Primitive Reflexes

Primitive-Reflex-Guide.pdf

ReflexEval.pdf

R29.2 - Abnl Reflexes

Primitive reflexes are involuntary, automatic responses that originate in the brainstem and are crucial for survival during infancy. They not only support early motor functions—such as feeding, posture, and balance—but also lay the groundwork for later voluntary movements and cognitive development. In typical development, these reflexes integrate (or “disappear”) within the first few months of life. If one or more of these reflexes are retained beyond infancy, they may impede higher-level neurological functions and manifest as difficulties in motor coordination, learning, behavior, and sensory processing.

Asymmetrical Tonic Neck Reflex (ATNR)

Description & Normal Integration

- **What It Is:**
  The ATNR is characterized by a response when the head is turned—causing the arm and leg on the side to which the head is turned to extend, while the opposite limbs flex. This reflex assists in developing early hand–eye coordination.
- **Normal Integration:**
  Expected to disappear by around **6 months** as voluntary control improves.

Implications If Retained

- **Motor Coordination Issues:**
  - Difficulty with bilateral coordination and crossing the midline (an essential skill for activities like writing, drawing, and playing sports).
  - Persistent muscle imbalances that can affect posture and gait.

- **Academic Challenges:**
  - Immature handwriting and challenges with reading due to poor eye–hand coordination and visual tracking.
  - Potential dyslexia traits, as the inability to coordinate both sides of the body may impede processing of visual information.
- **Behavioral and Sensory Effects:**
  - Over-reliance on one side of the body may lead to uneven strength or dominance (e.g., different dominant eyes, ears, or hands).
  - Frustration during tasks requiring coordinated movement, which can impact self-esteem and behavior in academic settings.

Testing Procedures

Test 1 – Standing Method:

1. **Setup:** Have the child stand with arms extended straight in front.
2. **Action:** Ask the child to slowly turn their head first to the left, then to the right, while keeping their arms extended.
3. **Observation:**
   - Look for any involuntary movement such as bending of the elbows, shifting of the shoulders, or asymmetrical postural adjustments.
   - Note if the movement is smooth or if there’s a noticeable pull or tension on one side.

Test 2 – All-Fours Method:

1. **Setup:** Have the child get on their hands and knees with the neck in a neutral position.
2. **Action:** Instruct the child to look over one shoulder and then the other, keeping the neck moving independently of the shoulders.
3. **Observation:**
   - Check if the shoulders or elbows inadvertently follow the head movement.
   - Any linkage between head movement and arm/shoulder movement is indicative of retained ATNR.

Symmetrical Tonic Neck Reflex (STNR)

Description & Normal Integration

- **What It Is:**
  The STNR plays a key role during the transition from crawling to coordinated movement. When the head is flexed (chin toward the chest), the arms flex and the legs extend; when the head is extended (tilted back), the arms extend and the legs flex.
- **Normal Integration:**
  Generally, the STNR should integrate by **9 to 11 months** of age.

Implications If Retained

- **Postural and Motor Coordination Challenges:**
  - Retention can result in slumped or “W-sitting” postures, affecting both sitting and standing balance.
  - Poor coordination between upper and lower body can make activities like crawling, climbing stairs, or even simple classroom movements difficult.
- **Impact on Academic Skills:**
  - Difficulties with fine motor skills can lead to poor handwriting and trouble with tasks that require precise eye–hand coordination.
  - Problems shifting focus between near and distant objects may impair reading and visual tracking.
- **Behavioral and Attention Issues:**
  - The inability to isolate head movements from body movements may contribute to attention deficits and hyperactivity, affecting both academic and social environments.

Testing Procedure

1. **Positioning:** Place the child on all fours (hands and knees) with a neutral neck position.
2. **Action:**
   - First, ask the child to slowly lower their head toward the chest (flexion) and hold for about 7 seconds.
   - Then, ask the child to slowly lift their head upward (extension) for another 7 seconds.
3. **Observation:**
   - Watch for any compensatory movements such as the back arching, arms bending, or the body shifting toward the legs.
   - Observe whether the movement of the head is accompanied by inappropriate movements in the rest of the body.
4. **Interpretation:**
   - Any significant linkage between head movement and limb or torso adjustments indicates that the STNR may still be active.

Spinal Galant Reflex

Description & Normal Integration

- **What It Is:**
  The Spinal Galant reflex is elicited by a gentle stroke along one side of the lower spine, causing the muscles on that side to contract. It helps the infant during the birthing process and aids early urinary functions.
- **Normal Integration:**
  Typically, this reflex integrates between **3 to 9 months** of age.

