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You may have heard the term “primitive reflexes” thrown around before but do you they’re important? If not, that’s ok! Many people have no idea what primitive reflex childhood development.

In this article, we'll cover common primitive reflexes, as well as address retained pri

If you are familiar with primitive reflexes but ready to learn more, then you’re in the Specialists, we're excited to help you understand primitive reflexes, as well as learn

Prefer to listen to your content? Check out [our podcast episodes](#) where we cover th

Jump To Sections Here:

1. [What are Retained Primitive Reflexes?](#)
2. [Causes of Retained Primitive Reflexes](#)
3. [Symptoms of Retained Primitive Reflexes](#)
4. [6 Common Retained Primitive Reflexes](#)

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- **What**
- **Why**
- **How**

We Are All Born With Primitive R

At birth, primitive reflexes are present to assist in survival - most development patterns are designed to keep the newborn alive and help with development. They are essentially the foundation for higher-level learning and development. These reflexes do not stay forever; they should integrate - go away - typically closer to two or three years old.

When a primitive reflex integrates, it makes way for new, more mature learning to develop.

To be more scientific, when a new movement pattern is developed, it calms the brain, thus prompting higher-level skill development. For example, an infant needs head control before learning to sit upright independently. If the infant does not have head control, he/she will be unable to sit upright without assistance.

If a reflex does not integrate, development may be hindered, and the i

What Are Retained Primitive Refl

If a primitive reflex is retained - that is, still present - after 12 months of primitive reflex comes with its own set of movements and leads to new milestones. If a specific reflex is retained, it may affect a specific area c

Additionally, many reflexes are directly related to another. Therefore, if that others will be retained.

A [study from 2016](#) found that "Retained primitive reflexes can disturb n difficulties in social, educational, and psychomotor development."

Typical childhood activities such as: playing with peers, running and ju self-care tasks, and many more can be impacted by retained primitive

As Certified Primitive Reflex Clinical Specialists, we are trained to test f primitive reflexes with clients. We cover more below about assessing re next steps.

How Prevalent Are Retained Prii

There aren't any massive studies conducted like there are for Autism or smaller studies we can look at to see how many children may have ret

While these numbers may seem high, we believe they are accurate ba you start testing for retained primitive reflexes, you realize they are wa expect.

Also, it's important to note that retained primitive reflexes work more or integrated primitive reflexes. When testing for retained primitive reflexe being the most integrated and 4 being the most retained.

This one study looked at 21 children in the same pre-school classroom signs of retained primitive reflexes. 29% of the students scored a 1 or 2 students scored a 3 or 4.

Here are the most prevalent retained primitive reflexes they found:

- TLR - 95% of subjects
- ATNR - 86% of subjects
- Left ATNR - 81% of subjects
- STNR - 67% of subjects

Another study of similar size involving 35 healthy students of ages 4 to

least one retained primitive reflex.

This study was slightly larger, involving 53 students of ages 5 to 7 "found at least one active reflex, with the most common retained reflexes being

What was also interesting about this study was they broke down some **statistically significant and moderately strong correlations between poorer performance** in multiple areas of scholastic performance and results were found among females and by grade."

There is not an explanation for why there would be gender differences obviously with only one study of 53 participants, we'd need a lot more for this.

What Causes Retained Primitive

Not a lot of definitive research has been done to determine exactly why. However, there have been some potential factors identified:

- Trauma during pregnancy
- Trauma during and/or after birth
- Exposure to toxins, drugs, tobacco in utero

- Stroke in utero
- Caesarean section delivery
- Premature birth
- Prolonged jaundice
- Problems with feeding within the first 6 months of life
- Developmental motor delays
- Minimal floor time as an infant

Again, this is not an exhaustive list, but simply some potential factors that can lead to retained primitive reflexes. These factors, however, are not a guarantee that a child will be retained.

Oftentimes when a parent begins learning about primitive reflexes, they realize that they have caused their child's reflexes to stick around longer than necessary, thus delaying integration.

