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Early connections last a lifetime

The Growing Brain

From Birth to 5 Years Old

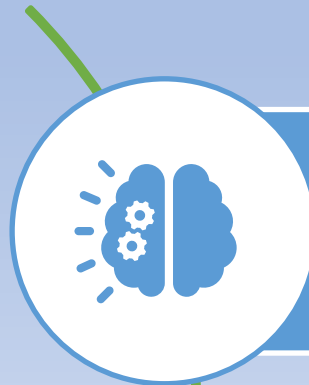
A CURRICULUM FOR EARLY CHILDHOOD PROVIDERS
Aidan Bohlander, Claire Lerner, and Ross Thompson, Editors

**The Growing Brain from Birth to Five Years Old:
*Factors Affecting Brain Growth and
Development***



HOW DO YOU PICTURE THE BRAIN?

Agenda



Identify factors that affect brain growth and development



Learn about key components you can use to support healthy brain development


Brain Development



Three Core Concepts in Early Development

1 Experiences Build Brain Architecture

NATIONAL SCIENTIFIC COUNCIL ON THE DEVELOPING CHILD

Center on the Developing Child  HARVARD UNIVERSITY



Top and Bottom Functions of the Brain

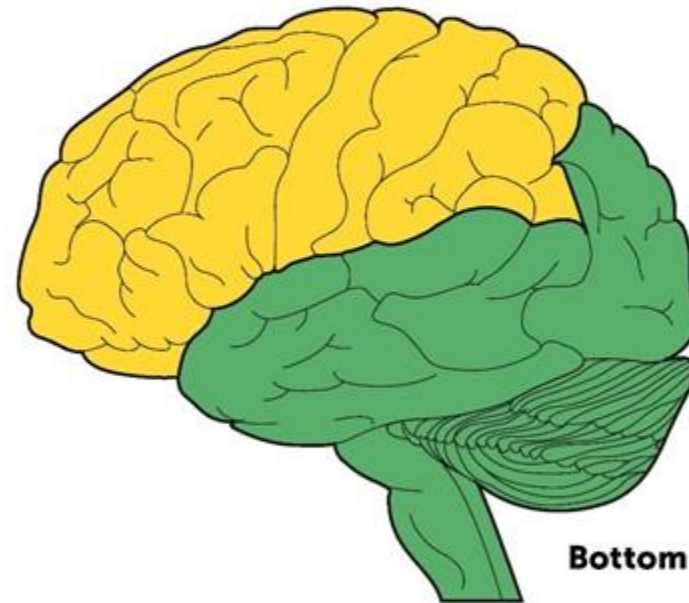
Bottom Functions

- Receive signals from the senses and use memories to interpret their meaning
- Feeling and perceiving functions (Siegel & Bryson, 2011)

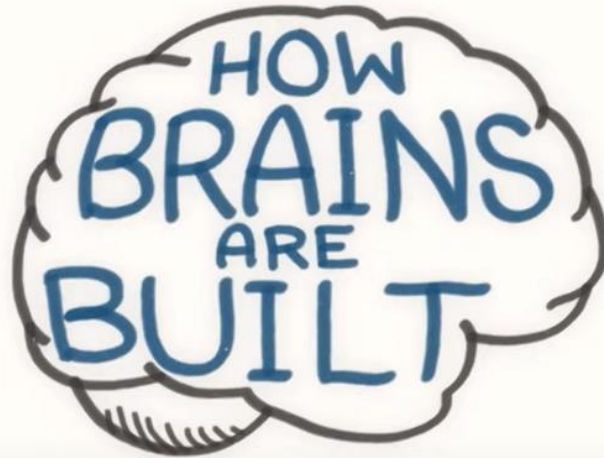
Top Functions

- Take in and process information, then take action
- Adjust a plan
- Thinking and problem-solving functions (Siegel & Bryson, 2011)

Top Functions



Bottom Functions



Science tells us that the experiences we
have in the first years of our lives

Let's put it into Practice!

