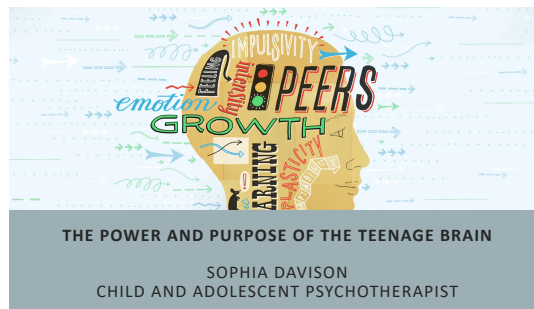


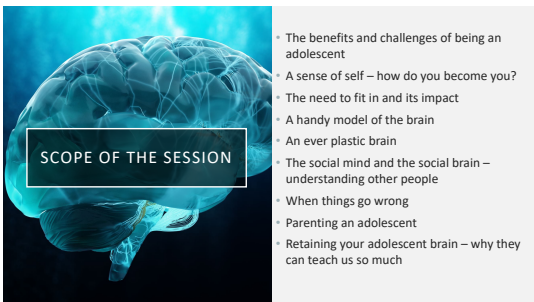
THE POWER AND PURPOSE OF THE TEENAGE BRAIN



INTRODUCTION

- Good evening and welcome to tonight's session.
- My name is Sophia and for those of you who don't know me I am one of the therapy team here at The Archer Academy.
- My hope this evening is that you will leave with a greater understanding of the the distinct stage of brain development that occurs in adolescence coupled with an appreciation of how much of a construction project your brilliant children undergo when it comes to their brains.
- So in thinking about what we might focus on I thought it would be helpful to do the following:

SCOPE OF THE SESSION

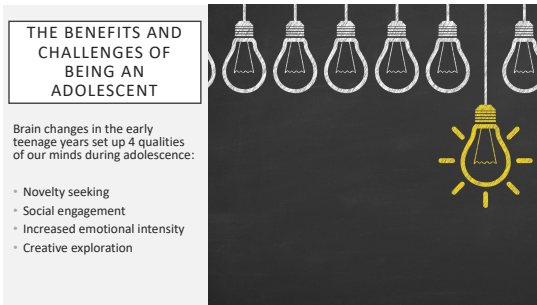


- The benefits and challenges of being an adolescent
- A sense of self – how do you become you?
- The need to fit in and its impact
- A handy model of the brain
- An ever plastic brain
- The social mind and the social brain – understanding other people
- When things go wrong
- Parenting an adolescent
- Retaining your adolescent brain – why they can teach us so much

- We will think a little about the benefits and challenges of being an adolescent and as part of this I will touch on the development of a sense of self, or put another way, how you become you?
- Next, I'll explore why our teenagers have a heightened need to fit in during this time and we will consider the impact of this on risk-taking and decision making.
- To make sense of this we need to understand what happens neurologically during these years: the neuroscience and I will attempt to do this in a very simple way, using a "handy" model of the brain.
- As part of this we will consider things like plasticity in the brain and how our brains are social and contribute to us understanding others and I'll touch briefly on how adolescence can make some people vulnerable to mental health difficulties.
- In the final part of the evening, we will think about how understanding the significant changes our teenagers' brains undergo can inform our parenting.

- At the end if there are any questions I hope I will be able to address them, with the caveat that I am not a neuroscientist, I am likely better suited to answering questions about how to approach this stage in your child’s development.

THE BENEFITS AND CHALLENGES OF ADOLESCENCE



- Teenagers can be exasperating and as a mum I have sometimes found their moodiness, self-absorption, lack of empathy and risky decisions frustrating in the extreme but – would you want to go back to being a teenager?
- We often forget what we were like at their age and perhaps some of the tension that we experience in our families comes from us (the adults) not remembering how maddening we sometimes found our parents to be.
- One of the myths is that raging hormones are responsible for teenagers “losing their minds” and it’s true that hormones do increase in this period, but it is not the hormones that determine what goes on in adolescence.
- What teenagers experience is primarily the results of changes in the core circuits of their brains and these changes are what makes adolescence distinct from childhood.
- These affect how teenagers seek rewards in trying new things, connect with their peers in different ways, feel more intense emotions and push back on the existing ways of doing things to create new ways of being in the world.
- Each of these changes is necessary to create the important shifts that happen in their thinking, feeling, interacting and decision-making during adolescence.
- Developing an identity is what adolescence is all about, so, with this in mind, let us touch briefly on the profound transformation to a teenager’s sense of self that develops during this time.

