

Tuesday, 10:00 – 11:30, A1

## **Vision Therapy: The best kept secret and its role for children with special needs**

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Objective:

Identify advances in clinical assessment and management of selected healthcare issues related to persons with developmental disabilities

Notes:

**VISION THERAPY: The best kept secret and it's role for children with special needs**

Marie L. Fox, OD

No financial relationships exist for any product or service connected to this presentation

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**Overview... fasten your seat belts!**

- ▶ Background and generalized concepts of Visual Therapy
- ▶ Important definitions for enhanced comprehension
- ▶ Goals and Evaluation Methods
- ▶ Visual Therapy exercises and practical applications
- ▶ Cases

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**Key concepts of VT**

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- ▶ Just like any therapy (OT, PT, ST) VT is designed to improve **FUNCTIONALITY** and **EFFICIENCY** of the visual system.
- ▶ "Therapy in general is designed to help children do better at things they're not good at".
- ▶ The goal of treatment is to view each child's individual performance and determine how it can be improved or raised to a higher level rather than compare the child's performance to the population as a whole.
- ▶ The visual system is a dynamic process, ever-changing, and is influenced by our experiences. What can be learned by experience can be changed by experience!
- ▶ When we correct visual deficits, we facilitate all future learning!
- ▶ Vision is not a **STATIC** receptor of information but an **interactive** one.

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### Think about it.....it just makes sense.

- ▶ "The brain is like a system of roads. Information travels from one location to another. If the roads are direct and smooth, the travel is easy. If construction creates a barrier, the highway is blocked and traffic is redirected into clogged side streets. There is still movement, but it is slow and frustrating. Children with severe visual dysfunction spend too much time on these side streets and the simple act of perceiving the world becomes a nightmare."
- ▶ Remember, **VISION** involves the brain as well as the eyes so it makes sense that disabled children would have a disabled visual system
- ▶ Children with behavioral problems typically have multiple sensory issues, and visual dysfunction is one of them. **80% of the information we receive from our environment is visual!**

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### We are all special in our own way!

- ▶ Learning Differences
- ▶ Dyslexia
- ▶ Autism
- ▶ Asperger Syndrome
- ▶ Persistent Pervasive Disorder NOS
- ▶ Sensory Processing Disorder
- ▶ Behavior issues
- ▶ ADD/ADHD
- ▶ Auditory Processing Disorder
- ▶ Developmental Disability
- ▶ Cerebral Palsy
- ▶ Mood Disorders
- ▶ The labels go on and on...

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### Who? What?

### Where? Why? How?

#### FOCAL visual system

- ▶ "What is it?" function (object recognition)
- ▶ Static-identifies stable features and surroundings
- ▶ High resolution color vision (cones)
- ▶ Central vision
- ▶ Degraded at night
- ▶ Voluntary
- ▶ Works in isolation
- ▶ INNATE rather than learned
- ▶ "HARDWARE"

#### AMBIENT visual system

- ▶ "Where am I? What is it?" function
- ▶ Dynamic- identifies movement and change
- ▶ Low resolution non-color vision (rods)
- ▶ Involves entire visual field
- ▶ Not degraded at night
- ▶ Involuntary
- ▶ Integrates with other sensory systems
- ▶ A LEARNED response
- ▶ "SOFTWARE"
- ▶ This is the system VT most impacts

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### Wow, Visual Therapy has been around a long time!

- ▶ Edouard Seguin (late 1800s)-famous physician in his time who devoted much of his time to developmentally disabled patients. His most famous work, *Idiocy and its treatment by the Physiological Method*.
- ▶ Louis Javal (1865)-credited with being the first practitioner of orthoptics and one of the first to introduce therapy based on eye exercises.
- ▶ A.M. Skeffington (1920s)-"father of behavioral optometry"-pioneered the concept that vision is also a learned process and could be improved through intervention. Still considered a leader in the field of visual management.
- ▶ 1950's and 1960s-behavioral vision therapy really takes off with advances at the Gesell Institute. Dr. Gerald Getman laid the groundwork for much of modern day visual training.

