The Headache & Pain Management Centre

A sensitised Headache Hub: the real cause of your Headaches and Migraines

If you have been diagnosed with:

- **Tension Headache**
- **Migraine with or without aura**
- **Cluster Headache**
- **Hormonal Headache/Migraine**
- **Trigeminal Neuralgia**
- **Vestibular Migraine**
- **Many, many other headache and migraine types…**

Then the root cause of the condition, independent of your symptoms, is a Sensitised Trigeminocervical Nucleus – or as we like to shorten it, a Sensitised Brainstem. We will often call this area – "the Headache Hub" – because this is where the signals that start a headache or migraine begin causing trouble.

It can be a little difficult to follow at first, because there are just so many different signals that pass through this very special area of the brain – this handout will explain simply how your sneaky brainstem can cause so many of your symptoms.

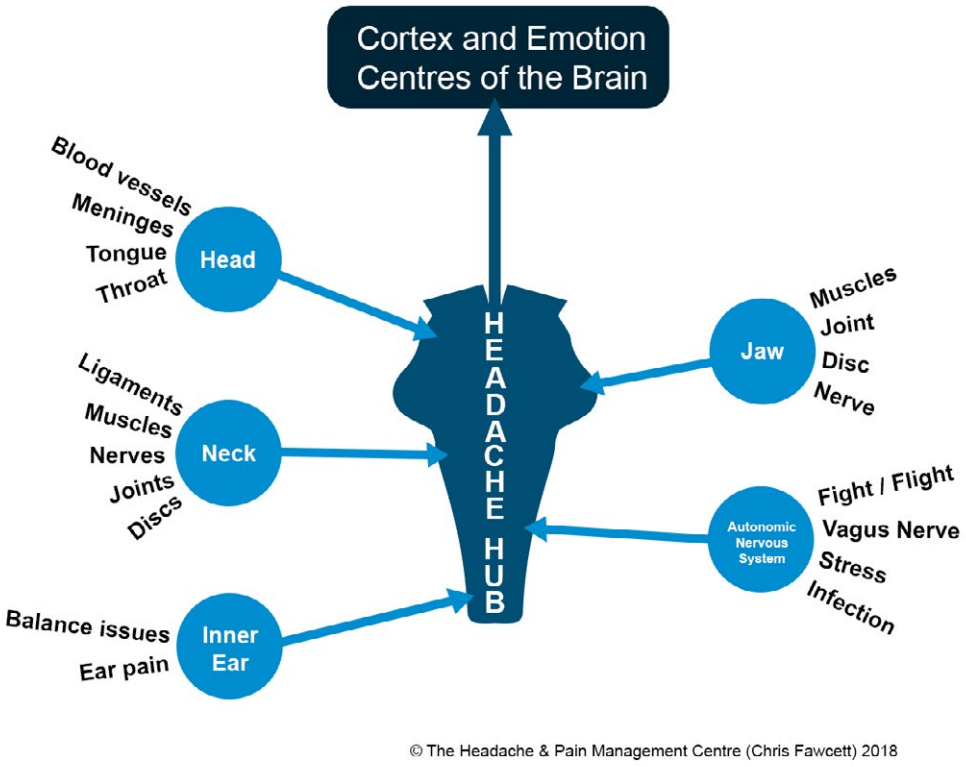
The Brainstem

The brainstem is the area in your body where your spinal cord turns into your brain. It is located right at the bottom of your skull and at the very top of your neck.

This area of your brain has a lot of different inputs – all of the electrical signals that pass up and down your spinal cord to and from your brain has to pass through it. Your “Headache Hub” is located within the Brainstem.

The cortex and emotional centres – where all of your decisions are made and your emotion chemicals are generated – is at the top of the brain.

The diagram below shows the inputs that pass in and through the “Headache Hub”.



It is important to note that there is usually nothing wrong physically with the areas listed in the diagram – rather it is more of a signalling fault.

As you can see, there are a huge number of different inputs that can sensitise the brainstem, and send your “Headache Hub” into overdrive. Previous research into all headache types have mostly focussed with what happens after the signals reach your Cortex, or the blood vessels inside your brain, which as you can see, only tells a small part of the story. The new research is now showing that the neck, in particular, is a key factor in how headaches and migraines begin, because your neck can sensitise your brainstem.

How does it get sensitised?