A SENSE OF SELF



- Adolescence is often the first time we give much thought to how our identity affects our lives and the ways in which other people see us.
- Everything about who we are starts to change. We are constructing who we are and how we are seen by others.
- How did you become you? To some extent genetics: personality, cognitive strength, preferences are to a degree hereditary. Additionally, through interaction with our genes our environment plays a role in determining who we become.
- A basic sense of self emerges very early in life. I find it fascinating that within 24 hrs, newborn babies can distinguish between self-touch (accidentally brushing their cheek) and someone else touching their cheek and will turn towards the external source: Rochat 1990s study Lausanne, Switzerland.
- After birth our sense of self develops gradually. From around 18 months if a baby has a mark applied to their forehead and is then shown their reflection in a mirror they instinctively touch the mark - in other words they have acquired a sense that their face and body belong to them and understand that this is reflected in the mirror. This process of understanding “self and other” continues throughout childhood with greater sophistication.
- During adolescence our sense of self becomes particularly important to us. Our social self, thinking a lot about the way people view us, is central. This concept is sometimes called “looking-glass self” and in adolescence it plays a larger role as we become increasingly aware of and concerned about the opinions of others.
- How many of you have had the experience of your teenager being horribly embarrassed by something that doesn’t affect you in the same way? We might even not understand why our children can seem so preoccupied with something which just doesn’t warrant it.
- However, neuroscience has proved that embarrassment has a more striking effect on the body and brain of adolescents – fascinating right?
- In one experiment groups of children, adults and adolescents were put into an MRI scanner and told that whenever the red light they could see was on, someone was watching them.
- The adolescents who took part produced more sweat and showed greater activity in a part of their prefrontal cortex - a key region in the ‘social brain’ which is involved in reflecting on the self than the children or adults in the experiment.
- This might explain the acute self-consciousness that adolescents experience. Teenagers imagine that other people are constantly observing and evaluating them even when it is not the case. They can’t help feeling consumed with self-doubt, it is a critical part of how their brains function.
- The other key aspect to developing our sense of self stems from our own assessment of what we are like and we typically base this on our own reactions to past and present events.

- As adults we are generally skilled in interrogating why we feel the way we do and coming up with an account for our emotions (introspection) and on reflecting on how confident we feel about our actions (meta-cognition) but what about our beloved teenagers?
- Let's imagine a scenario. You oversleep and when you wake up you realise you are going to be late for an important meeting: what might you do?
- Perhaps you'd call, take an uber, send an email – you'd likely communicate and in part you would do this because you would draw on reservoirs of memories and experiences which would help you decide how to respond to your current situation.
- What about your teenager? In studies which replicate this scenario something extraordinary happens in the brains of adolescents – unlike in adults their medial pre-frontal cortex is much more active.
- Now don't worry about remembering the parts of the brain (I struggle with this), the important point is that this is the part of the brain that causes self-consciousness. In other words, adolescents will tend towards thinking about themselves more consciously when contemplating decisions and it is their brains that makes this happen.
- So, for many of us, a deep and complex sense of self, particularly of our social self, has its origins in adolescence. And in developing this social self, one group stands out as being especially significant - people like us, other teenagers. This then explains the next subject we are going to look at – the intense need adolescents often experience of needing to fit in.