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### Let's start with a few definitions....stay with me here...

- ▶ **Vision:** the ability to take in information through our eyes and process the information so that it has meaning.
- ▶ **Visual Acuity** or "**20/20**": sharpness of eyesight. The eye's ability to see an object clearly at 20 feet. A Snellen eye chart is used for this.
- ▶ **20/20** the expression for **normal eyesight** (or 6/6 in countries where metric measurements are used). This notation is expressed as a fraction. The numerator (1st number) refers to the distance you were from the test chart, which is usually 20 feet (6 meters). The denominator (2nd number) denotes the distance at which a person with normal eyesight could read the line with the smallest letters that you could correctly read. For example, if your visual acuity is 20/100 that means that the line you correctly read at 20 feet could be read by a person with normal vision at 100 feet. The Snellen chart, which consists of letters, numbers, or symbols, is used to test visual acuity (sharpness of eyesight). A refraction test is used to determine the amount of correction needed for a prescription when treating refractive error such as astigmatism, myopia, or hyperopia.

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### Refractive Errors

- ▶ **Hyperopia- farsightedness**, an individual will have difficulty seeing clearly up close. Light entering the eye focuses behind the retina when the eye is at rest and is corrected with a plus lens.
- ▶ **Myopia- nearsightedness**, an individual will have difficulty seeing clearly at distance. Light entering the eye focuses in front of the retina when the eye is at rest and is corrected with a minus lens.
- ▶ **Astigmatism-** light rays entering the eye do not all meet at the same point (similar to a frayed string), which results in blurred or distorted vision. An abnormally shaped cornea typically causes this condition. Occasionally astigmatism exists in the lens of the eye. This condition is corrected by a cylindrical (toric) eyeglass or contact lens.

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### More definitions... "Vision is more than 20/20"

- ▶ **Accommodation- (eye focusing)** the eye's ability to adjust its focus by the action of the ciliary muscle, which increases the lens focusing power. When this accommodation skill is working properly, the eye can focus and refocus quickly and effortlessly at distance and at near.
- ▶ There can be a disruption in the accommodative system resulting in Accommodative Spasm, Accommodative Excess, Accommodative Insufficiency, and Accommodative Infacility.
- ▶ **Diplopia-** a single object is perceived as two rather than one; **double vision.**
- ▶ **Saccades-** the eye's ability to direct and coordinate movement as it quickly and voluntarily shift from one target to another. *This is one of the primary oculomotor skills used in reading.*
- ▶ **Vergence-** to turn the eyes horizontally (convergence- inward or divergence- outward). Accommodative vergence, fusional vergence, proximal vergence, and tonic vergence are needed to maintain **single vision**

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### A few more really important ones..

80% of what children learn is through their eyes

- ▶ **Binocular Vision/Binocularity-** the simultaneous use of the two eyes. The ability to use both eyes as a team and to be able to fuse (unite) two visual images into one, three-dimensional image.
- ▶ **Convergence-** the ability to use both eyes as a team and to be able to turn the eyes inward to maintain single vision up close. A disruption in the convergence system can result in Convergence Insufficiency or Convergence Excess.
- ▶ **Near Point of Convergence (NPC)-** the closest point at which the two eyes can maintain a single united image.
- ▶ **Near Point of Convergence Test-** measures the patient's ability to point the eyes at an approaching object and to keep them fixed on the object as it reaches the patient's nose. Normal range is 0 to 4 inches away from the nose. A good NPC test is the "Pencil Pushup".

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### And more definitions... In or out? 1 or 2?

- ▶ **Esophoria (Eso)-** (clinical condition) a tendency of the eyes to want to turn more inward than necessary when an individual is viewing an object at near or at distance, which may cause the individual to experience eyestrain and other symptoms.
- ▶ **Esotropia (ET)-** (clinical condition) a condition in which an eye is turned either constantly or intermittently inward toward the nose. Esotropia is a type of strabismus. It is caused by a reduction in visual acuity, reduced visual function, high refractive error, traumatic brain injury, oculomotor nerve lesion, or eye muscle injury.
- ▶ **Exophoria (Exo)-** (clinical condition) a tendency of the eyes to want to turn more outward than necessary when an individual is viewing an object at near or at distance, which may cause the individual to experience eyestrain and other symptoms.
- ▶ **Exotropia (XT)-** (clinical condition) a condition in which an eye is either constantly or intermittently turned outward toward the ear. Exotropia is a type of strabismus.

