## ANXIETY AND ADHD

Anxiety and Attention Deficit Hyperactivity Disorder (ADHD) are conditions that children may have. They can occur individually in a child or they can both be present. While behaviours related to each may present in a similar way, the underlying reasons for the behaviours are very different. Understanding the underlying brain functioning related to each condition is useful in determining where it is ADHD, Anxiety or in fact both. The following table highlights some of the differences.

<table>
<tr><th colspan="2">What causes ADHD and Anxiety? And how might this impact on behaviour?</th></tr>
<tr><td>ADHD<br>Caused by structural, functional, electrical and neurochemical differences in the brain, in particular in the pre-frontal cortex (PFC). The PFC is thought to be the area of:<br>1. Executive functioning (planning organising, concentration, impulse control, focusing attention, remembering instruction, inhibition, self-control), and<br>2. Sensorimotor processing - using information received through the senses to produce an effective motor response.<br>The PFC and other parts of the brain are smaller in children with ADHD. This doesn't affect intellect – the brain is powerful, intelligent and very capable.<br>This can, however, affect behaviour – the brain can't filter 'noise' from relevant information coming in.<br>For people with ADHD, brain networks switch on too much and some don't switch on enough.</td><td>Anxiety<br>Caused when a part of the brain, called the amygdala, senses a threat.<br>Anxiety can be an adaptive response when there is a genuine threat (e.g., a tiger in the room). However it can also be maladaptive when the threat is only perceived (e.g., a Daddy Long Legs spider in the room).<br>When our brain senses threat, it releases adrenalin (from the adrenal glands), goes into auto-pilot and initiates the fight or flight response. The primitive, instinctive lower brain, the brain stem, takes over and blocks off the pre-frontal cortex.<br>Leads to behaviour that is less planned, more instinctive and more impulsive.<br>For people experiencing anxiety, the fight and flight response can be constant – the amygdala can initiate it 'just in case' rather than when a genuine threat actually exists.</td></tr>
<tr><th colspan="2">What are the differences between ADHD and Anxiety behaviours and what's happening in the brain?</th></tr>
<tr><td colspan="2">Difficulty in class, makes careless mistakes, distraction, inattentiveness, restless, difficulty focusing/ planning.</td></tr>
<tr><td>Pre-frontal cortex – levels of brain chemicals (neurotransmitters), norepinephrine (increase signals for appropriate response) and dopamine (decreases any irrelevant 'noise' in the brain) aren't at the levels they need to be, so brain cells can't communicate effectively.<br>Small changes in brain chemicals levels can have a big effect on ability of the PFC to do its job.<br>This leads to difficulty ignoring irrelevant stimuli and paying attention to too many things or different things than those they should be attending to.</td><td>The Amygdala is activated and the pre-frontal cortex shuts down – shutting down the ability to process detail.<br>The brain is focussing on staying safe.<br>Distraction can occur due to worrying thoughts, and focus decreases.<br>In addition, the anxiety can cause the appearance of restless, and retention of information can decrease.<br>It can also be difficult to write, sit still, copy from board.<br>There can be a reluctance to ask questions or for guidance.</td></tr>
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| **Hyperactivity, fidgeting, squirming, talking or moving too much, extra movement when doing simple tasks.** | |
| The part of the brain (PFC)that should inhibit and regulate physical behaviour is slower to activate, there aren't enough messages to instruct the body to stop or slow down. This results in the hyperactive behaviours displayed by people with ADHD. | When in fight or flight mode, the body surges with neurochemicals (adrenaline, cortisol) making the body faster, stronger and more powerful. If there is no genuine threat that requires the fight / flight response then these chemicals build up. This is nervous energy. The energy can look like too much movement, for example fidgeting, foot tapping, wringing hands or pacing. |
| **Impulsive behaviour** | |
| The developmental differences in the pre frontal cortex that manages self-control mean that behaviour may be more impulsive. Impulsive behaviour is not 'bad behaviour'. It is behaviour because the brain isn't able to do exactly what it needs to be doing. | The Amygdala takes charge and the surge of fight /flight chemicals send the pre-frontal cortex off line so it can't calm big feelings or plan a less impulsive response.<br>Once the anxiety response decreases the PFC takes over again.<br>Impulsive behaviour can look like aggression – a fight response.<br>Anxiety and big emotions both activate the same part of the brain (Amygdala) so other emotions such as anger might also be switched on.<br>'Silly behaviour' which is sometimes used as a mask to hide anxiety or nervousness can also look like impulsiveness. |
| **Difficulty organising tasks and activities and managing sequential tasks, disorganised work** | |
| Insufficient dopamine makes it difficult for the brain to screen out irrelevant stimuli. This stimuli creates 'noise'.<br>The 'noise' can make it difficult for the brain to organise thoughts, tasks or projects. | The left-brain operates in logic and sequences giving structure and order to our experiences. The right brain is more concerned with emotions and the big picture. It is heavily directed by the lower brain (brain stem), which is a major player in anxiety.<br>When anxious the 'emotional' brain takes over. There is more focus on 'what does this situation mean for me' and less for order or logic. |

| Difficulties with schoolwork, poor time management and other characteristics | |
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| Unable to keep focussed on a task<br>Forgetful (especially short-term memory)<br>Inability to manage impulses<br>Inability to shut out irrelevant stimuli or distractions, both in the environment and in their own head<br>Difficulty even starting schoolwork due to poor planning or organisation (thus, trouble finishing)Not specifically associated with perfectionism or compulsive behaviours<br>Ongoing issues with organisation<br>Don't necessarily worry about socialising<br>Don't pick up social cues<br>Impulsive actions can annoy or alienate others<br>Generally, no physical symptoms | Too anxious to ask for help.<br>Worry about making mistakes.<br>Doing things over and over, or doing things very slowly to try to get them perfect.<br>Perfectionistic<br>Not finishing is often about trying to get things perfect than about their ability, or a failure to focus or plan.<br>Compulsive<br>Talk about being worried – even if they aren't sure about what<br>Not generally impulsive<br>Behaviours only evident when anxious<br>Organisation not generally an ongoing problem<br>Worry about socialising – may lead to emotional outburst that alienate peers<br>Sensitive to social cues and what others think of them<br>Physical symptoms could include panic-like symptoms of sweaty palms or rapid breathing, or bodily sensations such as headaches, tense muscles, and stomach aches |
| **Management and strategies** | |
| Medication<br>Exercise – regular and moderate-vigorous<br>Behaviour training<br>Traditional martial arts<br>Brain training - Cogmed | CBT<br>Mindfulness<br>Exercise<br>Medication<br>Emotional regulation training<br>Stress Ace training |

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**References:** Click to read full article.

Rosen, P, ADHD and Anxiety: What you need to know

Sigmund, K, Anxiety or ADHD? Why they sometimes looks the same and how to tell the difference