Published: 9 May 2011
Full version

Chronic pain

How and why do people experience pain?

If you suffer from chronic pain (symptoms lasting for months or more) it is useful to discover more about how your pain perception works for you or against you.

The first step is to talk to health professionals such as your general practitioner (GP) or physiotherapist. They can help you identify factors that contribute to your pain and help you manage it. Options could include referral to specialists doctors, physiotherapists, exercise physiologist or pain clinics. Their advice might help relieve the pain, make moving easier, or rule out serious health conditions. A common myth is that pain is always related to injury. This is not always true. The pain you feel is real, but it can occur with or without injury. Injury can also occur with or without pain. Here are some examples where what you feel and the injury aren't as trustworthy as you might expect:

- when you get into a cold swimming pool, it might feel painful for moments or minutes, until you get used to it. The pool temperature does not change, but it feels as if it does;
- bumping a toe with an ingrown toenail might cause little or no actual injury, but the pain could be excruciating;
- an athlete who thinks they have suffered a career-ending injury might feel terrible pain. But if the injury is assessed as minor, they might feel a lot less pain, and may even return to playing in a matter of minutes; and
- medical scans can show spinal injury or degeneration, but even some severe results where nerves appear pinched can occur in people with or without a history of back pain (1).

The opposite can occur too:

- an athlete could play-on with an injury, making it worse, even if they feel little or no pain.

These examples show that what you feel and what is actually happening in the body are very variable. Why does pain work this way?

The answer lies in the nervous system, which can be grouped into three main parts:

- nerves in the body pick up sensory information (e.g. heat, cold, pressure, stretching, inflammation chemicals) and also direct your muscles to contract;
- the spinal cord influences which nerve messages get to the brain, and sends signals to coordinate your muscles; and
- the brain mixes your memories and thoughts with messages from the nerves and spinal cord. The brain also coordinates your muscles.

Research shows that these three parts of the nervous system control how you feel pain by acting like the volume control on a stereo. Many factors have a huge effect on what you feel, like turning the 'pain volume' up or down. If you have chronic pain, your pain volume can be turned up too high for too long. In the swimming pool, toe-nail and

athlete examples, what the people were doing and thinking affected whether they felt pain and how much it hurt.

Things that turn the pain volume up, even when there is little or no new injury include:

- moving in a tense manner, caused by poor muscle skills and coordination, or disuse and deconditioning of the body;
- poor sleep patterns, poor diet, inactivity, and obesity;
- negative thoughts, such as fear of discomfort or pain, and anticipation that something will cause pain; and
- poor self esteem, poor social resources such as friendships, and poor coping skills to meet life's challenges.

How does exercise benefit people with pain?

Physical activity is a great way to turn the pain volume down, in addition to helping your bones, muscles, heart, lungs, brain, gut, sleep patterns and dietary habits. Just like medication can turn the pain volume down, with physical activity your body and brain can produce natural pain-relieving chemicals called endorphins. Exercise also helps you to rediscover

- ability to work, and to enjoy activities with your family and friends;
- positive thoughts about your physical capacity and ability to manage pain;,
- your self esteem, and your ability to cope with stressful events.

All these aspects of physical activity help to turn the pain volume down. What you do, what you think you can do, and how you feel are all connected (2).

Reflect on how you experience your pain volume in daily life. Have you ever been surprised because you expected a certain movement to cause a lot of pain, but it did not? Think about what was turning the pain volume down. Did a health professional show you a better way to move? Had you been active before doing the movement? Were you relaxing to let the movement happen more freely? Were you focused on other things so you did not tense up with apprehension? Were you having fun? When you realise what factors turn the pain volume down, you can plan to use them every day. Your nervous system learns from your actions. The more often you take control and turn the pain volume down, the easier it is to keep the pain volume at lower levels.

Physical activity could be general exercise that you enjoy, or assisted by a health professional. To determine the best activities to start with, you may need to consult with a physiotherapist or GP initially. Therapy can help you learn skills to relax or contract specific muscles, to improve the way that you move and to minimise the risk of re-injury (3). Exercise physiologists are experts to help you set goals and achieve them with physical conditioning. A powerful tool to maximise your health, your lifestyle and to turn your pain volume down naturally — training to manage your pain.

Related information and references

Exercise & Sports Science Australia: www.essa.org.au
Australian Pain Management Association: www.painmanagement.org.au
Chronic Pain Australia: www.chronicpainaustralia.org
CCRE-SPINE: www.uq.edu.au/ccre-spine/
Body in Mind: http://bodyinmind.com.au/

1. Videman T, Nurminen M. The occurrence of anular tears and their relation to lifetime back pain history: a cadaveric study using barium sulfate discography. *Spine* 2004; 29(23): 2668–76.
2. Keefe FJ. Behavioral medicine: a voyage to the future. *Ann Behav Med* 2011; 41(2):141–51.
3. Tsao H, Druitt TR, Schollum TM et al. Motor training of the lumbar paraspinal muscles induces immediate changes in motor coordination in patients with recurrent low back pain. *J Pain* 2010; 11(11): 1120–8.

ESSA
EXERCISE & SPORTS SCIENCE AUSTRALIA