

Primitive Reflexes

Introduction

Also called Neonatal Reflexes, the primitive reflexes are the reflex actions arising from Central Nervous System (CNS) that are typically present in childhood but not present in healthy or neurological intact adults, in response to a particular stimulus. The primitive reflexes are movement patterns that can be involuntarily elicited in a newborn. They exist to enhance chances of survival. These reflexes should be integrated as the child's motor development matures. During normal development, these reflexes are slowly inhibited by the frontal lobe of the brain as the age progresses .^[1] The motor responses arising from CNS are inhibited by 4 to 6 months of age as the brain matures and replaces them with voluntary motor activities but certain neurological diseases can relapse.^[2] The persistence of these reflexes beyond the usual ages of integration is suggestive of ischemic brain injury.

Classification Level

The reflexes are classified according to at the level they are controlled at

1.Cortical Reflex

Equilibrium reactions

2.Midbrain Reflex

- Kinetic Labyrinthine
- Superior semi-circular canal
- Posterior semi-circular canal
- Body righting acting on head
- Body righting acting on body
- Optical righting reflex
- Labyrinthine righting reflex
- Amphibian reflex
- Protective extension
- Parachute reflex

3.Brainstem Reflex

- Tonic neck reflexes - [ATNR](#)- STNR
- Static labyrinthine
- Positive Supporting Reactions

- Negative Supporting Reactions

4.Spinal Reflexes

- Flexor withdrawal
- Extensor thrust
- Crossed extension
- [Plantar Grasp](#)
- Palmar grasp
- [Sucking Reflex](#)
- [Rooting Reflex](#)
- Walking/ Stepping Reflex

Types of Primitive Reflexes

1.General Body reflexes

- [Moro Reflex](#)
- Startle Reflex
- [Plantar Grasp Reflex](#)
- Palmar Grasp reflex
- Walking/ Stepping Reflex
- Limb Placement Reflex
- [Asymmetric Tonic Neck Reflex](#)
- Symmetric Tonic Neck Reflex
- [Babinski Reflex](#)
- Babkin Reflex
- Parachute Reflex
- Landau's Reaction/Reflex
- Withdrawal Reflex
- Galant Reflex/ Trunk Incurvation Reflex
- Tendon Reflex
- [Tonic Labyrinthine Reflex](#)
- Flexor Withdrawal
- Crossed Extensor Reflex

2. Facial Reflexes

- Nasal Reflex
- Blink Reflex
- Doll's Eye Reflex
- Auditory Orienting Reflex
- Pupillary Reflex

3. Oral Reflexes

- [Rooting Reflex](#)
- [Sucking Reflex](#)
- Swallowing Reflex

- Gag Reflex
- Cry Reflex

4. Other Reflexes

- Amphibian Reflex
- Swimming /Diving Reflex
- Glabellar Tap Reflex
- Palmomental Reflex
- Snout Reflex
- Corneomandibular Reflex

Clinical Relevance

- These reflexes are used for performing neurological or pediatric assessment in both adults and children.
- In Normal individuals most of the reflexes disintegrate as the age progresses, presence of these reflexes in adults is considered abnormal.

References

1. Schott JM, Rossor MN. [The grasp and other primitive reflexes](#). Journal of Neurology, Neurosurgery & Psychiatry. 2003 May 1;74(5):558-60.
2. Zafeiriou DI. [Primitive reflexes and postural reactions in the neurodevelopmental examination](#). Pediatric neurology. 2004 Jul 1;31(1):1-8.

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