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Research Article

Retained Primitive Reflexes and its Effects on School Students

Sathish Chandra Segar*

Pediatric Occupational Therapist, Qatar Institute for Speech and Hearing, Doha, Qatar

***Corresponding Author:** Sathish Chandra Segar, Pediatric Occupational Therapist, Qatar Institute for Speech and Hearing, Doha, Qatar.

Received: February 17, 2023; **Published:** February 27, 2023

Abstract

Primitive reflexes are survival responses necessary for infants' health and safety and are the foundation for higher motor skills. While they usually integrate a year or two after birth, there are instances when these reflexes stay retained. The retention of primitive reflexes often indicates a higher probability of a disruption/delay in motor and cognitive-emotional development. This disruption/delay can be observed in a school setting and can negatively impact a student's academic performance and behavior in school.

There is significant research on the impact of retained primitive reflexes, but there is a gap in research about understanding the root cause of the academic and behavioral difficulties of the students in the classroom. Additional research has also found that many educators would benefit from education on retained primitive reflexes, as many are unaware of retained primitive reflexes and their effects on students [1,2].

This article aims to promote awareness of the effects of retained primitive reflexes in a school setting. Occupational therapists who have special training on reflex integration can work with students with retained primitive reflexes as they possess the medical and background knowledge on how retained primitive reflexes affect the body and have a dense understanding of fine and gross motor skills development. Additionally, they can analyze how delays in typical development caused by the effects of retained primitive reflexes interfere with occupations (or everyday activities), including school tasks. The below six retained reflexes are usually considered the root cause of students' academic performance are Moro reflex, TLR, ATNR, STNR, SG and Palmar reflex. This article intends to provide awareness and education, to teachers and parents to understand, identify, and help integrate of retained primitive reflexes to improve students' academic performance.

Keywords: *Primitive Reflexes; Retained Reflexes; Cognition and Emotion; School Performance Fine and Gross Motor Skill; Reflex Integration; Occupational Therapist*

Abbreviations

TLR: Tonic Labyrinthine Reflex; ATNR: Asymmetrical Tonic Neck Reflex; STNR: Symmetrical Tonic Neck Reflex; SG: Spinal Galant Reflex

Introduction

Primitive reflexes are survival responses necessary for infants' health and safety. The purpose of these reflexes is to help with the delivery process and a child's first movements and future voluntary motor skills. [3,4]. These reflexes should integrate into the central

nervous system as a child's brain and body mature and higher motor skills develop [5]. However, there are instances when these reflexes do not integrate, and depending on the degree of retention, the effects can disrupt future motor and cognitive-emotional development [4]. This disruption/delay in motor and cognitive-emotional development can also affect the child later in life once they start attending school, impacting their academic performance and behavior in school.

The problem addressed by the article lies in the school system, as many teachers are not aware of retained primitive reflexes and how their symptoms affect children [2]. Additionally, the symptoms of retained primitive reflexes mimic the symptoms of learning disorders seen in a school setting. This list includes attention deficit hyperactivity disorder, autism spectrum disorder, and dyslexia [1]. Due to the similarities in symptoms, teachers can often believe the child with retained primitive reflexes has a behavioral problem or learning disorder.

This article, Retained Primitive Reflexes and its Effects on School Students aims to promote awareness of the effects of retained primitive reflexes in a school setting. In addition, this article intends to provide resources for teachers to understand, identify, and help integrate retained primitive reflexes to improve students' academic performance. Through this article, hopes to educate staff and improve students' school experience by integrating retained primitive reflexes.

Overview on primitive reflexes

Reasons for retainment

There are several reasons why primitive reflexes may not integrate or resurface. One possible cause is not having enough movement in early childhood. While devices such as plastic carriers, propping carriers, and swings can be convenient, they can also restrict movement by the child. If a child spends a great deal of time on those types of devices, they do not have the opportunity to move independently and develop higher motor skills. Retainment can be detrimental as brain development needs physical activity. Other possible causes may include stress from pregnancy, chronic stress, illness, trauma, or an injury [5]. However, this is still an area that needs more research.

Types of primitive reflexes

There are numerous primitive reflexes, but six associated with needing integration and interfering with academic performance were included in this article. These reflexes include the Asymmetrical Tonic Neck Reflex (ATNR), Symmetrical Tonic Neck Reflex (STNR), Tonic Labyrinthine Reflex (TLR), Spinal Galant Reflex (SGR), Moro Reflex, and Palmar Reflex. There are various ways to test for active primitive reflexes in children depending on age and developmental stage. The testing involves using distinct movements to determine if a primitive reflex is retained or not. The ATNR is present 6 at birth and typically integrates around three to nine months after birth. This reflex is observed when a child's head turns to one side, the arm on that same side straightens, and the arm on the other side bends. This reflex helps with future cross pattern movements, hand-eye coordination skills, and developing muscle tone [5]. STNR appears six to nine months after birth and integrates around nine to eleven months [4]. This retained reflex can be seen in infancy when their upper limbs extend and their lower limbs flex due to the baby's head tilting back; the opposite will occur when the head flexes down their upper limbs flex and their lower limbs extend. It prepares babies for crawling by promoting head control/and lifting their heads [5]. TLR is present at birth and integrates approximately four to six months after birth. This retained reflex can be seen in infancy when a baby is lying on their back, and their head is tilted back, their back arches, legs straighten, and arms bend at the elbows. This reflex aims to control the neck and head and improve balance and muscle tone [5].

