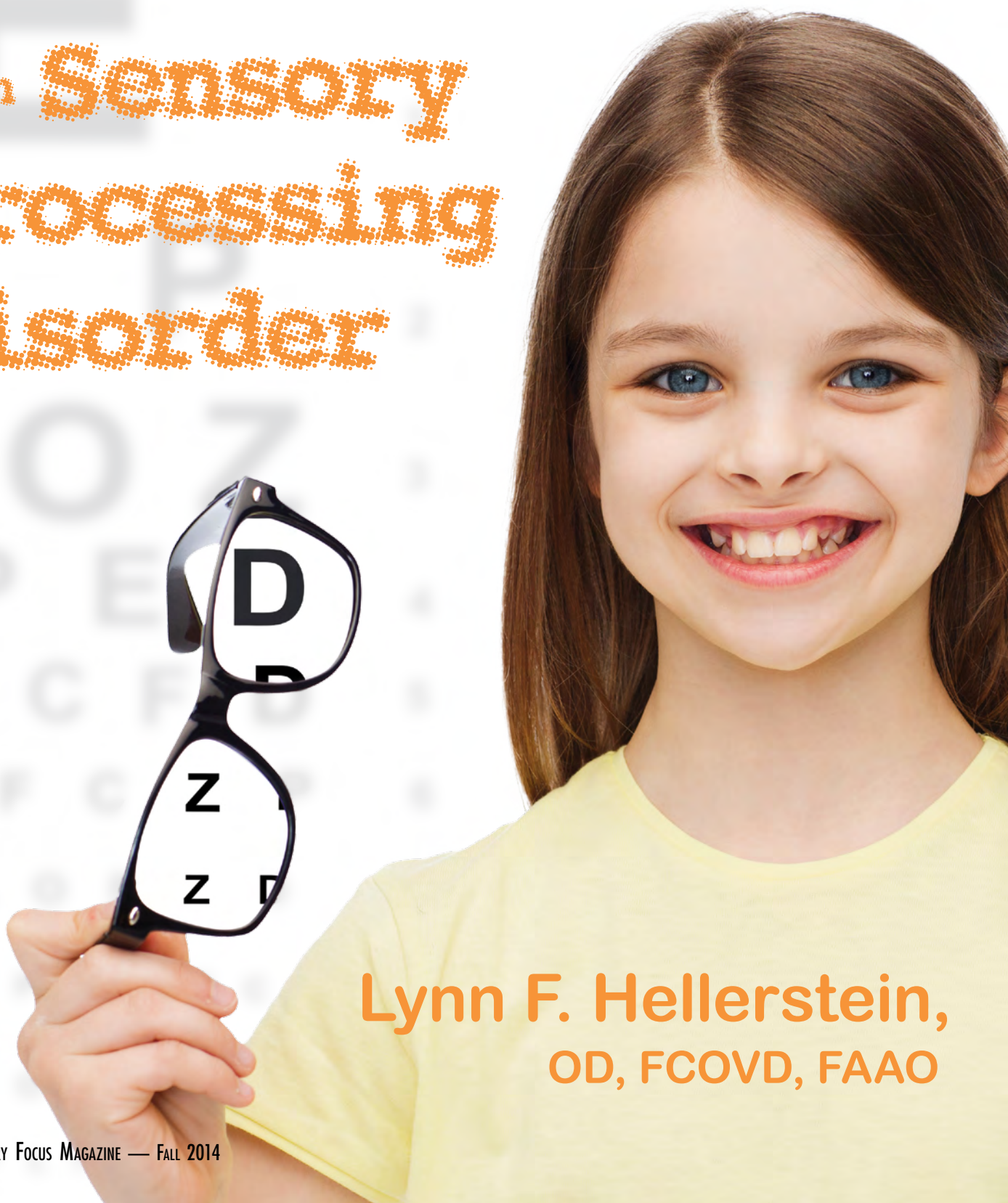


Vision Problems in Children with Sensory Processing Disorder



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ensory Processing Disorder (SPD) affects a wide variety of people. Individuals with SPD and other different diagnoses or labels may have sensory issues such as sound sensitivity, difficulty screening out background noise, or visual sensitivity to fluorescent lights. SPD can occur in conjunction with autism, dyslexia, attention-deficit/hyperactivity disorder, speech delay, and learning problems (Temple Grandin, PhD, *Sensory Focus Magazine*; Spring 2013).

