

PA 20 – Pain and the Immune System

We know from many research studies that the way you experience pain depends on your personal situation.¹⁻³ Research has shown that the way you feel pain, its intensity and unpleasantness all depends on what's going on for you – and most importantly – what you think and feel about the situation.¹⁻³

Let me give you an example. In one experiment the participants placed their head inside a sham stimulator (this was a pretend stimulator that did absolutely nothing), but they were told that an electrical current would run through their head.³ These participants reported feeling pain that was proportional to the amount of stimulation they were told they were given, even though they were not given any electrical current at all.³ What this study tells us is that if you expect to feel pain, it can actually make you feel pain. We also know that a lack of knowledge and understanding can in itself cause problems for you, and feelings of pain. The amount of pain you feel can even depend on who is around you.³ Another study showed that male participants tolerated much higher levels of pain if it was a female who was testing their pain thresholds.³

So, when it comes to pain one thing you need to watch out for is what you are thinking and feeling.¹⁻⁴ When we identify with, or get wrapped up in, or involved in our feelings and thoughts, this will greatly impact the way our brain makes us feel pain.⁶⁻⁷ Often, we end up worrying or stressing about the thoughts and feelings, which actually makes everything worse.⁸ The more we worry and stress about these thoughts and feelings, the worse it gets.⁹ Remember that what you focus on drives the way your brain adapts and changes.¹⁰ This is your brains neural plasticity.¹¹ So, the more time you spend worrying about all the negative thoughts and feelings surrounding your pain the more entrenched our brains get at making us feel pain.¹¹⁻¹⁶

Think of it as the stress merry-go-round because this is intimately involved in why people develop pain, anxiety, depression and other forms of physiological and psychological stress.¹⁵⁻¹⁷

The hormonal or endocrine system is a key player in this stress response.^{3 15-17} When the alert & danger (sympathetic) nervous system has been activated the hypothalamus releases hormones which makes the pituitary gland release other hormones.¹⁵⁻¹⁸ These hormones affect the adrenal glands which produce cortisol.¹⁵ Cortisol is known as a 'stress hormone'.^{15 19} Stress hormones like Cortisol and Adrenaline are released to protect you when you are in danger!¹⁹ They help to activate your body so that you are ready to fight or flight.¹⁹ But if your brain perceives a threat on an ongoing basis you can end up with persistent high levels of adrenaline and cortisol¹⁵ – and this can become a problem. Persistent high levels of Cortisol can slow healing, can lead to depression and feelings of despair and can over time lead to a decline in physical and mental performance.³ And persistent high level of adrenaline can change your nerves and contribute to amplifying the danger/pain matrix tune in your brain³ – making the danger/pain signals seem greater and making them more constant.³

It's therefore very important to take some time out to look at the way you think and feel about what's going on for you. Because your thoughts and feelings about what is going on can influence so many of your body's systems – even your immune system.³ Your immune system can be activated not only by events that happen in the tissues of your body, but also by your brain's interpretation of those events.³ Your thoughts and feelings actually influence your brains map of the body or your brains inner reality.³

If your immune system is triggered it is thought to be able to create what is known as mirror pain, meaning you'll feel pain on both sides of your body.^{3 20} It will feel like your pain has spread from one area to another.^{3 20}

When your immune system reacts, it produces small immune molecules called cytokines; these float around inside your body and help you to heal.²¹ Some promote inflammation and some stop inflammation.^{3 21} Your immune system is supposed to be a good thing, a powerful protection system.²² However, like all other systems, it can also turn into a problem for you if it gets stuck on hyper drive.¹⁵ We know that long term stress and pain actually leads to an alteration in the immune system which results in more cytokine molecules that promote inflammation.¹⁵ We know that your immune system is closely linked with your alert & danger (sympathetic) nervous system, and responds to cortisol and adrenaline.¹⁵ Also, your immune system can turn on parts of your brain that produce more cortisol and adrenalin. So, it can become a vicious cycle.¹⁵

So, what can you do?

There are actually many things you can do to help yourself to buffer your immune system and improve your pain:¹⁴

Mindfulness meditation is well known to quieten your mind, to help quieten your worrying about thoughts and feelings and is known to calm the stress response in your body.²³⁻²⁹ There are many online tools that can help and smart phone apps to assist you with starting your mindfulness journey. Proper nutrition is also key³⁰⁻³² – with the aim to calm down the inflammation, so that the chemical sensors in our bodies can stop sending inflammatory signals to your brain, so your brain can stop pushing the pain button.^{30 31}

Getting enough good quality sleep is also well-known to buffer against stress and pain.^{33 34} But bear in mind that stress and pain can often disturb sleep,³³ so just do your best to prioritise good sleep habits that work for you. And don't underestimate sunshine and water.³⁵ Playing with friends.³⁶ Doing things that you enjoy.¹⁴ A hearty laugh in a safe place with friends is the complete opposite to the stress response.³⁷ This will go a long way in helping your brain to turn down or off the stress and pain music that it has been playing.^{3 14}

But Movement is also essential.^{29 38 39} If you cannot move due to pain, then even just imagining movement will help you.⁴⁰ You need to move the bigger muscles of your body that have been primed for fight and flight, to get rid of the built-up stiffness and tension.^{38 39} And remember also to get the small muscles around your spine moving too. Yoga or simple daily spinal exercises can be great.^{9 41} And your family chiropractor can also help you with this.^{42 43} Chiropractic adjustments help your brain to know more accurately what's going on in and around your body.⁴³⁻⁴⁵ And remember too that chiropractic care is known to alter function in a part of your brain called the Prefrontal cortex⁴⁶ – which plays a big role in your brains pain matrix. And there's also plenty of studies that have shown chiropractic care helps people back pain,⁴⁷⁻⁵⁰ neck pain⁵¹⁻⁵³ and some types of headaches.⁵⁴⁻⁵⁶

So if you suffer with chronic pain do your best to stay positive,⁵ move often,^{38 39} eat well,^{30 31} sleep well,³³ and go see your family chiropractor^{57 58} to have your brain fine-tuned too.

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