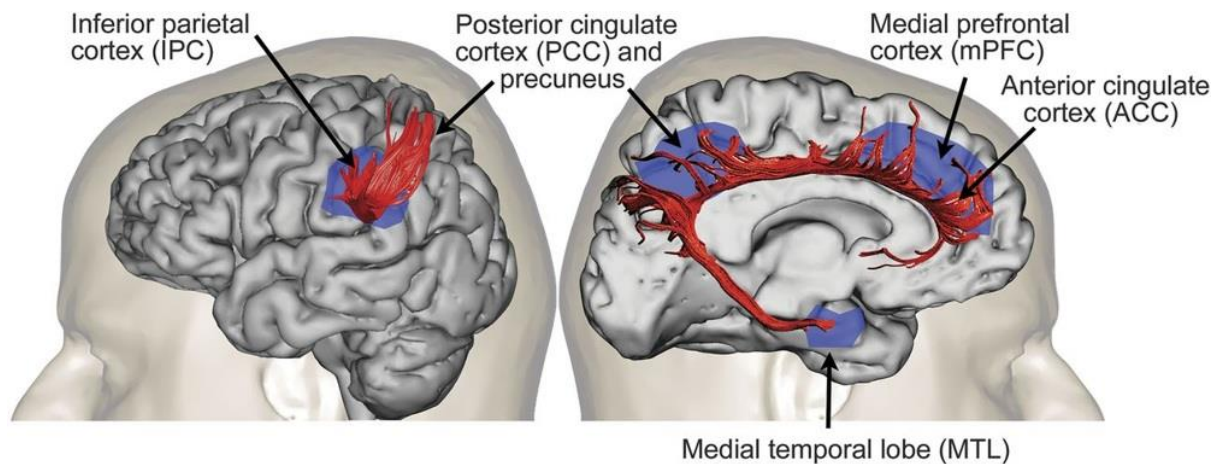


The Default Mode Network

It is easy to think of our brains 'just sitting there' – waiting to become active when we call on them to do something. Indeed much brain study until recently was based on experiments that looked at how our brain activates when given a task.

However, in 2001 when a neurologist by the name of Dr. Marcus Raichle at Washington University revealed a network of brain structures and activations that activated when we were in an inattentive state, and that deactivated when we engage in attention-demanding tasks. He coined the term, “default mode network,” to describe the group of structures active during our “default,” inattentive state.



“Inattention” is those times when we are not attending to physical activity, engaging with the external environment, or carrying on a conversation. Instead we are daydreaming, contemplating the future, reliving the past, or generally ruminating. The DMN is the set of neurologic structures responsible for this ruminative mental activity.

On the plus side, this DMN activity performs some really useful functions:

- It is the neurological basis for our concept of our self, our concept of our history, our personality and our perception of our emotional states.
- It contributes to the way we think about others – particularly our ability to ‘think what others are thinking’, and to engage in moral and social reasoning.
- It helps us remember, evaluate past actions and to plan.

But it is also associated with common culprits of mental unrest, namely: anxiety (over potential pasts, presents, or futures), depression (over regretted pasts, presents, or futures), or obsession. Multiple studies have demonstrated that increased connection in parts of the DMN are correlated with major depression and other mental illnesses.

Meditation involves maintaining attention on immediate experience and away from things such as self-referential thinking and mind wandering. And consistent with this, it has been associated with relatively reduced activity and connectivity in the default mode network (DMN).

Reduced DMN activity during meditation appears to be consistent across different meditation practices. For example the DMN shows reductions across three standard mindfulness meditations: focused concentration, loving kindness, and choiceless awareness.

