Neonatal Reflexes

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Neonatal Reflexes

Neonatal reflexes are inborn reflexes which are present at birth and occur in a predictable fashion. A normally developing newborn should respond to certain stimuli with these reflexes, which eventually become inhibited as the child matures.

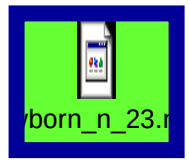
What do Primitive Reflexes Have to do With Speech Pathology?

- Most primitive reflexes begin to occur in utero through the early months of the child's postnatal life.
- These reflexes are then replaced by voluntary motor skills.
- When the reflexes are not inhibited, there is usually a **neurological problem** at hand.
- In those individuals with cerebral palsy and neurogenic dysphagia, the presence of primitive reflexes is a characteristic (Jacobson, p.44).

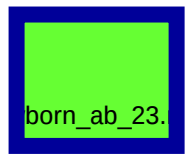
Moro Reflex

- Stimulated by a sudden movement or loud noise.
- A normally developing neonate will respond by throwing out the arms and legs and then pulling them towards the body (Children's Health Encyclopedia).
- Emerges 8-9 weeks in utero, and is inhibited by 16 weeks (Grupen).

Normal Moro Reflex



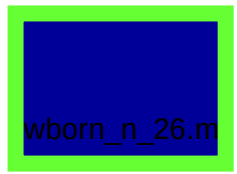
Abnormal Moro Reflex



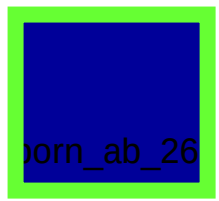
Palmar Grasp

- Stimulated when an object is placed into the baby's palm.
- A normally developing neonate responds by grasping the object.
- This reflex emerges 11 wks in utero, and is inhibited 2-3 months after birth.
- A persistent palmar grasp reflex may cause issues such as swallowing problems and delayed speech (Grupen).

Normal Palmar Grasp



Abnormal Palmar Grasp

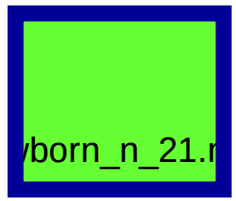


Babinski (Plantar) Reflex

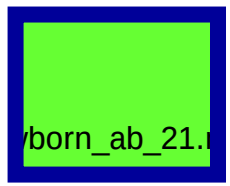
- Stimulated by stroking the sole of the foot:
  - toes of the foot should fan out
  - the foot itself should curl in.

- Emerges at 18 weeks in utero and disappears by 6 months after birth (Grupen).

Normal Babinski



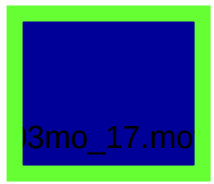
Abnormal Babinski



Asymmetric Tonic Neck Reflex

- The child is placed on their back and will:
  - make fists
  - turn their head to the right.
- This reflex is present at 18 wks in utero
- Disappears by 6 months after birth (Grupen).

Normal Tonic Neck Reflex at 3 Months



Tonic Labyrinthine Reflex

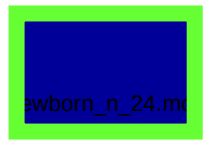
- Arms and legs extend when head moves backward (away from spine), and will curl in when the head moves forward.

- Emerges in utero until approximately four months post-natally.

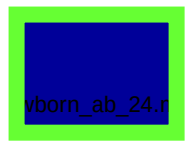
Galant Reflex

- The neonates back is stimulated
  - their trunk and hips should move toward the side of the stimulus.
- This reflex emerges 20 wks in utero and is inhibited by 9 months.
- This turning of the torso aides in neonatal and toddler movement, such as crawling and walking.
- However, if the reflex persists, it can effect walking posture (Grupen).

Normal Galant Reflex



Abnormal Galant Reflex

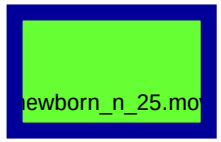


Stepping Reflex

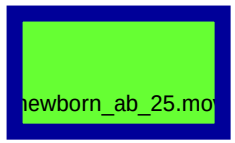
- Neonate will make walking motions with legs and feet when held in an upright position with the feet touching the ground.

