



Primitive Reflexes

Primitive reflexes are involuntary motor responses that can be elicited after birth. Although these reflexes are important for survival, they gradually disappear within the 1st year of life due to their inhibition by the developing frontal lobe. Lesions in this area of the CNS may cause the restoration of primitive reflexes as a result of loss of inhibition.

Last updated: July 5, 2024

4 free concept pages remaining. Get unlimited access with Lecturio Medical Premium.

START
YOUR
FREE
TRIAL

CONTENTS

Moro Reflex

Rooting

Reflex

Suck-

Swallow

Reflex

Palmar

Grasp

Reflex

Plantar

Reflex

(Babinski

Sign)

Stepping

Reflex

Tonic Neck

Reflex

Galant

Reflex

Summary

Clinical

Relevance

References

Moro Reflex

- Also known as the “startle reaction”
- Stimulus: sudden drop of an infant’s head (sudden movement) or loud noise
- Reaction: Infant extends arms and then pulls them in as if grasping; usually accompanied by crying.
- Disappears normally by the age of 3 months but can last until 6 months of age
- Absence could mean injury during birthing trauma (clavicle fracture or injury in the brachial plexus) or damage in the central nervous system.



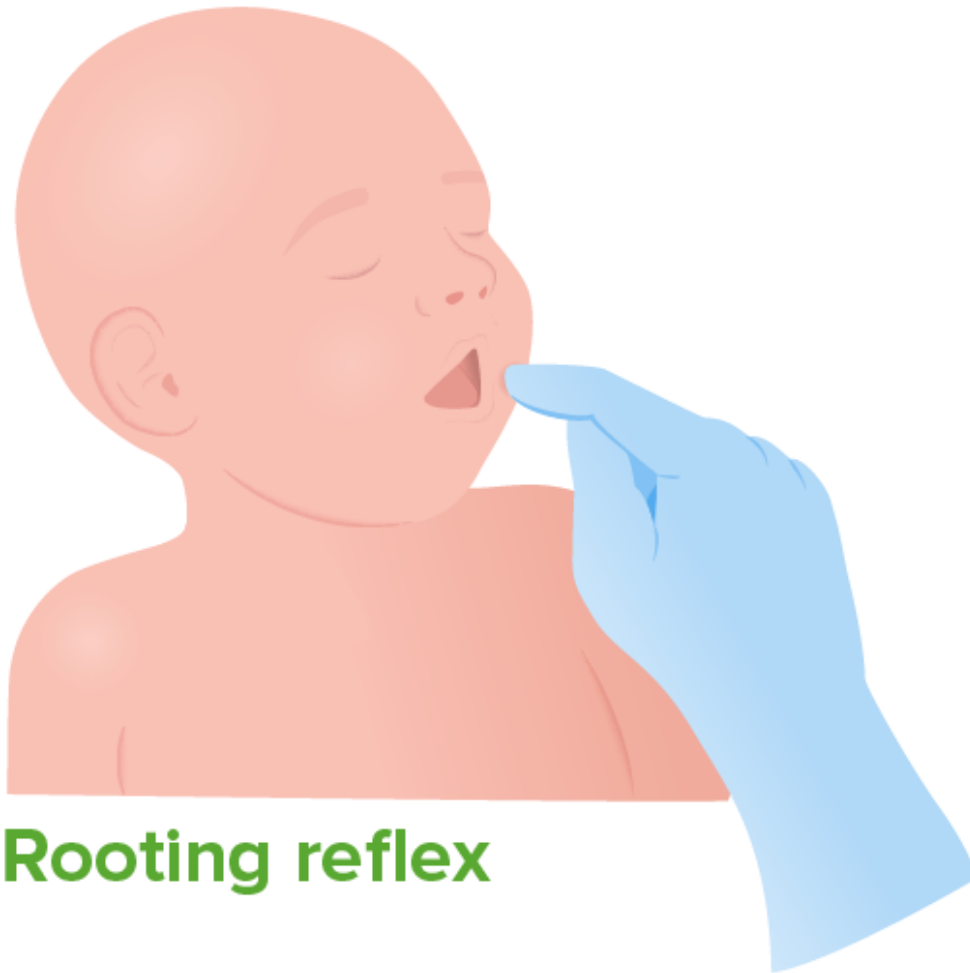
Moro reflex:

Sudden drop of an infant’s head causing the infant to extend their arms and then flex them as if grasping

Image by Lecturio.

Rooting Reflex

- Stimulus: stroking infant's cheek or mouth
- Reaction: Infant orients toward the side of the face touched, turning neck and eyes in that direction.
- Assists with breastfeeding
- Disappears by 4 months of age



Rooting reflex

Rooting reflex:

When the infant's cheek or mouth is stroked, they turn toward the side of the face that has been touched.

