

CHILDREN WHO LACK
ABUSE CHILDREN
2-14) 2006 81.0% 1,288,503
PUNISHMENT AT HOME (A
GREAT CHILDREN WHO DIE BEF
AGE 5 2008 6.5% 8,772,000 GLOI
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2006 81.0% 1,288,503
PUNISHMENT AT HOME (A
CHILDREN WHO DIE BEF
AGE 5 2008 6.5% 8,772,000 GLOI
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U.S. Government Evidence Summit on Protecting Children Outside of Family Care

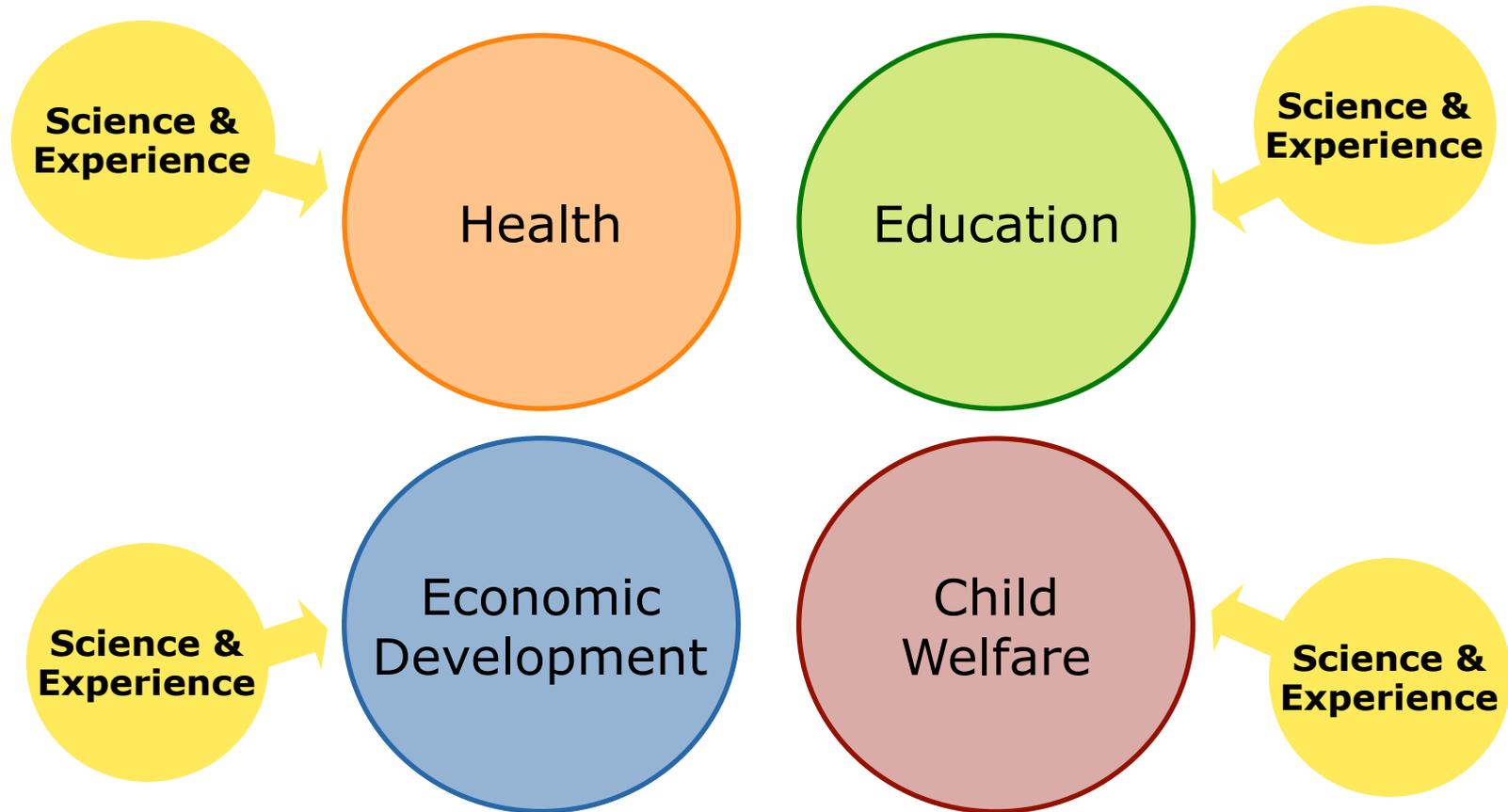
The Biology of Adversity and the Roots of Lifelong Impairments in Learning, Behavior, and Health

JACK P. SHONKOFF, M.D.

