

Making Eye Contact: A Multidisciplinary Approach to the Management of Autism

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Speech-Language Therapy Session

Background

Autism is a brain disorder that impairs the development of motor abilities, social skills, and communication ability. Autism is the most common disorder of the Pervasive Development Disorders (PDD) and can vary in severity from mild to severe. Visual signs and symptoms in autism include ocular motor dysfunctions, gaze avoidance, crossing of eyes, rubbing of eyes and sensitivity to light (Table 1). The incidence of autism has been reported to be 1 to 2 people per 1,000 (Center for Disease Control and Prevention, 2001) and may affect as many as 1.5 million Americans today. Optometrists may expect to treat increasing numbers of autistic individuals. A case report on a multi-disciplinary approach to autism is presented that will serve to expand awareness of optometry's role in examining and treating people with autism and to review the roles of speech-language pathology, occupational therapy, physical therapy and special education programs in managing patients with autism.

Case Study

A 13 year old male, diagnosed with autism at age 4, presented for a comprehensive eye examination. His parents' chief concern was to improve and enhance their son's visual function to help him achieve his full potential with reading and daily living skills. Pertinent visual case findings revealed ocular motor dysfunction, visual memory and laterality/ directionality deficits. In addition, he currently participates in occupational therapy, physical therapy, and speech-language therapy. A combined office and home-based vision therapy program was initiated emphasizing fixation and eye tracking skills, visual memory, auditory-visual integration, visual-motor integration, gross motor skills, and overall sensory integration. Table 2 includes the shared objectives between optometry and speech-language therapy.

Table 1. Signs and Symptoms of Autism

Visual Signs and Symptoms	Behavioral and Social Signs and Symptoms (Adapted from CARD)
<ul style="list-style-type: none"> • Squints or closes an eye • Crossing of eyes • Gaze avoidance • Rubbing of eyes • Holding objects close • Bumps into objects • Looks at objects sideways • Looks at things in quick glances • Stares at certain objects, patterns • Hand flicking or waving in front of eyes • Sensitivity to light • Resistance to occlusion 	<ul style="list-style-type: none"> • Difficulty in mixing with other children • Inappropriate laughing and giggling • Prefers to be alone, aloof manner • Spins objects • Inappropriate attachment to objects • Noticeable physical overactivity or extreme underactivity • Insistence on sameness; resists changes in routine • Sustained odd play • Echolalia (repeating words or phrases in place of normal language) • May not want cuddling or act cuddly • Not responsive to verbal cues; acts deaf • Difficulty in expressing needs; uses gestures instead of words • Tantrums-displays extreme distress for no apparent reason • Uneven gross/fine motor skills. (May not want to kick ball but can stack blocks)