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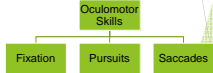
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Just a few more definitions...

"Vision doesn't just happen. A child's brain has to learn how to see"

- ▶ **Oculomotor Skills**- the ability to quickly and accurately move our eyes. These are sensory motor skills that allow us to move our eyes so we can fixate on objects (**fixation**), move our eyes smoothly from point to point as in reading (**saccades**), and to track a moving object (**pursuits**).
- ▶ **Pursuits**- the eye's ability to smoothly follow a moving target.
- ▶ **Pursuit Test**- measures the eyes ability to follow a moving target. A good pursuit test is simply a tracking exercise; moving a small accommodative target slowly in all directions of gaze. Marsden ball is another.




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Really, almost done with definitions...

Surgery or no surgery...is that the question?

- ▶ **Strabismus**- (clinical condition) **turned eye (s)**, the eyes are misaligned. It is caused by a reduction in visual acuity, reduced visual function, high refractive error, traumatic brain injury, oculomotor nerve lesion, or eye muscle injury. In strabismus, the eyes send conflicting images to the brain, and the brain cannot combine these images as it would in normal vision. The brain compensates by ignoring one image in favor of the other, causing a loss of depth perception. Strabismus is more common in children, and affects four percent of all children (although it may also appear later in life).
- ▶ When the goal is **only** for a cosmetic cure not for a functional cure, the most frequently used form of therapy is **extraocular muscle surgery**.
- ▶ **Suppression of Binocular Vision**- when the brain ignores the image that is seen by one eye. It is the result of weak eye teaming skills (binocularity).
- ▶ **Suppression Test**- determines if there is any tendency for the visual processing center of the brain to ignore or suppress visual data from one eye. A good suppression test is the **Worth 4-dot**.




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The visual system is separated into **three inter-related areas: visual acuity, visual efficiency, and visual information processing.**

- ▶ **Perceptual Skills**- includes the identification, discrimination, spatial awareness, and visual-sensory integration. These are **visual cognitive skills** used to process visual information to the brain to be organized and interpreted.
- ▶ **Visualization**- the ability to create and manipulate mental pictures of an object or concept on the basis of past visual experience and memory. Essential in reading and playing sports.
- ▶ **Reading**- requires the use of good visual skills, which are distance and near acuity, accommodation skills, binocularity skills (convergence), oculomotor skills (saccadic), peripheral vision, figure-ground, form constancy, spatial relations, visual closure, visual discrimination, visual memory, and visualization.

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### Common deficits in children with special needs

