

Treating Pain with Kindness

Part 2: Get to Know Your Nerves

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Most people have some sense of what the human skeleton looks like, but what about the nervous system?

It's a web of nerve fibres that connect your brain and spinal cord (your central nervous system) to your body via a system of branching nerves (peripheral nerves). These nerves leave your spinal cord through gaps between the bones in your spine (vertebrae) and end in your skin.

The nervous system consists of the brain, spinal cord, and about 72 km of nerves. Though it only consists of 2% of the body, it keeps people alive.

The central nervous system (CNS) is the boss of us. Your central nervous system is your brain and your spinal cord. It decides when it's time to sleep and to wake. At night it keeps our hearts beating and our lungs breathing. It wakes us in the morning to go to the toilet and to get coffee. It is 100% responsible for our functioning as humans.

To do all that it requires about 25% of all the glucose and oxygen available any moment of the day or night. Humans have brains five times larger than other creatures our size, requiring much more fuel for our nervous system to work properly.

Nerves go everywhere in our body after they come out of the spinal cord. They tell muscles what to do and report back to the CNS about anything happening with the body. Most of the time this happens without us being aware of it.

Assessing Movement Quality

In order to understand the condition of a patient's nervous system, their movement is an important element. How someone moves rather than how far they can move is revealing. It gives a sense of sensitivity and confidence to move. It also provides insight to how a patient inhabits their body, particularly if somewhere in their spine is sensitive.

It's particular importance to note how movement changes from side to side, if there's tightness and stiffness even when resting, and what are someone's "default resting behaviours" that they do all the time. All of these determine the kinds of stresses and strains that happen to someone's body on a regular basis. Regardless of any injury or issue, the everyday bodily movements can underlie significant issues.

Understanding Why Your Nerves Hurt

Generally, the nervous system works without any issues, but sometimes things go wrong.

The most common way that nerves can hurt is related to changes to the "nerve plumbing", or the blood flow through the nerves.

A nerve's blood supply can be affected if it gets squashed. Nerves connect like nets throughout the body, and blood vessels travel within them. If there is a pull against the system – diagonal or sideways – it applies a shearing force into the system. Usually blood pressure ensures there isn't much problem getting blood into a nerve, because you have blood pressure working for you. But drainage is a different story.

If a nerve gets backed up with blood that is low in oxygen and no longer useful, a signalling system built right inside the nerve may report either a mechanical or chemical problem to the CNS. What often feels like a big pain turns out to have been a plumbing problem inside some branch of a nerve. Since the nerves are so important, this creates a big warning to the CNS in the experience of pain.

In this case, the spinal cord might be contributing to the tension, adding to the problem under the radar. The spinal cord evolved first, followed by the brain much later and has not changed much in that time. It is very protective – if you accidentally touch a hot stove your spinal cord will take over your muscles and you will pull your hand away before you even realize the stove was hot. This primitive system of reflex is useful for survival.

The brain can inhibit signals coming from the spinal cord, including danger messages routed from the body through the spinal cord. Sometimes, instead of inhibiting these signals, the brain allows the spinal cord and its older threat detection system to amplify the signal. Part of the way the spinal cord and older parts of the brain do so is by creating tension in certain areas.

The nervous system acts as though it were a frightened, cornered animal that is biting you on the inside of yourself. To stop that kind of behaviour it must be observed, treated carefully and kindly, and given options. We give the nervous system what it needs so it can change.

Often, all a nervous system needs to change is restoring the optimal oxygen and glucose supply, as well as some attention and movement at regularly spaced intervals for three or four days. Motion is lotion – movement keeps the body lubricated and all the tissues well nourished.

Movement that drains the blood from the nerves and replenishes them with fresh, oxygenated blood must be done carefully without aggravating the nerves or hurting you more.

Everyday Positions that can Cause Pain

There are many physical things people do, completely unconsciously, that can put twisting and compressing forces into their nerve net. Too much of this can have a negative effect by continuously irritating a part of the nervous system and starving it of blood, oxygen and glucose. Over time, this can take a toll and keep a sensitive nervous system from returning to normal.

Seemingly small things about someone's everyday positions might have an impact. The way someone crosses their leg, where their TV is located relative to their chair, whether they lean on an elbow often, which side they sleep on, and how they tilt their head when they listen all affect the load on your nervous system. Even something like having a dominant eye will mean a person tends to put it forward, which automatically tenses their neck in a certain way all day long.

Observing your typical daily postural or movement habits will give you an idea of many things that are done unconsciously which could have an effect on your nerves. Once identified, you could work toward change. Change starts by simply becoming aware of these habits, and things like home exercise movements can also be considered. Manual therapy is another option to bring about blood flow where it's needed.

Personal Notes and Reflections

1. What information did you read here that is relevant to your pain experience?

2. What did you read here that surprised you, or that you disagree with? Why do you think that is?

3. Are there any actions that you want to take after reading this information?

You can use your responses here to talk to your health professionals, or you can email your questions to the **PainChats** team via hello@painchats.com