

This could be what's behind your kid's problems in school

Could your kid's messy handwriting or trouble sitting still be traced back to those innate reflexes they had as infants? Here's what you need to know about retained primitive reflexes.



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The instincts babies are born with are fascinating. When newborns hear a loud sound, their tiny arms and legs go up in the air as part of the moro, or startle, reflex. If you stroke a newborn's cheek, they turn their heads and start sucking, in anticipation of a nipple, a reaction known as the rooting reflex.

Some reflexes are key to a baby's survival, like being able to root and find nutrition. The purpose of others is unknown, although some experts believe that the startle reflex is an evolutionary response from a time when babies

needed to cling to their mothers. A big startle and cry would let mom know that baby was falling. Having these reflexes is a sign that all is well—paediatricians check them to test the normal development of babies during [the Apgar test](#) at birth and during regular checkups. As a child grows, they typically grow out of, or integrate, these behaviours. But if the reflexes stick around into toddlerhood or beyond they can actually start to cause problems.

An emerging field of thought among occupational therapists, chiropractors and physiotherapists suggests that these infant reflexes can show up in problematic and entirely unexpected ways if they're retained just a few years down the road. In fact, these so-called retained primitive reflexes could underlie everything from problems with [motor skills to hyperactivity](#) once kids reach school age.

The problem with retaining reflexes I didn't worry (well, not much) that my son was a messy printer, a little clumsy and very anxious. He excelled at plenty of other things—Lego building, poetry writing, storytelling and cuddling, to name a few. But after some feedback from his kindergarten teacher, we hired an occupational therapist to help him with his [fine motor skills](#).

Occupational therapist Lynne Newman had my son do a few simple movements like standing up straight, touching his toes, getting down on hands and knees and moving his head back and forth, and up and down. She told us he had retained three reflexes from infancy, which were contributing not only to his poor pencil grip and clumsiness, but also his anxiety.

In cases like ours, where reflexes are retained only to a mild degree, children may exhibit symptoms that pose challenges but don't sound alarm bells for parents or educators. Depending on the reflex that's retained, signs can include clumsiness, anxiety, an inability to sit still, an inability to focus, bedwetting, and trouble reading and writing, among others. In more severe cases, retained primitive reflexes are thought to be major contributing

factors to [attention deficit hyperactivity disorder \(ADHD\)](#), [autism spectrum disorder and sensory processing disorders](#). A 2012 study from the Czech Republic published in a journal for Neurocognitive Research showed that children with ADHD have high occurrences of retained primitive reflexes. But there's been no conclusive evidence that one could cause the other.

"Primitive reflexes are important for babies' development since they not only help develop the brain and nervous system, but they are important to help the baby work on strength and, later, voluntary movements," says Liane Norman, physiotherapist and co-owner of Pediatric Physio & Occupational Therapy and ABC Pediatric Therapies in Ottawa. But if they remain active beyond the normal developmental period, they can interfere with the progression of voluntary skills or motor skills, like kicking, head lifting, reaching and crawling.

As babies grow, and develop deliberate movements to replace their reflexive ones, their nervous systems are stimulated to integrate (or turn off) primitive reflexes. These transitions take place at different times depending on the reflex, but are usually completed by toddlerhood. (Of course, instincts don't disappear completely—as adults, we still startle when something scares us, but it's not our go-to response for every surprising situation.)

Just as you can't run until you can walk, reflex integration is part of the hierarchy of neural development, says Shaian Mollaret, chiropractor, wellness coach and co-founder of Café of Life Chiropractic in Toronto. It's one of the steps needed in order to for new steps or skills to be achievable. For instance, a child who has retained the spinal galant reflex—which helped them move their hips as an infant in preparation for walking and crawling—could have trouble sitting still.

"If their body needs to twitch in response to a certain stimulus, it takes great effort to stop it consciously—the child has to fight their own body," Mollaret explains. It's like someone asking you to not startle when a fire alarm

suddenly blares above your head. Except that the trigger for kids with retained reflexes is usually something subtler, like a sudden noise or something lightly stroking their skin.

Babies get overstimulated by these things because their brains aren't ready to process all the sensations they're being exposed to. That's what's happening to kids with retained reflexes. The neural pathways needed to control their bodies and reactions haven't been made. They are still stuck in the patterns created in infancy.

But not everyone is convinced this is a real issue. Paediatricians don't test primitive reflexes past infancy, and they typically associate abnormalities with primitive reflexes at that stage with more significant neurological issues. In medicine, "both the absence of primitive reflexes and their presence beyond the normal developmental timeline can signify the presence of a brain injury or other central nervous system dysfunction," says Stephanie Davenport, a paediatrician in Ottawa. She says a lot more research would be needed to confirm that neurologically normal kids are retaining reflexes. And, when it comes to the link with issues like ADHD, she points out that it's a co-morbid with so many other conditions that a lot of factors would need to be ruled out to confirm a connection with retained primitive reflexes.

But some research is emerging: The Institute for Neuro-Physiological Psychology conducted a study in Ireland and Germany in 2003/2004, and found that between 35 and 48 percent of children in regular school programs and up to 100 percent of children in special education programs showed signs of primitive reflex retention.

