The Laboratory of Neurocognitive Development

Quarterly Newsletter: ***Spring 2026***
Theme: ***Environmental Enrichment***

Scientist Spotlight

Meet Angela!

Angela is a research assistant who loves engaging and supporting participants throughout the research process! She is fascinated by how our surroundings – school, community, and neighborhood environments – shape the way adolescents grow, adapt, and thrive, with a special interest in identifying strengths in youth that help them build resilience.
Outside the lab, she enjoys exploring coffee shops, reading fun books, and going on long runs.

What is the science saying?

The world around us significantly shapes the way our brain develops, especially as growing teens and young adults. Throughout youth, the brain is highly *plastic* and adaptable. This plasticity allows brain cells (neurons) to strengthen connections we use a lot as we navigate our environment and to prune away connections that we no longer need.

But the big question is... **at what age is the developing brain most plastic, and therefore best able to adapt to our environments?**

Scientists used to think that brain plasticity was highest in infancy and lost in childhood and adolescence. Excitingly, researchers at LNCD have found that different areas of the brain are most plastic at different ages, and that certain brain areas show an increase in plasticity in childhood and adolescence!

For instance, in **early childhood,** brain areas that support **sensation and movement** are most plastic. As we age into **adolescence**, association areas involved in **complex thinking, planning, and social interactions** become plastic! As a result, the environment doesn't affect the whole brain in the same way at every age.

What does this mean?

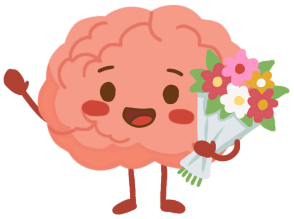
Because different brain areas have different functions, they adapt to different aspects of the environment. If we understand which brain areas are most plastic at each age, we can identify when different types of **environmental enrichment** (e.g., sensory stimulation, language input, cognitive training, social cohesion, opportunities for exploration) are most important.

Brain development and enrichment

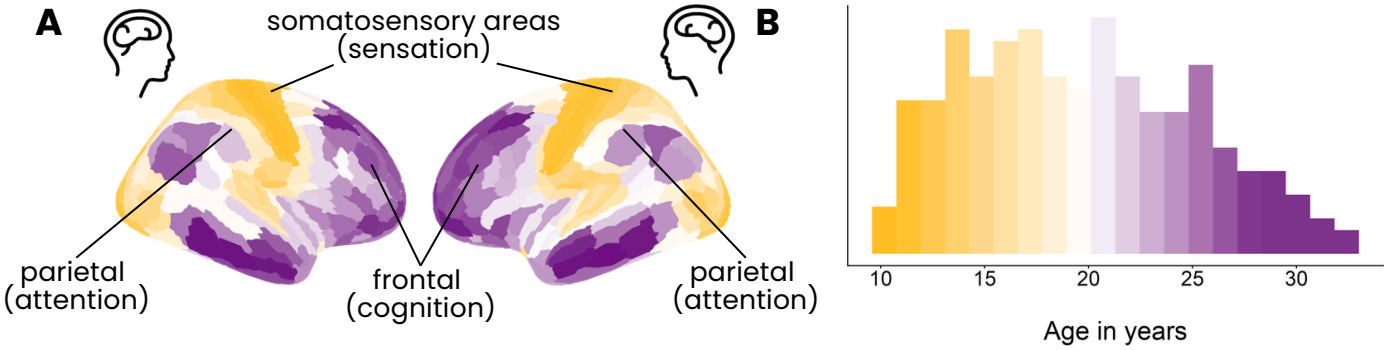
The LNCD is studying how different features of the environment shape brain development in childhood, adolescence, and young adulthood. We want to know how we can optimally **enrich** the environment with positive supports at each age.

You can do this yourself! Try:

- Taking on challenging school projects
- Trying a new hobby
- Volunteering / community service
- New outdoor activities
- Joining social groups or school clubs



Different areas of the brain are most adaptable at different ages, which is why enriching your environment is so important at all ages!



***A**) A map of temporal brain development, yellow showing regions that are most plastic in childhood and purple showing regions most plastic in adolescence and young adulthood. **B**) A plot showing the ages of LNCD study participants, colored by which brain regions are most plastic at each age. Can you find what brain areas are most plastic in your brain right now?*

Connect with community!

AMACHI [a-ma-chee]

Empowering Youth Minds Since 2003 , Seeks to empower and protect those most vulnerable to the criminal justice system

Three River WaterKeeper

Founded in 2009 to improve water quality, advocate for clean water and protect the Allegheny, Monongahela, and Ohio Rivers

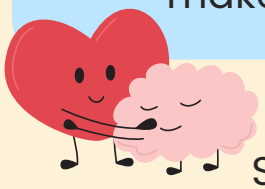
Neighborhood Resilience Project

Supporting the transformation of neighborhoods from Trauma Affected Communities to Resilient Healing and Healthy Communities since 2011

From Our Team to You

Thank you so much for being part of our study!

Because of awesome participants like you, we're learning more about how kids and teens grow, think, and explore the world around them. Your time and ideas help us understand the brain in ways that make a real difference!



Scan the QR code to check out our website and learn more!

Activity Page!

Spring Seekers: Let's Hunt!

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Read more about environmental enrichment!

- Sydnor, V.J., Ojha, A., Larsen, B. et al. Investigating hierarchical critical periods in human neurodevelopment. Neuropsychopharmacol. 51, 67–85 (2026).
- Larsen B, Sydnor VJ, Keller AS, Yeo BTT, Satterthwaite TD. A critical period plasticity framework for the sensorimotor-association axis of cortical neurodevelopment. Trends Neurosci. 46(10):847-862 (2023).