**Visual**

- ▶ Visual acuity
- ▶ Stereovision
- ▶ Contrast Sensitivity
- ▶ Visual Memory
- ▶ Visual Attention
- ▶ Visual Discrimination
- ▶ Visual Perception
- ▶ Visual-Motor Integration
- ▶ Visual-Motor Coordination
- ▶ Visual-Motor Sequencing
- ▶ Visual-Motor Planning
- ▶ Visual-Motor Execution
- ▶ Visual-Motor Adaptation
- ▶ Visual-Motor Flexibility
- ▶ Visual-Motor Inhibition
- ▶ Visual-Motor Initiation
- ▶ Visual-Motor Termination
- ▶ Visual-Motor Persistence
- ▶ Visual-Motor Endurance
- ▶ Visual-Motor Speed
- ▶ Visual-Motor Accuracy
- ▶ Visual-Motor Precision
- ▶ Visual-Motor Consistency
- ▶ Visual-Motor Reliability
- ▶ Visual-Motor Stability
- ▶ Visual-Motor Control
- ▶ Visual-Motor Regulation
- ▶ Visual-Motor Monitoring
- ▶ Visual-Motor Evaluation
- ▶ Visual-Motor Reflection
- ▶ Visual-Motor Problem Solving
- ▶ Visual-Motor Decision Making
- ▶ Visual-Motor Communication
- ▶ Visual-Motor Collaboration
- ▶ Visual-Motor Teamwork
- ▶ Visual-Motor Leadership
- ▶ Visual-Motor Followership
- ▶ Visual-Motor Responsibility
- ▶ Visual-Motor Accountability
- ▶ Visual-Motor Commitment
- ▶ Visual-Motor Dedication
- ▶ Visual-Motor Passion
- ▶ Visual-Motor Enthusiasm
- ▶ Visual-Motor Energy
- ▶ Visual-Motor Focus
- ▶ Visual-Motor Concentration
- ▶ Visual-Motor Determination
- ▶ Visual-Motor Perseverance
- ▶ Visual-Motor Resilience
- ▶ Visual-Motor Adaptability
- ▶ Visual-Motor Flexibility
- ▶ Visual-Motor Creativity
- ▶ Visual-Motor Innovation
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- ▶ Visual-Motor Flexibility
- ▶ Visual-Motor Creativity
- ▶ Visual-Motor Innovation

**Physical**

- ▶ Gross Motor Skills
- ▶ Fine Motor Skills
- ▶ Handwriting
- ▶ Posture
- ▶ Balance
- ▶ Coordination
- ▶ Agility
- ▶ Endurance
- ▶ Strength
- ▶ Flexibility
- ▶ Motor Planning
- ▶ Motor Execution
- ▶ Motor Adaptation
- ▶ Motor Flexibility
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- ▶ Motor Perseverance
- ▶ Motor Resilience
- ▶ Motor Adaptability
- ▶ Motor Flexibility
- ▶ Motor Creativity
- ▶ Motor Innovation

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### Evaluation Methods...just a few

- ▶ "Non-verbal observation"
- ▶ Refraction
- ▶ Stereo Fly
- ▶ Cover Test
- ▶ EOMs
- ▶ Worth-4-Dot
- ▶ Visually Directed Tasks
- ▶ Balancing
- ▶ Gardner VPS non-motor
- ▶ Jordan Reversals
- ▶ Winter Haven
- ▶ Groffmann Tracking
- ▶ Wold Sentence Copy
- ▶ King-Devick Saccades
- ▶ VO Star
- ▶ Marsden Ball

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### Goals of Vision Therapy

- ▶ Gain control of Strabismus
- ▶ Improved visual acuity
- ▶ Removal of headaches
- ▶ Improved reading skills
- ▶ Better hand-eye coordination
- ▶ Improved attention and behavior
- ▶ Better academic performance
- ▶ Improved Depth Perception
- ▶ Better posture and walking
- ▶ Improved coordination
- ▶ More self-confidence
- ▶ Less anxiety with visual tasks
- ▶ Reduce "symptoms"

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### Probably the most important slide!

- ▶ VT must always be done "best-corrected"
- ▶ VT must always be done in a logical sequence
- ▶ VT must be consistent with the child's ability level
- ▶ VT is more than just "fixing eyes". VT almost always works synergistically with other therapies (OT, Sensory Integration, Speech, Behavior Therapy, Nutritional Therapies)
- ▶ VT is often done in combination with glasses. These glasses may be corrective, compensating, or prism lenses
- ▶ Any organic disease must be ruled out or managed correctly before functional testing is continued and vision training procedures are begun

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### Examples of simple and home-friendly Visual Therapy exercises

- ▶ **"PENCIL" PUSHUPS**-convergence; vergences; can be visual and tactile
- ▶ **TRACKING**-monocular and binocular; can be visual and tactile
- ▶ **HART CHART**-accommodation (near/far focusing)
- ▶ **BROCK STRING**-accommodation and vergences
- ▶ **VO STAR**-fine motor; hand/eye coordination
- ▶ **CIRCLE/SQUARE**-fine motor, motor planning, crossing midline
- ▶ **TRIANGLES**-laterality/directionality, visual
- ▶ **PATCHING**-improve acuity: monocular focus
- ▶ **RED/GREEN GLASSES WITH FILTER**-anti-suppression
- ▶ **FLIPPERS**-accommodation; vergences; focusing while reading
- ▶ [Eyecanlearn.com](http://Eyecanlearn.com)-everything- Great website!

