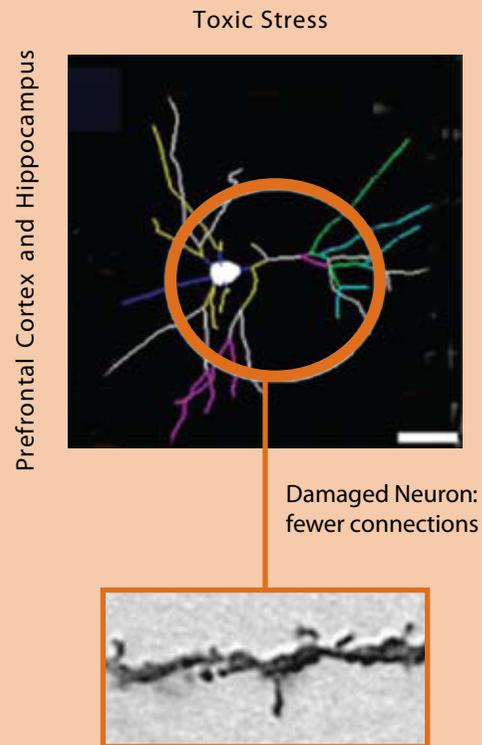
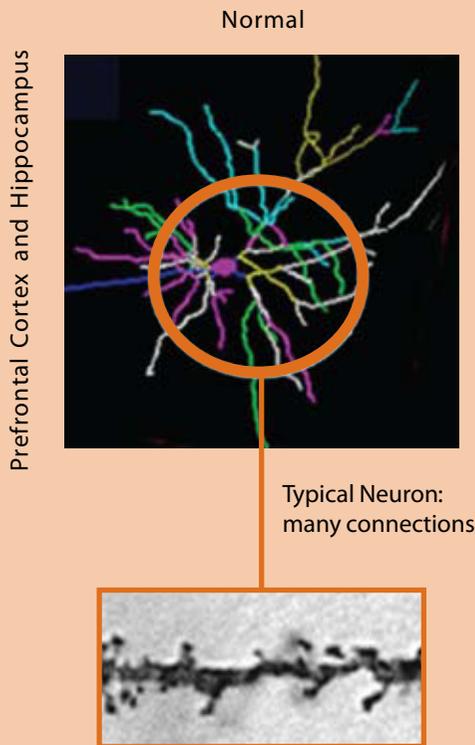




# Early Experiences Shape the Brain

## Persistent Stress Changes Brain Architecture



Source: Radley et al. (2004) and Bock et al. (2005)

Brain architecture is constructed through an ongoing process that begins before birth and continues into adulthood. The early years are the most active period for establishing the neural connections that comprise our brain architecture. As it emerges, the quality of that architecture establishes either a sturdy or a fragile foundation for all the capabilities and behavior that follow.

Skill begets skill as brains are built from the bottom up. Increasingly complex circuits and skills build on simpler circuits and skills over time.

The interaction of genes and experience shapes the circuitry of the developing brain. Young children serve up frequent invitations to engage with adults, who are either responsive or unresponsive to their needs. This “serve and return” process is fundamental to the wiring of the brain, especially in the early years. Children develop in an environment of relationships that begin in the home but also includes adults and peers in the extended family, providers of early care, education, and other services for families, and members of the community.



Cognitive, emotional, and social capacities are inextricably intertwined. Learning, behavior, and both physical and mental health are highly interrelated. One domain cannot be targeted without affecting the others.

Although manageable levels of stress are normative and growth-promoting, toxic stress in the early years can damage developing brain architecture and lead to problems in learning and behavior, as well as increased susceptibility to physical and mental illness. Toxic stress refers to the damaging, sustained activation of the body’s stress response system, which can occur when a child is exposed to such experiences as severe poverty, violence, maltreatment, neglect, or parental mental health impairments in the absence of stable, nurturing relationships with adults.

Brain plasticity and the ability to change behavior decrease over time. The brain is remarkably adaptable throughout life, but getting it right early is more effective and less costly—to society and to individuals—than trying to fix it later.

Source: Center on the Developing Child, Harvard University, www.developingchild.harvard.edu



HOW EARLY LEARNING BENEFITS CHILDREN AND NORTH CAROLINA