Image by Lecturio.

Suck-Swallow Reflex

- Stimulus: touching roof of the mouth
- Reaction: suckling
- Associated with the rooting reflex in assisting with breastfeeding
- Disappears by 4 months of age



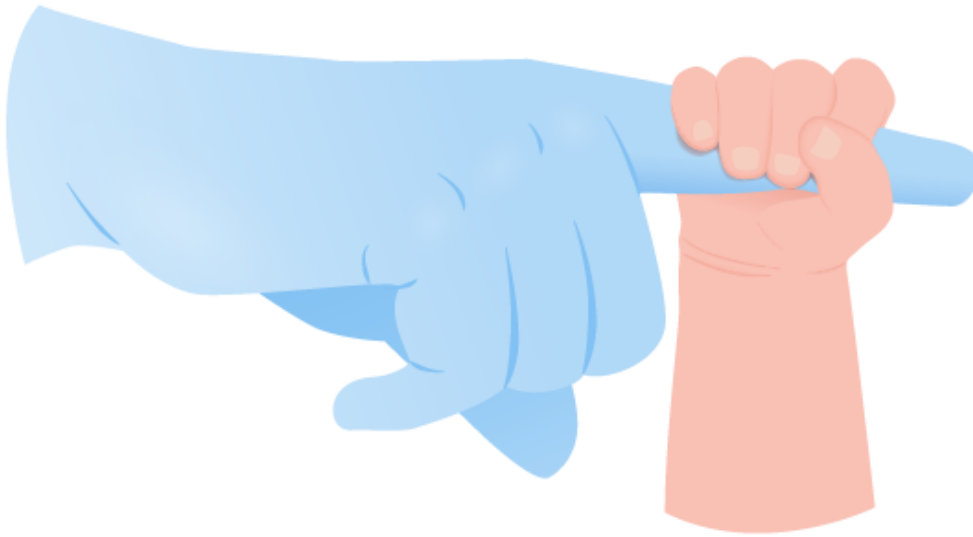
Suck-swallow reflex

Suck-swallow reflex:
Contact with the infant's soft palate stimulates suckling.

Image by Lecturio.

Palmar Grasp Reflex

- Stimulus: Slide the finger across the palm from lateral border.
- Reaction: Infant closes their hand around the finger.
- Disappears by 6 months of age
- Replaced by voluntary grasp at 45 weeks of age



Palmar grasp reflex

Palmar grasp reflex:

Sliding fingers across the infant's palm elicits flexion of their fingers and grasping of the examiner's finger.

Image by Lecturio.

Plantar Reflex (Babinski Sign)

- Stimulus: plantar stimulation by firmly stroking the lateral aspect of the sole of the foot
- Reaction: dorsiflexion of the large toe and fanning of the other toes
- Disappears by 12 months of age
- Also seen in patients with upper motor neuron lesion



Babinski sign:

Plantar stimulation by firmly stroking the lateral aspect of the sole of the foot causes dorsiflexion of large toe and fanning of the other toes.

Image by Lecturio.

Stepping Reflex

- Stimulus: holding the infant so that only the soles of the feet touch the ground flat
- Reaction: Infant places 1 foot in front of the other in a “walking pattern.”
- Disappears by 2 months of age

Tonic Neck Reflex

- Stimulus: Infant turns neck to 1 side.
- Reaction: Arm on the side to which the infant turns straightens, contralateral arm bends in “fencing” posture
- Disappears by 5–7 months of age
- Reflex should be equal on both sides; asymmetric reflex may be a sign of pathology.