Vision Therapy with Marsden Ball



Speech-Language Therapy Communication Dialogue



Physical Therapy with Leslie Bowers, PT

Table 2. The Multidisciplinary Team

Who are they?	What do they do?	How they help the Autistic child?	Shared Objectives to Help with Autistic Patients
Speech Language-Pathology	A speech pathologist specializes in the diagnosis and treatment of language problems and speech disorders. They help a person learn how to more effectively communicate.	Teach the autistic individual how to use language to effectively communicate. This is accomplished by teaching the individual how to hold a conversation with others and to learn to be able to tune into signals of facial expression, tone of voice and body language. Color coded pictures are used to aid the autistic individual to learn communication. In addition, emphasis is placed on making eye contact when communicating to others.	<ul style="list-style-type: none"> •Reduce Linguistic Complexity: Use simple sentences and familiar vocabulary. Tell the patient in concrete terms, what he is expected to do. Avoid using sentences with "what, why, who." Instead use sentences, "Tell me the letters on the chart." not "what letters do you see?" •Reduce noise level and auditory distractions. •Use a written or picture agenda to help client know what will happen next to reduce anxiety. •Try to maintain a similar routine with therapy sessions. •Reinforce eye contact when communicating with patient.
Occupational Therapy	Occupational Therapy is the science of using "occupation", meaningful activities with specific goals, in helping people of all ages, to lessen, or overcome disabilities. The occupational therapist, working cooperatively with other members of the health team, uses purposeful activity in a variety of settings to reduce physical and psychosocial disability.	Individuals with autism have problems with communications and social interaction. This problem is often compounded by difficulties in sensory perception. The Occupational Therapist works on integrating sensory perception (tactile, vestibular, proprioception). By integrating these senses the autistic individuals learn to be more productive in their environment. It allows individuals to achieve normal tasks such as social, play, and learning skills.	<ul style="list-style-type: none"> •Allow patient to use a calculator when dealing with money and calculating change. •Reinforce crossing midline with activities. •Try to integrate sensory modalities with activities during therapy sessions, such as verbal-visual, auditory-visual, visual-fine motor integration.
Physical Therapy	Physical therapy is a branch of rehabilitative health that uses specially designed exercises and equipment to help patients restore function, improve mobility, and promote overall fitness and health.	Specializes in developing strength, coordination and movement. Therapists work on improving gross motor skills. This therapy is concerned with improving function of the body's larger muscles through physical activities including exercise .	<ul style="list-style-type: none"> •Reinforce good straight posture while sitting, standing, and doing various activities. This will help build a normal body schema, good midline and postural control, and will aid with bilateral integration. •Goal is for slow motor control to aid in increased attention and accuracy. •Reinforce crossing of midline with eyes, sensory integration, and visual spatial sequencing.
Optometrist	An optometrist is a primary eye care provider that evaluates and manages an individual's refractive status, accommodation, binocular vision, oculomotility, visual perception, and ocular health to improve and enhance visual function and quality of life.	Since many signs of autism include gaze avoidance, hand flapping or waving hands in front of eyes, and extreme sensitivity to light, optometrists can aid in early detection and intervention of autism by ruling out visual conditions that mimic autism. Once autism is diagnosed, the optometrist's role is to provide clear, single, comfortable, binocular vision, enhance visual perception and oculomotor skills by providing lenses, yoked prism, or vision therapy.	<ul style="list-style-type: none"> •Inform multidisciplinary team if a spectacle prescription is needed for various therapies and classroom activities or if any color vision defects exists. Many therapists and teachers use color coded handouts for autistic and developmentally disabled individuals. •Recommend smooth pursuit tracking with finger or highlighter pen until eye movements have improved. •Add visual perceptual skills to other therapies such as visual memory with speech/language picture activity.
Developmental Pediatrician Psychiatrist Psychologist Neurologist	These medical physicians and clinical practitioners specialize in diagnosing and treating children with autism and developmental disabilities.	The following medical tests may help with the diagnosis of autism: hearing problems must be ruled out, Electroencephalogram (EEG) for seizure activity, metabolic screening, Magnetic Resonance Imaging (MRI) for brain abnormalities, Computerized Assisted Axial Tomography (CAT Scan) for structural brain abnormalities, genetic testing. Some behavioral checklists to measure for autism are Childhood Autism Rating Scale, Checklist of Autism in Toddlers (CHAT).	<ul style="list-style-type: none"> •Recommend appropriate classroom, educational, and behavioral modifications. •Recommend appropriate therapies for patient with autism (Speech/Language, Occupational Therapy, Physical Therapy) •May recommend medications or nutritional intervention.

Conclusion

It is feasible to develop shared objectives between the disciplines of optometry and speech. Shared information across disciplines helped to increase understanding of our patient's performance and aided in planning treatment strategies. This case study suggests that further research on interdisciplinary approaches involving optometrists is warranted to further develop multidisciplinary approaches with shared objectives for the management of autistic patients.

Table 3. Optometric Exam for an Autistic Patient

Case History	<ul style="list-style-type: none"> •Comprehensive Medical History with Intervention and Therapy Programs •Developmental Milestones •Functional goals •Educational History
Ocular Alignment	<ul style="list-style-type: none"> •Bruckner Test •Hirschberg with Krimsky Test •Cover Test
EOM's and Near Point of Convergence	<ul style="list-style-type: none"> •Small fixation target •Penlight •Lang cube
Stereopsis and Sensory Fusion	<ul style="list-style-type: none"> •Lang Stereo Test •Random Dot E Test •Worth Four Dot Test
Color Vision	•Color Vision Testing Made Easy
Visual acuities	<ul style="list-style-type: none"> •LEA Symbols •Broken Wheel Test •Teiler Grating Cards/ Preferential Looking •OKN Drum
Refractive Error	<ul style="list-style-type: none"> •MEM Nearpoint Retinoscopy •Mohindra Retinoscopy •Cycloplegic Retinoscopy
Ocular Health	<ul style="list-style-type: none"> •Transilluminator/ Ophthalmoscope •Burton Lamp/ Hand Held Slit Lamp •Tonopen •Digital Pressures for IOP

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