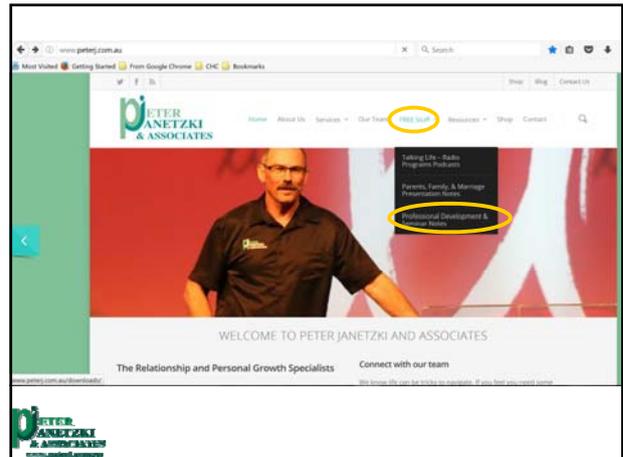


# Adolescents & Their Brains: The Quest of Understanding Inner Space

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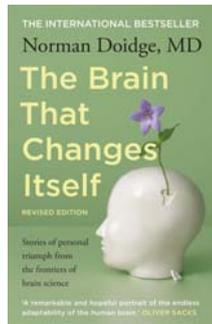
## For 400 years

mainstream medicine and science believed that brain anatomy was fixed.  
 Many brain problems were incurable  
 After childhood the long process of decline  
 Brain cells could not be replaced or changed



## In the late 1960's & 1970's Neuroplasticity

- People blind from birth seeing
- Deaf people hearing
- Stroke victims recovered
- Incurable obsessions cured
- 88 yr olds sharpening memory and brain function to that of a 55 yr old



## Understanding Our Brain



**Survive**  
**Thrive**

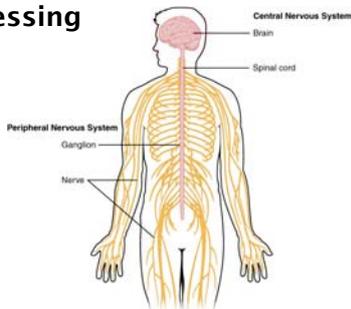


## Our Brain is Inter-Connected

### Two Fold Processing

Taking In Information & **RESPONDING**

Monitoring Our Body & **REGULATING**



## Three Factors



**Nature**  
genetics



**Growth**  
neuro-  
plasticity

**Nurture**  
epigenetics



## Neuroplasticity



- Neurons that fire together wire together
- Neurons that fire apart wire apart
- Use it or lose it



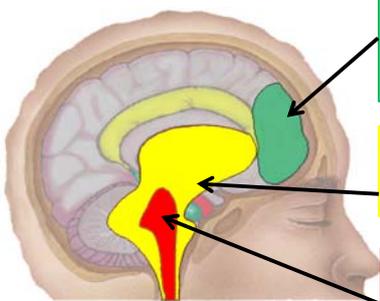
## A Time of Great Potential

The new knowledge about the teen brain shows us that adolescence offers perhaps a second chance—or at least an additional one—to unleash the enormous potential and possibilities that lie within a person’s brain and to shape positively that the person’s social, emotional and intellectual development. It means that what happens during their adolescents years important and can have considerable and long-lasting impact on their lives.

*Unleashing the Potential of the Teenage Brain: 10 Powerful Ideas.*  
Corbin, 2008



### 3 Parts of the Brain



#### Smart Brain

- the last part of the brain to develop
- slowest part of the brain
- helps us to think through decisions
- the first to switch off when under stress
- has the power to override the impulsive brain
- last part to mature

#### Impulsive (Emotional) Brain

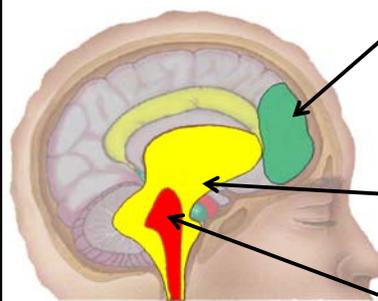
- next fastest part of the brain
- runs on past experiences & emotions
- fear is it fastest trigger
- fires up our defences
- learns by repetition

#### Survival (Automatic) Brain

- the first part of the brain to develop
- fastest part of the brain
- runs automatic functions that keep us alive i.e. breathing, heartbeat, digestion



### 3 Parts of the Brain



#### Smart Brain

'The Brake' or 'The Voice of Reason'  
@ Birth  
Partially Developed & Partially Functional  
Starts Developing Fully When We Hit School  
Needs Environment to Develop

#### Impulsive (Emotional) Brain

'The Computer Hard Drive'  
@ Birth  
Fully Developed & Partially Functional  
Develops During Early Nurturing  
Needs Environment to Develop

#### Survival (Automatic) Brain

'Fire Alarm' or 'The Accelerator'  
@ Birth  
Fully Developed & Fully Functional



## At Birth



250,000 / Min

## At 25



800 / Day

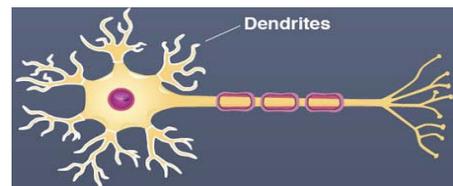
## 1. Pruning - use it, or lose it

- Early teen years anywhere up 15-20%
- Information often used is deemed important
- Unimportant is forgotten
- 'Monosyllabic grunts'
- General skills can go awry
- Often they are not thinking

## 2. Emotional Overwhelming

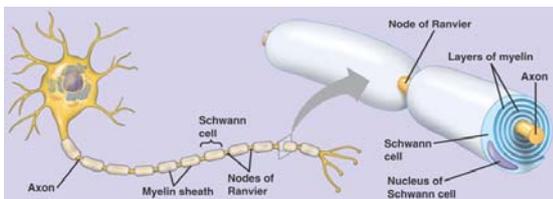
- Easily overwhelmed by everyday life
- Feel out of control and disempowered
- Often irresponsible
- Misinterpret social situations
- Misread parents and teachers
- Struggle with motivation and focus

## 3. Overproduction of Dendrites and Synaptic Connections



Fast growing synapses and sections that remain unconnected - impulsive behaviour

## 4. Myelination - Insulating Neurons & Synaptic Connections



- Is easily affected by alcohol and drugs
- Completed around 22-24 for girls & 26-28 for boys

## Key Points

- Teen brain is large and poorly organised
- It is time of transition from grey matter to white matter - massive change
- Pruning makes them forgetful, disorganised, emotionally unpredictable
- Most likely misread facial expressions
- They can learn faster both positive & negative

## Key Points

- Many teens flourish in spite of all that is happening
- Maturation is not achieved until 25ish
- Exercise & good sleep can help
- Their brain is very vulnerable to damage
- Most teens have no idea of what is going on up there



PETER JANETZKI & ASSOCIATES

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The slide features a header with the company logo and a photo of Peter Janetzki. Below the header, the website URL is displayed in a large green font. A Facebook logo is positioned to the left of two Facebook profile links, one for Peter Janetzki and another for Peter J. Associates.