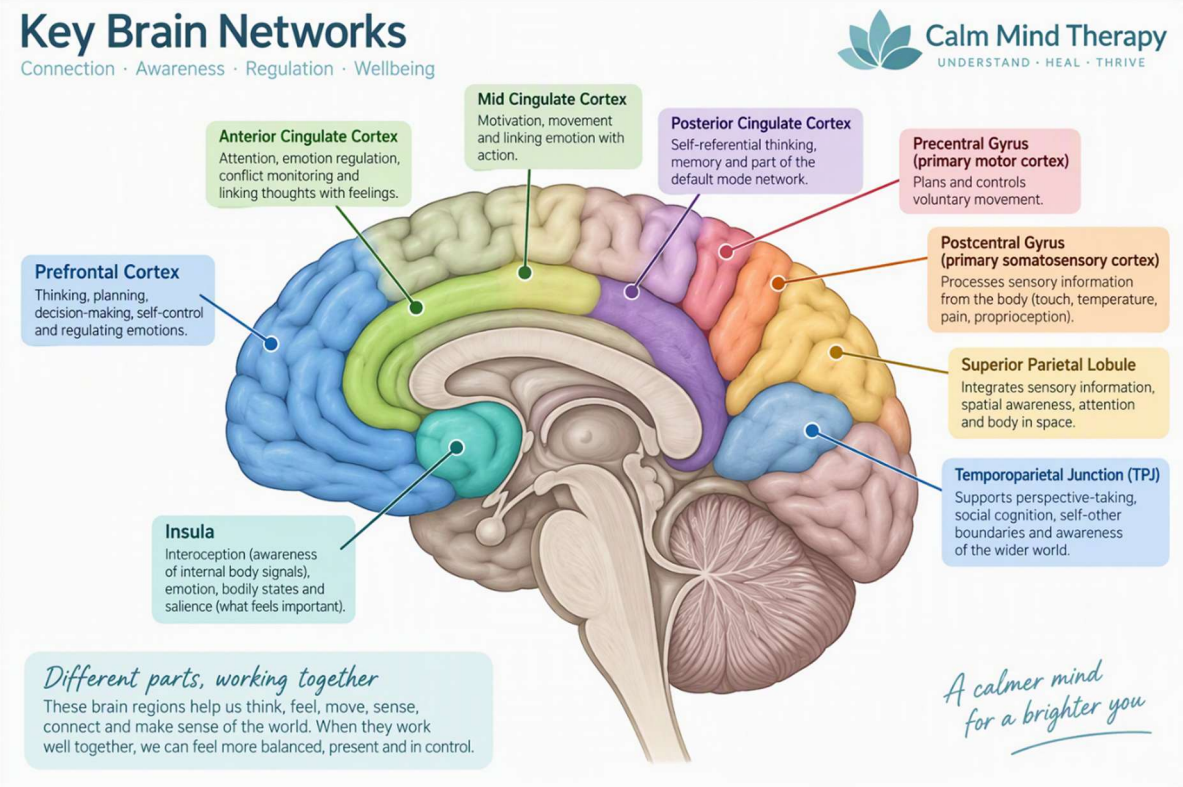
One brain, working as a team

The information sheet describes three broad areas: the survival brain, the emotional learning brain and the reflective brain. These are not separate brains. They are connected systems that share information and normally help us notice what is happening, respond, learn and make sense of experience.