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### What activities would you recommend for a child with "x, y, z" problem?

- ▶ The skill lies less in the tools and exercises than in evaluating the child correctly and then selecting the appropriate activities accordingly.
- ▶ What are some of the chief "issues"?
- ▶ Would the child benefit from improving these "issues"?
- ▶ Can this lead to a higher level of proficiency?
- ▶ What are the goals?

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**Toby**  
9 year old male in 3<sup>rd</sup> grade

- ▶ Chronic frontal **headaches x 2 years** with increasing frequency, duration and amplitude.
- ▶ Is affecting his academics and he has become moodier and needs more sleep.
- ▶ Has seen numerous specialists, had extensive blood work done. Has seen 2 neurologists. Had brain CT and MRI. Nothing found. All blood work normal. At one point they were told he could have a brain tumor.
- ▶ Saw an Ophthalmologist (corneal specialist). His visual acuity was 20/20 and his ocular health was normal.
- ▶ Referred to me by a friend of Mom's whose children are patients of mine.
- ▶ Mom is desperate and frustrated. Toby is anxious, sullen, and sick of going to the doctor.

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**Toby**

- ▶ Diagnosed with large angle alternating **EXOTROPIA** that wasn't obvious until Cover Test, Stereopsis, and W4Dot performed.
- ▶ Prescribed **glasses** with small amount of minus for fusion and a significant amount of **BI prism** for the exo posture.
- ▶ Glasses were to be worn full time. Start **Convergence exercises** at home with Mom daily. See me in 4 weeks.
  
- ▶ **Headaches resolved within 1 week**
- ▶ **Toby happy, smiling, and starting to read again. Academics improving again.**
- ▶ **Mom elated! Everyone happy again!**

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**Liam**  
7 year old male in 2<sup>nd</sup> grade

- ▶ Referred by his behavior therapist. She suspected **"his eyes don't work well as a team."**
- ▶ Sensory and behavior issues
- ▶ In Speech Therapy at 2 years old for speech delays (tubes in his ears at 1 year old)
- ▶ Being evaluated for attention and learning delays
- ▶ Full term pregnancy. Mild developmental delays in all areas.
- ▶ Mom says he rarely wears his glasses because the nose pads bother him and they're uncomfortable.
- ▶ Just reading at grade level but hates reading. Frequently disruptive in class.

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### Liam's findings

- ▶ Significant amount of uncorrected distance vision
- ▶ Accommodative Insufficiency
- ▶ Convergence Excess
- ▶ Average tracking, considering, and near point convergence able to be done but mild near point stress (red, glassy, watery eyes, blinking, motor overflow)
- ▶ Poor fine motor skills
- ▶ Poor Laterality/Directionality
- ▶ Poor balance
- ▶ Can't multi-task at anything

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### Liam's plan

- ▶ Initiate full time wear of **pediatric bifocal**
- ▶ Plastic frame with no nose pads due to sensory issues
- ▶ Start VT when glasses in. Focus on accommodation, Laterality/Directionality, and utilizing bifocal
- ▶ Refer to OT for evaluation
- ▶ Liam is now 8 and at the end of 3<sup>rd</sup> grade. He is doing well in school. **He is reading at grade level and actually likes and wants to read now.**
- ▶ **No longer disruptive in class**
- ▶ **Graduated from OT**
- ▶ Only sees his behavior therapist on a "as needed" basis
- ▶ **Still wearing his bifocal glasses well.** We are slowly working him out of the bifocal and hopefully in the next 6 months, he will no longer need it.