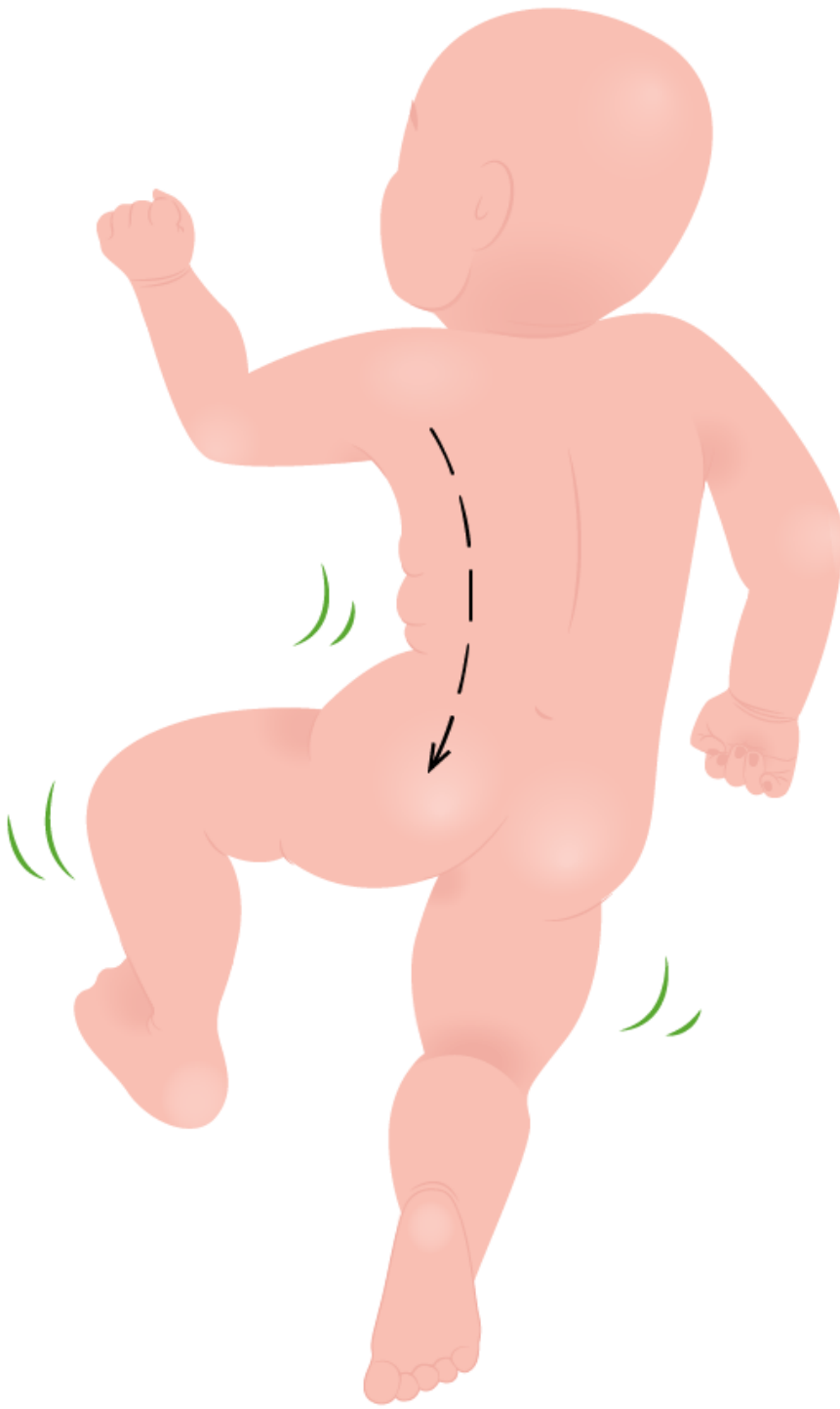
Asymmetrical tonic neck reflex in a 2-month-old baby:

Extension of the arm and leg on the face side with flexion of the arm and leg on the skull side

Image: "Asymmetrical tonic neck reflex (ATNR) at Two Months" by Mjilissner. License: [Public Domain](#)

Galant Reflex

- Stimulus: stroking along 1 side of the spine while the infant is held facing down
- Reaction: lateral flexion of the lower limbs toward the side of stimulation
- Disappears by 6 months of age



Galant reflex

Galant reflex

Stroking along one side of the spine while the infant is held facing down causes lateral flexion of the lower limbs towards the side of stimulation.

Image by Lecturio.

Summary

Table: Summary of primitive reflexes

Reflex	Stimulus	Reaction	Disappears
Moro	Pull up → drop	Spreads arms → pulls them back	3–6 months
Rooting	Stroke cheek/mouth.	Orients mouth toward the stimulus	4 months
Palmar grasp	Slide finger across the palm.	Infant closes <u>hand</u> around finger.	6 months
Babinski	Firmly stroke the sole of the <u>foot</u> .	Dorsiflexion of large toe; fanning of the other toes	12 months
Stepping	Placing	Walking	2 months

	infant's soles flat on surface while holding infant	motion	
Tonic neck	Turning <u>neck</u> to side	Fencing posture	5–7 months
Galant	Stroke along 1 side of the <u>spine</u> while infant faces down.	Lateral movement of the limbs toward stimulated side	6 months

Clinical Relevance

Upper motor neuron lesions can cause disinhibition and deficits in judgement, orientation, and concentration. This type of lesion is also characterized by the restoration of primitive reflexes. The various reflexes manifesting in an adult can be helpful in identifying the location of the lesion in the CNS.

References

1. Modrell AK, Tadi P. Primitive Reflexes. (2021). StatPearls. Treasure Island (FL): StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK554606/>
2. HealthyChildren.Org. (2021). Newborn Reflexes. <https://www.healthychildren.org/English/ages-stages/baby/Pages/Newborn-Reflexes.aspx>

