



**Nurturing A Healthy Mind:
Common Sense Strategies for
Wellbeing**



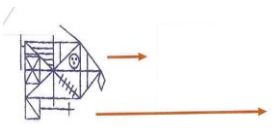
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Overview

- Basic psychology and neuroscience!
- How experiences shape the human brain.
- How some experiences can act as an environmental assault...what we know and what we think...
- Key factors for nurturing a healthy mind.




Time for a Test!



(A) Patients with single hemisphere brain damage were asked to look at this figure, then copy it.


Psychology 101 - Maslow's hierarchy of human needs



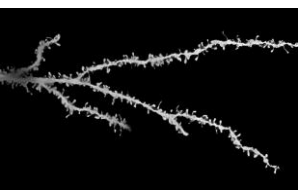
Nagel & Scholes 2016, p.18

Neuroscience 101 – The developing brain!

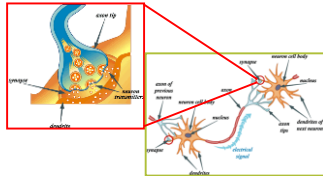
Nurturing these times!



Imagining the unimaginable...The brain has branches!

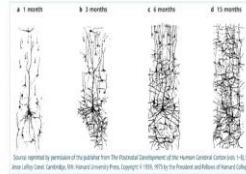


**Imagining the unimaginable!
The brain has branches!**

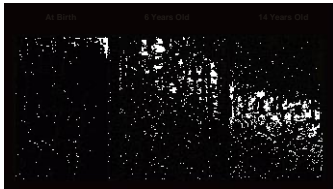


**Imagining the unimaginable!
Experience shapes our neural architecture!**

A 3 year old child has 3 times the synaptic connections of an adult and will burn 3 times as much glucose



Synaptic Density – Changes Over Time



Rebuilding the Brain, Families and Work Institute, Rima Shore, 1997.

Sensitive Periods in Brain Development

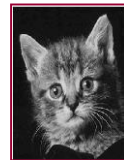
Stimulation is vital when the brain is growing rapidly and changing structurally!

- Experience-Expectant Growth
 - Ordinary experiences "expected" by brain to grow normally
- Experience-Dependent Growth
 - Additional growth as a result of specific learning experiences

Stimulation and experience matter...



Deprivation of experience expectant stimulation!



Deprivation of experience dependent stimulation!



Number and percentage distribution of survey participants with developmental delays, and those who also have neurological impairments

Condition	Number	Percentage of all participants
All participants	255	100.0
Developmental delays	170	66.7
Neurological impairments	140	54.9

Number and percentage distribution of survey participants with emotional disorders, by type of disorder

(Source: Johnson, 2002)

Disorder	Number	Percentage of all participants
All participants	253	100.0
Emotional Disorder	143	56.5
Post-Traumatic Stress Disorder	62	24.5
Specific Phobias	54	21.4
Obsessive Compulsive Disorder	46	18.2
Generalized Anxiety Disorder	41	16.2
Major Depressive Disorder	35	13.8
Manic Depressive Disorder	24	9.5
Bipolar Disorder	20	7.9
Anxiety Disorder	16	6.3
Depression	15	5.9
Obsessive Compulsive Disorder	9	3.5
Adjustment Disorder	3	1.2
Personality Disorder	2	0.8
Alcohol management problems	2	0.8
Head Disorder	1	0.4
Schizophrenia	1	0.4

If stimulation is important, surely more would be better!



More may be less!

Studies in the United States have identified an increase in levels of stress hormones in young children due to 'hot-housing' and 'too much, too soon'.... **we are seeing similar trends in Australia!**



More important that extra tuition and standardised testing...

Emotional regulation, impulse control, delayed gratification...

the brain likes patterns...

we can and should help develop impulse control!

The phenomenal power of the human brain!

I cdnuolt bveiee taht I cluod auclacty uesdnatnrnd waht I was rdanieg.

The phaaonmneal pweor of the hmuam mnid! Aocccdrnig to a scieearch at Cmabrigde Uinervstiy, it deosn't mttair inwaht oredr the ltteers in a wrod are, the olny iprmoatnt tihng is taht the frist and lsat ltteer be in the rghit pclae. The rset can be taotl mses and you can sitll raed it wouthit a porbelm. Tihis is bcuseae the huamn biam deos not raed ervey lterer by istief, but the wrod as a wlohe. Amzanieg huh? Yaeah, and I awlyas thought spleling was ipmorantnt.

