

Youth Justice – A balanced approach

The Young Person's Brain

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Overview

- Setting the scene for brain development
- Importance of strong foundations
- The developmental issues for our young people
- A young person's brain
- The need to maintain a balanced approach to considering the issues of our young people

Setting the Scene for Brain Development

Healthy brain development is complex and multifactorial:

- Genes we inherit
- Positive experiences and an enriched environment
- Rewarding & pleasurable interpersonal, social experiences
- Minimisation of traumatic/chronically stressful experiences

Setting the Scene for Brain Development

- Human brain is undeveloped at birth – its potential remains unexpressed
- Experiences can change the brain throughout life, but experiences in the first three years of life organise the brain
- The developing brain is directly influenced by early environmental enrichment and social experiences

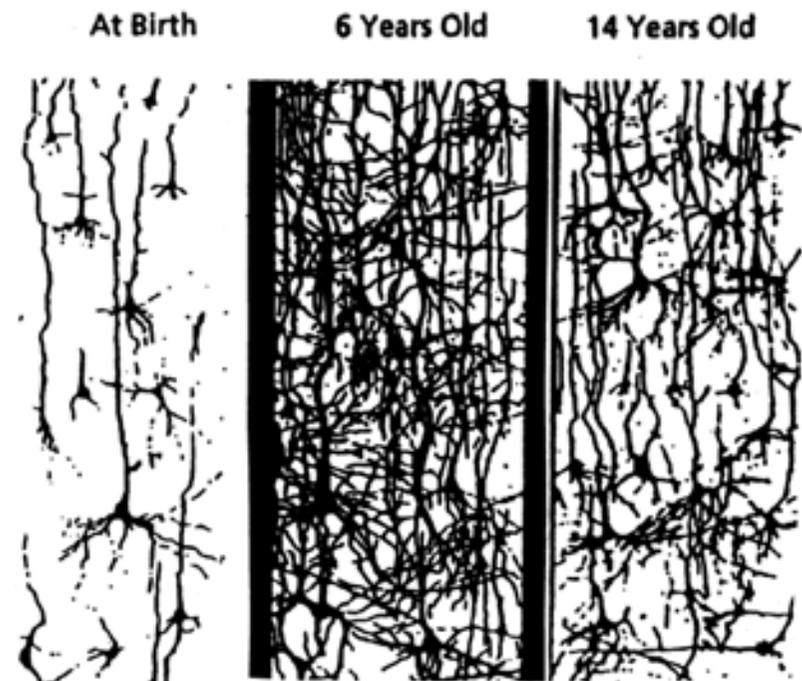


RAPID EARLY DEVELOPMENT: These PET scans suggest that the brain of a one year old more closely resembles an adult's brain than a newborn's.

Source: H.T. Chugani

- The human brain experiences a growth spurt from late pregnancy until about 24 months of age
- 5/6 of this growth spurt is postnatal
- In the first year alone, the infant brain grows from about 400g to 1000g.

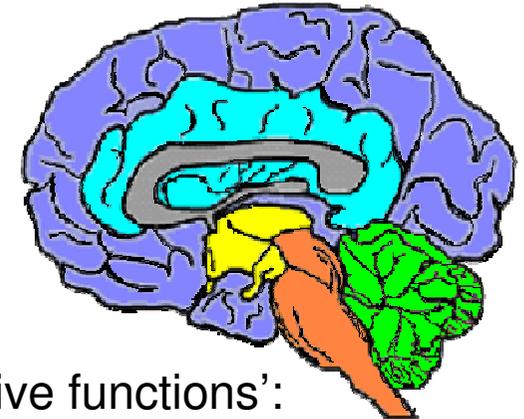
- Rapid growth of connections and networks occurs in the first three years of life
- The type of experiences an infant has is crucial – human interactions grow brain connections
- Experience makes the decision about which neurones survive and how they connect with each other
- Experience wires the brain...ongoing repetition strengthens the wiring
- Pruning of surplus circuitry occurs in adolescence



