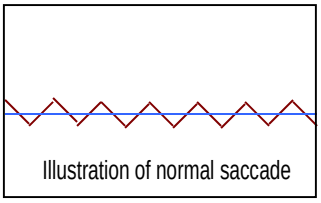
STRUGGLING READERS AND INVOLUNTARY EYE MOVEMENT

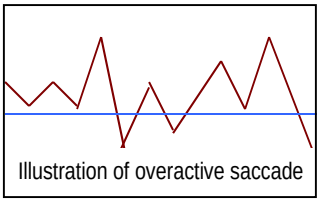
SITUATION

Teachers frequently encounter readers that skip words, skip lines or, in more severe cases, say things like "the words are moving on the page". These students are struggling to control their 'fields of vision'. Such situations are typically not rooted in intellectual capability; rather, they can be the result of physical or visual processing issues.

BACKGROUND

All humans have a normal function called a *saccade* (suh-kahd), which is rapid eye movements that are part of the brain's *optomotor system*. The optomotor cycle consists of three elements: the reflex (generating saccades), the fixation (suppressing saccades), and voluntary conscious control (BlickLabor, 2010). As a reader attempts to move along a line of text, the brain executes a series of very rapid point-to-point (saccadic) eye movements and, at key intervals, pauses or 'fixates' the eyes on data in order to process, interpret, and organize the information. Readers who struggle with moving their eyes smoothly from point to point are, in many cases, experiencing what might be termed '*overactive'* or *'irregular'* saccades. In these cases, erratic, large amplitude eye movements instead of controlled, small amplitude movements occur (Figure 1). This causes readers' eyes to jump around the page, resulting in word or line-skipping and pattern glare (words appear to move on the page).





Control of field of vision: Normal saccades *versus* Overactive saccades

Stated in basic terms, the brain takes in visual stimuli through the visual processing system and simultaneously attempts to organize the incoming information (i.e., pattern recognition). This process requires smooth eye control (control of the field of vision) to produce a flow of visual stimuli (sequential text) to enable the brain to identify visual patterns. If patterns are not formed or are disrupted due to overactive saccades, then the brain has difficulty interpreting and organizing input into usable information and subsequently into learning. Poor fluency, in this case impacted by overactive saccades, typically translates into poor comprehension.

When readers are provided with a method to better control their fields of vision, their brains and muscles learn the smoother, more tightly modulated left-to-right, top-to-bottom eye movements that are required for improved fluency and comprehension.

SOLUTION

SEE-N-READ® Reading Tools (U.S. Patent No. 7,954,444) are research-based and classroom tested. SEE-N-READ's clear reading window (ReadBar™) helps the reader's eyes to focus on the appropriate line of text while the surrounding transparent shaded area suppresses distractions on the page without hiding the context. The shaded area is transparent for two reasons:

1.) The shaded area after the ReadBar™ allows readers to use peripheral vision (another part of the brain's 'locator' mechanism) to see the next line coming and smoothly transition from line to line without stopping [preserving patterns and meaning] and

2.) The shaded area above the ReadBar™ enables users to re-read text while keeping their place on the page (attempting to re-read frequently causes struggling readers to lose their place) in addition to controlling upward saccades.

For more details and research supporting SEE-N-READ® Reading Tools, please go to www.see-n-read.com

Informal Visual Processing Checklist

Answer the questions below based on your observations of each student:

1. Is your student comfortable reading:		
• Aloud individually?	Yes	No
• Aloud to a group?	Yes	No
• New material aloud to a group?	Yes	No
• Familiar material aloud to a group?	Yes	No
2. When your student reads aloud does your student frequently:		
• Substitute words accidently while reading?	Yes	No
• Confuse similar words or letters?	Yes	No
• Skip words? If so, how often?	Yes	No
• Re-read the same line? If so, how often?	Yes	No
• Skip lines when reading?	Yes	No
• Move to the wrong line on the page?	Yes	No
• Lose his/her place while reading?	Yes	No
• Does the student confuse his/her right and left?	Yes	No
3. When your student reads aloud or silently, does your student:		
• Frequently get tired or sleepy?	Yes	No
• Tilt his/her head slightly to the right or left?	Yes	No
• Find him/herself frequently changing body or head positions?	Yes	No
• Slouch in his/her chair while reading?	Yes	No
4. Does your student read slowly, tend to read word-by-word and/or give up easily?	Yes	No
5. Is it easier for your student to read text on a page if it is larger or if there is more space between lines?	Yes	No
6. Does your student have difficulty remembering what he/she has read?	Yes	No

Teacher / Parent Notes:

If you answered "Yes" to 50% or more of the questions, it strongly suggests that the student may have a visual processing problem in either their central or peripheral visual systems. The use of a visual processing intervention should be considered for use during reading activities