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According to psychologists and neuroscientists, the teenage brain is a wonderful work in progress ... and it can also be hugely exasperating to teenagers and to those who care for them.....



Having some understanding of the significant changes that are a “normal” part of the teenage brain development, may however be a support in assisting them to develop their ability for self-determination as independent, capable and caring adults.

The Teenage Brain

For parents and carers of adolescents it may be very hard to believe research which tells us that those most challenging and seemingly non-understandable quirks of teens – the angst, emotional overload and overwhelm, impulsiveness, selfishness and recklessness that have been attributed to teens – are in fact, very understandable from the point of view of teenage growth and development. Further, from an evolutionary perspective, adolescents’ most challenging traits are in fact important to their success as adults.

Why Do Teenagers Act the way they do?!

When we consider the serious consequences of some of the more extreme and unsafe adolescent behaviours – such as impulsivity and risk taking – it is easy to question how they could possibly be a “normal” part of healthy brain development. A quick look at the wide-reaching changes taking place in the teenage brain, can shed some light on why they may be regarded as “understandable” and how they can assist future success.

Don't Blame Hormones - The Brain is changing too!

Recent scientific research has provided new information about changes in the human brain over the life span. We now know that most brain growth occurs from birth to age six and that by this time the brain has reached 90-95% of its full size. From age 6 to 12, growth is mostly due to the skull thickening. After this time from 12 to 25 years, it is the change **within** the brain that is of greatest importance in a young person's development. This change has been likened to a massive

Providence House is located in the inner Brisbane suburb of Spring Hill. It is a quiet and peaceful place offering psychology and allied health services.



Psychological Services Available to Rural & Remote

We would like to advise that practitioners are now available to take referrals for **TELEHEALTH Services**.

A referral from
**GPs, Psychiatrists &
Paediatricians**
under a
Mental Health Care Plan
entitles patients to
**10 individual & 10 group
sessions**

Those with a HealthCare Card
will be BULKBILLED through
Medicare

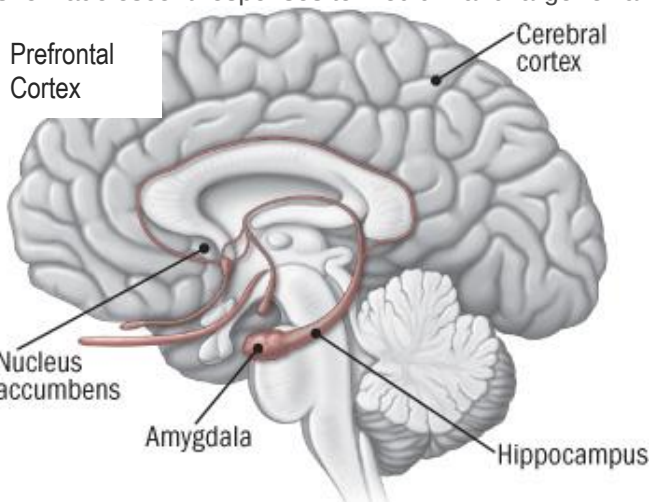
Face to face services
are also available at
**Capalaba in Redlands, Qld
&
Tenterfield, NSW**

**Please talk to us for more
information.**

remodelling and rewiring of the neural networks. While once “raging hormones” were held responsible for extremes of adolescent emotion and behaviour, we now know that while hormones definitely increase and affect the adolescent, it is “normal” brain development that holds the key to the adolescent experience.

Remodelling

Brain maturation means that the teenage brain becomes *much faster at processing information* and *has greater capacity for complex thinking*. Brain imaging shows that **these physical changes move slowly from the back of the brain through to the front**. Those areas at the back of the brain, close to the brain stem, that are responsible for supporting basic functions like vision, movement and fundamental processing are the areas initially affected by the change. Also nestled close to the brain stem is the **hippocampus** (the area that links memories with the emotions and senses that accompany them). Another brain region affecting adolescents and their behaviour is the **nucleus accumbens** or the area that seeks pleasure and reward. Again, imaging studies show adolescent responses to medium and large rewards are far greater than those recorded by adults and children, and there is very little response by adolescents to small rewards. The neurotransmitter Dopamine produced in the nucleus accumbens and crucial to motivating our drive for reward, is released in increasingly larger quantities in early adolescence, and these quantities peak about midway through this developmental stage often impacting on the adolescent’s drive to seek greater rewards through risk taking behaviours. Over time, the links become stronger between the hippocampus and those areas at the front of the brain or **prefrontal cortex** where goals can be set and where behaviour can be determined, and impulsivity can be more controlled. This is the area where judgement is formed and is the last area of the brain to fully mature. Because the prefrontal cortex is still developing, teenagers might rely on a part of the brain called the **amygdala** to make decisions and solve problems more than adults do. The amygdala is associated with emotions, impulses, aggression and instinctive behaviour.



In Summary, adolescents find themselves in a stage of human development where they have a neurological system that can take in information faster than their system can understand new and complex information and have not yet developed the support of processes that inform good judgement, impulse and emotional control. Moreover, they now have a system more intensely geared for reward, which is again unsupported by adequate capacity for rational thinking and self-regulation, often leaving decision-making and problem-solving happening in an area of the brain that is associated with emotions, aggression and instinctive behaviours.

Evolutionary Purpose of Adolescence: It may help parents and carers of adolescents

1. to know that the purpose of this phase of growing up is to seek out new experiences to learn about their individual abilities and to develop new friendships and relationships that support their ability to move away from parents who nurtured and kept them safe during childhood to seek new experiences that help them, and eventually become independent and capable adults.
2. to accept that this age group needs more time to master their new skills and explore changed circumstances to enable the remodelling and rewiring within their brains to fully develop
3. to remember that they
 - a. are highly motivated to seek novel and rewarding experiences and at times their behaviour will be impulsive and sometimes risky, and
 - b. will prefer to spend time with each other and other adults over primary carers and family members to explore the opportunities life has to offer them and to follow their own dreams.

Parents and carers cannot always understand or “be there” for their adolescents as they navigate what can be a puzzling and at times risky and frightening, time of their lives. **Nevertheless, we do know that being supported and guided by a caring, steady adult who stays connected while allowing and accepting independence provides the most positive setting for teenagers to make the challenging transition to adulthood.**

Sometimes teenagers may require the assistance of professionals if their challenges become overwhelming, and likewise, so do those who care for them. Please do not hesitate to seek assistance if required.

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