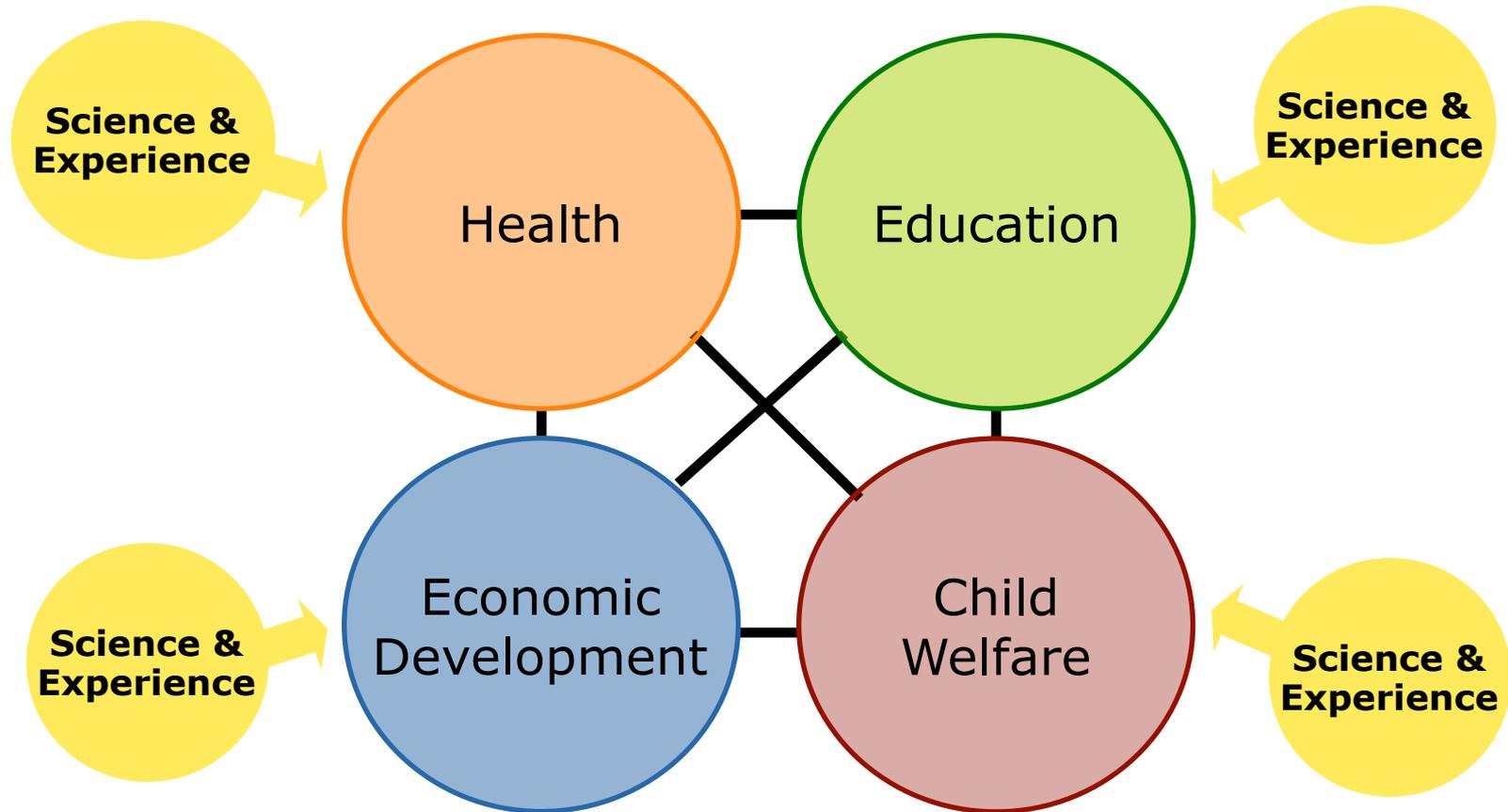
Julius B. Richmond FAMRI Professor of Child Health and Development,
Professor of Pediatrics, and Director of the Center on the Developing Child
Harvard University

December 12, 2011
Pavilion II, Ronald Reagan Building
U.S. Agency for International Development, Washington, DC

Multiple Sources of Knowledge Currently Inform Practice in Poorly Connected Sectors



