The Science of Child Development and Resilience

Building the Foundation for Lifelong Learning, Health, and Behavior

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The Foundations of a Successful Society Are Built in Early Childhood

Healthy Communities, Strong Families, and a Prosperous Society

Educational Achievement  Economic Productivity  Responsible Citizenship  Lifelong Health

HEALTHY BRAIN DEVELOPMENT
The Opportunity: Greater Understanding About the Impact of Early Experience on Brain Development
The Circuits for Cognitive, Emotional, and Social Capacities Are Highly Integrated Within the Architecture of the Developing Brain
The Threat: Toxic Stress Disrupts Brain Architecture and Other Biological Systems
The Need to Differentiate Three Types of Stress Response

- **Positive**: Brief increases in heart rate and mild elevations in stress hormone levels
- **Tolerable**: Serious but temporary stress responses buffered by supportive relationships
- **Toxic**: Prolonged activation of stress response systems in the absence of protective relationships
The Cumulative Pile Up of Adversity Impairs Development in the First Three Years

Number of Risk Factors

Source: Barth, et al. (2008)
Risk Factors for Adult Substance Abuse Are Embedded in Adverse Childhood Experiences

Self-Report: Alcoholism

Self-Report: Illicit Drugs

Source: Dube et al, 2002

Source: Dube et al, 2005
Biological “Memories” Link Maltreatment in Childhood to Greater Risk of Adult Heart Disease

Source: Danese, et al. (2008)
Resilience Can Be Strengthened by Supportive Relationships and Skill-Building
Social-Emotional Skill Building Keys
Fewer Behavior Problems

Source: Schindler et al. (2015)
21st Century Science Suggests New Ways of Thinking About Intervention in the Early Years

Early experiences affect lifelong health, not just learning.

Healthy development requires protection, not just enrichment.

Achieving much better outcomes for children experiencing significant adversity requires that we support the adults who care for them to transform their own lives.
Skill Building for Educators and Parents Points to the Foundational Role of Executive Function and Self-Regulation Skills

These core dimensions of adult competence include the ability to:

• focus and sustain attention
• set goals, make plans, and monitor actions
• make decisions and solve problems
• follow rules, control impulses, and delay gratification
Higher Childhood Self-Control Predicts Less Adult Crime

Source: Moffitt, et al. (2011)

Center on the Developing Child, Harvard University
Higher Childhood Self-Control Predicts Less Adult Substance Abuse

Source: Moffitt, et al. (2011)
Three Types of Executive Function Skills

**Inhibitory Control** — filter thoughts and impulses to resist temptations and distractions

**Working Memory** — hold and manipulate information in our heads over short periods of time

**Mental flexibility** — adjust to changed demands, priorities, or perspectives
The Challenge: The Ability to Change Brains and Behavior Decreases Over Time

Source: Levitt (2009)

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Normal Brain Plasticity Influenced by Experience

Physiological “Effort” Required to Modify Neural Connections

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Birth 10 20 30 40 50 60 70

Age (Years)

Source: Levitt (2009)
The Opportunity: The Development of Executive Function Skills Begins in Early Childhood and Extends into the Early Adult Years

Weintraub, et al. (2011)
The Strategy: Strengthening Caregiver and Community Capacities

1. Parents, teachers, and other caregivers can buffer children from adversity and build their adaptive capabilities.

2. Communities can reduce precipitants of toxic stress that threaten the well-being of families with young children.
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