a way which is beneficial for musculoskeletal health,” he says.

This idea was raised in a 2017 paper published in the *British Journal of Sports Medicine*. The authors describe how the Goldilocks Principle of ‘just right’ needs to be acknowledged in occupational life, rather than designing physical activity simply to ‘not cause harm’.

Cleaners, for example, “have long continuous periods of physical activity at low metabolic intensity, causing fatigue without promoting cardiorespiratory fitness,” they write. “To have a health promotion effect, cleaning work could be designed to have higher intensity bursts separated by tasks offering recovery.” Rotation between manual tasks is one solution, Lowth notes, as is thinking of yourself as an “industrial athlete” who trains to be fit for their tasks.

Professor O’Sullivan likens this to running. “It’s likely that if you aren’t used to running and you are weak

and unfit, that running 10 kilometres straight off will hurt. The key is to be fit and strong and gradually build up – to start injury-free, while caring for your general health.”

Regarding lifting, he says that we “currently don’t know if there is a best posture to reduce back pain risk, but we do know that keeping fit and strong for the task is important.” A healthy lifestyle – including things like getting adequate sleep and keeping to a healthy weight – is also always beneficial. **MF**



VISIT MINDFOOD.COM

Most yoga practitioners will tell you there are a range of benefits to be had from this exercise. New research has recently shone a light on even more physical and mental health benefits. mindfood.com/research-benefits-yoga

BACK ON TRACK

We should bend our legs when lifting a weight, and rest up if we have a sore back, right? Well, maybe not. New research is presenting some different ways of thinking about back pain.

WORDS BY SOPHIA AULD