Connectivity: Bedtime Routines



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In each round, please describe activities associated with bedtime:

1. Routines that happen
2. Feelings a child may have
3. Things going on in the house/environment

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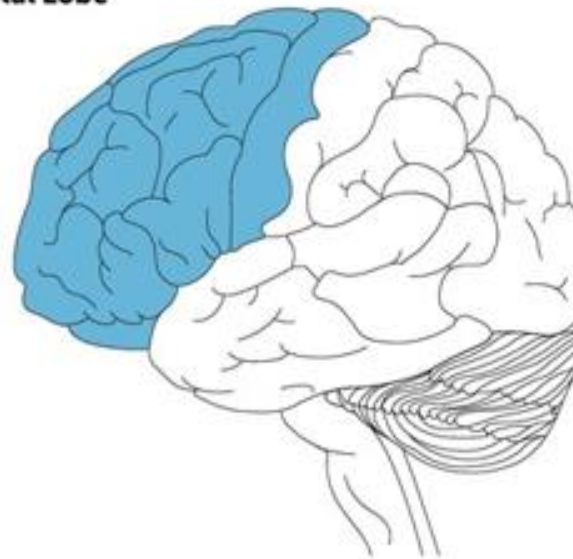
Bedtime Routines Debrief



What part of the brain is stimulated during bedtime routines?

- What physical and sensory experiences did the child have?
- What did he hear and see?
- What feelings does he connect with bedtime?
- What cues in the environment does he associate with bedtime?

Frontal Lobe

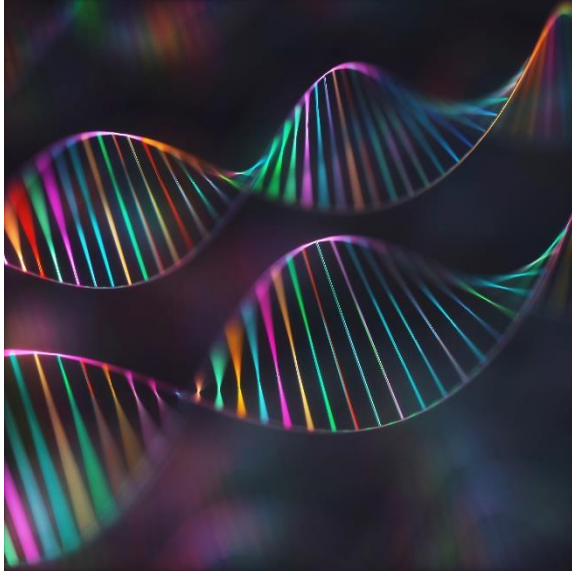


Factors Affecting Healthy Brain Growth and Development



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- Gene–environment interactions
- Nutrition
- Sleep
- Exposure to toxic substances
- Diseases and disorders of the brain in early childhood
- The role of relationships



Gene - environment Interaction

Nutrition

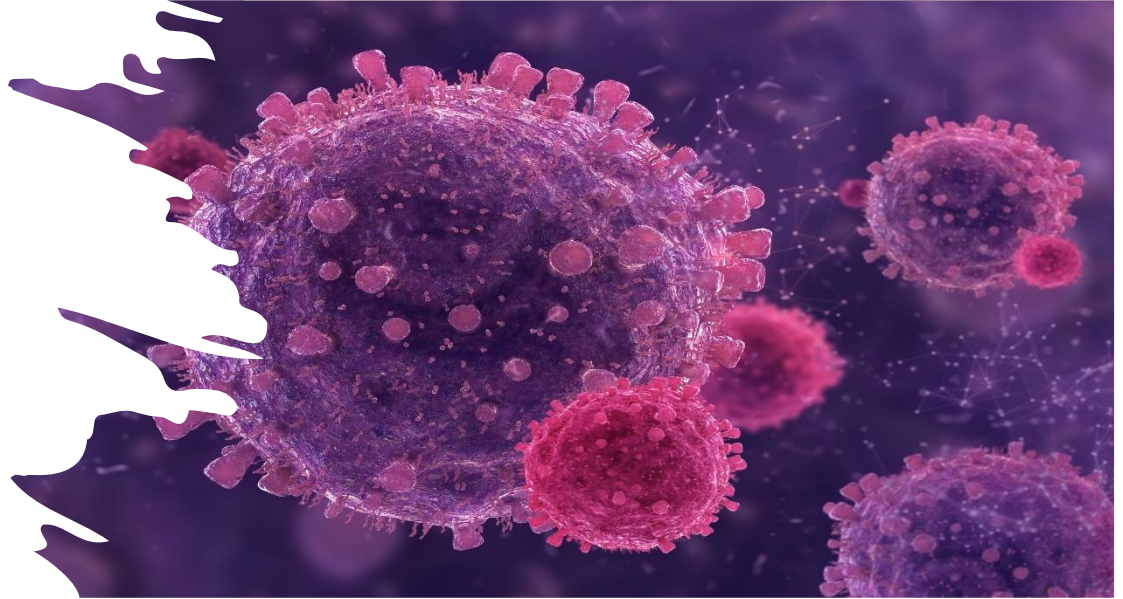


Sleep



Exposure to Toxic Substances

Diseases and Disorders of the Brain





Attachment



- Relationships that very young children have with their regular caregivers affect brain growth and development.
- Attachment is the enduring bond that children form with their regular caregivers, beginning in their early years.