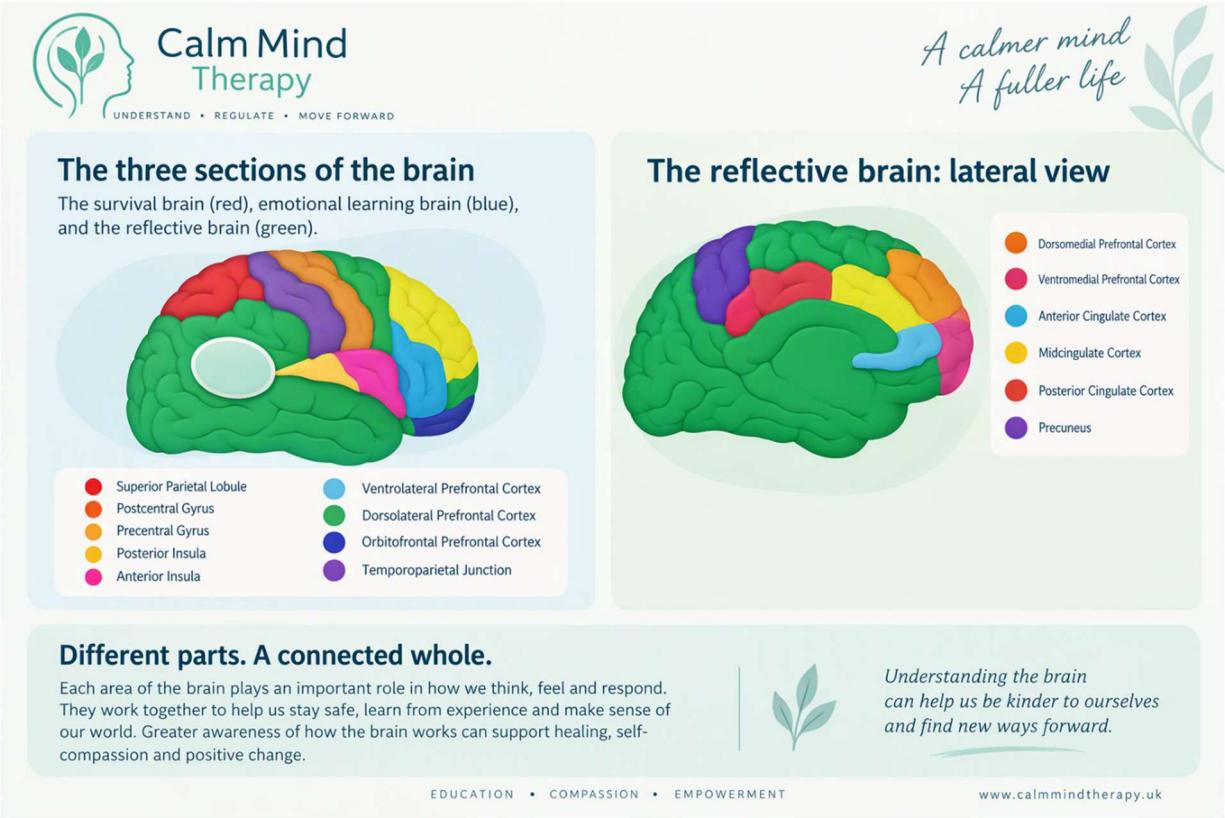
After trauma, the brain may give more priority to protection. A reaction can happen quickly, before there has been time to think it through. This is an understandable survival response, not a personal failure. Recovery involves helping these areas communicate and work together again.

The reflective brain



The **reflective brain** helps us think, plan, concentrate, solve problems and make choices. It allows us to pause and consider what is happening rather than simply reacting automatically. It also helps us put experiences into words, understand our thoughts and feelings, consider different points of view, and recognise when we are safe in the present. When this part of the brain is working well with the survival and emotional learning areas, we are better able to make sense of our experiences and choose how we want to respond. After trauma, strong signals of danger can temporarily make reflective thinking more difficult, which is why someone may struggle to think clearly, find words or make decisions when feeling threatened or overwhelmed. (See also fig 1)