Implications If Retained

- **Concentration and Behavioral Impact:**
  - A retained Galant reflex can lead to excessive fidgeting, restlessness, and difficulty maintaining focus—often seen as “ants in the pants.”
  - This hyperactivity can affect classroom behavior and academic performance.
- **Motor and Postural Issues:**
  - Uneven muscle tone along the spine may contribute to posture problems, an unbalanced gait, or even asymmetrical pelvic rotation.
  - Children may experience lower back tension or discomfort, affecting their ability to sit or participate in physical activities.
- **Other Considerations:**
  - There can be an association with prolonged bed-wetting beyond the normal potty-training age.

Testing Procedure

1. **Positioning:** Have the child assume the “kitty” position (hands and knees on the floor).
2. **Action:**
   - Gently stroke along one side of the lower spine from the lower back toward the waist.
   - Repeat the same on the opposite side.
3. **Observation:**
   - Look for any tightening, twitching, or jerky movements on the same side where the stroke was applied.
   - Ensure that the reaction is not just a ticklish response (ticklishness typically involves a reaction along the sides rather than the precise location of the spine).
4. **Interpretation:**

- If the muscles on one side contract noticeably with each stroke, this suggests that the Spinal Galant reflex is still active.

The Moro (Startle) Reflex

Description & Normal Integration

- **What It Is:**
  The Moro reflex is the infant's automatic "fight or flight" reaction to sudden changes in the environment—triggered by abrupt movements, loud sounds, or changes in head position.
- **Normal Integration:**
  Typically inhibited between **2 to 4 months** of age, it transitions into a more mature startle response as the brain's higher centers take over.

Implications If Retained

- **Hyper-Reactivity:** An overactive startle response can lead to:
  - Chronic hypervigilance and heightened sensitivity to everyday stimuli (light, noise, touch).
  - An ongoing state of "fight or flight," which may result in elevated stress levels.
- **Emotional and Behavioral Challenges:**
  - Impulsivity, emotional immaturity, and mood swings.
  - Increased risk of anxiety, aggression, and social withdrawal.
- **Learning and Motor Issues:**
  - Poor balance and coordination.
  - Difficulties with concentration and an increased likelihood of ADHD-type symptoms.
- **Physiological Impact:**
  - Prolonged activation of the stress response can affect digestion and sleep patterns.

Testing Procedure

1. **Positioning:** Have the child either sit on a low chair or lie on their back in a calm, controlled environment.
2. **Movement:** Instruct the child to extend their arms and legs outward in a "starfish" position.
3. **Action:** Ask the child to bring their arms and legs back in, crossing them over the midline.
4. **Observation:**

- Look for involuntary or exaggerated movements such as twitching, flailing, or an inability to smoothly complete the motion.
- Notice if the child appears startled or overreacts even in a familiar setting.

5. **Interpretation:**
   - Consistent overreaction or difficulty coordinating the “open–close” movement suggests the Moro reflex is still active.

Palmar (Grasp) Reflex

Description & Normal Integration

- **What It Is:**
  The Palmar reflex, often known as the grasp reflex, causes the infant to automatically grip any object that touches the palm. This is essential for early survival and motor learning.
- **Normal Integration:**
  This reflex should fade by **3 to 6 months** as fine motor control and voluntary grasping develop.

Implications If Retained

- **Fine Motor Skill Deficits:**
  - Persistent palmar reflex can interfere with the development of precise finger movements needed for tasks such as writing, drawing, or manipulating small objects.
  - It may result in a poor pencil grip, messy handwriting, or dysgraphia.
- **Sensory and Postural Effects:**
  - The continuous engagement of the grasp reflex can lead to increased muscle tension in the hands and forearms.
  - It might also contribute to overall clumsiness or difficulties with self-care tasks that require fine motor coordination.
- **Academic and Daily Life:**
  - Challenges with dexterity and fine motor tasks can extend to academic performance, affecting classroom participation and self-esteem.

Testing Procedure

1. **Positioning:** Have the child extend their hands in front with palms open and elbows straight.
2. **Action:**

- Gently brush your finger along the crease of the palm (starting between the thumb and index finger, moving toward the wrist) 2–3 times per hand.

3. **Observation:**
   - Look for involuntary finger curling or slight bending of the elbow as a response.
   - Note if the reaction is exaggerated or occurs repeatedly.
4. **Interpretation:**
   - Any noticeable grasping movement when the palm is stimulated indicates the reflex may be retained.

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