Many students with SPD (and those with other special needs or learning challenges) have been described as being *visual learners*. That means they understand what they see better than what they hear. Vision may be their learning strength, compared to their ability to respond to auditory information.

But that doesn't mean they have perfect vision. Even if they are tested at 20/20 eyesight, they can still experience vision problems that affect their learning and participation.

Visual processing skills are often affected among those in this population. Visual symptoms in people with SPD are linked to underlying differences in the central nervous

system, including the visual system. Since these students rely heavily on visual strategies and visual information for learning, it is essential that visual processing skills be appro-

priately evaluated and treated. The typical vision screening tests that these students may receive do not identify VISUAL PROCESSING PROBLEMS (described later in the article).

Which behaviors can be related to visual processing difficulties?

The following are some specific behaviors that can be observed in children with SPD. Parents and teachers may attribute these behaviors to the diagnosis of SPD without realizing how they can indicate a possible problem with visual processing.

- Peering at objects/tilting the head
- Looking out of the corner of the eye
- Poor eye contact
- Squinting
- Does not follow where

someone else is looking

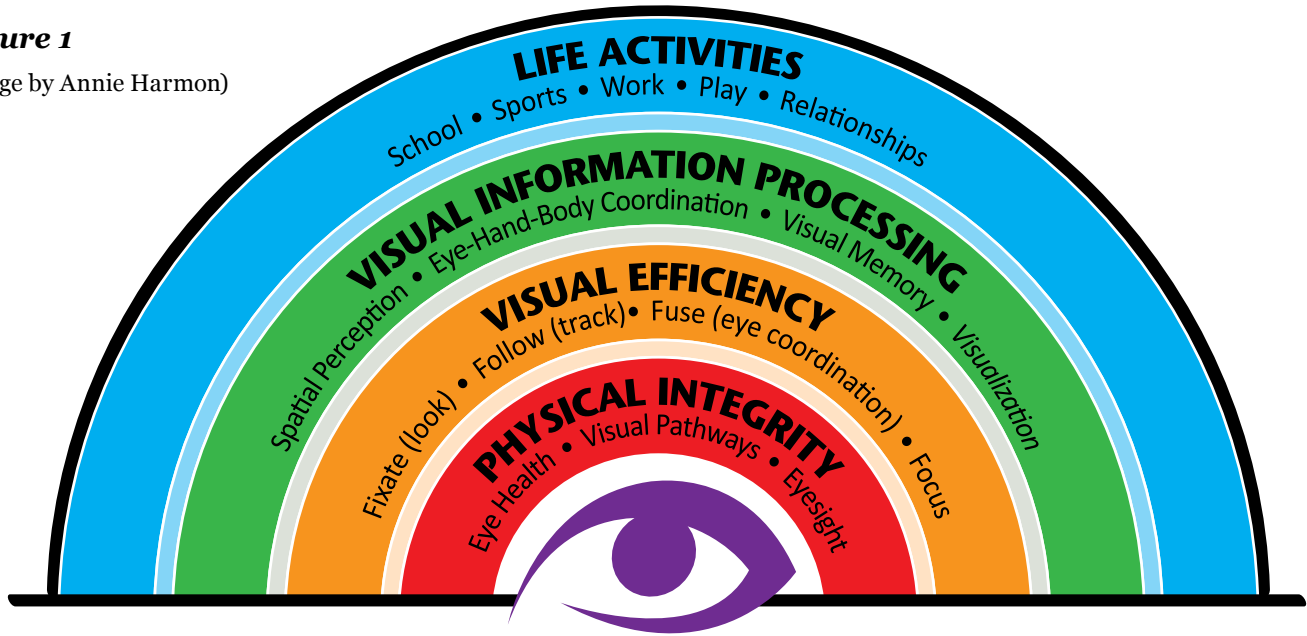
- Stares into space
- Poor spatial awareness
- Light sensitivity
- Fixation on light patterns, windows, or blinds

“Many students with SPD ... have been described as being visual learners. That means they understand what they see better than what they hear.”