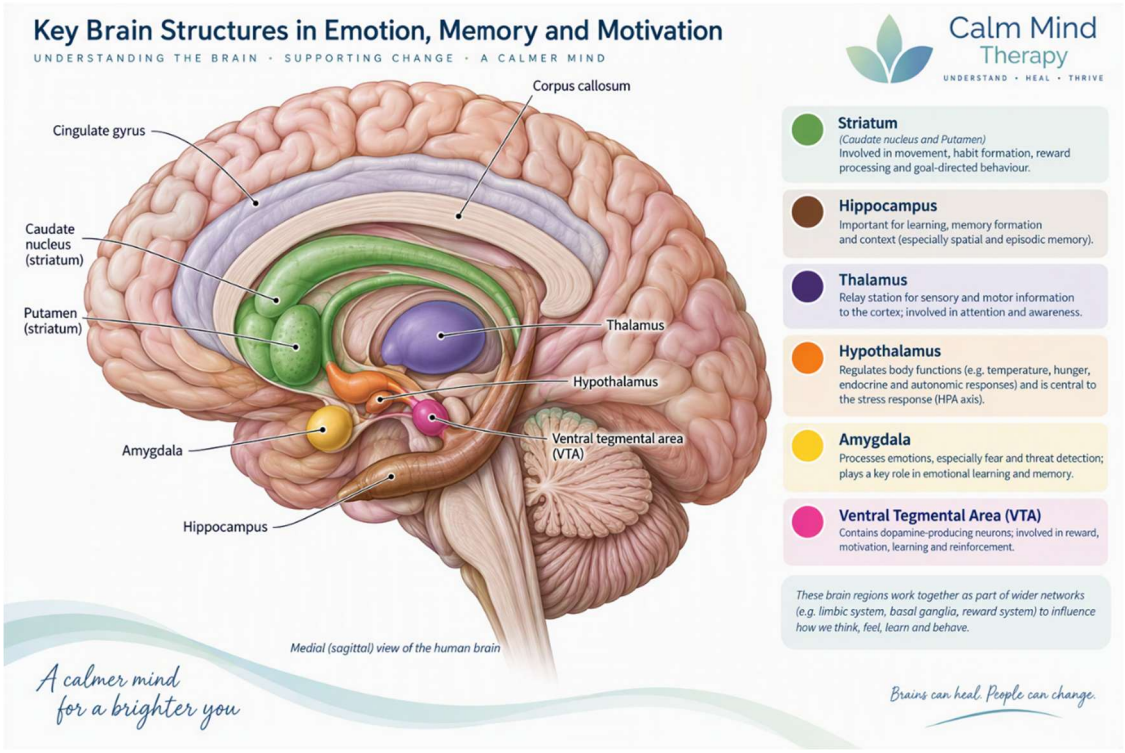
Fig 1



The emotional brain

What this area does

The emotional learning brain includes areas involved in emotion, memory, motivation and recognising what may be important. The amygdala helps detect possible threat,



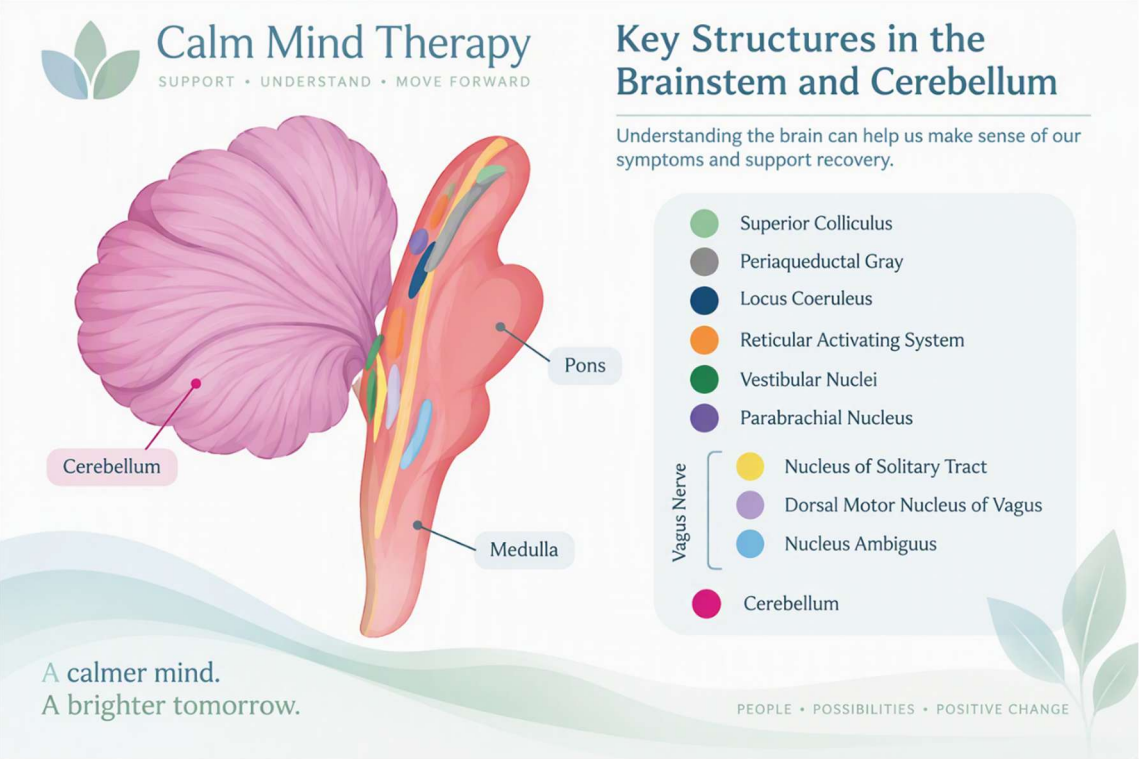
while the hippocampus helps place experiences in context, including where and when something happened. Together, these systems help us learn from experience and remember what may bring safety or danger.

