



Therapy for Autism Spectrum Related Vision Deficits

Vision Therapy for autism related vision deficits can help increase:

- ☒ Sustained visual attention, making other therapies more effective
- ☒ Direct visual fixation on targets of interest
- ☒ Eye contact
- ☒ Visual understanding of space and 3D allowing for markedly improved visual-motor skills
- ☒ Visual integration with the other senses

Vision Therapy for autism related vision deficits can help decrease:

- ☒ Visual confusion, allowing for improved behavior and often, improving language skills as fewer processing resources are allocated to sorting out visual input.

Treatment areas include:

- ☒ Learning to visually fixate and follow an object of interest
- ☒ Learning to disengage fixation, so the eyes can move to another object of interest
- ☒ Eye teaming and focusing, to improve the ability to sustain visual attention, and to improve 3D vision to allow accurate visual-motor control, reducing "clumsiness"
- ☒ Form perception (**What** is it?)
- ☒ Understanding of visual space (**Where** is it? and **Where** am I in relationship to it?)
- ☒ Visual guidance of motor actions
- ☒ Visual integration with other senses
- ☒ Special colored overlays or tinting on lenses if they improve, reading, behavior, and/or comfort under fluorescent lights.
- ☒ Yoked rehabilitation prism to reduce toe walking, veering or clumsiness.

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Vision in Autism Spectrum

The overlooked sensory modality in a complex spectrum

Compliments of

Penelope S. Suter, O.D.
FCOVD, FABDA, FNORA

Providing vision services for
general and special needs
individuals



Vision Deficits in Autism Spectrum?

There are a multitude of vision disorders that are more prevalent in autism spectrum populations. These include, among others:

- Poor or absent 3D vision impacting basic skills such as catching a ball or riding a bicycle
- Poor perception of visual space causing toe walking, or over-organizing objects to bring order to space
- Eye movement defects causing difficulty with tracking words or objects
- Difficulty with "looking" and switching visual attention between central figures and surroundings—often seen as difficulty attending to the person or object of interest
- Difficulty making eye contact and discerning the direction of a speaker's gaze which impact social and nonverbal cues
- Visual integration deficits causing confusion in guiding motor and understanding the world

It is critical to work with a vision specialist who is familiar with pediatric and special needs evaluation no matter how old the patient is...there are specialized examination and treatment techniques.

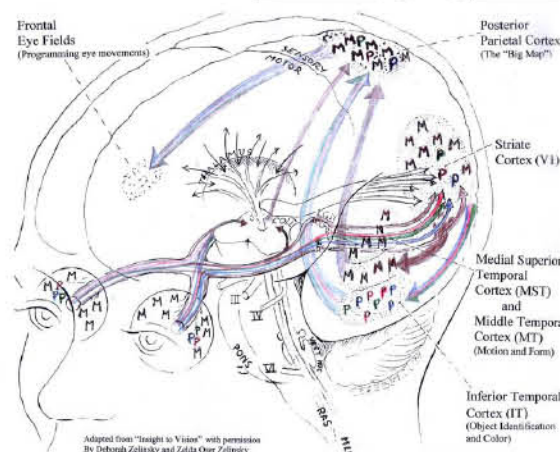
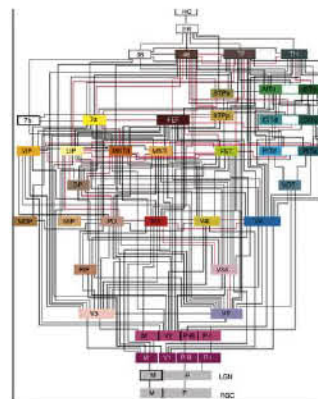


The Visual System in Autism Spectrum

Neural Pathways and Sensory Integration Disorders

Visual Pathways

The picture to the right depicts the complexity of the 305 pathways between more than 30 different visual processing areas of the brain. Below, a simplified model of some major pathways.



The 2 million nerve fibers running from the eyes to the brain make up 70% of all sensory input to the brain. That is more than twice the neural input of all of the other senses added together.

So why are vision deficits often under-diagnosed? Part of the reason is that the visual system is **MUTE**. Vision is an input and processing system. Its outputs are motor, language and behavior. So you cannot "see" a vision problem like you would see a motor problem or hear a language problem.

Autism as a Pathway Problem

Current research points to defects in development of pathways in the brain as a potential cause of autism spectrum disorder, which may explain the many different manifestations of autism. Clearly, there are many visual pathways that can be disrupted.

Autism and Sensory Processing Disorder

Sensory Processing Disorder or Sensory Integration Deficits are routinely diagnosed and treated in autism. However, vision is frequently under-represented in sensory integration therapy programs. Also, the basic vision diagnoses and therapy that underlie understanding **how to look, what to look at, and where to look** are necessary, before integration of vision with other senses can occur.