



But My Child Sees Well ...

I Can't
Believe
He Has a

vision

Problem!

by Charles Shidlofsky, O.D.

The title of this article is a comment I hear several times per week, month after month, year after year. To describe the visual system of a child with Sensory Processing Disorder (SPD), I often say that the child “could see an ant on a sidewalk from 200 yards but would miss the curb.” I’m sure that as many of you read that statement, you had a bit of a chuckle and said, “Yep, that’s my kid.”

Eyesight vs. Vision

When most people think of a vision problem, they really are thinking of an eyesight problem. These are different. An eyesight problem entails having myopia (near-sightedness), hyperopia (far-sightedness), astigmatism, or presbyopia (the loss of near vision as we mature).

A vision problem can include an eyesight problem and can be far more complex. My favorite definition of vision is the “deriving of meaning and directing of action stimulated by light.” If your child has difficulty interpreting and responding accurately to what he sees, uncovering a potential vision problem can make a huge difference.

The Seven Fs of Vision

Determining whether a child can see 20/20 doesn't fully describe the child's experience of vision. Part of going beyond the 20/20 exam is to test the “Seven Fs of Vision.”

1. **Focusing**, or accommodation, is the ability to see objects clearly.
2. **Fixation** is maintaining gaze in a constant direction.
3. **Fatigue** may prevent a child with SPD from maintaining fixation and focus. The child may want to close his eyes or may fall asleep after reading for a short time.

Poor following skills are often the first tip-off that a child is having problems processing visual information.

4. **Flexibility** refers to the ability to see, with minimal effort and accurately, at distance (seeing the stop sign at the end of the street), at middle range (working on computers), and at near distance (reading). In a classroom, the student needs the flexibility to look at the teacher, the blackboard, the projection screen, books, computers, classmates, and a litany of other objects at a variety of distances.

5. **Fusion**, or eye-teaming, is the ability of the eyes to work together to maintain stable fixation. Fusion makes it possible to converge the eyes when reading, to diverge the eyes when doing a distance task, and to maintain stable position of the eyes while doing a sustained task. Common eye-teaming problems are an eye that turns inward (esotropia), an eye that turns outward (exotropia), and an eye that turns upward relative to the other eye (hypertropia). One of the most common visual issues in children

with SPD is Convergence Insufficiency (CI). This is when the eyes have more difficulty converging at near point than at distance.

6. **Following** is also called eye-movement skills or oculomotor skills. Two types of following are *pursuit* eye movements and *saccadic* eye movements. We use pursuit eye movements when we watch the teacher walk across a room or we track a ball. Certainly by age 6, a child's following skills should be smooth and free from any head movements or “jumping” of the eyes across the child's midline. We use saccadic eye movements while reading. This visual skill is the jumping of the eyes from word to word or phrase to phrase across the page. Saccadic eye movements also should be free of any head movements and should be accurate, without any undershooting or overshooting of the eyes. Poor following skills are often the first tip-off that a child is having problems processing visual information.

7. **Field** is the seventh “F” that an eye doctor looks for during a visual examination. When the visual system becomes fatigued we tend to collapse visual attention or visual field (using a spotlight of attention). Ultimately, this affects our visual-spatial skills.

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People often ask me to describe how their child's vision is different from that of a neuro-typical child. For many of my young clients, visual issues stem from a collapsed attention field. Example: If you are playing tennis and waiting for a ball, you see the net, the lines, the other player, and the ball. However, if you were to chase hard after the ball, you would see just the ball and be unaware of the net, the lines, and your opponent. Often, our SPD child lives in this condition of collapsed attention, seeing only directly in front and unaware of surroundings.

Visual-spatial skills are about knowing where an object is in space and, even more importantly, knowing where you are in space. Visual-spatial skills are particularly important to help us move and balance. Together, visual-spatial skills and eyesight help us see what things are, where things are, and where we are

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in relationship to them. Together, they help us organize our sense of time and space, unless a condition such as SPD interferes.

Visual-spatial problems are very common among children (and adults) with SPD. The child who can see an ant on a sidewalk from 200 yards may have good eyesight, but if she misses the curb, her visual-spatial skills are questionable. Problems in visual-spatial skills can

also affect focusing, fusion, and following.

Visual Perception

A person develops visual perception by integrating information received from eyesight and vision and interpreting meaning from it all. But eyesight and vision are not enough to ensure good visual processing. Other senses are involved, too.

I think the one thing most eye doctors miss as a vitally important issue in diagnosing and ultimately treating patients with SPD is the role of other senses in visual processing. Certainly, addressing or ruling out eye diseases and the need for glasses does not determine the child's ability to use vision in learning and/or movement and balance. We develop neuro-muscular function by first developing gross motor skills, then fine motor skills, and finally oculomotor skills. If gross and fine motor skills are poorly

Common Symptoms of Collapsed Attention

- Using a spotlight of attention
- Collapsed words and objects on a page
- Skipping lines and/or words while reading
- Tendency to eliminate smaller words
- Losing concept as to where one is in space
- Tendency to be clumsy, e.g., missing objects on the floor and bumping into things
- Tendency to have an altered sense of gravity

Common Visual Symptoms in Sensory Processing Disorders

- Squinting to see board at school
- Difficulty copying from the board
- Blurred vision after desk work
- Repeated blinking with desk work
- Eye rubbing during or after desk work
- Holding things close
- Headaches with desk work
- Pulling sensation around the eyes
- Complaints that print seems to move when reading
- Sensitivity to light
- Avoidance of reading and other work
- Loss of reading comprehension
- Frequent loss of place
- Excessive head movement
- Skipping words and lines
- Need to use a finger or marker to keep place
- Slow reading speeds
- Re-reading lines unknowingly
- Poor comprehension
- Difficulty with columns or numbers

developed, then oculomotor is bound to be affected. In addition, attentive style goes from movement/touch to auditory/verbal and then finally to visual. So, as you can see from these two examples, in regard to neuro-sensory development, the vision system is the last to develop and is therefore significantly affected if there are developmental delays in the other sensory systems.