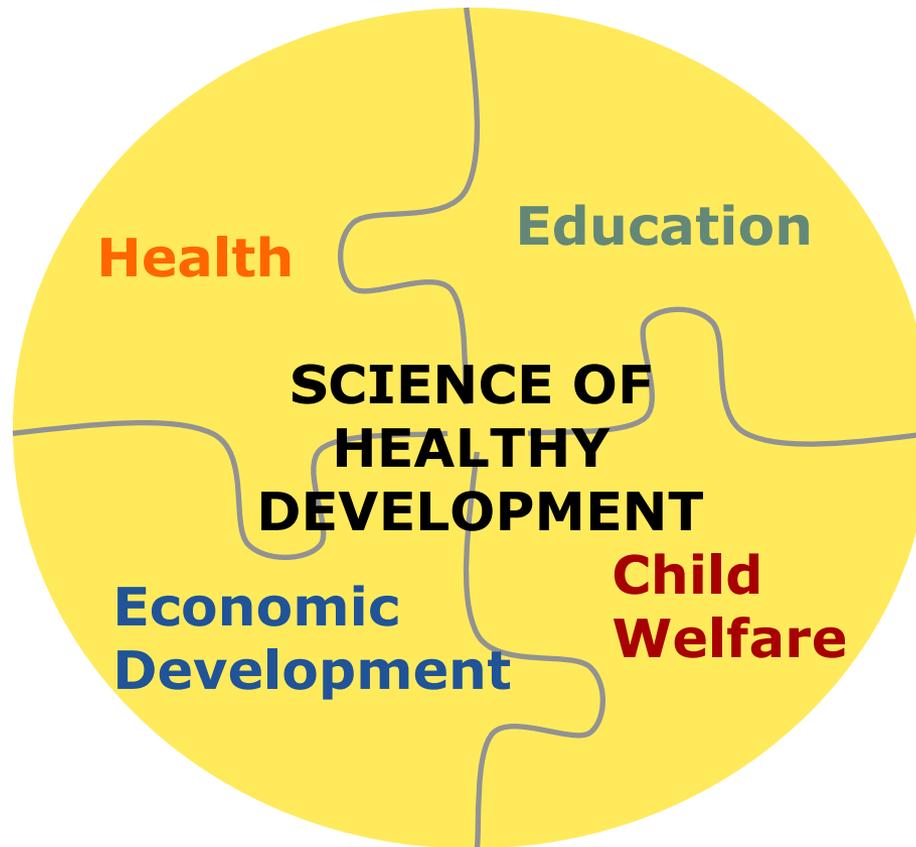
Multiple Sources of Knowledge Currently Inform Practice in Poorly Connected Sectors



An Integrated Science of Child Health and Development Could Drive More Productive Investments Across Sectors