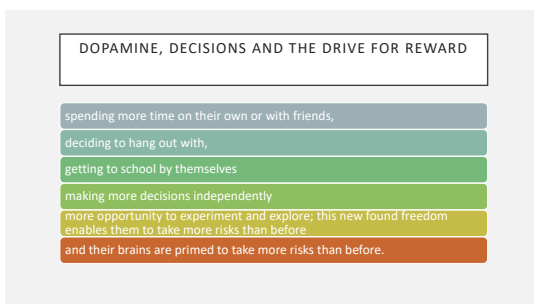
FITTING IN



- Being accepted by peers is very important
- Risky behaviours peak in adolescence
- The presence of peers increases risk taking
- During adolescence there is an increase in the activity of neural circuits using dopamine, a neurotransmitter central to creating our drive for reward.
- This enhanced dopamine release causes adolescents to gravitate towards thrilling experiences

- Studies show that friends matter more in adolescence than at any other stage in life.
- And it is particularly important to teenagers to be accepted by their peers.
- This in part explains the strong susceptibility to peer influence which has an impact on risk-taking and decision making.
- It's important to acknowledge that not all adolescents are risk-takers but there is evidence that risky behaviours peak in adolescence.
- To understand this, it is important to think about the circumstances in which they typically take risks; most teenagers who do take risks don't do so when they are on their own, they do so when they're with their friends.

- The neuroscientist Laurence Steinberg designed the Stoplight task in which adolescents, young adults and adults completed a driving video game task with traffic lights. The aim was to drive as quickly as possible. In the study participants completed the task twice, on their own and then again with some friends watching. The friends could offer advice about whether to stop the car or keep going. The results between the round when they were on their own and the round when they could be influenced by their peers were starkly different.
- This experiment had two important findings. 1: adolescents, young adults and adults all take around the same number of risks when alone. This is important because it means adolescents don't always take risks.
- 2: a critical factor in risk-taking for adolescents (and to an extent young adults) is the presence of peers whereas this is not the case for adults over 25.
- If we think about real life examples, young people are more likely to have a car crash if they have someone else in the car whereas for adults it is a protective factor and they are less likely to crash than if alone.
- So if we think about Steinberg's driving task, what is happening neurologically? It is the brain's increased drive for reward that offers at least part of the answer. Let's look at this more closely.



DOPAMINE, DECISIONS AND THE DRIVE FOR REWARD

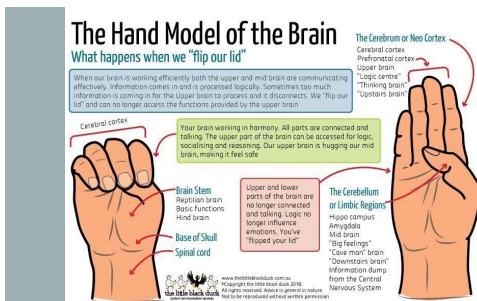
- Clearly there are lots of times when taking risks is a good thing - it can lead to new experiences, learning, personal development and so on; what we are thinking about now is the way in which the presence of our teenagers' friends increases risk taking by enhancing activity in the brain's reward circuitry.
- During adolescence there is an increase in the activity of neural circuits using dopamine, a neurotransmitter central to creating our drive for reward and this enhanced dopamine release causes adolescents to gravitate towards thrilling experiences.
- Research even suggests that the baseline level of dopamine in teenagers is lower but its release in response to experiences is higher which might explain why teenagers may report a feeling of being bored unless they are engaging in stimulating and novel experiences.

- The brain's increased drive for reward in adolescence manifests in teenagers lives in three important ways.
 - One is increased impulsiveness, where behaviours occur without thoughtful reflection, in other words they don't pause to think before they act.
 - A second way is a susceptibility to addiction, I am going to touch on research related to alcohol and drug use in teenagers a little bit later but when I talk about dopamine here I really mean addiction to anything: food, gaming, screens, their friends.
 - A third type of behaviour shaped by the increased reward drive in the adolescent brain is something called hyper rationality. We might call this literal thinking and it shows itself when teenagers just see the facts of a situation rather than the big picture or the context and tend to place a lot of weight on the positive outcome and give little thought to possible negative results. The good news is that as teenagers mature, they generally move away from hyper-rational calculations and appreciate that intuition plays an important role in making decisions.