Research on Vision Therapy for Convergence Insufficiency

Several interesting and important studies illustrate specific visual issues we see in SPD. The studies also recommend appropriate treatments.

A study by E. Milne, et al., in the *Journal of Autism and*

Convergence Insufficiency (CI) can significantly impact tasks such as reading, computer work or video games and can also be a major impediment to learning or participating in sports.

Developmental Disorders (July 2009), found a statistically significant difference in visual convergence in people with autism as compared to the typically developing age-matched control subjects. Visual convergence is the

ability of the eyes to turn inward to maintain binocular vision on the object or item of regard. The most common problem is convergence insufficiency (CI), the inability of the eyes to work together when doing near-point tasks. CI can significantly impact tasks such as reading, computer work or video games and can also be a major impediment to learning or participating in sports.

Another interesting study, by Mitchell Scheiman, O.D., et al., in *Archives of Ophthalmology* (January 2005), is the Convergence Insufficiency Treatment Trial (CITT), which looked at different ways to treat CI. The first way was doing pencil push-ups, the second was office-based placebo therapy, and the third – the statistically significant superior treatment – was to use Vision Re-education Therapy (VT). VT is a programmed set of activities and exercises with or without the use of lenses or prisms that can be utilized to remediate vision processing problems.

Treatment of Vision Problems in Sensory Processing Disorders

I like a program to fulfill the “Three Rs of Therapy.”

1. **Re-wiring.** I accomplish this by using a very special lens design called a “Therapeutic” lens. This special lens bends light to change the way the visual system processes information. Ultimately, therapeutic lenses allow the visual system to gain new experiences and thereby create newer, more effective visual pathways.

Signs and Symptoms of Convergence Insufficiency

- Reduced efficiency, accuracy and productivity/inconsistent work product
- Difficulty maintaining convergence as eyes fatigue
- Double vision (tendency to cover one eye)
- Intermittent blurred vision or eye strain
- Pain in or around the eye, or headaches
- Apparent movement of words on the page
- Difficulty sustaining near vision
- Avoidance of visually demanding tasks
- Inaccurate eye-hand coordination
- Motion sickness
- Spatial disorientation
- Loss of place, repetition, and/or omission of words and/or lines of print while reading
- Transpositions when copying from one source to another
- Abnormal postural adaptation/abnormal working distance
- Light sensitivity (photophobia)
- Inconsistent visual attention/concentration and/or awareness
- General fatigue
- Dizziness/vertigo, especially during or after sustained, visually demanding tasks
- Clumsiness with volitional control of eyes
- Chronic eye strain

2. Re-education. This is breaking old bad habits and developing new habits. In this stage we use primarily vision re-education therapy (VT) to enhance the visual system. We typically have our patients come to the office one or two times per week for about an hour to do therapy, and then they do about 10-15 minutes per day at home until the program is completed. Done correctly, this treatment combined with the Re-wiring treatment can dramatically boost the vision skills of anybody (child or adult) who has a Sensory Processing Disorder.

3. Retention. Once the patient has completed Re-wiring and Re-education, we like to lock in the changes and make them permanent.

To do this, we continue with the therapeutic lenses and the home vision Re-education program for several more months to make sure the changes become a fixture of the visual system.

Choosing the Appropriate Eye Doctor

There is much confusion when it comes to choosing the right type of vision specialist for your child with SPD. The two main types of eye doctors are Ophthalmologists and Optometrists.

Ophthalmologists are eye surgeons who are trained to treat eye disease, do surgical correction of vision problems, and can prescribe glasses and contacts as well. Sub-specialists include retina specialists,

pediatric specialists, cataract surgeons, and LASIK surgeons. Primarily, ophthalmologists treat structural deficits of the eye and ocular system. Ophthalmologists go to medical school and then do a surgical residency in ophthalmology for several years (the amount depends on the sub-specialty).

Optometrists are eye doctors who are trained to correct visual problems non-surgically. They can use lenses, prisms and, depending on state law, a variety of medical treatments to help remediate the visual system. Optometrists treat structural and functional deficits of the eye. Optometrists typically have four years of post-graduate optometry training, and some do

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A sub-division is Behavioral or Neuro-Developmental Optometry that concentrates on the functional aspects of the visual system. Neuro-Developmental Optometrists typically do additional training in various aspects of diagnosing and treating visual processing and perception issues. This type of optometrist is best qualified to diagnose and treat visual-based issues in children and adults who have Sensory Processing Disorders.

For a list of Neuro-Developmental Optometrists throughout the world, go to www.covd.org and click on "Find a Doctor." The COVD website also has a plethora of information on the diagnosis and treatment of vision processing difficulties. Another very helpful

website is www.nora.cc for the Neuro-Optometric Rehabilitation Association, primarily dealing with those who have had Traumatic and Acquired Brain injury. Some patients with SPD also fit in this category. There is quite a nice library of information on this website. Also visit www.optometrists.org. Many links to associated websites will provide even more information.

Certainly one of the best sources of information may be your family optometrist. If you have concerns about your child's visual processing based on the check lists above, you should ask your eye doctor to check eye movements, eye teaming, focusing skills and visual-spatial skills. The doctor can make the proper referral to a Neuro-Developmental (Behavioral) Optometrist nearby.

Let's not lose sight of the fact that many children with SPD can have a vision problem without having a problem "seeing." If you have questions or comments, please send an email to dr-s@dr-s.net or visit my website at www.dr-s.net. ♦

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