



PLAY MOVE IMPROVE

WHITE PAPER

THE IMPACT OF POOR VOR REFLEX ON READING: CHALLENGES AND SOLUTIONS

In this white paper, I'm going to explore how poor development of the Vestibulo-Ocular (VOR) reflex can make reading difficult for children because it blurs the words, sometimes even doubles them up, and causes children to skip lines or read at a slow pace. To make matters worse, poor VOR reflex development tires out eye muscles and makes children lose interest and focus in reading.

My aim is to shed light on this not-so-famous part of reading and how it impacts young readers, for teachers, parents, and professionals who support young readers.

ROBYN PAPWORTH

Robyn boasts a decade of dedicated experience in the early childhood sector, where her passion lies in supporting children with a wide spectrum of developmental challenges, including developmental delays, ASD, ADHD, and more.

With a commitment to global impact, Robyn actively trains and coaches educators and teachers around the world. Her engaging methods seamlessly blend in-person and online learning experiences, making her a versatile and sought-after resource in the field. She is enthusiastic about sharing practical and readily applicable strategies to enhance children's self-regulation and fundamental movement skills, empowering them for a brighter future.

What is the VOR reflex and why is it important for reading?



The VOR (Vestibulo-Ocular Reflex) is crucial for children learning to read because it helps stabilise their gaze (where their eyes are looking) and maintain focus on text.

The VOR reflex is a sensory-motor system that links the inner ear's vestibular system (responsible for balance and spatial orientation) with eye movements. When a child's head moves, the VOR reflex works to keep their eyes steady on the page and compensate for the head movement, ensuring that the text they're reading remains in focus while they're reading from side to side across the page.

This stabilisation from the vestibular system is essential for reading, as children often read by tracking their eyes across lines of text. If the VOR reflex is impaired or underdeveloped, it can lead to difficulties in maintaining a steady gaze on words and cause problems like blurred vision, eye strain, and difficulty tracking words. Therefore, a well-functioning VOR reflex is crucial for the smooth and efficient process of learning to read and comprehending text, and keeping children interested and motivated in learning how to read.

Why head movement is important

Engaging in activities that involve head movement, such as daily swinging, climbing, crawling, dancing, or simply looking around in the environment to search for hidden gems, bugs, provides the VOR reflex with essential movement, helping the reflex to develop and become more efficient over time at keeping the eyes focused on an object, while the head is moving.

On the other hand, excessive screen time, especially with devices like smartphones and tablets, often involves less head movement and visual tracking and we're seeing children's vestibular and visual tracking skills change since the introduction of screens for infants, toddlers and children.

Encouraging breaks from screens and engaging in activities that involve looking at different distances, while moving their head in all directions, can help counteract the negative impact of excessive screen time on VOR reflex development, and in turn encourage that all children have a strong foundation for learning how to read.



What does poor VOR reflex development do for reading?



In the world of childhood learning, the ability to read is paramount, but the intensity of screen time as part of their day now is concerning.

Being able to read serves as a foundational skill that paves the way for academic success, learning confidence, and classroom motivation. However, for some children, the journey to becoming proficient readers can be a more challenging path due to issues with their Vestibulo-Ocular Reflex (VOR).

Children with poor VOR reflex development may experience the following reading challenges:

Blurred Vision and Double Vision

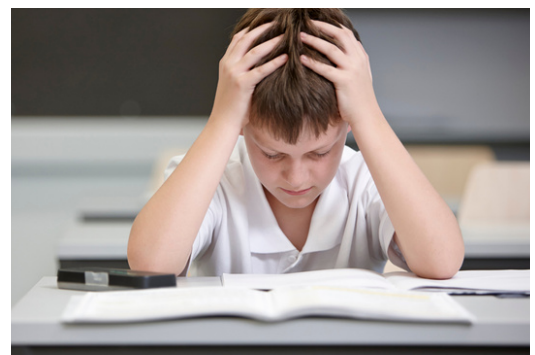
For children with poor VOR reflex, the words on a page often appear blurred or shaky. This blurriness can make it difficult for them to distinguish individual letters and words, causing significant reading challenges.

Additionally, poor VOR reflex can lead to double vision, where the child sees two overlapping images of the words. This can be disorienting and make reading an extremely challenging task.



Skipping Words or Lines

A child with a compromised VOR reflex may frequently skip words, lines, or entire sections of text. This is a result of their eyes failing to move smoothly across the page. Skipping can lead to issues with comprehension, as the child may miss important information in the process.