- We are all influenced by other people, but adolescents are especially susceptible to social influence. Social factors weigh heavily on teenagers, their decision making is more influenced by a need for peer acceptance and a desire to avoid being socially excluded. This explains why they sometimes take risks with their friends that they wouldn't take on their own.
- And peer pressure doesn't always lead to risk taking, sometimes it causes risk aversion. Teachers often note that as they get older bright, articulate students become more resistant to answering questions in front of their peers for fear of seeming stupid or too clever.
- To understand why adolescents take risks we need to consider the context in which the risky behaviour occurs.
- In our school system the transition from primary to secondary occurs around the onset of puberty, placing children in a new environment with a different and larger set of peers and different structures of learning.
- Children move from being the oldest to the youngest and our teenagers are often exposed to more novel situations: spending more time on their own or with friends, deciding who to hang out with, getting to school by themselves than younger children. Often for the first time they are making more decisions independently of their parents or teachers.
- So effectively we have the perfect conditions in play - there is more opportunity to experiment and explore and their brains are primed to take more risks than before.

- In young adolescents the limbic system is already mature and particularly sensitive to the rewarding feeling of risk taking and at the same time the prefrontal cortex (which stops us acting on impulse and inhibits risk-taking) is not yet mature.
- Essentially there is a developmental mismatch between the maturity and functioning of these two brain systems which in part explains why teenagers get a kick out of taking a risk and aren't always able to stop themselves in the heat of the moment (a skill that relies on the pre-frontal cortex). Additionally MRI studies have shown that in teenagers the limbic region of their brains are hypersensitive, meaning they are more active and show different neural responses to reward during risk taking compared to children and adults.
- Evidently there are biological and environmental factors to consider when explaining ordinary adolescent behaviour.
- It's also clear that what is happening inside the brain is complex so let's look a little more closely at what happens neurologically during the teenage years. To do this we're going to use Dr Dan Siegel's brilliant and simple way of understanding the brain.
- This is the section of the presentation that I like to call "active learning" or "audience participation" which starts with you holding one of your hands up in front of you like this:

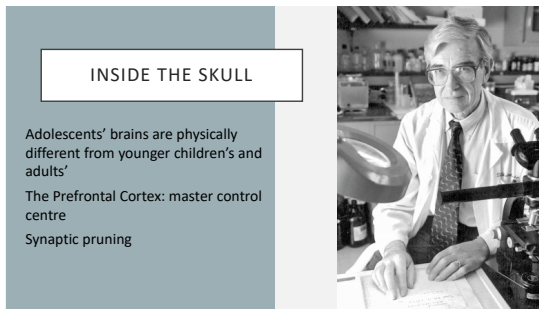
A HANDY MODEL OF THE BRAIN



- Fold your thumb into your palm and then fold the fingers over your thumb you'll have facing you a useful hand model of the brain.
- In this model the area of your fingernails is just behind the face and the back of your hand is where the back of the brain the back of your head would be.
- The highest part of your brain, represented by your fingers is the cortex. We think and reflect, perceive, plan and make decisions with our cortex. Awareness comes in part from what happens in the cortex and so self-awareness comes from this region.
- If you lift your fingers you will see below them the thumb, which represents the emotion generating limbic area of the brain.

