Welcome to CCEI120: Brain Development and the Effects of Early Deprivation

This course examines the effects of early childhood deprivation, maltreatment, and abuse on brain development, as well as ways in which early childhood professionals can help promote healthy brain development.

Objectives

Participants who take notes on the handout and successfully answer assessment questions will meet these objectives:

- Identify the lasting effects of early deprivation and maltreatment
- Define child maltreatment
- Identify key conclusion of research linking childhood maltreatment to overall health and well-being
- Define neurons, synapse, and synaptic pruning
- Identify methods for promoting the formation of synaptic pathways
- Identify the long-term effects of synaptic pruning
- Identify the effects of repeated early childhood maltreatment
- Identify sensitive periods in early childhood brain development
- Define major types of stress
- Identify the five premises of the Cascade Model of Stress Response Theory

References:


Course Notes:

Early childhood maltreatment and deprivation in early childhood may result in significant developmental delays. Such delays may manifest themselves, for example, if a child:

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The effects of early deprivation in brain development are so significant that follow-up studies of these children at age eight show that they:

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Child Maltreatment

Important Fact

*Child maltreatment:*

Traumatized children continue to show ___________________ of fear even when they are in a safe environment. In other words, maltreatment causes their brains to remain in a permanent state of "high alert."

They may experience:

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Unless a positive intervention occurs:

Young children who are abused or neglected often struggle with some or all of the following issues:

Abused or neglected children also struggle with:

**The Adverse Childhood Experiences (ACE) Study**

**Important Fact**

The *Adverse Childhood Experiences (ACE) Study*:

**Major Findings of the Adverse Childhood Experiences (ACE) Study**

The higher the exposure to ACE, the more people were to experience the following as adults:
The ACE Study showed a strong connection between early childhood exposure to Adverse Childhood Experiences (ACE) and risk-related behavior during adolescence:

The effects of ACE are cumulative, meaning:

**Early Brain Development**

**Important Fact**

In simple terms, the brain takes in messages from our senses and organizes that information, like a file cabinet. It then starts to make connections between new information and previously stored information. These connections are also called ________________.

**The Effects of Repeated Early Childhood Maltreatment**

These children have very ________________ , high levels of ________________, ________________ in their blood, and problematic ________________ patterns, all of which suggest that their experiences have left their brains in a permanent state of "______________________________".

**Stress and Early Brain Development**
The Stress Response

Stressful events may be harmful or beneficial depending on:

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The extent to which stressful events have lasting adverse effects on brain development is determined more by:

Positive Stress

Important Fact

*Positive stress* refers to:

Tolerable Stress

Important Fact

*Tolerable stress* refers to:

Toxic Stress

Important Fact

*Toxic stress* refers to:
The Cascade Model of Stress Response

The Cascade Model of Stress Response attempts to explain long-term effects of stress. The Cascade Model of Stress Response Theory has five premises:

**Early Stress Affects the Stress Response System**

**Stress Affects Hormones**

**Important Fact**

*Adrenaline:*

**Important Fact**

*Cortisol:*

When these stress-activated hormonal systems are activated often and for long periods of time, there may be serious developmental consequences that last a lifetime. In terms of brain development, side effects include:

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Serious developmental consequences that last a lifetime (continued):

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Different Areas of the Brain are Uniquely Sensitive to the Effects of Stress Hormones

High levels of cortisol in the part of the brain called the hippocampus:

In the cerebellum:

Long-Term Functional Consequences of Stress

Chronic Toxic Stress Affects Physical and Emotional Well-Being

Stress-related changes in the brain may lead to an increased risk of:

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Implications for Early Childhood Educators

Studies tell us that the ____________________________ children have with early caregivers play important roles in regulating stress hormone reduction.

Research has also shown that a ____________________________ caregiver can serve as a powerful buffer against stress related hormone exposure, even in young children who respond inappropriately to stress.
Classroom Tips for Promoting Healthy Brain Development

**Infants**

With infants (birth to 12 months):

Additional activities that promote healthy brain development for infants:

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Provide opportunities for infants to develop motor skills by providing

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**Toddlers**

Young toddlers are becoming independent, exploring limits, building vocabulary, and developing hand-eye coordination. To promote healthy brain development:

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Additional activities that promote healthy brain development for toddlers:

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Three-Year-Olds

To promote healthy brain development:

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Additional activities that promote healthy brain development for three-year-olds:

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Four Year Olds

To promote healthy brain development:

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Additional activities that promote healthy brain development for preschoolers:

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Five-Year-Olds

To promote healthy brain development:

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Additional activities that promote healthy brain development for five-year-olds:

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