How trauma can affect it

Trauma can make emotional learning strongly linked to danger. A reminder in the present may feel as though the past is happening now, especially when memory lacks a clear sense of time and place. Feelings may become very intense, or they may seem distant and difficult to access. The brain may also focus more on signs of threat and find it harder to notice signs of safety.

Helpful reminder: A powerful feeling or body reaction may be a learned alarm. It does not always mean that danger is happening now.

The Survival Brain



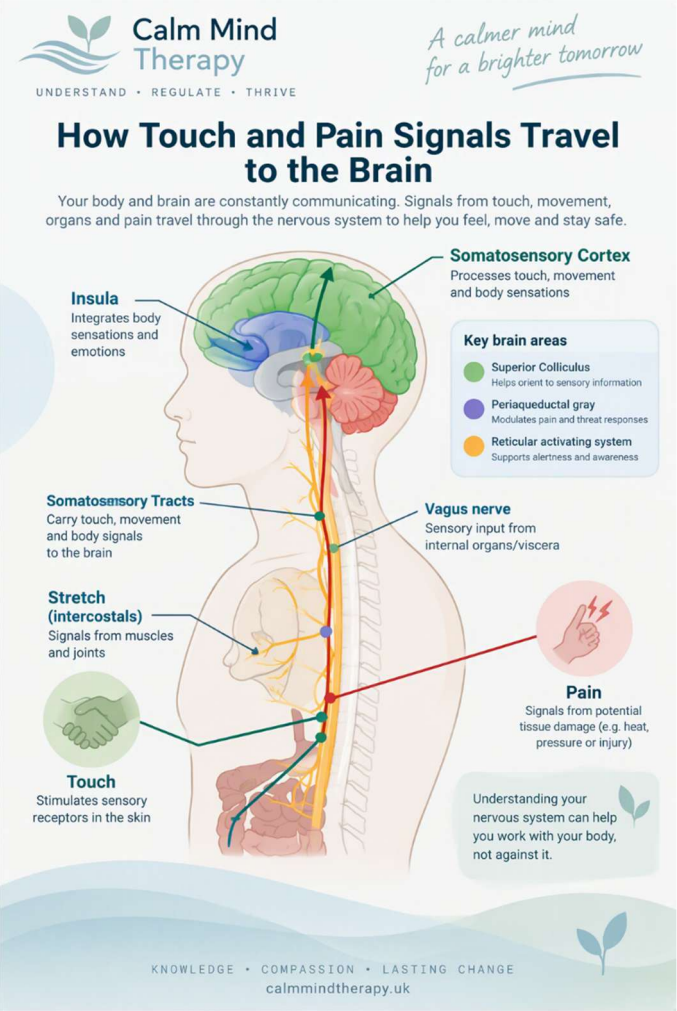
What this area does

The survival brain includes the brainstem and closely connected systems. It manages essential automatic functions such as breathing, heart rate, alertness, balance and basic protective responses. It receives information from the body and senses and can act very quickly when something appears unsafe.