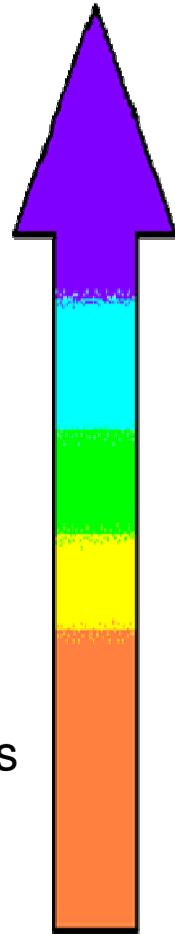
Setting the Scene for Brain Development

- Types of experiences or absences of experiences impact brain development
- Neural firing happens in response to experiences & with repeated neural firing, neural pathways are created & strengthened
- Experience wires the brain...ongoing repetition strengthens the wiring
- The brain develops in a predictable, sequential fashion from the most primitive (brainstem & midbrain) to the most complex (cortex)
- Optimal development of more complex systems requires healthy development of less complex systems

Brain develops from the bottom up, building on the foundation of the previous developmental stage



-  **Neocortex**
3-6 years
-  **Limbic Lobe**
1-4 years
-  **Cerebellum**
-  **Diencephalon (Midbrain)**
6 months to 2 years
-  **Brain Stem**
0-9 months



Neocortex - manages 'executive functions': planning, goal setting, cause & effect understanding, moral reasoning, delaying gratification, sequential thought

Limbic Lobe – regulates attachment, sexuality, emotions and trauma memories

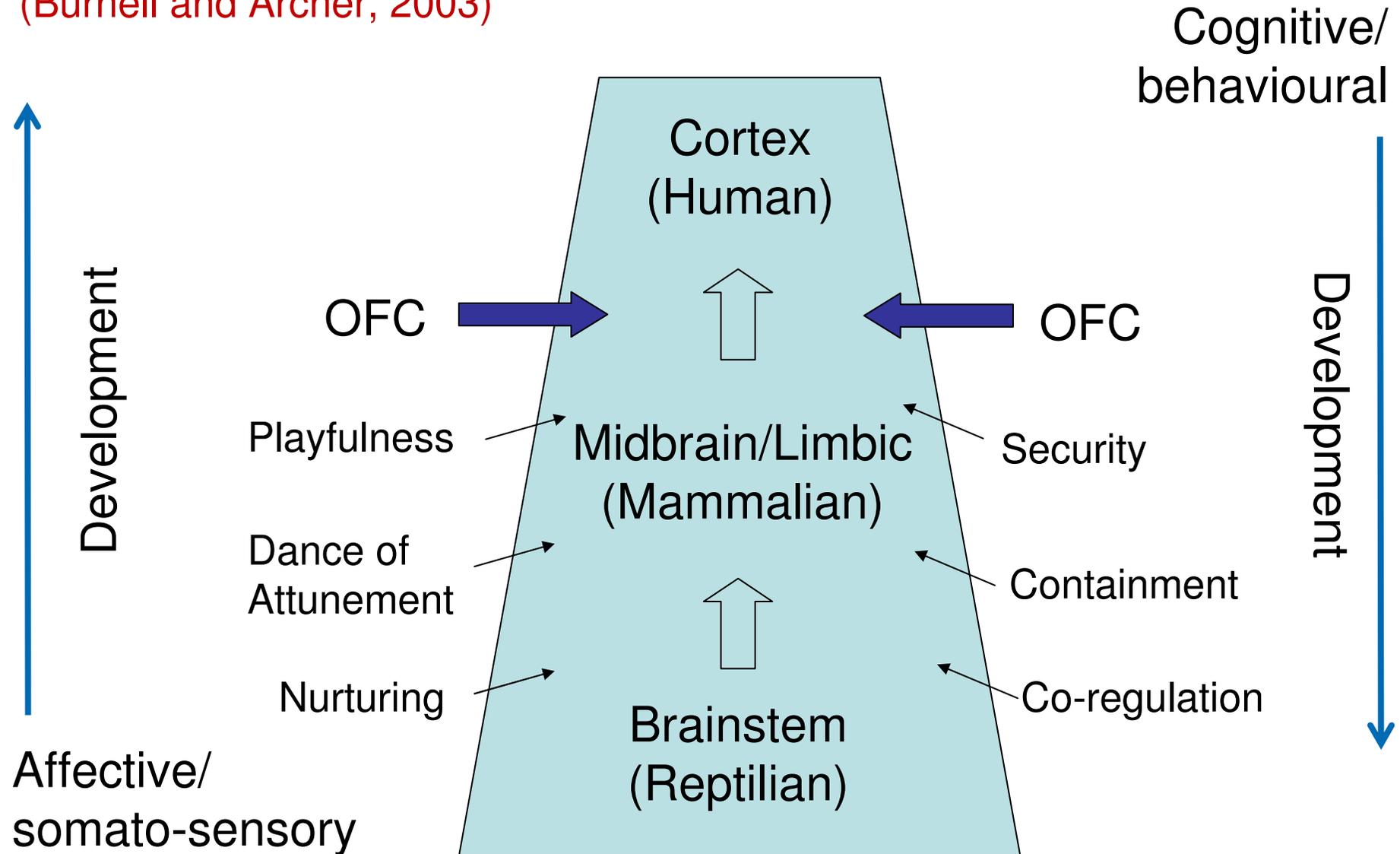
Cerebellum – manages balance, motor regulation