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### Joe

9 year old male in 3<sup>rd</sup> grade

- ▶ First "real" eye exam.
- ▶ "Has always passed all his school and Pediatrician screenings."
- ▶ Mom made the appointment because she is sure she's noticed his eyes doing "weird stuff" over the past few years and everyone thinks she's crazy.
- ▶ Mom also mentions that Joe is the clutz of the family and is really bad at sports, much to Dad's dismay.
- ▶ FTP. No developmental delays. No history of trauma or concussion. No therapies. Average student. No other concerns per Mom
- ▶ 20/20 acuity
- ▶ Ocular health normal
- ▶ Weak tracking and receded NPC
- ▶ 6 PD Left Hypertropia and 12 PD Exophoria
- ▶ **Can't even see the fly on Stereo Fly!!**
- ▶ Initiate small minus correction with **significant vertical prism** for hypertropia
- ▶ Office Visit at dispense of glasses to do a baseline check and review usage
- ▶ Initiate VT if needed-let's watch and see how much the glasses alone will do

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**Joe**  
4 months later

- ▶ Able to get **100%** on all the stereopsis tests
- ▶ Tracking continues to improve. Convergence still a bit difficult when tired but much better over all. VT ended up doing pushups and tracking only.
- ▶ Thought reading was fine before, but "way easier" now. "On 4<sup>th</sup> Harry Potter book!"
- ▶ Not nearly as clumsy as used to be. Balance and coordination observed to be significantly better. **Able to walk up stairs and bleachers at school without tripping.**
- ▶ Joe: "Finally able to catch a fly ball!"
- ▶ Mom: "I told everyone I wasn't crazy!"

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**Neil**  
7 year old male in 2<sup>nd</sup> grade-50%Special Ed and 50% mainstreamed

- ▶ Was diagnosed with **Convergence Insufficiency, Strabismus, and Oculomotor Dysfunction at Mayo Clinic**. They have since moved and now want to see someone local.
- ▶ "mild" Cerebral Palsy
- ▶ Developmentally Delayed with "low IQ of 70". Parents think Neil has a lot more potential than he's given credit for.
- ▶ He has been doing OT, PT, and Speech Therapy for the past 2 years (OT had lapsed for the past 8 months due to insurance)
- ▶ IEP in place at school. Dibbles scores are low.
- ▶ PT was **adopted** so no birth, pregnancy, or family history known.

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**Neil's findings**

- ▶ Visual acuity at 20/25 distance and near
- ▶ Ocular health normal
- ▶ Very weak tracking-can't multi-task or say ABC's while tracking
- ▶ NPC receded
- ▶ Alternating Exotropia greater at near than distance
- ▶ Saccadic testing at 6.0 perceptual age: Tracking and Reversal and Motor Speed at <5.0 perceptual age
- ▶ Intermittent Toe Walker

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### Neil's plan

- ▶ Get back into aggressive OT to work on fine motor, handwriting, core strength and toe walking.
- ▶ Initiate fusion glasses for exotropia/CI
- ▶ Start VT when glasses in. Lengthy discussion with Neil's mom about expectation and limitations. Both parents are greatly involved and motivated!
- ▶ Neil started on Pushups and then touch tracking. Both were very difficult but he slowly progressed. He was diligent about wearing glasses all the time. He reported that he would get a headache if he didn't wear them and his mom reports his behavior would worsen if he forgot them.
- ▶ It took 8-12 weeks of almost daily VT for Neil to show sustained progress. He was finally ready to move on to circles/squares. This really helped him with crossing midline.

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### A few other useful websites..

- ▶ Eyecanlearn.com (lots of useful links at the bottom of website page, too)
- ▶ www.Allaboutvision.com
- ▶ Coud.org
- ▶ Parents Active for Vision Education: www.pavevision.org
- ▶ Infantsee.org
- ▶ Readinghelper.com
- ▶ Edhelper.com
- ▶ Aoa.org
- ▶ Games: Perfection, Lite Bright, Operation, Memory, Flash Focus, Wii

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### That's all folks!!

