How ADHD Resembles Retained Primitive Reflexes, and Vice Versa

What are retained primitive reflexes, and how do they relate to ADHD and other developmental disorders? Learn about the symptoms and treatment options for this often misunderstood condition.

When a puff of air blows in your face, you blink. When your hand touches a hot stove, you jerk it away. When the doctor taps your knee, your leg kicks forward.

These automatic actions are *reflexes*, involuntary physical reactions to external or internal stimuli acting on our bodies. Reflexes are linked to specialized neural pathways that allow us to act upon signals *before* they reach the brain — meaning we can react quickly to important environmental cues without the need for conscious thought.

Newborn babies have their own unique set of reflexes — known as primitive reflexes, after the "primitive" parts of the brain in which they originate — that typically disappear within the first year of life. If the reflexes persist beyond a normal developmental timeline, the child might display symptoms like clumsiness, motor difficulties, and restlessness — symptoms that, in some cases, may be mistaken for (or overlap with) ADHD.

Here's what you need to know about these primitive reflexes: why they exist, how they connect to ADHD, and how to steer a child toward the correct developmental timeline.

What are Primitive Reflexes?

Primitive reflexes are involuntary physical reactions that originate in the central nervous system and are exhibited by babies. Primitive reflexes by typically disappear within the first year of life. If they persist beyond a normal developmental timeline, the child may experience clumsiness, motor difficulties, and restlessness.

The Lowdown on Primitive Reflexes

An infant's reflexive responses are well documented — and typically adorable. Stroking an infant's cheek, for instance, will cause her to turn toward the touch and try to suckle; placing a finger in his hand will cause him to grasp the finger tightly. These interactions delight parents and encourage bonding, but their primary purpose is to help babies eat, learn, and interact with the world around them, from the first moment they're born.

[When It's More Than Just ADHD]

As a child grows, these infantile responses are replaced with higher-level reflexes. The primitive reflexes that were once necessary become superfluous or even inhibitory. The grasping reflex, for instance, allows an infant's tiny hands to grip things as needed; once her hands and fingers begin to mature, however, this reflex needs to disappear in order for normal fine motor skills to develop. Children who retain the grasping reflex into toddlerhood — instead of developing the subsequent "pincer grip" — may struggle to hold a crayon, turn a page, or feed themselves at an age when it's appropriate to do so.

A child may retain his primitive reflexes for a number of reasons. Research links traumatic birth, poor neonatal environment, or repeated ear infections early in the child's life to possible disruptions in a child's typical developmental timeline. Babies who skip developmental milestones —

walking without first crawling, for instance — may be more likely to retain reflexes, as are babies who don't get an adequate amount of "tummy time."

Primitive Reflexes and ADHD

How do these reflexes manifest later in a child's life? Research suggests a link to neurodevelopmental disorders like dyslexia and ADHD; several studies have found that children diagnosed with ADHD are more likely than their peers to have retained primitive reflexes.[1] [2] [3] It's unclear if these two conditions exist concurrently or are mistaken and misdiagnosed for one another, but some caregivers report that treating their child's primitive reflexes also helped him or her to manage ADHD symptoms.

Two reflexes, in particular, are thought to carry a link to ADHD or ADHD-like symptoms. The Moro reflex — sometimes referred to as the "startle reaction" — causes an infant to tightly grip his mother when he feels like he's falling, and typically disappears within the first six months of life. A child who retains the Moro reflex will be hypersensitive to outside stimuli, startle easily, and may appear fidgety or restless — symptoms commonly seen in children with ADHD.

[The ADHD Symptoms We Misdiagnose]

The other reflex closely linked to ADHD, known as the Spinal Galant reflex, occurs when an infant's back is stroked. The infant will arch her hips toward the touch, a motion that is believed to encourage her to progress toward crawling. If the Spinal Galant reflex is retained past 12 months of age, it may result in symptoms like bedwetting, difficulty concentrating, short-term memory issues, or fidgeting.

One study,[4] published in *Activitas Nervosa Superior* in 2012, found that boys with ADHD were more likely than those in a control group to retain both the

Moro and Spinal Galant reflexes. The authors concluded that "ADHD symptoms may present a compensation of unfinished developmental stages."