How important is Impulse Control...a few findings!

- More than 500 children were given the marshmallow test at Stanford University between 1968 and 1974...they were tested on a number of diverse measures up to and including 2014.



How important is Impulse Control...a few findings!

- The more seconds children waited, the higher their SAT scores and the better they did on tests of social and cognitive functioning as adolescents....as adolescents they were less distracted when trying to concentrate, had higher IQ scores, were more self-reliant, confident and trusted their own judgement...they also handled stress better.



How important is Impulse Control...a few findings!

- From ages 27-32, those who waited longer had lower body mass index and a better sense of self-worth...they also pursued their goals more effectively and coped better with frustration and stress.



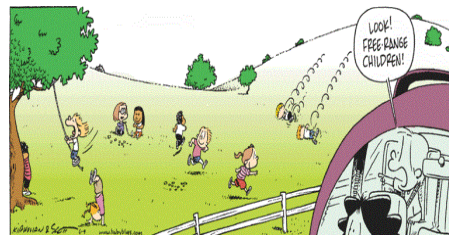
How important is Impulse Control...a few findings!

- At midlife....those who could consistently wait versus those who couldn't showed distinctly different brain scans in areas linked to addictions and obesity!



How do we enhance emotional regulation?

- Ensure safety, security, stability and consistency ...adults job! (remember Malsow)!
- Encourage play (at all ages).... young person's right!



Linking the brain to healthy development... Fifty Shades of Play

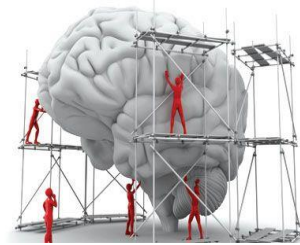


A Take Home Message Related to Childhood!

**Brain Development in Early Life
Sets Trajectories for
Development Throughout Life!**

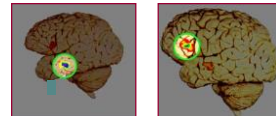
Experiences in the early years of life set neurological and biological pathways that affect:

- **Health**
 - Autonomic Nervous System: Blood pressure, respiration, digestion, salivation, sexual arousal...closely linked to the HPA system.
- **Behaviour**
 - Hypothalamus Pituitary Adrenal Axis (HPA) – regulation of cortisol: Cognition, emotion, behaviour, memory, diabetes, *heart disease!*
- **Learning**
 - Sensing Pathways: Key for language and cognition and play an critical role in vision, sound, touch, etc.



The adolescent brain...what we know!

- In some ways closer to a child's brain than an adults.
 - Increase in myelin production (myelination).
 - Myelination coincides with synaptic pruning.
 - Maturation works from back to front and inside out.
 - Brain's CEO is last to develop...difficulty in organising several tasks, making good judgments, emotional regulation.
 - Fluctuation in neurotransmitters.
 - Proclivity for sensation seeking and risk taking!
- Some
examples...



Adolescents use less of the prefrontal cortex than adults when reading emotions.

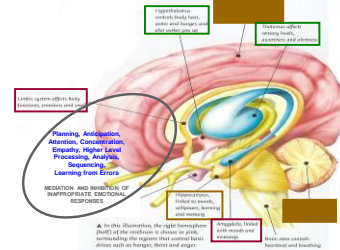
Confronted with a feeling, say, somebody looks at them with an expression of fear an adolescent will have more of an emotional response. The part of the brain that has more of that gut reaction will respond to a greater extent than the adult brain will.

One of the implications of this is that the brain is responding differently to the outside world in teenagers compared to adults

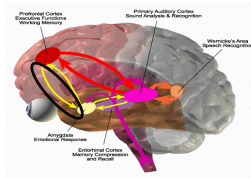
Communication Gap!

Adolescents:

- Are more likely to misinterpret facial expressions of emotion.
- Often see anger when there isn't anger.
- Process emotional stimuli in the amygdala...react not think...work from the 'gut'.
- May react and/or overreact quickly.



What's happening within an adolescent brain...maturation of feedback loops!