- The limbic area is in charge of a lot of things including what motivates us, how we focus our attention and how we remember things.
- Lift the thumb and you'll find in your palm the lowest and oldest area of the brain, the brain stem. This ancient region is involved in keeping us awake or letting us sleep and it's the part of the brain that can interact with the thumb region above it, the limbic area to create reactive states of being angry or scared.
- Since the brainstem and limbic areas are below the cortex we call these the subcortical regions.
- Lift your fingers and put them back over the thumb and palm and you'll see how the cortex literally sits on top of these two subcortical regions.
- The brain itself sits above the spinal-cord, represented by your wrist. Input from this neural tube within the backbone along with other neural inputs from your body and organs such as the heart and intestines can directly influence the neural activity within the subcortical and cortical parts of the brain.
- Not represented here directly is the cerebellum, which would be just behind the limbic area and plays an important role in balancing the body's motions and the interaction of our thoughts and feelings.
- A band of neurons called the corpus callosum links to left and right sides of the brain to each other and coordinates and balances activities.
- Our brain functions in a 'state dependent' way meaning that while it is in a calm state certain functions work well and efficiently.
- But in other situations those same functions may not work so well.
- If you put your hand model together and then suddenly lift up your fingers you'll see the anatomic way we can symbolize how you lose the integrative role of the prefrontal cortex.
- Without the calming influence of that cortical region, ancient reactions of fight, flight, freeze can emerge suddenly and sometimes without warning to anyone.
- Since the cortex is the centre for awareness, these lower brain areas can become active without our conscious mind knowing what is starting deep inside the brain.
- Then Wham! Out pours a set of reactions we didn't even know we were feeling and we flip our lids.
- In my experience as a mum of 3 teenagers their moods can be at times incomprehensible, but this is why I like the analogy of a construction project, to think of their brains as a building site in which certain processes are temporarily disabled to enable other bits of construction to happen. And one of the brain regions that undergoes the most striking change in adolescence is the prefrontal cortex.

THE PREFRONTAL CORTEX: MASTER CONTROL CENTRE



- Let's give a moment to remind ourselves what this area is involved in: decision making, planning, inhibition of inappropriate or risk-taking behaviour, social interaction, understanding other people and self-awareness.
- The fact that it is being reconstructed helps explain a lot that we find exasperating about teenagers.
- The cortex and subcortical structures make up what is known as the brain's grey matter – a mix of neurons, blood vessels, synapses (the connections between neurons) and small cells called glia which protect neurons.
- These subcortical regions link up with one another and with the cortex. The links with the cortex are vast tracts of white matter: think of them as highways transporting vast quantities of information from the subcortical regions that process emotion, memory and movement up to areas such as the prefrontal cortex which incorporates this information into current decisions and future plans.
- You may be wondering who the scientist is on the slide – he is Huttenlocher, an American pediatric neurologist, whose findings in the 1960s and 70s indicated that certain parts of the brain did not stop developing in childhood but instead continued to develop through adolescence.
- He was interested in synapses – the connections between neurons – and showed that the brains of young children contain vastly more synapses than the fully matured brains of adults.
- Through a process called synaptic pruning, those that are used are retained, those that aren't are pruned away to enable the stronger ones to grow.
- Changes in the ability to perceive sounds over the first year of life are thought to be the result of synaptic pruning.
- The sound-processing synapses that are not being stimulated (because the language in the baby's natural environment does not contain certain sounds) are pruned away – this is one reason why it'd harder to learn foreign languages the older you are.
- Huttenlocher found that the number of synapses increases until around 3 years and then declines gradually throughout the teenage years, not stabilizing until late adolescence.
- He thought it likely that environmental experience might play an important role in shaping the prefrontal cortex because he showed that synapses in this region are still being pruned away in

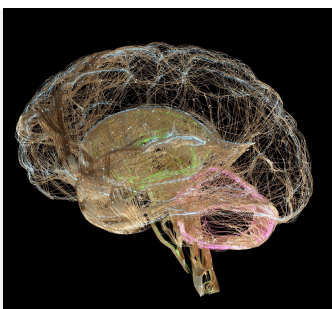
adolescence – the implication being that an adolescent’s environment: culture, education, home, social life, hobbies, nutrition, exercise might contribute to shaping their brain.

- Until him, all data in neuroscience thought most brain development occurred in early childhood.
- His discoveries paved the way for a new field of research and the use of MRIs has enabled neurologists to identify what occurs between childhood and adolescence, to track the development of the living adolescent brain.
- An important finding is that adolescents’ brains are physically different from younger children’s and adults’ brains – in terms of brain development adolescence is a distinct stage, something we will look at now.