The SGR appears at birth and integrates around six months after birth. When this reflex is active in the later stages of infancy and early childhood, it can be checked by stroking a side of a baby's back. The reflex is still active if the baby flexes to the stroked side [5]. The SGR works alongside the ATNR to aid the baby down the birth canal. It also helps with the balance and coordination of the body for creeping/crawling. The Moro reflex also known as the startle reflex and fight or flight reaction is present at birth and typically integrates around

four to six months after birth [5]. This reflex is active when a baby extends their arms and legs (and most likely cry) in response to a sudden movement or if they experience a sudden sensory stimulus (loud noise or bright light)). Lastly, the palmar reflex is also presents at birth and integrates approximately six months after birth. This retained reflex can be seen in infancy and early childhood when a child flexes their fingers around an object placed in their palm to grab it. This reflex is a precursor for voluntary grabbing and holding objects [5].

The retained primitive reflexes and its effects on school students

At School Children who have retained primitive reflexes spend a great deal of energy and concentration trying to control the effects of the retained reflexes, Hypersensitivity to sensory input (touch, sounds, smell and taste). Poor posture, balance and coordination, Poor eye-hand coordination, eye tracking and difficulties with ball games. Difficulty with motor skills such as running, cycling, swimming, throwing, or catching a ball. Difficulty concentrating or sustaining attention. Poor impulse control and emotional maturity. Excessive fidgeting/restlessness when sitting at the desk. Messy handwriting and weak reading abilities, frequent urination, poor pencil grasp are the most common difficulties seen with students with retained primitive reflexes [5].

Methodology

The present study is a bibliographical survey study that presents the critical points of existing knowledge about a theoretical approach to the topic of Retained primitive reflexes and its effects on school students. This study attempts to fill this gap and may be a useful aid for those who will make similar efforts in the future. The main objective of the bibliographical review is to integrate the study into the "body" of the subject in question. The review of the current study refers to clearly formulated questions and uses systematic and explicit criteria for the critical analysis of a published paper by summarizing, sorting, grouping and comparing.

Results and Discussion

Retained primitive reflexes affect various school contexts, causing numerous disruptions to the school day and routine. The affected contexts include the classroom, playground, lunchroom, teachers, classmates, class schedule, age/developmental stage, classroom expectations, etc. Retained primitive reflexes can affect a student's academic performance and overall school experience. The effects of Retained primitive reflexes vary depending on the type of primitive reflex. Examples of the impacts of Retained primitive reflexes include difficulty learning to read and write, impaired handwriting, and difficulty focusing/following directions. Additional effects include poor posture, visual-perceptual problems, poor concentration, and short-term memory, all of which affect the student's ability to complete school-related tasks successfully.

Occupational therapy plays a vital role in the school, helping students achieve academic success through evaluation and intervention and providing direct or indirect services. OT can also determine how person, context, and task factors affect a student's performance range. Additionally, if one of those factors is involved (i.e. a student has retained primitive reflexes, OT can work with the student to integrate the reflex because they understand the origin and purpose of each primitive reflexes. Besides working with students, OT can also provide education to teachers, administrators, and caregivers on the effects of Retained primitive reflexes. Research has indicated that many school staff is unaware of how Retained primitive reflexes affect students and do not have access to credible or valuable resources. Educating school staff will allow them to change their perspectives and understand the reasoning behind certain behaviors and actions. It will also open the scope of OT services in a school setting to reach more students and enhance their performance range [6-11].

Conclusion

Overall, the article was created with evidence-based research. These resources facilitate an Occupational therapy role in addressing retained primitive reflexes in a school-based setting and educating educators, administrators, and other caregivers and the effects of re-

tained primitive reflexes. The products also provide an overview of a holistic approach to occupational therapy to meet the unmet needs of the students with detected and undetected retained primitive reflexes. Occupational therapists have a unique skill set that allows them to build strong therapeutic relationships with their students and discuss all the factors that may be impeding the students' participation and performance in school. Additionally, Occupational therapists are well-equipped to provide further education concerning retained primitive reflexes and reflex integration that may instill confidence in the students and educators.

Acknowledgements

Author is grateful to Qatar Institute for Speech and Hearing (QISH)-Qatar and Mr. Niyas s, managing director of QISH for providing the space to this work. My joyful thanks to Almighty Lord for upholding me.

Conflict of Interest

Author declares no conflict of interest.

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Volume 12 Issue 3 March 2023