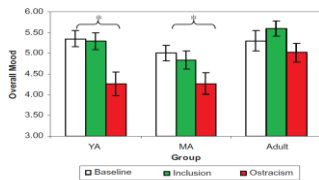
Poor Modulation of Emotions....Cyberball Social Rejection Task



The participant is told: - that they will be playing with two other people over the internet - to try and mentally visualise the ball game as much as possible N= 26 young adolescents (11-13y), 25 mid-adolescents (14-15y), 26 adults (22-47y)

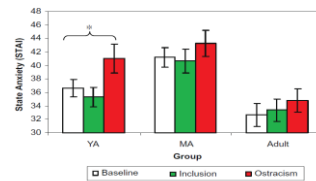
Sebastian, Viding, Williams, Blakemore, *Brain and Cognition* (2010)

Mood worsened more in the young and mid-adolescents than the adults



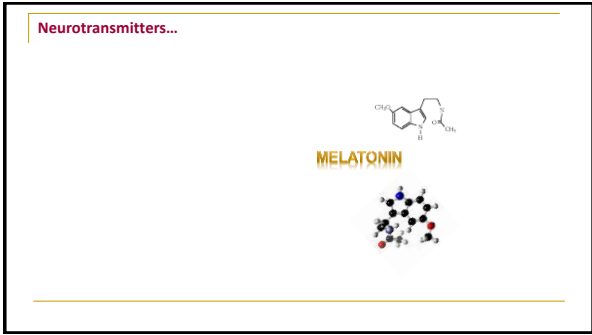
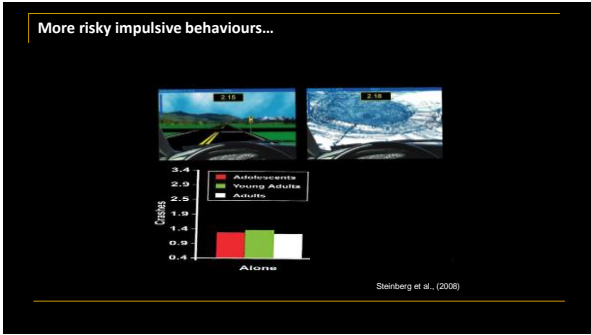
* Significant at $p < .05$, corrected

State anxiety worsened in the 12-13 year-olds only



* Significant at $p < .05$, corrected

Hypersensitivity of female adolescents to social exclusion!

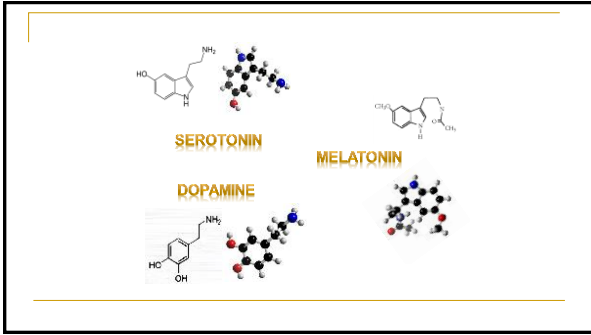
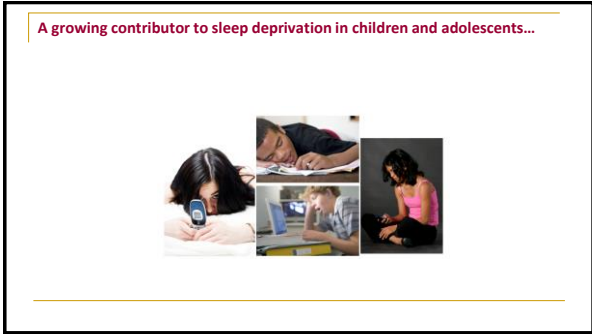


Adolescent sleep...

Sleep is very important during periods of brain maturation!

- Phase shift
- Increased sleep need
- Increased daytime sleepiness
- Less total sleep time

While many adolescents get less sleep than younger children, there is actually an increase in sleep needs during the teenage years! (about 9+ hours/night)...most adolescents are in the midst of 'sleep debt'



So what do we do?

Interestingly, the research evidence suggests parallels with nurturing young children.

- Ensure safety, security, stability and consistency ...adults job (remember Malsow)!
- Let adolescent' play (explore)... young person's right...but know who they are doing it with!

A few final thoughts on nurturing a healthy mind...



1. Eliminate stress...

- Exercise
 - Healthy diet
 - Sleep
 - Meditation and mindfulness
- Question what we do, especially in educational contexts...standardised tests and homework do not build dendrites!

2. Build and foster relationships...

The greatest single determinant in nurturing a healthy mind is that of a positive, loving relationship with parents, primary caregivers and teachers.



3. Be authentic...

A model is an artificial representation, usually scaled down or in miniature and a copy of the original commonly used for demonstration purposes only!



'Real' adults actively making a positive and nurturing difference in the lives of the young people around them!