- Gaze aversion
- Academic related signs, which may include:
 - Poor tracking with reading, loss of place or need for a finger/marker when reading
 - Difficulty with handwriting
- Difficulty with movement or sports, such as:
 - Poor balance and coordination
 - Poor eye-hand coordination
- Physical symptoms, such as:
 - Headaches in the forehead or temple
 - Closing or covering an eye
 - Turning or tilting the head
 - Having an unnatural posture when reading or performing sustained visual tasks

Figure 1

(image by Annie Harmon)



THE DEVELOPMENTAL MODEL OF VISION

What is important to know about vision?

A vision acuity screening test measures what size letter or picture you can see at 20 feet. For example, if a person has 20/20 vision, he can see a letter about 1 inch high from that distance. But vision involves much more than 20/20 eyesight. A person can have double vision and pass the vision screening test. More skills are necessary for a person to be able to see, process, integrate, and respond to visual information.

What else is involved with vision?

Figure 1 depicts a Developmental Model of Vision. The outer

circle represents the life activities that are important to your child: school, work, coordination, sports, play, relationships, and success in life.

A strong *foundation* is required to build success. The foundation is represented as the central core of the concentric circles. This core includes the structural integrity of the vision system; this involves the physical health of the eyes, eyesight, and the visual pathways.

The first concentric circle outside of the core represents *visual efficiency*. That includes how well the eyes fixate (look), follow (track), fuse (coordinate together), and focus (make objects clear). These visual skills are movement based.

The second concentric circle out from the core represents *visual information processing*. This refers to understanding what we see, where things are in space, integrating visual information with other senses, eye-hand-body coordination, visual memory, and *visualization*.

This Model of Vision represents the basis for a thorough vision evaluation and determination of a treatment program for your child. As you can see, good vision involves much more than 20/20 eyesight; even if an eye doctor says your child has 20/20 vision, it doesn't mean all these other visual skills have been appropriately evaluated.

What type of eye doctor should you find for a child with SPD?

Selecting an optometrist for you and your family is an important decision. For some common vision problems, eyeglasses, contact lenses, medication, or surgery may be necessary. These are typical treatments in which optometrists are uniquely skilled, with surgery falling into the domain of ophthalmology.

But when basic visual skills are problematic, there are more treatment options that can be investigated. A *developmental/behavioral optometrist* treats special vision problems such as visual eye focusing, eye coordination, eye movements, and visual perception. Vision problems are addressed to improve visual function and comfort. More specialized treatments such as vision therapy, tinted lenses or special prism glasses may be necessary to manage these problems.

Where can I find a developmental optometrist?

Not all optometrists provide in-depth testing for developmental and functional vision problems and the relevant treatment, such as vision therapy. Optometrists who are members of the College of Optometrists

in Vision Development (COVD) emphasize an expanded functional and behavioral approach to patient evaluations. Their approach to vision care is directed at correcting existing vision problems and enhancing visual abilities to allow individuals to see clearly and comfortably. Fortunately, there are several well-qualified COVD members located in large cities and small towns throughout the United States as well as in many countries throughout the world.

(Check out www.covd.org for a developmental optometrist in your area.)

How can an eye doctor evaluate a person with SPD?

A vision evaluation may be challenging for both your child with SPD and the doctor. However, with time, patience and special tools, a good eye doctor can obtain a great deal of visual information. Methods for evaluating the vision of people with SPD will vary depending on the individual levels of intellectual, emotional and physical development. Testing is often done while the patient is asked to perform specific activities while wearing special lenses. For example, observations of the patient's postural adaptations and compensations will be made as he or she

sits, walks, stands, catches and throws a ball, etc. Such tests help to determine how the SPD student is seeing and how he or she can be helped.

You can also ask your family optometrist the following two questions.

- Do you see many patients with special needs/SPD?
- Do you provide vision therapy or refer to an optometrist who does?

What are some successful optometric treatment options?