- ▶ Thank you for your attention!
- ▶ Questions or to contact me:
  - ▶ [drfox@kalamazoovalleyeyecare.com](mailto:drfox@kalamazoovalleyeyecare.com)
  - ▶ Kalamazoo Valley Eyecare
    - ▶ 269-375-EYES
    - ▶ Portage, MI

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## **Pencil Pushups**

**Purpose:** To help the eyes learn to work together more accurately and efficiently for sustained periods of time.

**Materials:** SMALL accommodative target (e.g. small sticker on a Popsicle Stick, tongue depressor, or spoon)

**Procedure:**

1. The patient is seated in a relaxed and balanced posture.
2. The parent holds the target at the patient's arm length straight out along his midline at nose level. The patient should fixate the target point. Make sure it is clear and single before he/she proceeds.
3. The parent slowly moves the target closer to his/her nose, keeping the eyes aimed at the target point. The patient may need to be reminded to relax and breathe as he/she appears tense. As the target is moved closer, the point may start to become blurry and he/she may feel the eyes "turning in." This is normal and called convergence.
4. It is important for the parent to move the target slowly and to be aware of how it looks to converge. If one eye turns out or if the patient starts to see double, **STOP** the target at that point and try to regain one target by turning both eyes in, aimed at the target point. This may be very difficult and take numerous attempts.
5. Once one target is again achieved, continue moving the target in as close to the nose as possible while maintaining one target as clear and single.
6. If the patient is unable to regain a single target point, the parent may need to move the target further away. He/she should do this until he regains one target point and can maintain it steadily with both eyes turned in. Once he/she has done this. Again move the target closer, as close to the nose as possible, while maintaining one target point and both eyes turned in. Hold this position for approximately **3 seconds** and then move target back slowly towards the starting position.
7. **"Pencil Pushups" are best done in short work periods, several times throughout the day. The goal is to consistently bring the target to the nose (or within an inch of it) without the target becoming double of the patient's eyes losing alignment. The goal is to be able to do 15 pushups (in/out= 1 pushup) without any visual fatigue or visual discomfort.**

## **Visual Therapy Level 1**

### **Rotations:**

Set timer for 1-2 minutes

Right eye ---- Left eye ---- Both eyes

Horizontal ---- Vertical ---- Circular

-Use a **small** accommodative target for tracking.

Example: Popsicle stick/tongue depressor with a sticker on it.

-The slower you move the target, the more challenging it is to follow. Stop moving the target occasionally to ensure that the child is truly following it.

-Remember to wear your glasses!

