

# Child Maltreatment and Biological Outcomes

Adapted from Cicchetti & Toth, 2016<sup>1</sup>

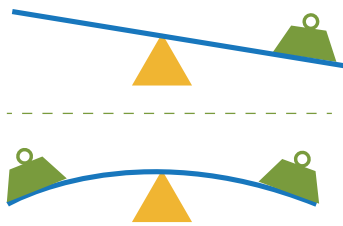
This fact sheet highlights lessons learned from decades of science regarding child maltreatment. Here, you will learn how child abuse and neglect affects children's biology and physical outcomes.



**CHILD MALTREATMENT** is an adverse childhood experience (ACE) that includes physical, sexual, emotional abuse, and neglect.

**TOXIC STRESS** is a type of stress children may experience that is prolonged or chronic, occurring when there is no presence of a stable and caring parent or adult figure. Child maltreatment is a type of toxic stress.

Research shows that child maltreatment and toxic stress can affect multiple physical and health outcomes. Not all children who are maltreated will experience these outcomes, but they are more likely than non-maltreated youth to experience the following:

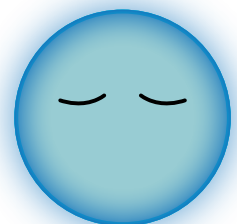


## 1. ALLOSTATIC LOAD

When children experience high amounts of toxic stress, biological systems become less efficient at working together and result in what is called allostatic load. One aspect of allostatic load is the abnormal functioning of cortisol, a key hormone involved in the body's response to stress. Research shows that child maltreatment can impact the function of cortisol, which in turn is related to abnormal responses to stress (i.e., responding too much or too little) and poor mental health outcomes (e.g., mood disorders).

## 2. SYSTEMIC INFLAMMATION

Inflammation is a normal response by the immune system. When the inflammatory response is sustained due to chronic stress, inflammation may become harmful to the body and is known as systemic inflammation. Youth and adults who were maltreated are more likely to have heightened systemic inflammation, putting them at risk for poor physical health. Systemic inflammation may also be related to higher levels of depression and anxiety for youth who have been maltreated.



<sup>1</sup> Cicchetti, D., & Toth, S. L. (2016). Child maltreatment and developmental psychopathology: A multilevel perspective. *Developmental Psychopathology*, 1-56.



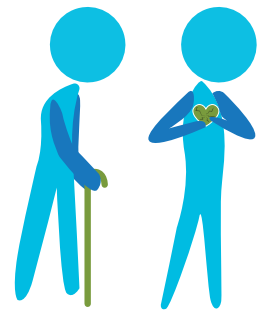
### 3. BRAIN DEVELOPMENT

Research shows that childhood maltreatment can lead to changes in the way the brain is 'wired' (i.e., how neurons are connected to one another) and the structure of important brain areas. There is evidence that child maltreatment is associated with changes to the brain in areas involved in learning, memory, and emotions. Further, toxic stress during childhood can lead to brain changes in how well individuals can handle future stressful or challenging situation.







Much of what we know about child maltreatment and brain development comes from neuroimaging studies that use MRI technology. Through this work, we know that child maltreatment affects multiple brain structures and functioning.

### 4. POOR PHYSICAL HEALTH

Adults who were maltreated in their youth have an increased risk of disease and early death. They are at a particular risk for chronic diseases of aging, such as heart disease and diabetes. This is likely due in part to their heightened allostatic load and systemic inflammation.



## WHAT CAN WE DO?

-  Create educational opportunities for families to learn about optimal parenting practices to limit exposure to child maltreatment.
-  Work with youth to improve cognition and self-regulation strategies to promote coping and resilience.
-  Prevent child maltreatment by partnering with or supporting agencies that assist families who are under stress.
-  Help families with maltreatment histories to improve their parenting practices and repair family relationships.
-  If you are a clinician, use interventions that are proven to support parent-child relationships and that can improve child outcomes, such as Child-Parent Psychotherapy or Interpersonal Psychotherapy for Adolescents, among others.
-  Intervene to improve parenting and prevent child maltreatment in early childhood in order to reduce the overall stress that youth experience throughout their childhood.

### GENE X ENVIRONMENT (GXE) EFFECTS

Although child maltreatment is harmful for all youth, some are impacted more than others. One reason for this is due to youths' genetic predisposition. Researchers looking at gene environment interaction (GxE) understand that genetics can play a role in how the environment impacts development. Specifically, one's gene makeup can impact how environmental exposures, such as child maltreatment, affect health.