Slow Reading and Eye Fatigue

Children with poor VOR reflex may read more slowly than their peers. The effort required to control their eye movements and focus on the text can disrupt the flow of reading. These frequent pauses for reorientation of their gaze not only slow down their reading speed but also contribute to eye fatigue and discomfort. This combination of slow reading and eye fatigue can make reading a tiring and frustrating experience for the child.

Prioritise head movement



Incorporating vestibular and visual tracking exercises into your tutoring program holds immense potential to make a positive impact on a child's development, and in turn their self-regulation, focus, and learning skills.

Here's why it's not just a beneficial addition but an essential component of your educational programs:

Visual Stability and Reading Proficiency: When a child's VOR reflex is well-developed, it acts like a stabilising tool for their vision, especially during reading. It ensures that their eyes can smoothly track a line of text without encountering issues like blurriness or discomfort. As a tutor, your incorporation of VOR (vestibular and visual tracking) exercises helps children to maintain this essential stability, which in turn enhances their reading. With a stable gaze, they can recognise words more efficiently, comprehend text better, and, ultimately, become more skilled and confident readers.

Reducing Eye Strain and Enhancing Focus: For students who experience eye strain or fatigue during prolonged reading sessions, VOR reflex exercises can be fantastic. Your guidance on strengthening this reflex helps them maintain a steady gaze without discomfort, allowing for more extended periods of focused reading. This, in turn, reduces the likelihood of eye strain and promotes better concentration. As a tutor, you're not just helping them read; you're also contributing to their overall reading comfort and enjoyment, as well as promoting mastery of hand-eye coordination, and spatial awareness tasks that will be fundamental to their learning, physical activity and well-being.

Preventing Learning Barriers: It's not uncommon for children to encounter learning barriers, particularly when they're grappling with underdeveloped or impaired reflexes. Your incorporation of VOR exercises serves as a proactive measure to address these potential obstacles. By nurturing their VOR reflex, you're empowering them to navigate the reading journey more smoothly, overcoming barriers that might otherwise hinder their progress.



VOR Exercises



Here are five VOR reflex activities you can easily incorporate into your tutoring programs for children aged 5 years and above:

Tracking exercises

Have the student track a moving object (e.g., a finger or a pen) with their eyes while keeping their head still. This can be done horizontally and vertically. Gradually increase the speed and complexity of the movements once the child is able to smoothly follow the moving object without their chin moving.



Balance and Reading

Encourage the student to balance on one leg or a wobble board while reading a short passage, or looking at a flash card. This helps them stabilise their gaze while maintaining balance --> enhancing the VOR reflex.



Word Jumps

Create flashcards with individual words and place them at different distances. Ask the student to jump their gaze from one word to another while maintaining focus. This can improve their eye coordination.



Visual Puzzles

Provide visual puzzles like mazes or "spot the difference" activities. Solving these puzzles requires precise eye movements and coordination, which can strengthen the VOR reflex. Do this activity in tummy time position to also integrate other common reflexes that play havoc with children's reading and writing skills.



LESSON PLAN



Improving Reading Skills through VOR Reflex and High-Frequency Words

Name:

Date:

Lesson Focus and Goals:

Enhance the student's reading skills by strengthening their VOR reflex and reinforcing recognition of high-frequency words.

Materials Needed:

Flashcards with high-frequency words, torch or pencil topper, word search or maze puzzles, cones or objects for an obstacle course, a balance board or cushion.

Structure / Activity:

1. Introduction (5 minutes):

- Begin by explaining the importance of improving reading skills and how the VOR reflex can help. Show the flashcards with high-frequency words and ask the student to read a few to gauge their current level.

2. Word Tracking Exercise (10 minutes):

- Ask children to track the word with their eyes moving, but chin still, as you move the flashcard left to right and up and down. Start with slow movements left, right, up, down.

3. Word Search Game (15 minutes):

- Provide a word search puzzle with high-frequency words and a pen (or stickers).
- Ask the student to find and circle the words while maintaining focus.

4. Balancing and Spelling (10 minutes):

- Place the balance board or cushion on the floor.
- Have the student balance on one leg and spell out high-frequency words aloud.
- Encourage them to focus on each letter as they maintain balance.

5. Obstacle Course (10 minutes):

- Set up an obstacle course in the room using cones or objects.
- Attach flashcards with high-frequency words to some of the obstacles.
- Ask the student to navigate the course, reading and naming each word they encounter while moving through the obstacles.

6. Playing Tunnel Ball with High-Frequency Words (10 minutes):

- Engage in an interactive game of tunnel ball with just the student and the tutor.
- Select a high-frequency word for each round.
- As the tutor rolls the ball under their legs (the tunnel), the student must read the word aloud before catching the ball.
- Encourage the student to celebrate their successes and errors to boost motivation.



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