Secure and Insecure Attachment

Secure Attachment

- Sensitive and responsive caregivers.
- Children feel safe and secure to explore.

Insecure Attachment

- Distant, disengaged, or inconsistent caregivers.
- Children are unsure whether or when their needs will be met and do not explore their environment.



Attachment and Stress



- The quality of the relationship impacts how children deal with stress.
- How children handle stress affects overall development and functioning.



OF THE BRAIN

RELAX



Usefulness of Stress Response

- A small amount of stress reaction can be helpful.
 - Alert, focused, and poised
- “Fight, flight, or freeze” response.





Stress and Brain Development



- Very young children
 - have limited ability to cope with stress and
 - depend on adults to help them cope with stress.
- The part of the brain that controls reactions to stress is fully developed at birth. However, the forebrain, the part of the brain that controls *thinking* about feelings, memories, and experiences, is still maturing.



Find your match!





The Stress Continuum

The Stress Continuum

Positive

Tolerable

Toxic





Positive Stress



Normative stress—reactions to normal life experiences that are not dangerous or threatening.

- A necessary aspect of healthy development for coping with everyday events
- Stress is short term in nature
- Often within the child's ability to cope, with some scaffolding (National Scientific Council on the Developing Child, 2005/2014).



Tolerable Stress



Tolerable stress is longer lasting and more intense but is relieved by supportive relationships.

- Associated with high cortisol release
- May disrupt brain architecture if prolonged
- Supportive relationships facilitate a child's ability to cope (National Scientific Council on the Developing Child, 2005/2014).



Toxic Stress



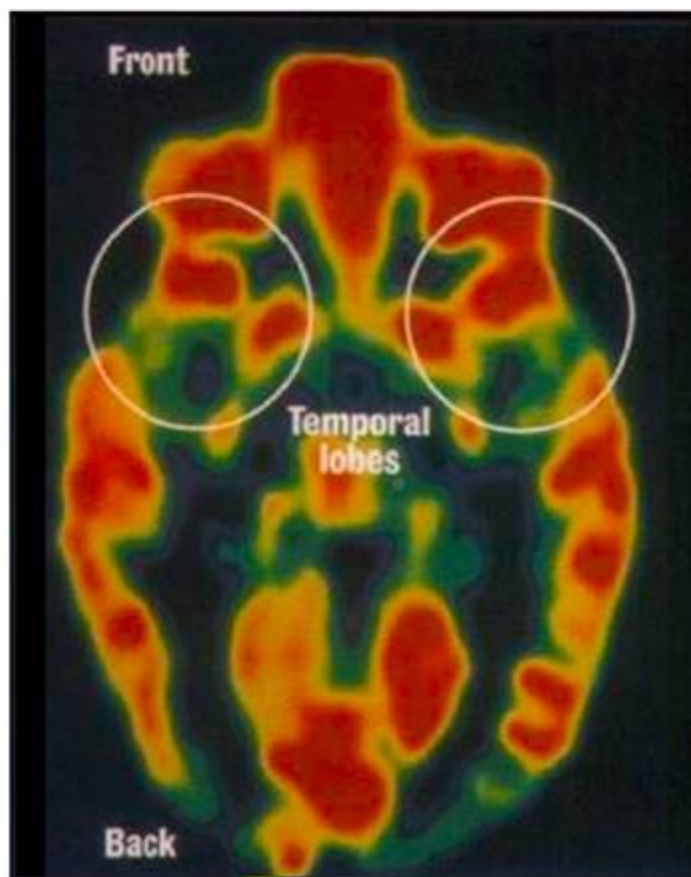
Toxic stress involves:

- **STRONG AND PROLONGED** activation of the body's stress response
- **ABSENCE** of adult support (National Scientific Council on the Developing Child, 2005/2014).
- Cortisol continuously floods the brain, which can alter the way it develops (National Scientific Council on the Developing Child, 2005/2014).

