

The Story of Relationships and Experiences through the Science of Brain Development – The Brain Story

The Brain Story is a story about how experiences shape our brains and how the human relationships depend on those around us for the experiences that build our brain architecture. When we identify how and when to support children and families in the course of development, we can change how the story unfolds so that all of us, regardless of background and life circumstances, have the chance to lead happier, healthier lives, and build stronger communities.

The Brain Story Certification is an in-depth course for professionals seeking a deeper understanding of brain development and the scientific underpinnings of the Brain Story. The Alberta Family Wellness Initiative (AFWI) has developed an online course to make Brain Story science available to professionals and the public.

Brain Architecture – How Brains Develop

- Cognitive, social, emotional, and physical domains are woven together like strands in a rope. They are strengthened through interaction with a caregiver through give and take.
- Through “*serve and return*” interactions, a solid brain foundation can be built by various forms of back-and-forth communication between a child and a caregiver.
- Stress is one of the forces that shapes brain architecture in a developing child - not all stress is bad.
 - **Positive stress** is healthy when supportive adults are around to help prepare young brains and bodies for future challenges (i.e., meeting new people or first day of school).
 - **Tolerable stress** is a temporary stress response to the brain with the support of caregivers to buffer the stress response (i.e., natural disaster or losing a love one).
 - **Toxic stress** occurs when no supportive caregivers are around to buffer the body’s response to repeated negative experiences which weakens the brain architecture and can disrupt healthy development (i.e., chaotic environment, neglect).
- Our brains are built in stages and the brain development in early childhood is determined by more than just our genes. Positive interactions build sturdy brain architecture at a young age.
- Encouraging self directed creative play is an important strategy to fuel development. This type of play promotes states of low anxiety, novel experiences,



active engagement and learning from adults and peers.

Air Traffic Control – Building Executive Functioning & Self-Regulation Capacities

- Executive function and self-regulation skills are the mental processes that enable us to pay attention, plan ahead, prioritize tasks, problem solve and control our emotions which operates like a “air traffic control.” They are the biological foundation for successful learning and social relationships.
- These skills can be built throughout childhood and into early adulthood through practice and coaching.
- Toxic stress lowers our executive function capabilities by highlighting our fight or flight response.
- Lessons that support executive function skills include turn taking (listening and talking), inhibiting strong impulse to keep going and try again, buddy reading, scaffold writing, and freeze game.



Children’s Mental Health and Adverse Childhood Experiences (ACEs)

- Childhood temperament called Behavioural Inhibitors (BI) occurs in 15% of the population and can be identified in infancy. These children are quiet, watchful, cease current activities and retreat from unfamiliarity, and refuse to engage in

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interaction. As such, they have lower self esteem, poor peer relationships and are often victims of bullying.

- Depression in parents are prevalent. Prevention programs for children of parents with depression is important because if treated parents with depression can develop adaptive coping skills and buffer their children from toxic stress.



- Adverse Childhood Experiences (ACEs) are negative, stressful, traumatizing events that occur before the age of 18 and affects health risk during adulthood.
- ACE study examined the connection between negative early experiences and adult health outcomes. It found a higher level of exposure to intense childhood stress, triggered by ACEs, had a clear dose-response relationship to an individual's likelihood of developing physical, behavioural, and social problems in adulthood.
- ASQ:SE (Ages and Stages Questionnaire: Social-Emotional) is used in a case study for early childhood social and emotional screening tool. The case study looked at maternal ACE score and the ASQ:SE score for their children at the age of 3. Children had a higher ASQ:SE score, above the average cut-off for at risk of social and emotional development, if their mother had experienced ACEs. The impact of intervention using ASQ:SE through intergenerational transmission of trauma, risk, toxic stress, and poor development, in a primary care setting had a lower ASQ:SE score for children at the age of 3.

Addiction & The Brain

- Addiction is defined as a chronically relapsing disorder that is characterized by a compulsion to seek and take drug stimulus, a loss of control in limiting intake, and an emergence of a negative emotional state when access is denied.
- Addiction affects the whole family system, not just the addicted person.
- People with one addiction are at risk for developing other addictions. This is because of the way addiction alters the brains reward system, numbing and

dampening its responses. Neural or brain circuits related to capacities for attachment and caring for infants also involve the reward system. Parents who are misusing substances withdraw in the face of infant distress, are less attentive to bids for attention, are less contingent responding or increased in non contingent behaviours. Each of these are markers in heightened stress to infants.

- Recovery is a developmental process, not a singular event and not a prescribed outcome.

Using the Science of Early Brain Development to Build Resilient Children, Families, & Communities

- Resilience is the ability to maintain good executive functioning through adversity. It is an interplay of experience and genetics and built over time.
- Knowing the research and science of early brain development can help reorganize policies and programs in order to provide protective factors for at risk children. Providing protection and enrichment for young children requires capacity building for adults which leads to improved parenting skills that also enhance their employability and economic stability and build strong communities that reduce the burdens of adversity.
- Being trauma informed creates a new narrative from “What’s wrong with you?” to “What happened to you?”
- Providing trauma informed services makes people feel safe, empowered and supported not just in fields specifically dedicated to trauma and addiction treatment. If places are unable to adapt, such as schools, they become just another adversity to children.



“We can rewrite the narrative of our lives by providing a chance to see the story of your life and to create a different path for the future, from shame confusion and adaptations with a downside to create a different path for the future with hope, meaning and purpose.”