

Which of these neurons has been exposed to toxic stress?



IMAGE #1

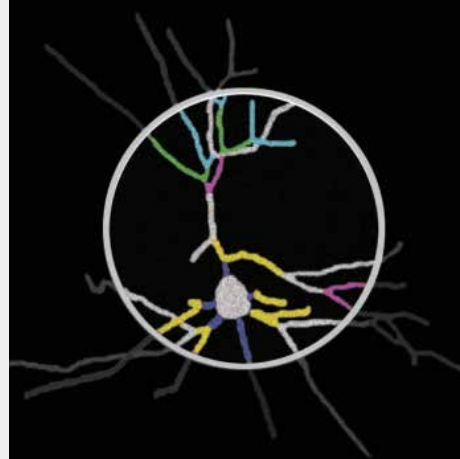


IMAGE #2

For scientists at the [Harvard Center for the Developing Child](#), the answer is clear. In Image #1, the neuron is surrounded by numerous healthy connections that indicate the typical development of a strong brain architecture. In Image #2, there are fewer connections branching out, indicating a weaker brain architecture and the exposure to chronic, toxic stress.

The Harvard Center for the Developing Child reports,

Scientists now know that chronic, unrelenting stress in early childhood, perhaps caused by extreme poverty, neglect, repeated abuse, or severe maternal depression, for example, can be toxic to the developing brain. While positive stress (moderate, short-lived physiological responses to uncomfortable experiences) is an important and necessary aspect of healthy development, toxic stress is the strong, unrelieved activation of the body's stress management system in the absence of the buffering protection of adult support. This image depicts the structure of neurons in the areas of the brain that are most important for successful learning and behavior in school and the workplace—the hippocampus and prefrontal cortex.

Note that the typical neurons above have grown rich dendritic connections, while the neuron damaged by toxic stress has much fewer connections.

To learn more, read the entire brief on [Core Concepts in Early Child Development](#) and other vital resources at the Center on the Developing Child.