Diencephalon (Midbrain) – manages motor functions, arousal, sleep patterns, sorts out sensory data coming into the brain & sends messages to various parts of the brain

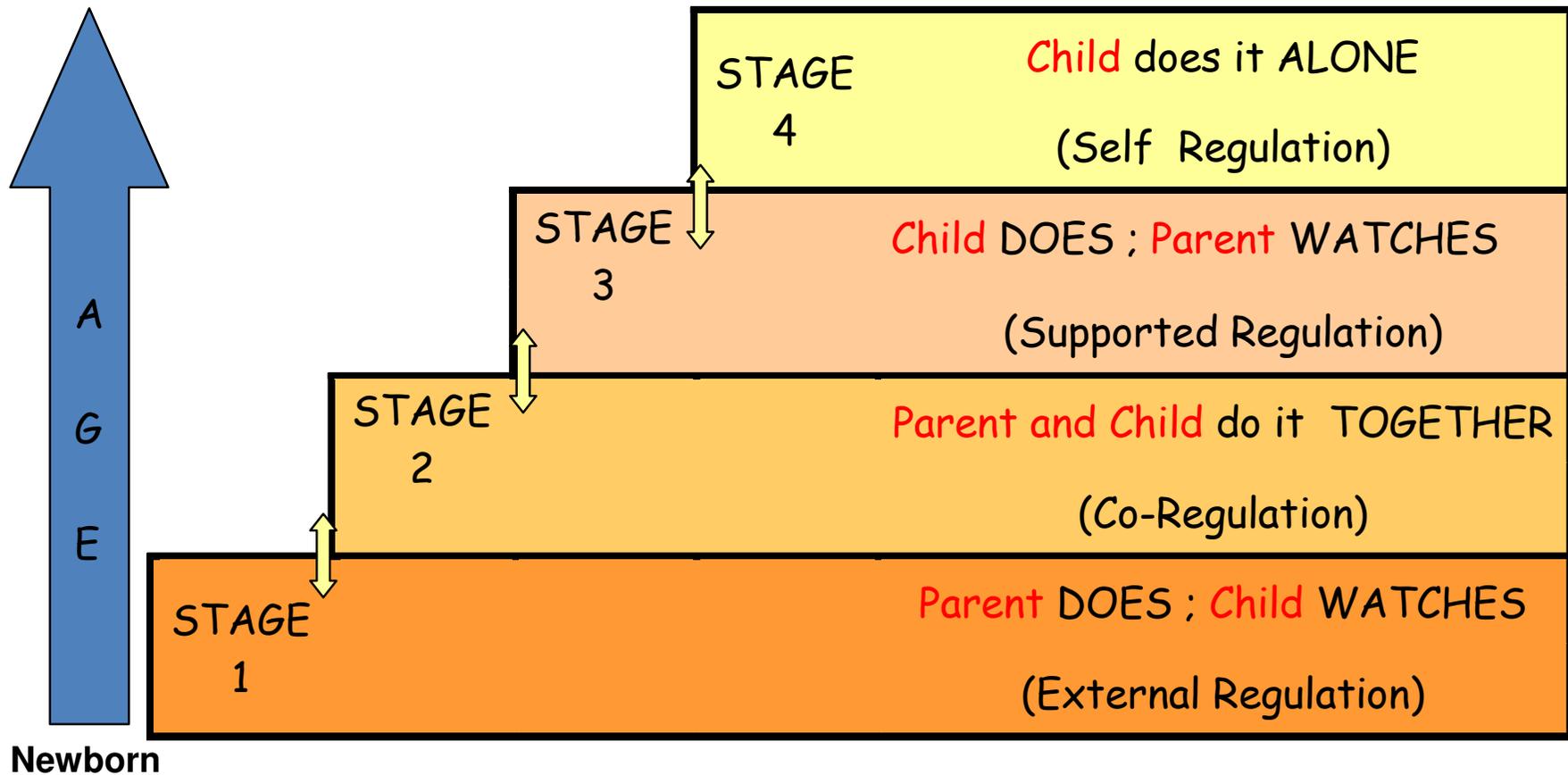
Brain Stem – manages our survival functions: breathing, temperature regulation & heart rate