Please do not feel guilty! Retained primitive reflexes are no one's fault! We encourage parents to use our child's early years to help promote primitive reflex integration, but there is no "cure," and there is no blame to be had.

What Are The Symptoms Of Retained Reflexes?

Use this quick symptom checker to identify if your child may have retained reflexes.

Please note, this is not a symptom checker to diagnose. This is simply to help you identify if your child may not have one or more retained primitive reflexes.

Symptoms:

- Anxiety
- Motion sickness/car sickness
- Clumsy
- Poor hand-eye coordination
- Poor right / left discrimination after the age of 8
- Challenges with reading at age level
- Poor handwriting at age level
- Decreased coordination with sporting activities
- Challenges with sequencing
- W-sitting and/or toe walking
- Challenges sitting still - ADHD symptoms
- Bedwetting past the age of 7
- Poor short-term memory
- Hypersensitivity to sound, touch, movement

- Low muscle tone
- Speech and articulation challenges

If you checked off half or more of the above items, your child may have retained primitive reflexes.

When Retained Primitive Reflexes are assessed, then worked on to integrate, many other challenges may go away all together!

One study from 2020 focused on integrating retained primitive reflexes over a 12 week period. Along with a decrease in the retained primitive reflexes, there was an increase in:

- Increase on Cognitive Measures
- Increase on Motor Skill Tests
- Increase in Listening Comprehension
- Increase on Mathematical Problem Solving

As you can see, integrating retained primitive reflexes can have major positive impacts on children!





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What's Next If Your Child Might Have Retained Primitive Reflexes?

So what do you do if you suspect that your child may have retained pr

First, remember that there is NOTHING wrong with your child! This ma with and your job is to help them as they grow.

Next, keep reading! We are about to dive into the main eight primitive **occupational therapy** and give you some simple ideas that you can us

Then, if you are ready to help your child even further, **seek out a trai**

your area who can test your child's primitive reflexes and guide you w

Assessing For Retained Primit



8 Retained Primitive Reflexes Se

Occupational Therapists (OT), and other professionals such as Physical

chiropractors, are often the go-to when learning about and integrating to the broad range of areas that OTs address.

Specifically, when working with children, OTs address self-care tasks, :
sensory integration, and more. All of these areas can be affected by re

The eight primitive reflexes that are most commonly addressed in Occu

1) Moro Reflex

2) Tonic Labyrinthine Reflex (TLR)

3) Landaue Reflex

4) Palmar Grasp Reflex

5) The Rooting Reflex

6) Asymmetrical Tonic Neck Reflex (ATNR)

7) Spinal Galant

8) Symmetrical Tonic Neck Reflex (STNR)

1) The Moro Reflex

The Moro Reflex is present at birth - it is an involuntary movement in re:
2020 reported that the Moro Reflex can be seen as early as 25 weeks:
present by 30 weeks postconceptional age. You've heard of the startle

The Moro Reflex should be integrated - not present - by six r

Some potential symptoms of a retained Moro Reflex in older children c

- Motion sickness
- Decreased eye contact
- Light and sound sensitivity
- Allergies, poor immune system
- Anxiety and mood swings
- Challenges with sports involving hand-eye coordination



Want To Dive Deeper On The M

We have a deep dive article and podcast on [the Moro Reflex](#), v
button below!

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2) Tonic Labyrinthine Reflex (TLR)

The TLR is closely linked to the Moro Reflex and is seen with movement providing a method of response to gravity (an infant experiences gravity reflex is a direct response to this newfound challenge). The TLR develops on the development of muscle tone throughout the body.

The TLR should be integrated - not present - by as late as 3 years integrated as early as six months (note, this is the approximate age when integrated - quite the connection!).

Some potential symptoms of a retained TLR in toddlers and older children

- Challenges with crawling
- Poor posture, low muscle tone
- Vision challenges
- Auditory processing challenges
- Poor sense of space, time, and organization
- Challenges with sports



Want To Dive Deeper On The Tonic Labyrinth

We have a deep dive article and podcast on [the Tonic Labyrinth](#) clicking the button below!

