Community Engagement to Support Children's Brain Development

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The Foundations of Lifelong Health are Built in Early Childhood
Four Core Concepts of Development

1. Brain Architecture Is Established Early in Life and Supports Lifelong Learning, Behavior, and Health

2. Early Life Adversity Leads to Long-term Changes in the Brain, Behavior Regulation, Mental Health

3. Neural Circuits Can Be Strengthened To Improve Reasoning Skills, Planning, Problem-Solving & Inhibitory Control

4. Social Support Systems Play an Important Role in Building Resilience to the Adverse Consequences of Early Life Stresses
Adverse Childhood Experiences and Adult Cardiovascular Disease

Source: Dong et al, 2004
Experience Shapes Brain Architecture by Over-Production Followed by Pruning
Neural Circuits are Wired in a Bottom-Up Sequence
(700 synapses formed per second in the early years)

Sensory Pathways (Vision, Hearing)

Language

Higher Cognitive Function
Birth

FIRST YEAR

Experiences Build Brain Architecture

Video: https://developingchild.harvard.edu/resources/experiences-build-brain-architecture/
Stable, caring relationships play a key role in building brains.
Serve & Return Interaction Shapes
Brain Circuitry

Video: https://developingchild.harvard.edu/resources/serve-return-interaction-shapes-brain-circuitry/
Early Life Stress Impacts Life-long Health

Health and Development Across the Lifespan

Biology of Health
- Physiological Adaptations or Disruptions
  - Cumulative Over Time
  - Embedded During Sensitive Periods
How do stress and neglect impact the brain?

1. **Brain Architecture** is shaped by early life stresses.

2. **Gene Expression in the Brain** changes in response to stress exposure.

3. **Hormone Secretion** changes in response to stress exposure.

4. Early stresses change the way you see the world.
Adverse Early Life Experiences Change How You See the World

Source: Pollak & Kistler (2002)
Current Conceptual Framework

Significant Adversity

Healthy Developmental Trajectory

Impaired Health and Development

Parenting Education, Sound Nutrition, Stimulating Experiences, and Health-Promoting Environments
Protective Interventions Can Improve Life-long Health

Significant Adversity

New Protective Interventions

Healthy Developmental Trajectory

Parenting Education, Sound Nutrition, Stimulating Experiences, and Health-Promoting Environments
When positive experiences outweigh negative experiences, a child’s “scale” tips toward positive outcomes.
The initial placement of the fulcrum affects how easily the scale tips toward positive or negative outcomes.
Over time, the cumulative impact of positive life experiences and coping skills can shift the fulcrum’s position, making it easier to achieve positive outcomes.
Capabilities that help with stress management

Focusing Attention
Problem Solving
Planning Ahead
Behavior Regulation
Controlling Impulses
Adjusting to New Circumstances

Executive Function and Self Regulation
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Addressing Community Issues:

• How can communities provide children with stable, caring relationships?
  - Strengthening family relationships
  - Providing other relationships

• How can interventions be provided early?

• How to get the community involved?
Working from Within Communities