7 Your overprotective pain system

pain revolution

Pain Facts 7/9
Your overprotective pain system

The purpose of pain is protection. However, sometimes it becomes over-zealous. This is because – like all biological systems in the body – the pain system learns. So when you've lived with pain for a long time, your system will have become more effective and more protective of that body area.

When danger messages are sent from the danger detectors in the tissues, they travel to the spinal cord.

When this happens repeatedly, the spinal cord learns to respond better and it amplifies the messages before forwarding them to the brain. This means the body becomes sensitive to, and overprotected against, changes in the tissue environment. This is especially true for mechanical stimuli, such as movement, stretch and pressure, and less so for heat, cold and chemical stimuli.

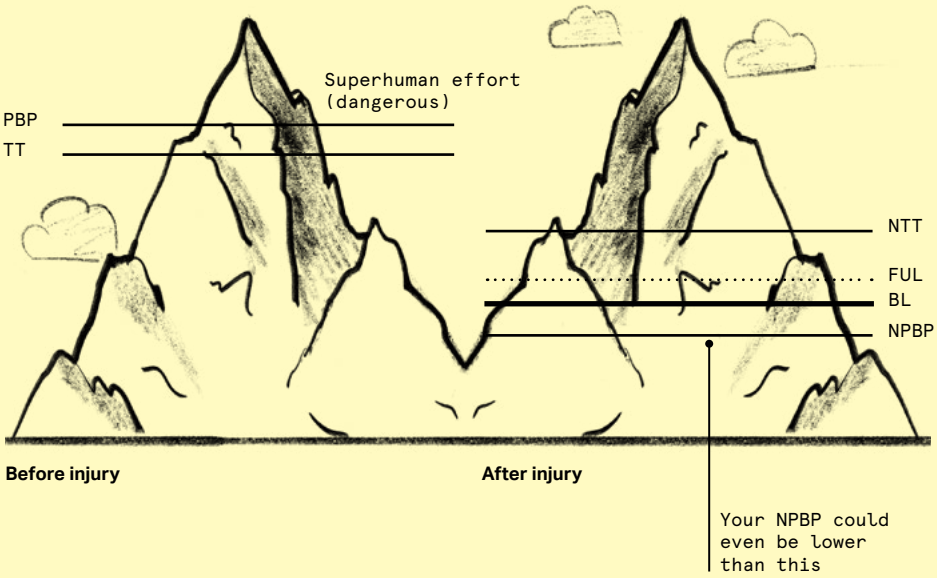
When the amplified messages reach the brain, the brain is more likely to produce pain. And, again over time, the brain also learns to become more efficient in producing pain and amplifies it.

When the brain changes to become more protective, the impact is much bigger because the brain doesn't only respond to danger messages from the spinal cord; the brain can respond to any sign of danger, anywhere, even in stored memories and experiences.

The pain system provides a protective buffer that is big enough so as to stop an event from damaging tissue, but small enough to ensure pain is not triggered unnecessarily. In a normal system, the buffer works almost 100% of the time – in a normal system we get pain but we don't often get injury. The only situations in which the buffer does not work is when the event happens too fast (like a car accident) or too slow so that the body's danger detectors are not activated (like a slow growing cancer). Things are different with an overprotective buffer because pain gets triggered way before your body is in danger, and even when you are doing the very things your body needs to do to recover.

Thanks to pain science, we now know that:

Twin Peaks model



Key

TT (Initial) Old tissue tolerance line
PBP (Initial) Protect by pain line
NPBP New protect by pain line
NTT New tissue tolerance line
FUL Flare-up line
BL Baseline

Adapted from *Explain Pain Second Edition*
Butler & Moseley (2013)

- Signs of an overprotective system can include being more sensitive to mechanical stimuli than hot or cold things, or the pain moving from one side of the body to the other

- Even very minor injuries can result in persistent pain if the pain system has enough reason to become more sensitive

- Once it becomes overprotective, anything can set it off, including context

- The size of the buffer, or the sensitivity of the pain system, can be reduced by slowly increasing the demand on the system; each step needs to be enough to cause a tiny adaptation, but not enough to trigger a full blown flare-up

- Doing movements or exercise that cause some pain, but not excruciating pain, will help it to reset

Resetting your pain system buffer takes time. But stick at it, because your system will remember each small win and, slowly but surely, you'll make progress.

This fact sheet is not specific medical advice. But we really hope that, once you've read it, you'll understand more about pain and the latest ways of managing it.

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