3) The Landaue Reflex

The Landau Reflex is considered a secondary reflex due to the fact that it appears AFTER the TLR has integrated - around 4-6 months of age. This reflex, as the baby often has all 4 extremities off the floor, held against the stomach. The Landau Reflex contributes to vestibular processing, ocular

The Landau Reflex emerges after birth around 4-6 months as TLR forw

The Landau Reflex should be fully integrated by the age of 3 years. Some potential symptoms of a retained Landau Reflex in toddlers and

- Poor posture and muscle tone
- Delayed motor development
- Rotated pelvis
- Often skips crawling in infancy
- Poor coordination for activities that require upper and lower body coordination, such as somersaults



Want To Dive Deeper On The La

We have a YouTube video we created that covers [the Landau I](#)

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4) Palmar Grasp Reflex

The Palmar Grasp Reflex is an involuntary response to stimuli on the pc with grasping objects before they actually do so on purpose. [A report](#) can help create interaction and bond between the infant and the adult roughly between 11-16 weeks in utero.

**The Palmar Grasp Reflex should be integrated - not present
age - the age when an infant begins to intentionally grasp o**

Some potential symptoms of a retained Palmar Grasp Reflex in older c

- Delayed fine motor skills - poor grasp on objects
- Challenges with handwriting
- Challenges with self-care such as self-feeding and dressing

- Potential challenges with speech
- Tactile hypersensitivity



Want To Dive Deeper On The Palm

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5) The Rooting Reflex

The Rooting Reflex is essential for survival and growth, as it assists the r feeding. When the corner of the infant's mouth is stimulated, the infant stimulus and open their mouth, with tongue thrusting (getting ready for been stated that the Rooting Reflex is strongest at birth, specifically with not receive gratification for 'rooting' or go through the motion of rooting weaken.

Connected to the Rooting Reflex is the Suck Reflex:

The suck reflex is also essential for survival and growth, as it allows the swallowing. The suck reflex initiates when the roof of the mouth is stimulated (to locate the bottle or breast) and begins the process of feed between the Rooting Reflex and the Sucking Reflex, if one is significant also be retained.

The Rooting Reflex is developed in utero. It appears at approximately 4 weeks of age. **Reflex should be integrated by no later than six months of age.**

Some potential symptoms of a retained Rooting Reflex in older children:

- Anterior tongue tie
- Thumb sucking
- Hypersensitivity of oral cavities
- Drooling / dribbling beyond a normal age
- Feeding challenges
- Speech and articulation delays / challenges
- Chewing and swallowing deficits



Want To Dive Deeper On The Asymn

Reflex?

We have a deep dive article and podcast on [the Asymmetrical T](#) see by clicking the button below

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6) Asymmetrical Tonic Neck Reflex (ATNR)

The ATNR has been associated with assisting during the birthing process felt in utero. Movement of the head to one side causes movement of the build muscle tone, skills on each side of the body, and hand-eye coordination 18 weeks in utero.

The ATNR should be integrated - not present - by no later than

Some potential symptoms of a retained ATNR in toddlers and children

- Challenges with crawling
- Poor handwriting
- Challenges with visual tracking
- Poor establishment of hand dominance after age 7

- Consistent left / right confusion after age 8
- Challenges with age-appropriate gross motor skills such as ski



Want To Dive Deeper On The Asymn Reflex?

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7) Symmetrical Tonic Neck Reflex (STNR)

The STNR is directly related to the TLR - because the STNR assists the in
(on belly) into quad (on all 4s - pre crawling position), it additionally a:
According to [a report from 2020](#), the STNR develops between 6-9 mc

The STNR should be integrated - not present - by 9-11 month
compared to some of the other Primitive Reflexes).

Some potential symptoms of a retained STNR in toddlers and children

- Challenges with crawling
- Poor posture, low muscle tone
- W-sitting
- Clumsiness
- Poor sustained attention
- Challenges with reading and writing



Want To Dive Deeper On The Symm Reflex?