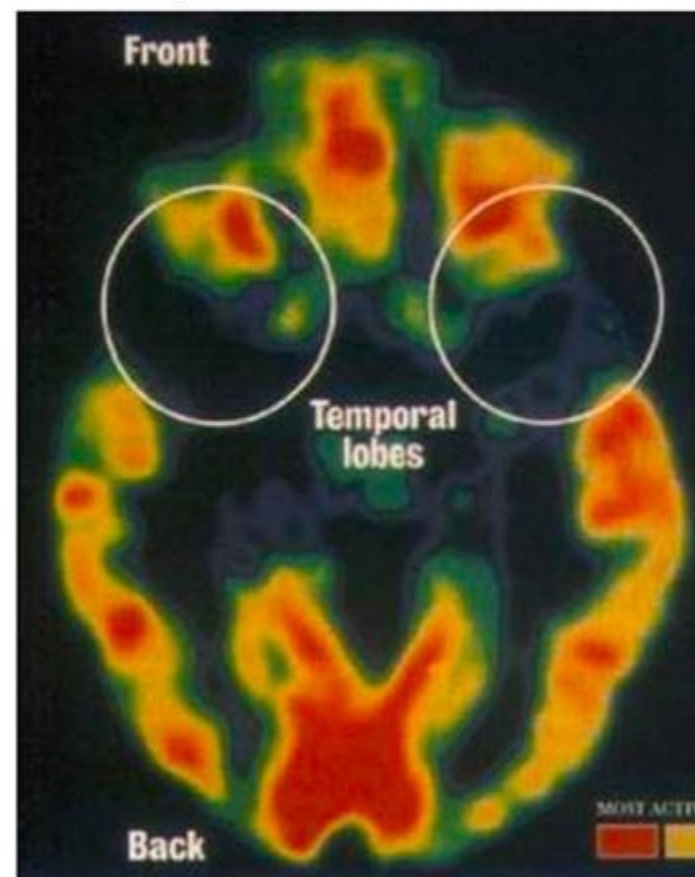


Brain Scan: Effects of Toxic Stress

Typically Developing Brain



Brain of Child Exposed to Neglect, Trauma, and Abuse





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Temperament

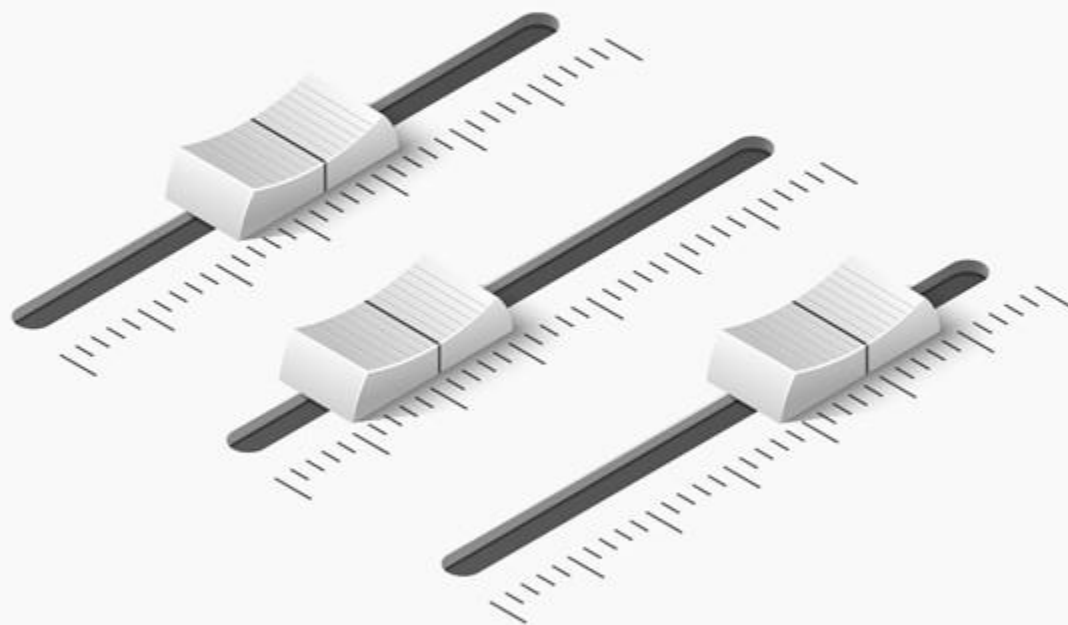


- Temperament accounts for how children approach the world.
- Temperament is brain based, part of our biological makeup.



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Temperament Traits



- Activity level
- Distractibility
- Intensity
- Regularity
- Sensory threshold
- Approach/withdrawal
- Adaptability
- Persistence
- Mood



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Temperament Shapes Behavior



- Brain-based
- A foundation for personality
- Influenced by experience
- Goodness-of-fit



The 5 R's of Healthy Brain Development



- 1. Relationships***
- 2. Responsive interactions***
- 3. Respect***
- 4. Routines***
- 5. Repetition***



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Relationships



Warm, loving, secure attachment relationships give children the foundation they need for healthy development.