INSIDE THE LIVING BRAIN – PLASTICITY

PLASTICITY IN THE BRAIN

- The brain’s capacity to adapt to changing environmental stimuli is in action whenever learning takes place and has no age limit.



- MRI studies have shown that the volume of grey matter in cortical regions increases during childhood, peaks in late childhood and decreases substantially in adolescence – some regions of the cortex lose about 17% of grey matter between late childhood and early adulthood.
- A loss of grey matter might sound bad, but this decrease probably reflects a number of important neurodevelopmental processes which help to refine the maturing brain.
- It is plausible that the decrease in grey matter might be due to synaptic pruning. The second explanation is that as grey matter decreases, white matter increases – as axons (the wiring between neurons) become coated in myelin which enables the rapid processing of information and increases the speed and accuracy of decisions and movements.
- These two fundamental changes, pruning and myelination help the adolescent brain to become more integrated. Integration, the linking of different parts, creates more coordination in the brain itself.
- Brain development levels off at some point, probably when we are in our 40s but the brain never stops being capable of change.
- Plasticity – the brain’s capacity to adapt to changing environmental stimuli is in action whenever learning takes place and there’s no age limit on that.
- In fact, the latest research on aging well indicates that the more we continue to learn new things the better our brain health and the changes can be rapid even occurring over a matter of days.

- A study by Arne May in Germany focused on how learning to juggle affected people's brains. Participants were asked to practice juggling three balls every day for three months. At the end of this time two areas of the jugglers' brains that process visual motion information had increased in size. But after 3 further months (during which they did no juggling practice) the regions returned to their previous size which suggests that if you want to keep your brain healthy you need to provide it with opportunities to learn.
- Alongside pruning, myelination and plasticity a large part of the brain is dedicated to understanding other people and social interaction, the so-called social mind, social brain to which we will now turn.

SOCIAL MIND, SOCIAL BRAIN



- It is our social brain which enables us to recognise others, evaluate their intentions and feelings and predict their future actions.
- Humans can distinguish a significant array of emotional expressions and to infer what might be going on in their mind. We call this theory of mind or mentalizing.
- Most people mentalize automatically whenever they interact with another person. Babies are born with a rudimentary but remarkable capacity to recognise faces.
- Performance in face memory, matching emotions to faces, improves rapidly between 8-10 years and then declines at 12yrs before gradually improving around 16 years. We don't know what causes this dip in performance, but it is likely in part due to the changes in the brain that occur in early adolescence – the construction project.
- Now this is important. How many times have you looked at your teenager with a benign or neutral expression and they respond with a defensive “what?”
- We know from neuroscience that when teenagers are shown a neutral face in a photograph a major area of the limbic region, the amygdala becomes activated, whereas in adults the same photograph merely activates the reasoning prefrontal cortex.
- The result for our teenagers can be a conviction that another person's neutral response is filled with hostility and cannot be trusted.

- Additionally we know that when adolescents and adults are asked to look at fearful faces but only to focus on a non-emotional aspect (such as the nose) adults can shift their attention, and this is reflected in their brains but adolescents' brains, despite being told what to focus on, continue to track emotional and arousing stimuli in the environment even when they have been asked to focus on non-emotional stimuli.
- There are two routes that send information to the amygdala. One is a slow route, in which the higher cortex sifts through information, reasons, reflects and then informs the amygdala in a calm and rational way. There is a second route, one which bypasses the cortex and simply sends incoming streams of perception directly to the amygdala. This is the fast route.
- Studies of adolescents reveal that even under calm conditions the fast route to amygdala activation occurs more readily in teenagers than in adults. What this means is that the intense emotions of the pure amygdala response may rise more quickly.
- And we've likely all seen this - teenagers tend to have a more immediate emotional response unfiltered by cortical reasoning.
- This is one reason why in therapy, but also in ordinary life, it can be helpful to model to teenagers the labelling of emotions. There is a phrase "name it to tame it" and there are even some brain studies that show how the naming process of emotions can activate the prefrontal cortex and calm the limbic amygdala.
- Learning to manage our emotions in adolescence is an important part of becoming independent from our parents which is why this can be an especially useful skill to model, not least because it helps with our next area for consideration, understanding other people.

