The healthy development of young children provides a strong foundation for later academic achievement, economic productivity, and responsible citizenship... ...as well as a lifetime of physical and mental health.
Advances in the Biological Sciences Tell Us That Early Life Experiences Are Built Into Our Bodies
Three Numbers to Remember

90-100 percent

5:1 odds

3:1 odds
Significant Adversity Impairs Development in the First Three Years

Source: Barth et al. (2008)
Risk Factors for Adult Depression are Embedded in Adverse Childhood Experiences

Source: Chapman et al, 2004
Risk Factors for Adult Heart Disease are Embedded in Adverse Childhood Experiences

Extensive Evidence Indicates That Adversity Can Get “Under the Skin” and Undermine Health and Development

Persistent stress produces excessive elevations in heart rate, blood pressure, and stress hormones, which can impair brain architecture, immune status, metabolic systems, and cardiovascular function.
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These findings support a promising causal model of how poverty, maltreatment, and discrimination in childhood can have adverse impacts on later health, learning, and behavior.
Three Levels of Stress

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.
Toxic Stress Changes Brain Architecture

Normal

Typical neuron—many connections

Toxic stress

Prefrontal Cortex and Hippocampus

Damaged neuron—fewer connections

Sources: Radley et al. (2004), Bock et al. (2005)
New Biological Evidence Links Maltreatment in Childhood to Greater Risk of Adult Heart Disease

Percent of adults with biological marker for greater risk of heart disease (increased blood level of CRP)

Source: Danese et al. (2008)
Building a New Science-Based Approach to Promoting Health and Preventing Disease

A healthier population begins with reducing toxic stress in childhood, not just trying to change adult behavior.
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Effective early childhood programs offer an opportunity to promote lifelong health and prevent adult disease, not just prepare children to succeed in school.
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A healthier population begins with reducing toxic stress in childhood, not just trying to change adult behavior.

Effective early childhood programs offer an opportunity to promote lifelong health and prevent adult disease, not just prepare children to succeed in school.

A redesigned child welfare system could be a powerful vehicle for preventing chronic physical and mental health impairments by promoting nurturing relationships and positive early experiences, not simply focusing on physical safety and custody.
The Childhood Roots of Health Disparities: How Adversity is Built Into the Body

Conception

Early Adversity
- Toxic Stress
- Environmental Exposures
- Malnutrition

Early Childhood

Biological Embedding during Sensitive Periods

Physiological Disruption
- Neurodevelopmental
- Immune
- Metabolic
- Neuroendocrine
- Cardiovascular

Middle Childhood

Adolescence

Adulthood

Disease/Disorder
- Health-Threatening Behavior
- Low Educational Achievement

Early Death

Cumulative Burden over Time