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8) Spinal Galant Reflex

The Spinal Galant Reflex is associated with assisting during a vaginal birth to one [research study](#). In infants, stimuli provided to the lower back will help the baby move away from the stimuli. Therefore during the birthing process, the baby can move through the birth canal. The Spinal Galant Reflex develops around 34 weeks of gestation.

The Spinal Galant Reflex should be integrated - not present - by around 12 months of age.

Some potential symptoms with a retained Spinal Galant Reflex in infants include:

- Challenges with developmental milestones such as rolling
- Challenges with natural gain - can have an effect on development
- Challenges with focus, attention, and sitting still (ADHD symptoms)
- Bedwetting beyond the age of 5 or 6 years
- Tactile hypersensitivity, specifically with clothing



Want To Dive Deeper On The Spinal Galant Reflex?

We have a deep dive article and podcast on [the Spinal Galant Reflex](#) by clicking the button below!

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Activities That Could Help Your C

Now that you know a little more about the 8 Primitive Reflexes that are addressed in Occupational Therapy, let's dive into a few ideas that you can use right away!

Multi-Sensory activities can help integrate retained primitive reflexes. \n with an Occupational Therapist, but we do run through some **multi-sen**

If you want even more ideas, we have a **30 Day Multi-Sensory Activit** sensory activity each day to try out.

We also have activities directly for Retained Primitive Reflexes in our **R** **Course**.

1. Climbing activities - rock walls, climbing gyms, etc.

This will not only help to strengthen your child's muscles, but it also req legs, as well as the left and right sides of the body.

2. Ball games - rolling, throwing, bouncing, etc.

If your child struggles with ball games, use a larger ball and try rolling

Ball games are great for improving visual tracking, hand-eye coordina both hands together for a task).

3. Superman exercise

This exercise is specific for the TLR and Landau Reflex.

laying on your stomach, lift both arms and legs up off the ground simul Hold this position for as long as possible. If this is extremely challengin

4. Crawling activities - crawling through tunnels, over obsta

Because retained Primitive Reflexes can have such a profound effect o crawling into your child's day can be very beneficial (even if your child

5. Cat-Cow exercise

If you're familiar with yoga, you may already know this exercise. This exercise is a great way to improve core strength and flexibility.

On all 4s, slowly bend your neck to look down at your knees while simultaneously bending your hips forward.

Then, slowly bend your neck to look up at the ceiling while simultaneously arching your back.

Complete slowly and with good control. If your child has retained Primitive Reflexes, they may find this exercise challenging. Practice the movements throughout the arms, legs, and trunk.

6. Obstacle courses

If you're familiar with OT, you may already be familiar with obstacle courses. These are a great way to provide movement, incorporate bilateral integration activities, crawling, and more.

Setting up an obstacle course is easier than it sounds - keep it simple!

Example obstacle course:

Step 1: Log roll across 3 couch cushions

Step 2: Crawl through a tunnel

Step 3: Bounce and catch a ball 5 times

Step 4: Complete a Superman 2 times

Step 5: Bear walk back to the beginning

You can make the steps more complex for an older, higher functioning child to challenge their sensory systems and fine motor skills. Get creative!

Final Thoughts

We are all born with primitive reflexes and they should, ideally, naturally integrate with level learning and motor development. Sometimes, they don't. And this is why we have children with developmental delays.

If you suspect that your child may have retained primitive reflexes, use this information to talk with your pediatrician and seek out an Occupational Therapist who specializes in primitive reflex integration. Advocate for your child's development! It may not be easy, but it is worth it.

Be sure to check out our [Primitive Reflex Integration Training](#) on Harkla.



Rachel Harrington & Jessica Hill

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Rachel Harrington, COTA/L, AC and Jessica Hill, COTA/L both hold the title of [Certified Primitive Reflex Clinical Specialist](#). They have been working in the field of occupational therapy for over 10 years.

Rachel and Jessica specialize in creating easy-to-digest, actionable strategies for parents and therapists to help children with primitive reflex integration at home.

Rachel and Jessica are the in-house experts, content creators, and educators. For more information on Harkla, visit the [Harkla About Us Page](#). Make sure to listen to the fun advice on child development.

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