Another study,[5] conducted in 2013, found a correlation between two other primitive reflexes — the asymmetric and symmetric tonic neck reflexes — and ADHD symptoms in girls between the ages of eight and 11. "ADHD symptoms may present a process related to primitive neural mechanisms, such as primitive reflexes, interfering with higher-level brain functions due to insufficiently developed cognitive and motor integration," the authors write. Other studies, conducted over the past several years, reach similar conclusions.

Treatment for Retained Primitive Reflexes

How can you be sure your child's reflexes are progressing at a normal rate? Bring any concerns about your child's development to an occupational therapist, functional neurologist, or developmental pediatrician, who can conduct a developmental assessment and report back on your child's reflexes in relation to her life stage.

If your child has retained some of her primitive reflexes, a trained occupational therapist can guide her through therapeutic exercises that address lingering infantile reflexes, and replace them (where necessary) with higher-level reflexes. You can also engage in at-home exercises to help your child move past his or her primitive reflexes. Ask a therapist to recommend exercises aimed at your child's specific delays; Robert Melillo, Ph.D., a professor and researcher of childhood developmental disabilities, offers these suggestions to get you started:

- **Moro reflex:** Have your child sit in a chair in the fetal position, with his

fists closed and his arms and legs crossed. Ask him to extend his limbs like a starfish, while opening his fists and leaning his head back. Hold the position for five to seven seconds, and have your child return to the fetal position, re-closing his fists and switching the direction of his crossed limbs. Do this exercise six times, several times a day.

- **Spinal Galant reflex:** Have your child lie on her back and move her limbs in a "snow angel" shape, until her hands meet at the top of her head and her feet come together. Do this five times in a row, at least twice a day, until the Spinal Galant reflex can no longer be elicited by stroking the low back. The goal of this exercise is to move all four limbs at the same rate, Melillo says, so encourage your child to progress through the motion as slowly as necessary.
- **Rooting/sucking reflex:** Stroke the child's cheek to elicit the reflex, and continue stroking until the reflex stops. Practice this twice a day until stroking no longer sets off the reflex.
- **Grasp reflex:** As above, stroke the child's palm until the reflex stops. Repeat twice a day until the reflex subsides.
- For more therapeutic ideas, several caregivers recommend *Movements That Heal: Rhythmic Movement Training and Primitive Reflex Integration* by Harald Blomberg, M.D., and Moira Dempsey.

The brain is extremely plastic — meaning it can change, for better or for worse, at almost any age. Children who have fallen behind developmentally are often able to regain lost ground, if given proper guidance. It's impossible to predict whether professional or at-home treatments for retained primitive reflexes will impact ADHD-related symptoms, but many parents have reported a significant improvement following occupational therapy.

Regardless, the benefits of reinvigorating your child's neural pathways and nudging him toward a correct developmental timeline are significant, experts say. Even after outgrowing his primitive reflexes, your child may struggle with

focus and hyperactivity. But by engaging and strengthening his central nervous system, you can maximize his brain's full potential.

[“Why Is My Child So Clumsy?”]

[1] Konicarova, Jana, and Petr Bob. “Retained Primitive Reflexes and ADHD in Children.” *Activitas Nervosa Superior*, vol. 54, no. 3-4, 2012, pp. 135–138., doi:10.1007/bf03379591.
[2] Bob, Petr, et al. “Persisting Primitive Reflexes in Medication-Naive Girls with Attention-Deficit and Hyperactivity Disorder.” *Neuropsychiatric Disease and Treatment*, 2013, p. 1457., doi:10.2147/ndt.s49343.
[3] Taylor, Myra, et al. “Primitive Reflexes and Attention-Deficit/Hyperactivity Disorder: Developmental Origins of Classroom Dysfunction.” *International Journal of Special Education*, vol. 19, no. 1, 2004, pp. 23–37.
[4] Konicarova, Jana, and Petr Bob. “Retained Primitive Reflexes and ADHD in Children.” *Activitas Nervosa Superior*, vol. 54, no. 3-4, 2012, pp. 135–138., doi:10.1007/bf03379591.
[5] Bob, Petr, et al. “Persisting Primitive Reflexes in Medication-Naive Girls with Attention-Deficit and Hyperactivity Disorder.” *Neuropsychiatric Disease and Treatment*, 2013, p. 1457., doi:10.2147/ndt.s49343.