'Bottom-up' Developmental Hierarchy of the Brain

(Burnell and Archer, 2003)



Stages of Emotional Development and the Ability to Self Regulate



Emotion is initially regulated by others, but becomes increasingly self-regulated as the infant develops

Importance of Strong Foundations

- Communication that parents establish before adolescence will be a predictor of how they negotiate adolescents
- Young people are social beings that need to be relationship with others for healthy brain development
- Connection & relationship are paramount – need to keep communication channels open
- When young people are stressed, they lack the emotional maturity to go it alone, and need significant others in their lives to provide support
- Need for adults to be authoritative and set realistic boundaries that are understandable & respected, but not authoritarian

Developmental Issues for our Young People – Finding Oneself

- Changes in thinking – moving from concrete world of childhood where we ‘just know’ to the adult world where we ‘know that we know’ – a metaknowing
- Question life and start to ask existential questions about themselves and the world – need to ‘find who they are & want to be’
- Middle teenage years: young people experience different self-states in different contexts (eg with parents, with peers, with teachers) as they explore these questions – often experience themselves in internal conflict, because they behave as a different person in different groups & situations

Developmental Issues for our Young People – Finding Oneself

- As changes in thinking occur, young people need to consider what is happening with their emotions & develop strategies to prevent existential depression from overwhelming them – importance of relationship & connection
- Late teen years to at least 24 years, begin to integrate these thoughts & self-states
- Mental health is directly correlated with the success of being able to integrate these self-states & successfully develop a sense of self.

Developmental Issues for our Young People – Finding a Place

- Need to negotiate relationships, developing sexual maturity & the capacity for intimacy which requires trust in others
- Need to negotiate the task of growing independence to reach the autonomous capacity to care for others
- Find membership in a social group of peers, experience social inclusion and not experience vulnerability & social isolation
- Growing importance of peer relationships & doing things intentionally different to adults
- “trying to be like everyone else who is trying to be unlike everyone else”

A Young Person's Brain

- The brain of the young person is remodelling (growing new connections & pruning out others) from the 'child' brain and transforming into the 'adult brain' – a process that takes until at least 24 years of age in healthy development
- The emotional part of the brain has more intense responses in day to day firing than in an adult, because emotional regulation is still developing
- Middle & lower brain regions are driven by testosterone & sexual urges
- Surges in neurotransmitters (dopamine) drive thrill seeking behaviour in order to obtain rapid rewards

A Young Person's Brain

- Oxytocin (neurotransmitter) is driving the need for social connection, which provide more gradual, sustained rewards from relationships & teach delayed gratification
- If social connection doesn't become rewarding, thrill seeking rewards will predominate, often resulting in addictions
- Greatest remodelling is in Prefrontal Cortex (area of executive functioning)

A Young Person's Brain

- The goal of this remodelling of the prefrontal cortex is to develop 9 functions for successful adult life:
 - › Regulating our bodies – balancing our fight/flight stress responses with our rest responses
 - › Attuned communication – tuning into our selves & others
 - › Emotional balance – an awareness of our internal state & a capacity to regulate it
 - › Response flexibility – an ability to pause before acting

A Young Person's Brain

- The goal of this remodelling of the prefrontal cortex is to develop 9 functions for successful adult life:
 - › Capacity to soothe our fear
 - › Insight – self-knowing/awareness – helps link the past/present/future
 - › Empathy
 - › Morality – concern about the greater whole
 - › Intuition – capacity to inform our decision making using our bodily information

A Balanced Approach

- Competing developmental issues for young people
- Extensive remodelling & pruning of the brain occurs that isn't completed until at least 24 years of age
- The 'teen' brain is not the same as the 'adult' brain
- As adults we appeal to the mature prefrontal functions that do not yet exist
- If trauma/ chronic stress have been/are a feature of a teen's life, brain development is disrupted & delayed & often disorganised & unintegrated, but they are experiencing the same changes & remodelling as the healthy teen brain, only in chaos
- There is a need to maintain relationship, communication & support maturation for all teens