**\*NO HEAD MOVEMENT! Just the eyes should be moving.**

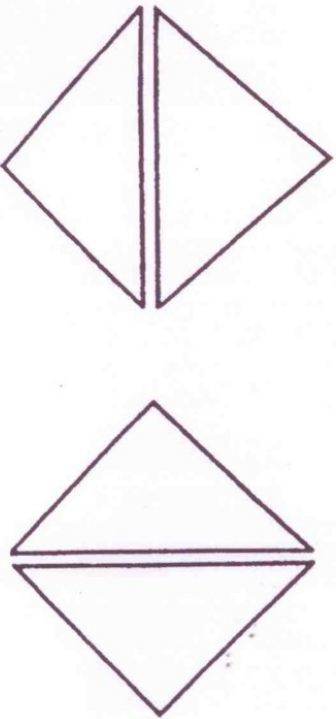
**GOAL: 5 times a week**

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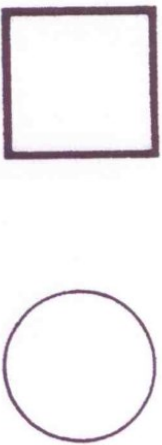
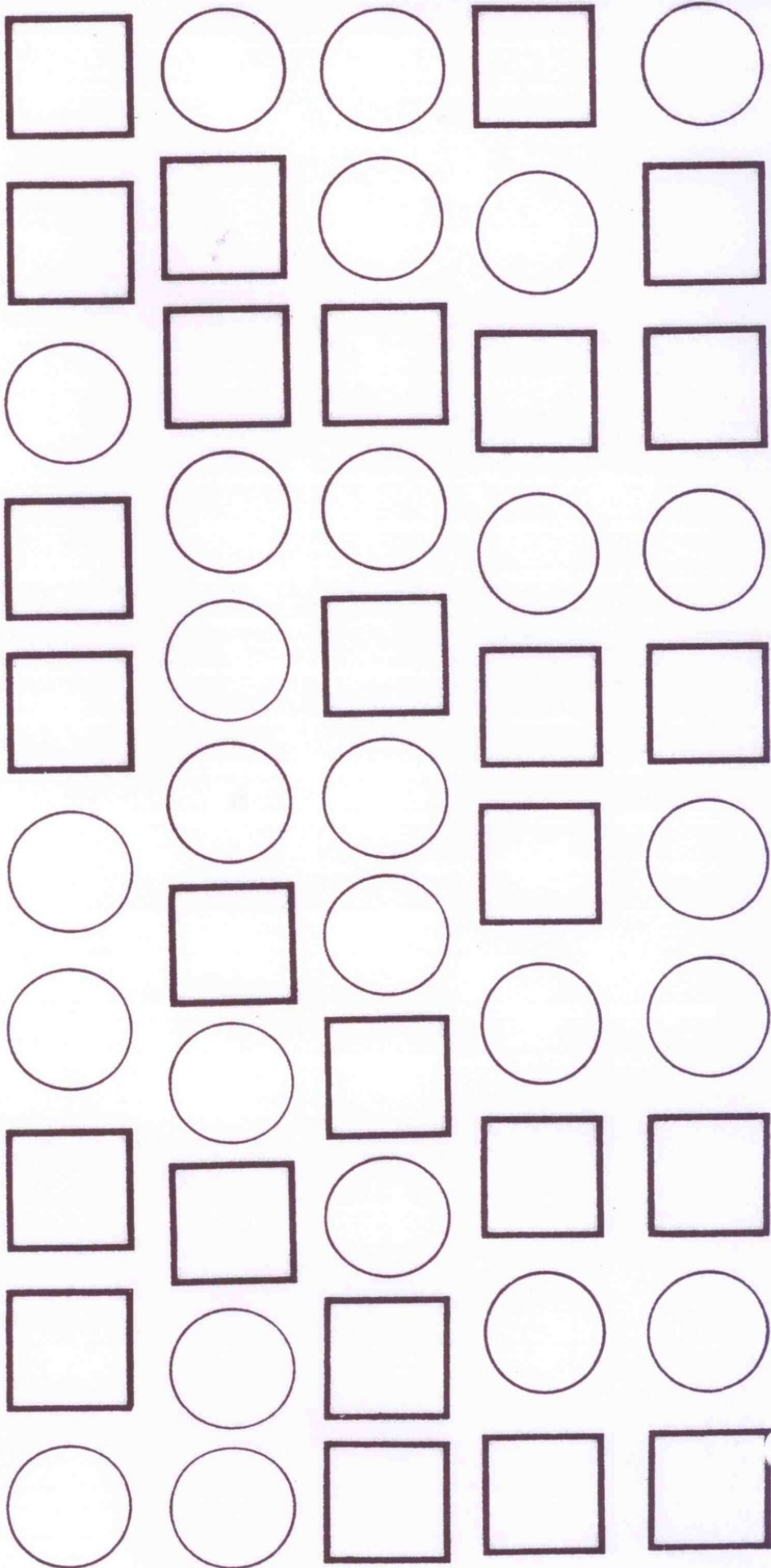
**Week 1: Tracking**

**Week 2: Tracking/Standing/Balancing**

**Week 3: Tracking/Standing/Questions**









Y L 4 B E A 8 U M H

K 2 D S U 4 L O F Z

H C 7 A E T 3 1 Y R

P B 9 G N O 5 R V T

L 2 K G B 5 U T 3 D

A W E S 8 R O X N 1

7 A P T 6 E N U R Z

V 4 R 9 S M X 2 J T

S O 2 N 6 E H U 5 W

L 8 V S P D 1 N G 7