

Adolescent Brain Development

What is adolescence and what is happening during this stage?

Adolescence is a BIOLOGICAL stage of a person's life and is known to be the transitional phase of development that occurs between childhood and adulthood.

The brain reaches its largest size in the early teen years but continues to mature until mid-late 20's.

This means that not only are teenagers dealing with physical changes during their adolescence, but also changes in their brain!

Whilst the brain is maturing – it goes through a process of 'synaptic pruning' whereby the brain gets rid of any connection it doesn't need.

Therefore, teenage brains are structurally different to adults as the functions of which are still under construction! This means that when we are asking our teens to do something in a certain way – they may not be able to do this as this is something their brain can't yet understand!

The Science of the Brain!

Pre-frontal Cortex –

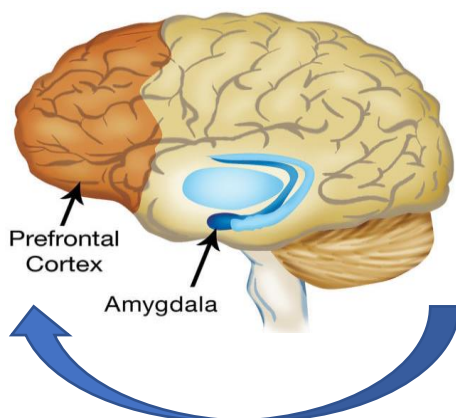
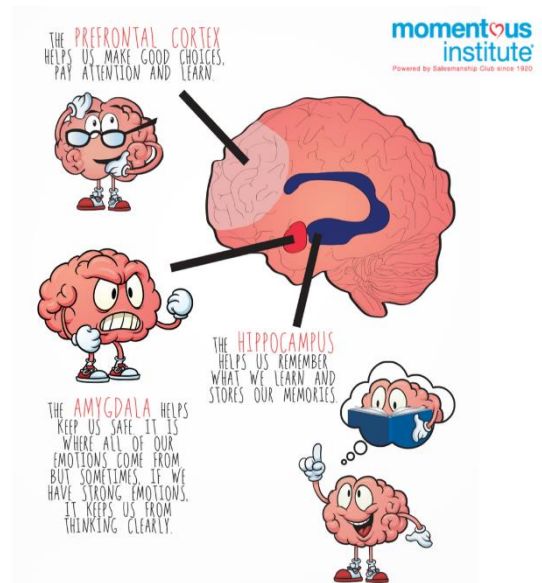
This is the part of the brain that is responsible for logical thinking – decision making, problem solving, analysing and interpreting experiences.

Amygdala –

This is the part of the brain that is associated with emotions, impulses, aggression and instinctive behaviour.

Hippocampus –

This is the part of the brain that organizes and stores all of our memories – especially memories that relate to facts and events.



The brain develop from back to front – meaning the pre-frontal cortex is the last part of the brain to reach full maturity.

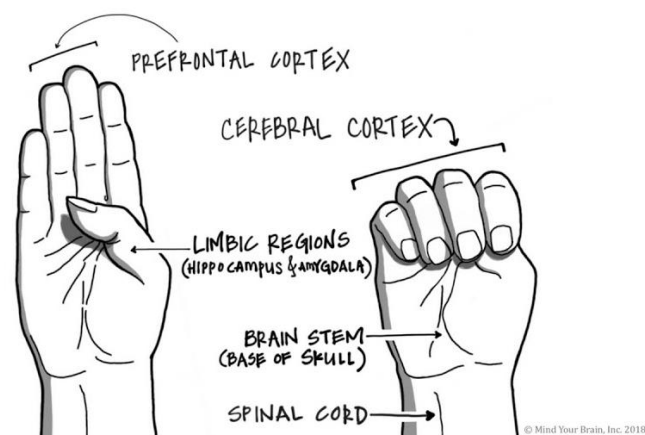
This means that the Amygdala is likely to take the lead when making decisions – this is usually why it results in a behaviour!

The Brain and Behaviour

Because the brain develops from back to front – the more primitive areas of the brain (amygdala) develops before the higher thinking and rationalising parts (pre-frontal cortex)

This means that adolescents behaviour is controlled by the amygdala!

A good way to understand behaviour is through the 'Hand-Brain' model and the 'Flipping your Lid' theory – created by Dan Siegel.



Hand-Brain model: <https://www.youtube.com/watch?v=f-m2YcdMdFw>

Flipping your Lid theory: https://www.youtube.com/watch?v=G0T_2NNoC68

Adolescents are still learning to process, control and express their emotions – this can lead to:

- Behaviour seeming dramatic or over the top
- Increase in conflict or aggressive behaviour
- Difficulty reflecting back on emotional fuelled behaviour – explaining why they reacted/acted in this way
- Behavioural responses may not seem appropriate or inline with social expectations

Risk Taking and Peer Relationships

Risk-taking behaviour often increases in adolescence – it can be seen as a normal part of development.

There is an increase in risk-taking due to 4 main factors:

- Reward sensitivity
- Self-regulation is not fully developed
- Limited pre-existing knowledge or experience
- No time to stop and think!

Peer relationships become more more important than other relationships during adolescent years.

This is due to increased social motivation and needing to feel accepted to relieve anxiety.

Risk-taking can increase with peers due to:

- Reward sensitivity with social rewards
- Hypersensitivity to social stimuli



Nurturing a healthy brain

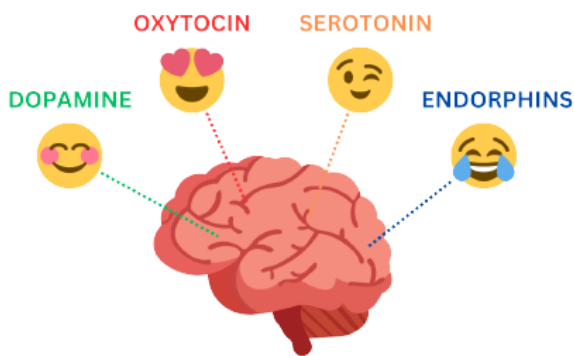
Importance of Sleep

Changes in sleep patterns during adolescence is due to puberty and changes in hormones.

The sleep hormone – Melatonin, is released and makes us tired but for teenagers, this hormone is released at 1am in the morning – meaning teens may not feel sleepy until late!

Tips to improve sleep including:

- Ditching the lights: lights disturb natural melatonin production and release. So ensure exposure to light is limited at bedtime.
- Scrap the phones: light emissions from devices also prevents melatonin from kicking in!



Get your Daily DOSE

There are 4 chemicals in our brain that get released when we do activities!

Gaining these chemicals makes us feel good in many different ways!

Find activities using the posters provided to release different chemicals!

Overall tips:

1. Build healthy and nurturing attachments with young people
2. Provide new and exciting activities
3. Establish good sleeping habits
4. Encourage an active lifestyle
5. Offer healthy food options
6. Develop a plan to manage stress
7. Protect the brain from injury