UNDERSTANDING OTHER PEOPLE

- The social brain develops structurally and functionally during adolescence: structurally in the decrease of grey matter and functionally as activity within the mentalizing network shifts from regions at the front of the social brain to regions at the back of the social brain.
- Experiments using MRIs have shown that adults and adolescents completing a social task (such as matching faces to emotions) have different patterns of brain activity, likely because that adults and adolescents use different neurocognitive strategies when reflecting on social situations.
- Like the scenario I presented earlier of being late for an important meeting, it is probably the case that teenagers, who have less life experience, to draw on have to consciously bring to mind specific examples – entailing more activity in the social brain region at the front of the brain.

- For adults who can scan their stored collection of social scripts the process of thinking about themselves in different social situations might be more automatic, involving less conscious awareness and thus lower levels of activity in the social brain region.
- One prediction therefore is that social tasks might interfere more with other tasks carried out at the same time in teenagers than in adults.
- Adults are more adept at multi-tasking than adolescents which supports the notion that with age social processing might become more automatic and so interferes less with other cognitive processes.
- This fits with the possibility that teenagers find it challenging to focus on a task in hand in the presence of an emotionally salient and distracting stimuli such as driving a car with a friend or being on a screen when completing homework.
- Thus far we have focused on the significant changes that affect all adolescents and you may have a bit more sympathy for their, at times, maddening behaviour.
- Most teenagers develop into mentally healthy adults but some will be more vulnerable than others and it is to this we will now turn.

WHEN THINGS GO WRONG

- Something about adolescence can make people susceptible to mental health difficulties. Neuroscientists are making progress in understanding what is happening in the brain development of teenagers who develop these conditions and I want to touch on it, not to alarm but rather to inform. There is a lot we don't know but here are some observations gleaned from research.
- Depression is more likely to start in adolescence than at any other time in life. There are several brain-imaging studies of adolescents with depression pointing to different grey matter volumes when compared to adolescents without depression. It seems likely that the way the brain functions is different in teenagers with depression.
- We don't know what causes mental illness but we know that a genetic component coupled with certain environmental factors can elevate risk.
- We know there is a striking gender difference (but we don't necessarily know why) in various forms of mental illness.
- Depression is twice as common in women as men, eating disorders remain more common in women whilst men are more likely to suffer from substance or alcohol abuse disorders.
- I am sometimes asked about the risks of cannabis use amongst teenagers and it is the case that heavy cannabis use in adolescence is associated with an increased likelihood of developing schizophrenia but we don't know if the relationship is causal – does cannabis cause schizophrenia or does having

schizophrenia make you more likely to use cannabis? For instance, early symptoms such as feeling paranoid or hearing voices can lead people to self-medicate with cannabis.

- We do know that cannabis use before the age of 18 is more damaging for cognition than after and this suggests that adolescence is a sensitive time during which the environment can make a mark on how cognitive abilities develop.
- Parents often ask me about the implications for teenagers of drinking alcohol, especially in relation to brain health. Research here is contradictory: some studies suggest that young people who drink a lot show a pattern of brain structure and function that is different to those who do not but equally it is important to say that most teenagers who drink do not progress to having alcohol-use disorders.
- When I am thinking about adolescents and alcohol my biggest concern is the direct association alcohol has on rates of risky behaviour and to my mind that is where the conversation with teenagers needs to be focused.
- The other big unknown remains around the impact of screens and in particular smart phones on adolescent brain development. My sense is that we are likely to see changes here and I wouldn't be surprised if our teenagers, should they become parents, take a very different line with their offspring.
- So there are a lot of unknowns, not a happy position for a parent of an adolescent to find themselves in so let us, as we approach the final part of this evening, think about what helps when parenting an adolescent.