Depending on the results of testing, lenses to compensate for nearsightedness, farsightedness and astigmatism (with or without a prism) may be prescribed. Special prism glasses may help with spatial localization and movement.

Vision therapy activities can be used to stimulate general visual arousal, eye movements, and the central visual system. The goals of treatment may be to help the student with SPD organize visual space and gain peripheral stability so that he or she can better attend to and appreciate central vision and gain more efficient eye coordination and visual information processing.

What is vision therapy?

The goal of vision therapy is to train the eyes and brain to work together more effectively, and to integrate these abilities with the rest of the body. Think of the visual system as working like steering and directing your car; your visual system is your body's primary GPS for spatial position and motor guidance. Vision therapy enhances the brain's ability to control eye alignment, tracking, eye teaming, focusing, eye movement, visual processing and visual spatial skills. Visualization or visual imagery strategies may be useful for relaxation and reduction of anxiety, more successful learning and sports performance.

Case studies

Melissa, 5 years old—student with SPD and autism receiving glasses with prisms

Before glasses, Melissa wouldn't look at objects and had poor eye contact. Since wearing the glasses (extreme farsightedness with yoked prisms), she is much more aware, pays better attention and shows more interest in interacting with her family. She

is beginning to point to objects and communicate better using visual strategies. She used to demonstrate many autistic characteristics when watching

knew that Joey was still experiencing significant visual skill and processing problems. Take a look at his handwriting (see figure 2).

“Improvement of visual processing skills can help a child with SPD become more successful in communication, school, sports and life.”

TV (hand flapping, squinting, staring in space). With her new glasses, those behaviors have stopped, and she can sit more comfortably on the couch without the classic symptoms attributed to autism.

Joey, 7 years old—student with fine motor deficits, strabismus receiving glasses and vision therapy

Joey was a bright second grader who struggled with fine motor skills. Joey was born with strabismus esotropia—crossed eyes. He received three eye muscle surgeries to correct his condition. The ophthalmologist told Joey's mother that his eyes were “pretty straight” and no other eye/vision treatment was needed.

Joey was referred by his occupational therapist who

At Joey's first vision evaluation at my office, he was prescribed glasses for farsightedness, with a bifocal to help focus and eye alignment for near objects. Vision therapy was then prescribed. After six months of weekly vision therapy treatment, all of his visual skills improved, as did his ability to read and write. In addition to improving Joey's eye movement control, focusing and eye teaming skills, take a look at how his handwriting transformed (see figure 3).

Joey's insight was profound; as he told us after completion of vision therapy, “My writer in me was crammed and squished. Now it's gotten much bigger and I can write better!”

Summary

Visual problems found in children with SPD are pervasive

Figure 2:
Pre-vision therapy

WOLD SENTENCE
COPYING TEST

Four men and a jolly boy
came out of the black and
pink house quickly to see the
bright violet sun, but the sun
was hidden behind a cloud.

Four men and a jolly boy
came out of the black and
pink house quickly

Figure 3:
Post-vision therapy

WOLD SENTENCE
COPYING TEST

Four men and a jolly boy
came out of the black and
pink house quickly to see the
bright violet sun, but the sun
was hidden behind a cloud.

Four men and a jolly boy
came out of the black and
pink house quickly to see the
bright violet sun, but the
sun was hidden behind a
cloud.

and often severe in their intensity. Yet, many of these students see 20/20, are visual learners and benefit from improving visual processing skills. To identify their individual learning needs, have your student tested by a developmental optometrist. Improvement of visual processing skills can help a child with SPD become more successful in communication, school, sports and life. ♦

Resources

www.LynnHellerstein.com
www.covd.org

Lynn F. Hellerstein, OD, FCOVD, FAAO is a developmental optometrist, author and speaker. She has published extensively on vision-related topics, including her award-winning books, See It. Say It. Do It!: The Parent's & Teacher's Action Guide To Creating Successful Students & Confident Kids (2012), Organize It (2012), and 50 Tips to Improve Your Sports Performance (2013). To learn more or to sign up for her free e-newsletter, visit www.LynnHellerstein.com

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