



NEW JERSEY
PSYCHOLOGICAL ASSOCIATION

The role of trauma in children's brain development

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Many people assume that children's minds develop within set milestones, and that only a toxic substance or a brain injury could negatively affect young brains. However, research has found that psychological trauma, such as from abuse and neglect, can have a substantial impact on how a child's brain develops. The experience of trauma is far from being solely an emotional experience, but something that affects our whole body, including our physical brain. Traumatic experiences that occur earlier in life and for a longer period of time are more likely to negatively impact brain development, but the relationship between trauma and the brain is also associated with childhood cognitive milestones.

A traumatic experience occurring before the age of six has been associated with a number of brain changes, including having a smaller cerebral cortex, less connective tissue between the right and left brain hemispheres, and reduced size of the hippocampus. What do these structures do? The hippocampus is a part of the brain that has a large role in memory and emotions, including fear, and the connective tissue between the brain hemispheres allows both sides to communicate with each other. Thus, the psychological experience of trauma in early childhood could lead to lower scores on tests of intellectual functioning, difficulties with emotional regulation, and more intense and frequent fear responses.

During school-age years, trauma affects the same areas of the brain, particularly the connective tissue between the right and left brain hemispheres. However, those areas have already developed during the early school years, so these children can have better control of impulsive and aggressive behaviors, regulation of fear, attention spans, and learning abilities. As in earlier years, trauma during this time can lead to difficulties with managing their emotional responses, but it also has been associated with increased aggressive behavior and outbursts, problems with learning and memory, and disturbances in sleep patterns (e.g., trouble falling asleep and staying asleep).

Adolescence is a time when more advanced thought processes begin to develop, such as planning, abstract thinking, organization, problem solving, and setting long-term goals. Trauma occurring during this time has a larger effect on the part of the brain called the frontal cortex that is associated with many of those processes. Thus, trauma during adolescence may increase the likelihood of risk-taking or impulsive behaviors, academic difficulties, and relationship conflicts. A major task of adolescence is to

develop good judgment and to learn to assess consequences of risky or impulsive behavior. Adolescents with weaknesses in these areas often become vulnerable to further traumatic experiences.

With estimates of around 1 in 4 youth experiencing at least one potentially traumatic event before they turn 16, these findings hold important implications for many children and their families. To foster healthy development, early intervention is essential. Detection is the first step in this process. Children who show symptoms of trauma, such as usual or uncontrollable behavior, acting in ways that are a danger to themselves or others, or appearing to be depressed, disconnected, or withdrawn, might benefit from being screened for trauma by a professional with expertise in this area. If a child has already been identified as experiencing a traumatic event such as abuse or neglect, psychotherapy not only offers the opportunity for children to reduce their symptoms of trauma, but to also prevent any difficulties in their brain development. A child who has experienced trauma and is showing significant academic difficulties might also benefit from a neuropsychological evaluation to help understand the role of trauma in their learning experiences. To find professionals with experience in trauma in your area, your pediatrician and the National Child Traumatic Stress Network may be useful resources.



Michelle Miller, PsyD, is a licensed psychologist in New York and New Jersey. She specializes in the application of Cognitive Behavioral Therapy (CBT) to Tourette's Disorder, autism spectrum disorders, body focused repetitive behaviors (such as obsessive compulsive disorder, skin picking, and trichotillomania), and eating disorders. Dr. Miller has been extensively trained in the application of evidenced-based treatments to a wide range of other psychological problems, including but not limited to depression, trauma, specific phobias, oppositional and aggressive behavior, and self-injurious behavior. She has expertise in neuropsychological testing, including evaluations for autism spectrum disorders, learning disabilities, ADHD, and gifted children.

Dr. Miller has worked with children, adolescents, and adults in a range of settings, including inpatient programs, the psychiatric emergency department, a residential treatment facility, and different outpatient programs throughout New York and New Jersey.