PARENTING AN ADOLESCENT

PARENTING AN ADOLESCENT

- Find your tribe
- Authoritative parenting: an approach filled with warmth, limit-setting and the honouring of autonomy in an age-appropriate way.
- Lending support whilst supporting separation.



- If I had to sum up in one word what causes most of the tension that I experience with my teenagers the word would be “difference”. They are different to me in so many ways.
- I am not always good at this but my intention is to let them be who they are, not who I expect them to be.
- How do we find a balance between our adolescents’ personal decisions and our parental concerns.
- It is important to support our teenagers whilst letting them find their own voice.

- We could call this “authoritative parenting” an approach filled with warmth, limit-setting and the respecting of autonomy in an age-appropriate way. Such an approach also supports secure attachment: lending support whilst supporting separation.
- As parents we can only do our best, finding a network of supportive parents – your tribe – is so helpful.
- Remember that in our evolutionary past we raised children collaboratively and close family or friends in our tribe cared for our off-spring; there would be other adults that teenagers could turn to for security and connection within the tribe whilst pushing against their parents.
- In today’s society, when sometimes the only close adult is your parent it makes sense to turn entirely towards other adolescents and that can be challenging for us.
- During this bumpy time it can help to respect the natural adolescent drive for innovation and the creation of new ways of doing things. Respecting does not mean setting no limits. It means acknowledging the intention behind your teenager’s actions. Adolescence is all about experimentation.
- If adults shut that down the passion for novelty doesn’t disappear but teenagers can become disillusioned and disconnected and more prone to do things anyway.
- I started by condensing into one word what I think causes most tension, let’s end with Dan Siegel condensing into one word what all the research on parenting teenagers says helps create the best conditions for their growth and development: presence.
- To help our teenagers feel connected to us, we need to be present for them and in the process they can teach us much about maintaining the power and purpose of the adolescent mind – the final part of tonight’s session.

MAINTAINING THE POWER AND PURPOSE OF THE ADOLESCENT MIND INTO ADULTHOOD

HOW TO LEARN FROM AN ADOLESCENT AND AGE WELL IN THE PROCESS

The essence of the adolescent brain changes that are the essence of healthy ways of living through life spell the word essence itself.

ES: emotional spark (intense feelings) which help to create meaning and vitality in life

SE: social engagement – the importance of meaningful, mutually rewarding relationships

N: novelty – how we seek and create new experiences that engage and challenge us

CE: creative explorations – conceptual thinking and abstract reasoning, expanded consciousness which helps us see the world differently.

Emotional spark, social engagement, novelty, creative explorations Adol-ESSENCE or Adult-ESSENCE.

- When we lose the 4 defining features of adolescence:
 - Novelty seeking
 - Social engagement
 - Increased emotional intensity
 - Creative exploration

- life can become boring, isolating, dull. As adults we can sometimes feel stuck in a rut, life can become a bit lifeless and we lose the creative power of our adolescent mind.
- By allowing ourselves to lose our vitality we not only make life harder, but it can lead to not keeping the brain as strong as it could be as we age.
- Dan Siegel proposes that the 4 features of adolescence are exactly what we need to keep our brains growing; the essence of adolescent brain changes are the essence of healthy ways of living
- ES: emotional spark (intense feelings) which help to create meaning and vitality in life
- SE: social engagement – the importance of meaningful, mutually rewarding relationships
- N: novelty – how we seek and create new experiences that engage and challenge us
- CE: creative explorations – conceptual thinking and abstract reasoning, expanded consciousness which helps us see the world differently.
- This then is the essence of living well during adolescence and adulthood:
- Emotional spark, social engagement, novelty, creative explorations Adol-ESSENCE or Adult-ESSENCE.
- Adolescence is not a stage to simply “get over” it is instead a stage of life to cherish.
- The changes that occur in the adolescent brain are not merely about maturity versus immaturity rather they are vitally important developmental changes that enable certain new abilities to emerge and they are crucial both to the individual and for our species as a whole.
- Thank you very much for listening.

Sophia Davison – April 17th 2024