Responsive Interactions



- **Caregiver follows the child's lead.**
- **Sensitive, back-and-forth interactions.**
- **Adult tunes in to the child.**



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Serve and Return





Respect



- **Treating all children as valuable individuals.**
- **Teach and guide, not punish and shame.**
- **Empathy.**
- **Understand misbehavior.**
- **Provide understanding and support.**



Routines



- **Safety and security.**
- **Calms bottom functions.**
- **Allows top functions.**



Repetition



Set realistic expectations based on brain development.



Be aware that the experiences we provide are building brain architecture.

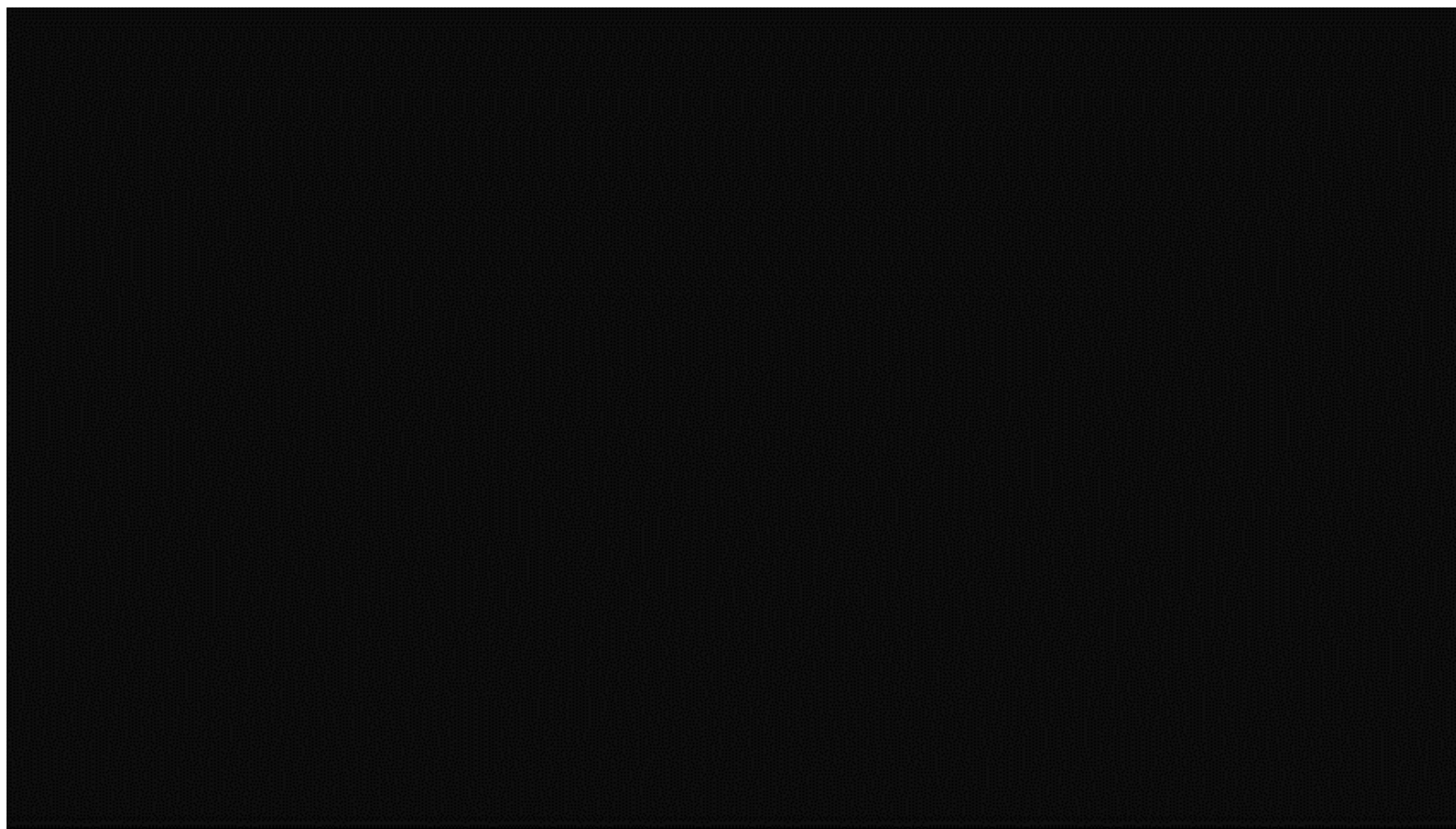


Provide positive relationships and supportive, enriching environments.





Video: Child Care Sing-Along





HOW DO YOU PICTURE THE BRAIN?

thank you!

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