**SCIENCE OF
HEALTHY
DEVELOPMENT**

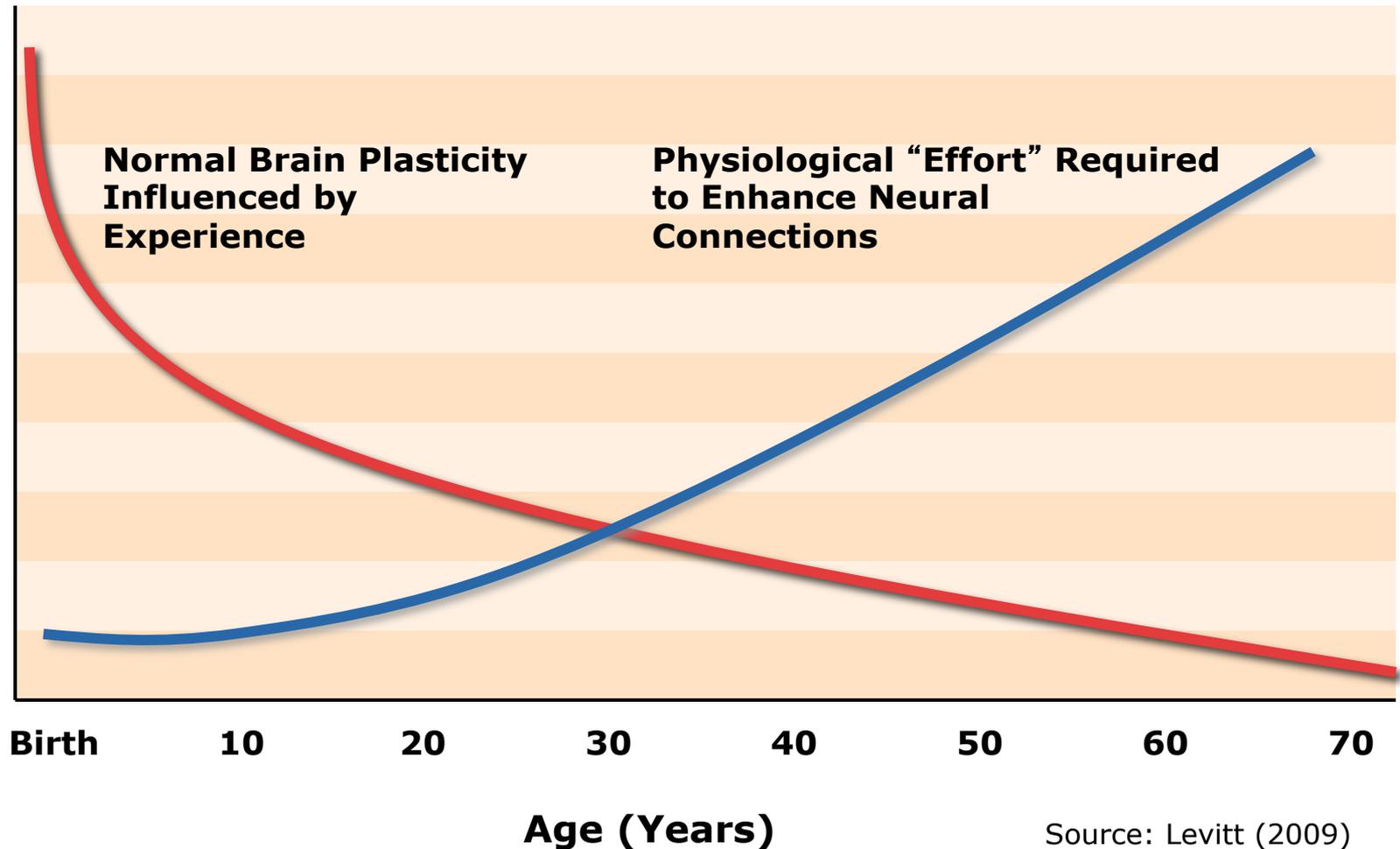
An Integrated Science of Child Health and Development Could Drive More Productive Investments Across Sectors



Experiences Build Brain Architecture



The Ability to Change Brains Decreases Over Time



Toxic Stress Derails Healthy Development



Three Levels of Stress Response

Positive

Brief increases in heart rate,
mild elevations in stress hormone levels.

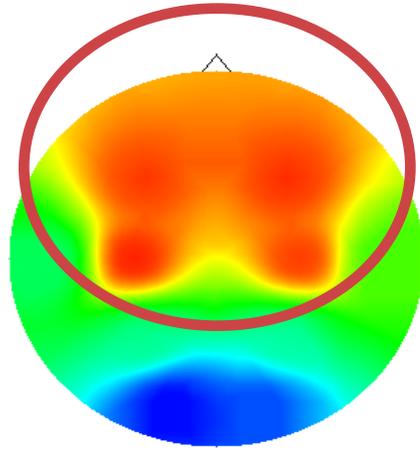
Tolerable

Serious, temporary stress responses,
buffered by supportive relationships.

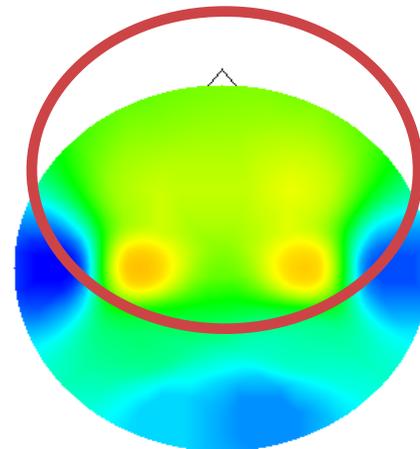
Toxic

Prolonged activation of stress response systems
in the absence of protective relationships.

