

Babies, Brains, and Growing Minds

Greetings families!

Do you ever wonder where your baby's personality came from or how your walking and talking toddler grows into a child who knows their colors, shapes, and alphabet? We do, too! The [Infant Temperament](#) and [Developing Mind](#) labs at Washington State University are doing exciting research to help answer these important questions, and we are excited to share this newsletter to tell you about findings from our recent studies!

Families make invaluable contributions to our research through their participation. If you have an infant or young child and would like to participate in our research or learn more, contact us at developing.mind@wsu.edu or



Lab for the Developing Mind

It's not uncommon to hear parents, teachers, or our friends use the term "executive function." It refers to the thought processes we rely on every day to plan our route home, take another point of view, communicate, problem solve, and much more.

Executive function helps children with these important skills, too, and it helps children form relationships with their peers, teachers, and succeed in school.



Dr. Sammy Perone and his students are working to understand how executive function develops in the brain, beginning in infancy and into childhood. The goal of their research is to help children develop the important skills that rely on executive function. Their studies have uncovered how specific types of brain activity relate to executive function during early childhood. A recent study showed the very same type of brain activity already relates to early indicators of executive function in infants! Sammy's lab is now conducting studies to learn how infants' and children's environment can support their brain and executive function development to help them be successful in their everyday life.

How does executive function help children succeed in everyday life? Sammy's lab is working to answer this question. One study showed executive function helps children keep focus and remember instructions to more quickly and accurately complete assigned tasks, such as those provided by parents or teachers.

Community Engagement

Are you interested in learning more about child development? Check out our [Developing Minds](#) project! Created by an undergraduate student in Sammy's lab, these flyers provide the "take home message" from research on child development. It also provides easy activities for caregivers to apply the research in their everyday childcare experience. Copies are available at the [Lab for the Developing Mind](#) website. Parent groups and childcare providers can also contact us at developing.mind@wsu.edu to sign up for our mailing list to receive new copies.



Scientific Stories
Reading storybooks with scientific explanations can help children learn about science. Some parents read children a book that explained how electricity works, and other parents read children a book that explained facts about electricity. Afterwards, children built a circuit with their parents. Results showed parent-child dyads who read about how electricity works were more likely to complete a working circuit and used more scientific language while working on the circuit.

Try this!
When speaking with a child, emphasize how things work. For example, you might talk about why cars move fast.

Developing Minds

ling Science
You put a child in the "scientist" they persist on activities. In a same kindergarten is taught a science by encouraging students "science" showed more on a science. Explaining the child is science may be beneficial to learning.

Try this!
Try using action-oriented language when doing activities, such as, "Let's do science!"

Reading Science
In reading fantasy stories about science, children learn about scientific concepts. When reading fantasy books with children, try emphasizing scientific concepts already present in the story. For example, if a superhero flies, you can explain that this action violates scientific properties.



Infant Temperament Lab

Dr. Masha Gartstein's laboratory works on answering similar questions, focusing on the emotional regulation aspect of attentional skills embedded in executive function. Specifically, her studies aim to uncover biological and environmental factors that serve to either enhance or diminish early emotion regulation. Conducting research with infants, she seeks to discern what prenatal and concurrent factors (e.g., maternal wellbeing, parent-child interactions) are related to emerging regulation. Dr. Gartstein's work places a particular emphasis on identifying the role child emotional reactions, which come online first, play in shaping the development of regulation.



It seems intuitive that fussy babies have a harder time learning to regulate these responses, but what about those who show high levels of activity and are super driven by rewards? There is a surprising number of unanswered questions regarding the role these predispositions play.

Masha's lab investigates parent-child interactions and toddler dysregulation. Studies show that when mothers and infants completed a task designed to evoke emotion, parenting style was related to infant brain waves. Infants of mothers who exhibited a balanced interaction, meaning both mother and infant engaged in play, displayed brain activity indicating positive emotion and behavioral regulation. When a mother dominated the interaction, an infant already expressing negative emotions could become overstimulated.

Studies have also found that the more time a toddler spends watching television, the greater the likelihood the toddler has low self-regulation, aggression, attention difficulties, and negative emotions. Results also suggest attention issues related to time spent watching television is dependent on cultural contexts.