Why might some people retain reflexes? Moira Dempsey, a pioneer in the study of retained reflexes and co-founder of Rhythmic Movement Training International, says screens and other modern conveniences may be partly to blame. "Babies need experiences and stimulation," she says. They need more tummy time, fewer screens, and need to be put on the floor instead of a bouncy chair, car seat or upright stroller so they can move more freely and start to develop a sense of gravity and proprioception, or understanding where their body is in space. Dempsey is also big on touch—skin-to-skin contact and gentle touch releases feel-good hormones in people of all ages and is thought to contribute to children's social development.

Causes of retained reflexes can also happen very early in life and may be impossible to control. For instance, delivering via C-section can lead to a baby retaining reflexes because, as Mollaret says, "the baby does not need to navigate through the birth canal, which would otherwise contribute to stimulating baby's brain development." A University of Alberta study showed

that infants born by C-section had [stronger moro \(startle\) reflexes at five months](#) than those born vaginally. Premature and low birth weight infants may also retain reflexes. A 1984 study published in the *Journal of Developmental & Behavioral Pediatrics* revealed that very low birth weight babies at four months retained stronger primitive reflexes and higher incidence of motor delays than normal weight babies.

What's next? An occupational therapist, chiropractor or physiotherapist trained in retained reflexes will be able to test your child and identify any reflexive delays. Each type of practitioner will have a slightly different approach to treating retained reflexes, based on their background. For instance, a chiropractor will add chiropractic adjustments to help your child integrate the changes in their body, while an occupational therapist will support your child in practising exercises and skills they need to improve on. But all of these practitioners are likely to do [rhythmic movement therapy](#), in which children practice movements to stimulate their nervous system and retrain their muscle groups and neural connections.

Rhythmic movement therapy is an alternative therapy, and probably not something your paediatrician will refer you for or even know about. But Davenport says, "It wouldn't surprise me if specific treatments and therapies targeting these abnormal neural pathways could harness the plasticity of the brain thereby strengthening different connections that could override the abnormal ones."

Some of the exercises seem strange at first. For instance, most nights before we read bedtime stories, my son lies on his back, arms by his side, legs extended. He holds this position while I push then pull his on his feet, moving his body up towards his pillow then back toward me over and over, in a rhythmic motion. He also does a windshield wiper motion with his feet and "head thumps," lifting his head off his pillow slightly then thumping it down again.

With rhythmic movement therapy, improvements are seen quickly, but

creating permanent changes in the brain usually takes about a year.

We started doing these exercises in June, and within two weeks, my son seemed calmer, more confident and less clumsy, and his printing improved. In August, I was sitting on the deck at a cottage with my sister when my son walked toward us. I was sure he was going to step on his aunt's feet and fall over. But, to my surprise, he gingerly stepped over them without even looking down. It may seem like a small success, but to me, it was huge. That instinctive spatial awareness was totally new to him and I realized in that moment just how much the exercises were helping.

Today, we continue to see changes in my son's balance and mood. Plus, he's writing his name with ease and colouring inside the lines. Of course, we still have bad days when I worry about his anxiety, but there's no denying that in this past year, we have seen more development in my son than we have since he was an infant. He's really coming into his own and it's inspiring to watch.

Retained primitive reflexes and the signs and symptoms to look for Here are some of the most common reflexes practitioners look for.

Rooting reflex The rooting reflex helps babies feed successfully. When a baby's cheek is stroked, he turns his head towards that side and starts to suck. If your child has trouble pronouncing words, sucks his thumb beyond the toddler years, is a messy eater or finds face touching uncomfortable, he may have retained the rooting reflex. One method for integrating this reflex involves stroking a child's cheek a few times a day.

Palmar reflex This grasp reflex causes newborns to wrap their tiny hands around your finger. This motion starts in utero and typically lasts until the baby is 12 months old. Children who retain this reflex will have trouble with fine motor skills, like printing, because of a poor pencil grip. They may also stick out their tongues when writing or concentrating on a task or have difficulty with speech and articulation as movements of the hands and

mouth are often linked in children with the palmar reflex. Squeezing a tennis ball or stress ball can help improve this reflex.

Galant reflex This reflex is tested by running a finger down one side of an infant's spine. The baby will curve their back away from that side. Children with active galant reflexes have trouble sitting still or being quiet. A retained galant reflex can cause some tension on the spine, making sitting for long periods difficult. Kids who retain this reflex may have poor concentration, be clumsy, wet the bed beyond the age of five and find pants that are snug or not elastic waistband very uncomfortable. Snow angel movements can be helpful in integrating this reflex.

Moro reflex The startle reflex which is displayed when your baby gasps and throws their limbs out when they hear a loud noise or are passed from one person to another, trains your baby's brain to develop the fight or flight response. Children with anxiety or who are prone to emotional or angry outbursts often have a retained moro reflex. Other signs include poor impulse control, motion sickness, poor balance and coordination, hypersensitivity and hyper-reactivity. Among the exercises that help with the moro reflex is a starfish exercise done by a child where they start in a fetal position, then gasp and throw their arms and legs out, then pull them in and start again.

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