Your brain and nervous systems are amazing at being able to warn you if things aren't going so well. Most people aren't aware that it is actually your brain and nervous system that decides if you need pain, and it is actually not under your conscious control.

Your brain and nervous system do things all the time which aren't under your conscious control – like your heart beat, whether you sweat, when and how you breathe, if you are hungry or if you are tired. Pain and its associated symptoms work automatically to protect you from doing harm to yourself: and usually happens without you realising it.

For example, nearly 100% of the time, if you put your hand onto a hot frying pain, it's going to hurt! The pain you are getting is warning you that if you continue putting your tissues in danger, then real tissue damage may occur – so the pain changes your behaviour (ie. Get your hand off that frying pan!). Pain, nausea, dizziness and other sensory symptoms are other really effective ways to warn you and change your behaviour, and is really useful when you body really does need protecting – like when you have a fresh injury, illness or there is a situation where you need to look after yourself.

With chronic headache and migraine, what happens is the threshold that is met for warning you that something isn't right, is much lower than what it needs to be. Every minute of every day, your brain is receiving input from all of those areas in the diagram, to ensure that things are all safe and functioning normally. However, what can happen is that one (or more) of those areas begin reporting to your brain that there is a potential danger, and your brain needs to respond… either by producing pain, making your neck feel stiff, or maybe even something as subtle as changing the way that you move to protect the affected area. Sometimes, we don't even realise that we are doing it!

If one of those areas is **continually reporting**, over a long period of time, that there is a potential danger, and in your brain's opinion there has been insufficient action taken to correct the situation, the brainstem can become sensitised. When it is sensitised, that's when the troubles can begin.

What happens when I get a sensitised brainstem?

The signal from your brainstem, after it's received the signals from elsewhere – is then sent to the higher centres of your brain for processing. The result is that your brain takes action and lets you know about it one of the following ways:

- **Do Nothing** ("everything is OK, no action required" – you are allowed to keep going);
- **Do Something** (this might be a 'warning shot' – like a bit of a stiff neck, a bit of a headache, maybe a little bit of nausea – you can probably keep going but you're "on the edge"); or
- **Do everything** (the alarm bells are ringing – all of your familiar symptoms come on at once, and force you to stop what you are doing)

This explains why on some days, you might feel OK, and other days, you don't! The research shows that people with headache or migraine conditions have a sensitised brainstem, even when they don't have symptoms at a point in time. However, your brain is the structure that decides if pain or other symptoms need to come – and this decision can change minute to minute, hour to hour, day to day.

The key is to desensitise your brainstem (your headache hub), so that your body and brain doesn't need to continuously decide if things are OK or not. This significantly decreases the chances of getting a headache or migraine.

How do I desensitise my Brainstem?

The key to desensitising the brainstem is to:

- Find out what is sensitising it in the first place; and
- Teach your brain that the sensitised part is safe, and not dangerous.

Most of the time (over 80%) it is a lack of movement in the top three joints of the neck which is the main driver of headache and migraine conditions. The lack of movement is seen by your brain as "something isn't quite right" – and starts reporting to your brain that there is a potential danger there… even if there isn't. That continual reporting over time sensitises your brainstem, and requires your brain to respond. Quite often that response is a headache or a migraine.

If your neck is the cause of your symptoms, the **Watson Headache Approach** is the best way to begin treating.

The approach:

- Confirms or rules out the role of the neck joints in how a headache or migraine happen
- Treats the underlying stiffness, without aggressive cracking or bouncing on your neck
- Is a 100% medication-free approach to treating headache and migraine.

What are the outcomes that you should expect?

We would expect significant relief from your headache and migraine symptoms and we measure things like:

- Reduced Frequency of episodes
- Reduced Duration of episodes
- Reduced Pain Intensity
- Reduced Medication Intake
- Less sensitive to familiar "triggers"
- Being able to relieve or cure your headache/migraine with an exercise

...as ways that we would be able to tell if things are working.

As a general rule – we like to treat our patients for 8 sessions over about 4 to 5 weeks in order to give us the best chance of helping out long-term, with follow-ups as needed after that. Patients are usually 90% better by the 3-month mark of treatment, but of course some take less than that and others take a little longer.

What is the next step?

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Our aim is to provide excellent outcomes for all headache sufferers. Take your next **positive step** in your headache journey today.

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