- This reflex appears at birth, lasts for 3-4 months, then reappears at 12-24 months.

Normal Stepping Reflex



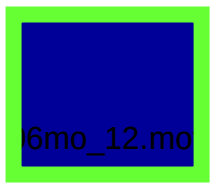
Abnormal Stepping Reflex



Landau's Reflex

- When neonate is placed on stomach, their back arches and head raises.
- Emerges at 3 months post-natally and lasts until the child is 12 months old.
- If this reflex does not occur, it is an indication of a motor development issue
  - generalized intellectual impairment
  - cerebral palsy
    - (Neonatal Reflexes).

Normal Landau Reflex at 6 Months

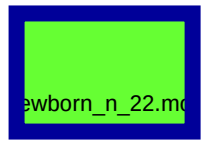


Rooting Reflex

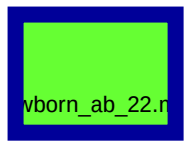
- The baby's cheek is stroked:
  - they respond by turning their head towards the stimulus
  - they start sucking, thus allowing for breastfeeding.

- This reflex is inhibited anywhere between 6 and 12 months of age. (Neonatal Reflexes)

Normal Rooting Reflex



Abnormal Rooting Reflex



Primitive Reflexes and Swallowing

- Some primitive reflexes interfere with achievement of swallowing.
  - If the Moro Reflex is strong…
    - there can be many interruptions with feeding if the child is constantly reacting to noises or sudden movements
  - A present Tonic Labyrinthine Reflex …
    - may cause problems with the holding and/or positioning for feeding,
    - can also change the position of hypopharanx, leaving less room in the esophagus for food to travel.
  - A strong Asymmetric Tonic Neck Reflex…
    - can cause constant lateral head turning which may cause problems for feeding (Jacobson, p.44).

Normally Persisting Reflexes

- Although it is important that many of these reflexes become inhibited as a child matures, there are also those reflexes that remain throughout a healthy persons life.

  - The ‘knee-jerk’ reflex,
    - stimulated by a tap on the tendon located just below the knee while person is sitting
    - an involuntary upward swinging of the lower leg and foot is a response.

  - The acoustic reflex,
    - stimulated by loud noise.
    - The stapedius muscle contracts in response to this stimulus to protect the ear from possible trauma caused by loud sounds.

  - The pharyngeal reflex, or ‘gag’ reflex

What Do Abnormal or Persistent Primitive Reflexes Indicate?

- The normal emergence and inhibition of primitive reflexes is extremely important in neonates.
- However, these reflexes should disappear and allow for voluntary skills to replace them.
- Those children who exhibit abnormal reflex patterns most likely suffer from a neurological problem which can result in..
  - dysphagia,
  - delayed speech
  - reading problems
- The reemergence of primitive reflexes in adults with a formally mature and healthy neurological system can indicate a problem in the central and/or peripheral nervous systems.
- Thus, testing for the presence of primitive reflexes in adults can determine if there may be neurological breakdown.

References

Children's Health Encyclopedia (2006). *Neonatal Reflex.* Retrieved September 19, 2007 from http://www.answers.com/topic/neonatal-reflexes?cat=health

Grupen, Rob. *Developmental Reflexes and Neurological Structure in Infant Behavior:* PowerPoint. Retrieved September 19, 2007.

Jacobson, Barbara H. & Johnson, Alex F., (eds.) (1998). Medical Speech-Language Pathology: A Practicioner's Guide. New York: Stuttgart.

Neonatal Reflexes. Retrieved September 19, 2007 from http://findarticles.com/p/articles/mi_g2602/is_0004/ai_2602000404

Larson, Paul D. & Stensaas, Suzanne S. (2005). *Pedineurologic Exam; A Neurodevelopmental Approach.* Retrieved September 19, 2007 from http://library.med.utah.edu/pedineurologicexam/html/home_exam.html.