



POOR “COGNITIVE CONTROL” NOT JUST ADHD

ADHD, being impulsive, distractible, and hyperactive is a subset of poor cognitive control. Being in control is when the Pre-Frontal Cortex (PFC), the thinking part of the brain, is functioning properly. If the pre-frontal lobe loses control, then a person's behaviour is more reactive and responds to the immediate environmental situation or their emotions such as anger or fear. The person may then act “out of control”. To be successful in life you need good cognitive control.

The PFC recreates an image or concept of what is happening and then figures out the best reaction. Thinking before you act. This relies heavily on working memory located in the PFC. This gives you the ability to remember what you now are doing and what your goal is. You are less distractible and do not lose your train of thought. This minimises you reacting to minor environmental stimulation or distractions. If you cannot remember what is being discussed, you are illogical, and your conversation becomes “all over the place”. Being able to think using working memory enables abstract thinking. This high-level thinking is what sets humans apart from other animals.

The PFC is sensitive and easily disrupted. Tiredness, stress, alcohol, lack of exercise and poor diet will seriously affect its functioning. As the PFC requires considerable energy the PFC is usually only activated when necessary. However, with high levels of arousal, the neuromodulators, Nor Adrenaline and Dopamine take large parts of the PFC “Offline” by opening K⁺ channels. These stop the depolarisation waves travelling down an axon. Logical thinking becomes harder as the PFC increasing is disabled. Increasing arousal has an inverted U effect on PFC functioning

The amygdala area in the brain stem identifies threat and readies the person. This will be manifested as anxiety, aggression and/or other emotions. These emotions often are excessive or inappropriate. The PFC has projections back to the amygdala that modulate its output. It is through this negative feedback that therapies such as Cognitive Behavioural Therapy work. However, to work they need a properly functioning PFC, but frequently this is disrupted in behavioural conditions.

Pre-frontal cortex function is easily disrupted in ADHD sufferers. The core symptoms of impulsivity, distraction and poor concentration are due to poor PFC control of behaviour. Most commonly this tendency is hereditary, but can also be due to head injury, CNS inflammation, chronic stress, poor nutrition and antenatal complications.

People with ADHD are not only impulsive, distractible and hyperactive but often do not reach their full potential while having a negative impact on others. Their thinking brain is not being appropriately activated and their emotional nonthinking reactive brain takes over, resulting in sub optimal behaviours.

Lifestyle changes and medication make a profound lifelong difference for people with poor cognitive control. Counselling that relies on PFC functioning has a lesser role.

V1 July 2020, V2 April 2022