Profound Deprivation Affects Brain Power



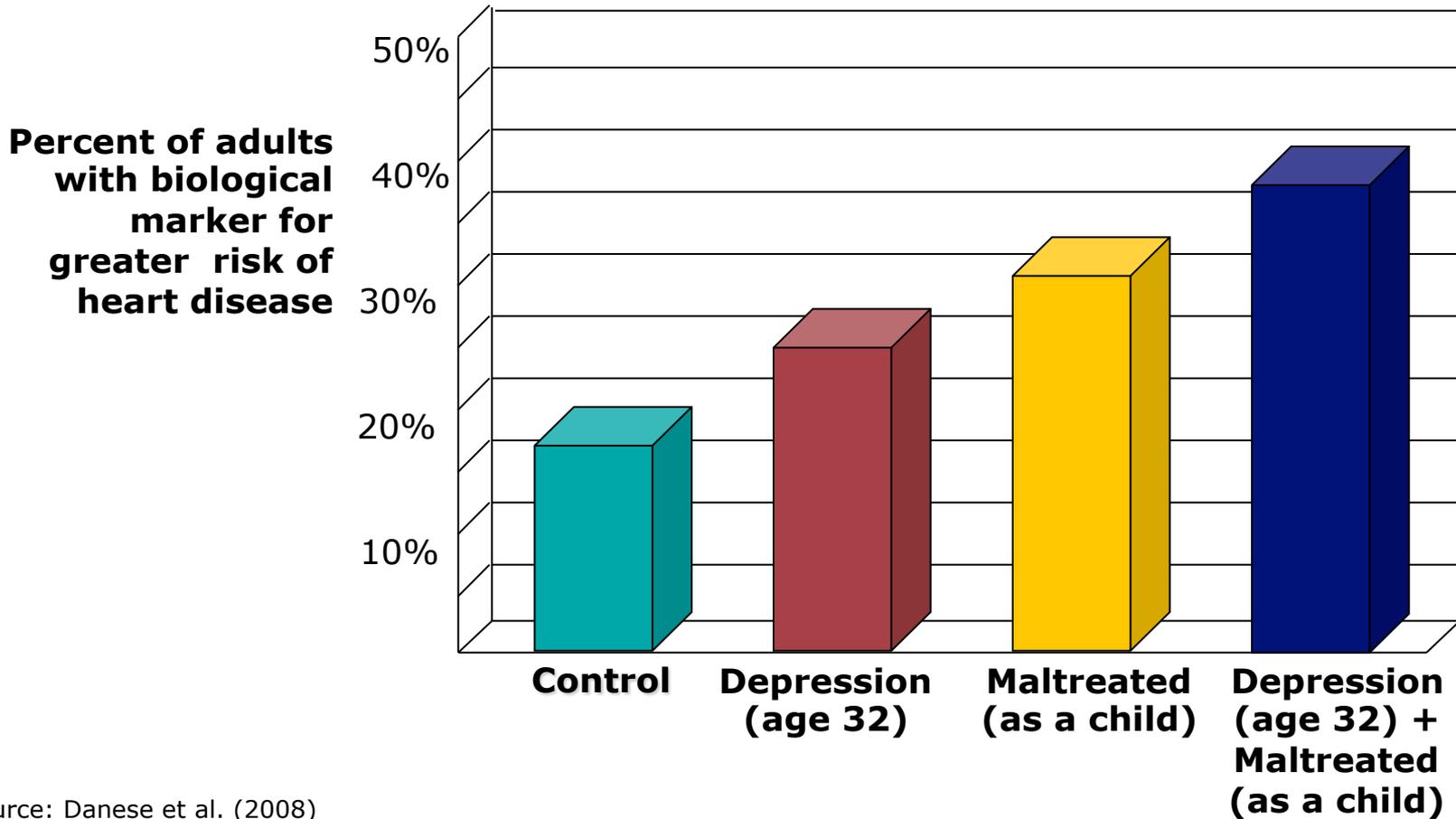
Positive Relationships



Extreme Neglect

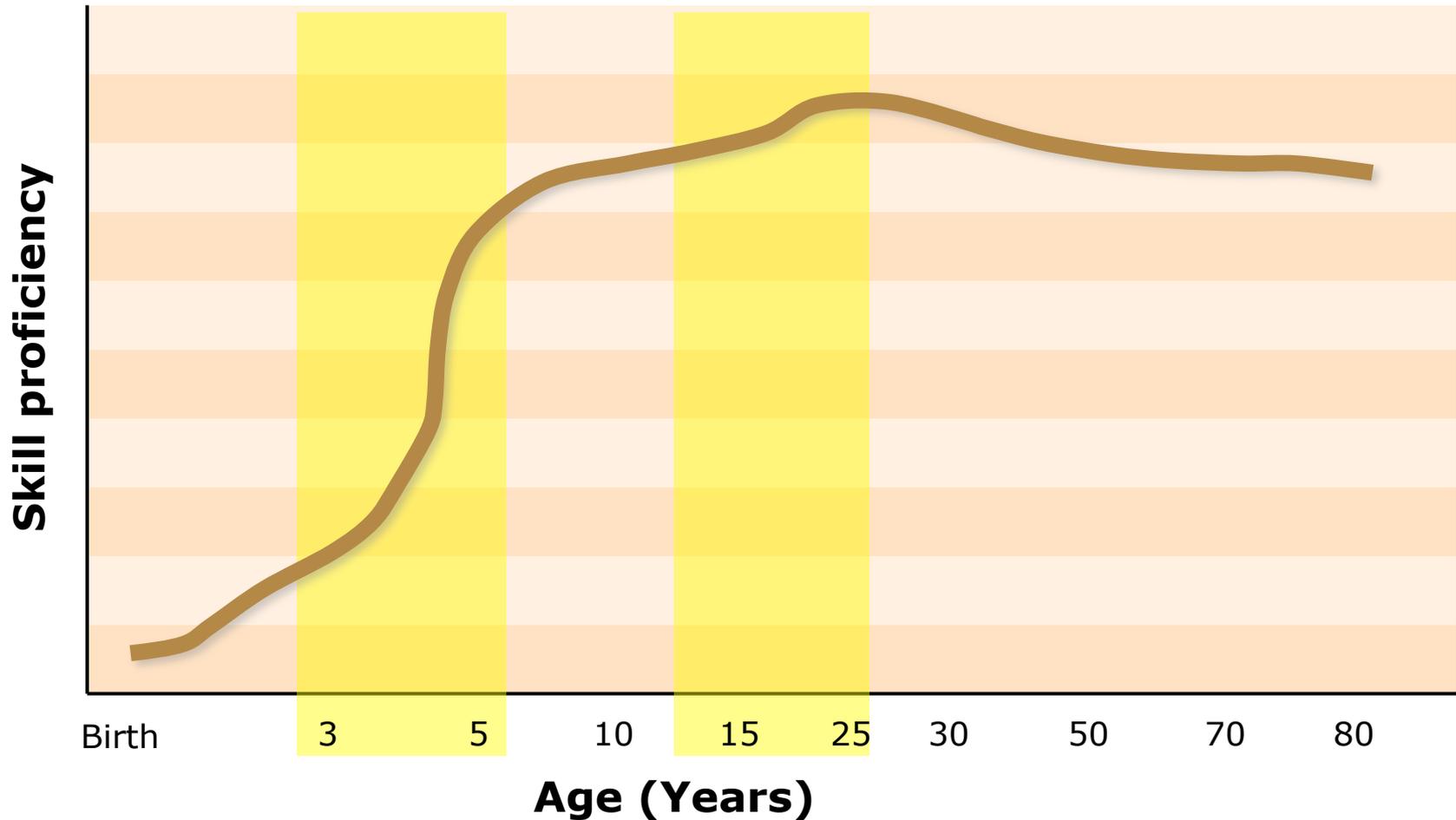
Source: C.A. Nelson (2008); Marshall, Fox & BEIP (2004).

Biological “Memories” Link Maltreatment in Childhood to Greater Risk of Adult Heart Disease



Source: Danese et al. (2008)

Opportunities to Build “Executive Function” Skills Present an Extended Developmental Window



Weintraub, et al., (2011)

Early Life Experiences Are Built Into Our Bodies (For Better or For Worse)

Stable, supportive relationships and mutually responsive interactions with adults promote healthy brain architecture and adaptive regulatory systems.

Excessive or prolonged activation of the stress response system and reduced availability of protective relationships can weaken brain circuits, disrupt the development of other organ systems, and lead to lifelong impairments in learning, behavior, and both physical and mental health.



Center on the Developing Child HARVARD UNIVERSITY

The collage displays three overlapping screenshots of the Center on the Developing Child website. The top-left screenshot shows the 'Brain Hero' multimedia page, featuring a game interface and a sidebar with navigation options like 'BROWSE BY TOPIC' and 'ACTIVITIES'. The middle screenshot shows the 'InBrief: The Impact of Early Adversity on Children's Development' page, which includes a video player titled 'Toxic Stress Changes Brain Architecture' and a sidebar with 'BROWSE BY TOPIC' and 'CONTACT US'. The bottom-right screenshot shows the 'The Foundations of Lifelong Health Are Built in Early Childhood' report page, featuring a sidebar with 'BROWSE BY TOPIC' and 'CONTACT US', and a main content area with a video player and text.

www.developingchild.harvard.edu