How trauma can affect it

After trauma, this system may stay on high alert or move rapidly into fight, flight, freeze, collapse or shutdown. Ordinary sensations, sounds, movements or body feelings may trigger protection even when the present situation is safe. A person may feel tense, shaky, numb, dizzy, disconnected or suddenly unable to think clearly. These reactions are the brain trying to protect the person based on earlier learning.

Helpful reminder: Survival reactions are automatic. The aim is not to force them away, but to help the body notice more safety in the present.



The **survival brain** receives information from the body about things such as pain, touch, temperature, pressure and sensations from inside the body. Some of this information is processed very quickly through the spinal cord and brainstem. The survival systems are constantly checking whether something may be important or threatening and can begin protective responses, such as pulling away, becoming more alert or changing muscle tension, before there has been much conscious thought about what is happening.

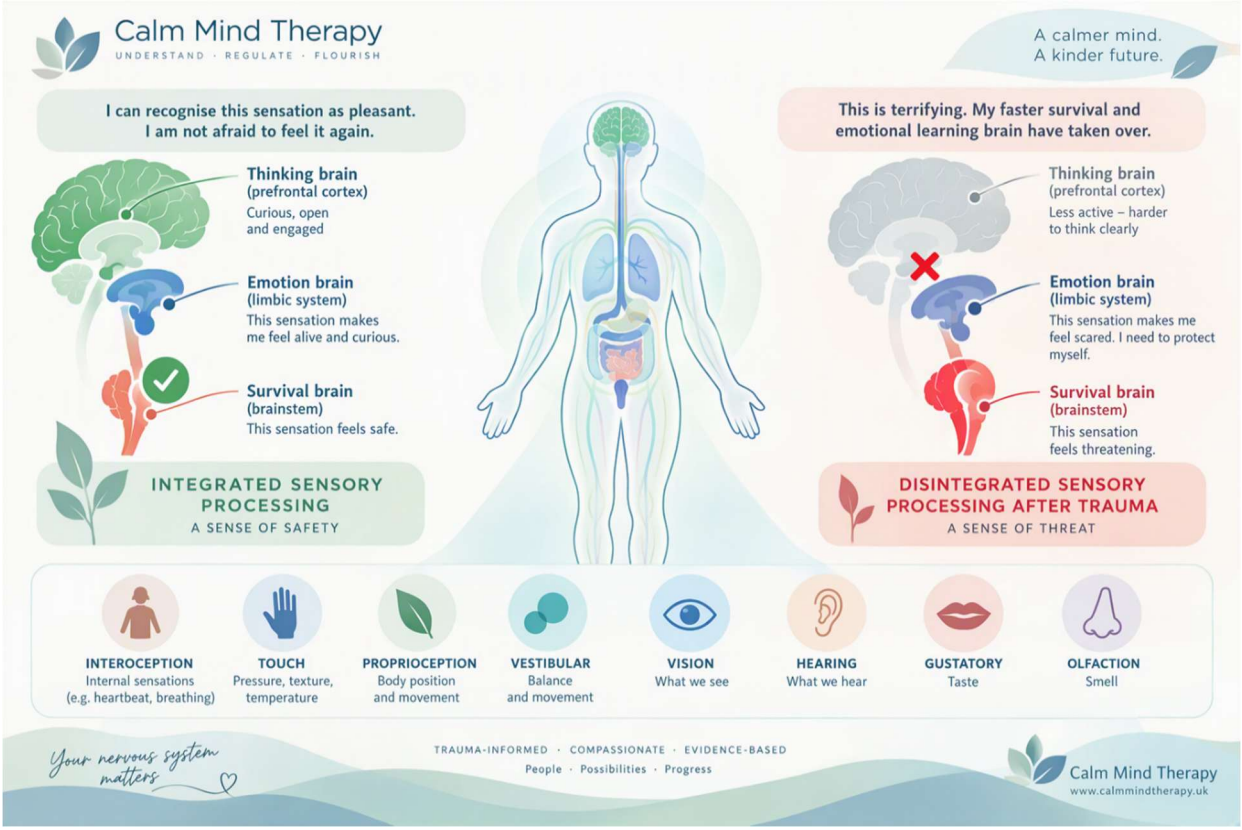
The **emotional brain** helps give the sensation meaning. Areas including the amygdala and insula connect bodily sensations with emotion, previous experiences and learning. This means that the same physical sensation can have different meanings depending on the situation and what the brain has learned in the past. The amygdala is particularly involved in the emotional and unpleasant aspects of pain.

