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Facts About Health That Are Often Misunderstood

Derived from Working Paper 15: “Connecting the Brain to the Rest of the Body: Early Childhood Development and Lifelong Health Are Deeply Intertwined.”

Did you know that interactions among **genes, experiences, age, and environments influence every biological system** in the body, with especially powerful effects in the earliest years? When we think about the foundation of early childhood development, we often focus on brain architecture. However, the environments we create and the experiences we provide for young children and their families affect not just the developing brain, but also many other physiological systems. Systems relating to brain development, heart and lung function, digestion, energy production, fighting infection, and physical growth are all interconnected and influence each other’s development and function. Below, learn **five other facts about health that are frequently misunderstood**.

1

The experiences we have early in life are at least as important for the biological foundations of physical and mental health as the lifestyle choices we make as adults.

Without dismissing the influence of adult lifestyle (including nutrition, exercise, and sleep) on physical health, early adversity can increase the risk for many of the most common chronic diseases that appear later in life. Critical or sensitive periods provide unmatched opportunities for both positive and negative influences on developing biological systems. Increasing evidence is pointing to the importance

of the prenatal period and first few years after birth for the development of core immune functions, metabolic regulation, and other physiological systems that can affect long-term well-being.



2

Poor health outcomes are not inevitable after experiencing adversity early in life, but they are more likely if we do not adequately support children and families experiencing persistent hardships or challenges.

What happens early—prenatally and in the first couple of years—makes us more likely or less likely to develop future physical and mental health problems. While it’s always

better to have health-promoting experiences as early as possible, it is never too late to make things better. There are many opportunities to build resilience—beginning in early childhood and continuing throughout life—by providing supportive relationships in predictable environments, reducing sources of significant stress, and building a toolkit of adaptive skills. The more we build up protection and support for the environment in which children grow up, the smaller the likelihood of future health problems.

3

When the developing brain and other biological systems adapt to what they experience in their environment, it may be positive in the short-term, but negative in the long-term.



If the brain perceives excessive, frequent, or persistent threat, it learns to expect adversity and develops a “shorter fuse” for activating physiological responses throughout the body. This kind of adaptation has both benefits and costs—it may protect health in acute, short-term situations by preparing the individual to respond quickly to threats. But can have a significant wear-and-tear effect that damages long-term health if activated at too high a level for too long. Inflammation, an important part of the immune system, is an example of a response to challenge that is necessary and beneficial in the short run, but harmful in the extreme.

4

The body’s stress response is the same, no matter what causes it, but a pile-up of stressors over time means there’s less time for recovery.

The duration, severity, and timing of the experience (along with the availability of supportive relationships) are what

determine whether the body’s stress response is ultimately harmful or growth-promoting. This is why chronic and severe sources of stress, such as deep poverty, systemic racism, and community violence—which are often experienced together and may be perpetuated by structural barriers to effective prevention or mitigation—can be so damaging to health across the lifespan.

5

All policies and delivery systems serving young children and families across sectors can support *both* early learning and the foundations of lifelong health.

The effects of significant adversity on brain development—and therefore on early learning, social and emotional development, and kindergarten readiness—are well-documented. This knowledge has influenced early childhood policy objectives, program design, and allocation of resources for decades. But the frontiers of science now point to the need for an expanded mindset that views investment in the early years as a necessary priority for strengthening the foundations of both health and learning by addressing the common origins of disparities in each. The good news

is that the very things all children need to improve school readiness—responsive relationships, core adaptive skills, reduced sources of stress, and appropriate



nutrition—are the same as those that are needed to support improved lifelong health.