[pmc.ncbi.nlm.nih.gov]

The **reflective brain** helps us consciously recognise, understand and make sense of the sensation. The somatosensory cortex helps identify where a sensation is coming from and its physical qualities, while other cortical areas contribute to attention, thinking and interpretation. Importantly, these three systems do not work separately. They constantly communicate with each

other, and the brain can also send signals back down towards the brainstem and spinal cord that can alter how sensory information is processed

Trauma can change the way the brain processes information coming from the body and the senses, including **touch, pain, movement, sound, vision and sensations from inside the body**. The pathways do not literally close down, but communication between different brain systems can become disrupted. The survival and emotional systems may become more sensitive to possible danger, so an ordinary or harmless sensation can sometimes be interpreted as threatening.



When the survival system detects possible danger, the brain may give **protection priority over careful reflection**. The emotional brain can connect the present sensation with previous frightening experiences, while the reflective parts of the brain may be less effective at recognising that the present situation is different and safe. This can make it harder to distinguish threatening from non-threatening sensory information, something that has been described in research on trauma and PTSD.

As a result, sensory information may become **poorly integrated**. Some sensations may feel unusually strong, painful, frightening or difficult to ignore, while other sensations may be difficult to notice or make sense of. This can help explain why someone affected by trauma may react strongly to particular touch, sounds, bodily sensations or other sensory experiences even when there is no current danger. Importantly, this does not mean that the brain is damaged or that the

symptoms are imaginary. Rather, the brain has learned to process information in a way that gives greater priority to **protection and survival**.

Helping Your Brain and Body Feel Safe Again

After trauma, the brain and body can become very good at looking out for danger. Sometimes ordinary sensations, such as touch, pain, movement, sounds or feelings from inside the body, can trigger the survival system even when you are safe now. Sensory therapy can help you gently notice and become more comfortable with these sensations. Over time, this can help your brain and body learn that a sensation does not always mean that something bad is happening.

With gentle practice and repeated experiences of safety, sensations that once triggered an automatic danger response may gradually become easier to understand and manage. The aim is to help your **survival, emotional and reflective systems work together again**, so that your brain can recognise, *"I notice this sensation, I understand what is happening, and I am safe now."*

The therapy sessions are **adapted from STAIR therapy and sensory-based approaches**, alongside other pluralistic therapeutic ideas. This means that we do not follow one fixed programme or expect the same approach to work for everyone.

Each person has different experiences, strengths, difficulties and ways of understanding what has happened. Together, we explore what you are experiencing and identify the approaches that are likely to be most helpful for you. This may include learning to understand and manage emotions, exploring sensations in the body, developing ways of feeling safer and calmer, and building confidence in relationships and everyday life.

The therapy therefore develops around **you and your individual needs**. We can draw upon STAIR skills, sensory approaches and other therapeutic methods when they are helpful, while adapting the pace and focus of sessions as we go. The aim is to help your body, emotional and reflective systems work together more effectively and to help you develop the skills and understanding that are most useful to you.

Please scan me for more information on our therapies.

Or email info@ calmmindtherapy.uk