

# Vision Therapy Treatment Protocols

Daniela Cianci, OTS



## Oculomotor Exercises

\*Address extraocular muscle movements\*

### Materials:

- Fixator (i.e. penlight, pencil topper)

### Set-Up:

- Patient should be seated, in a quiet room with limited distractions.
- Therapist may choose to have normal lighting, or dimmed lighting based on patient's tolerance to light.

### Procedure:

- Instruct the patient to do the following eye movements:



Look up, hold 5 seconds,  
relax your eyes.  
Look down, hold 5 seconds,  
relax your eyes.  
Repeat 5 times.  
Blink your eyes a few  
seconds.



Look left, hold 5 seconds,  
relax your eyes.  
Look right, hold 5 seconds,  
relax your eyes.  
Repeat 5 times.  
Blink your eyes.



Look up left, hold 5 seconds,  
relax your eyes.  
Look down right, hold 5  
seconds, relax your eyes.  
Repeat 5 times.  
Blink your eyes.



Look up right, hold 5  
seconds, relax your eyes.  
Look down left, hold 5  
seconds, relax your eyes.  
Repeat 5 times.  
Blink your eyes.

\*Can be completed in the clinic and added to HEP.

## Brain Gym Lazy 8's

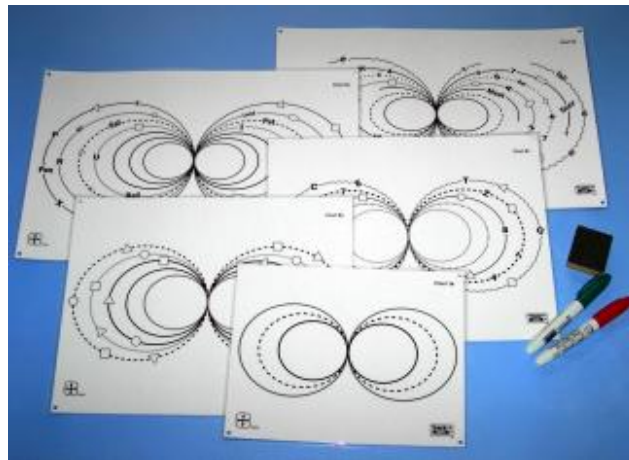
\*Addresses visual tracking and bilateral integration\*

### Materials:

- Lazy 8 wet erase poster
- Wet Erase Markers (2)
- Flat surface

### Set-Up/Procedure:

- Begin with patient seated, performing Lazy 8's on poster against flat surface. Patient traces Lazy 8 pattern with R hand, L hand, then BIL hands.
- To grade activity up, patient had complete Lazy 8 poster in standing (with gait belt and assistance if needed) with poster against flat surface, or in standing (with gait belt and assistance if needed) with poster pinned on wall in vertical plane.
- Progress patient to using own thumb as target. Patient holds out thumb at full arm's length, tracing Lazy 8 pattern with R hand, L hand, then both hands clasped together to incorporate bilateral integration and crossing midline.
- Can have patient complete full-size poster pattern and/or smaller letter sized pattern.



## Pen to Nose

\*Addresses near-far accommodation\*

### Materials:

- 2 Fixators, ideally different colors (i.e. penlight or pencil topper)

### Set-Up:

- Patient should be seated, in a quiet room with limited distractions.
- Therapist may choose to have normal lighting, or dimmed lighting based on patient's tolerance to light.
- Can be performed with patient holding fixators or therapist holding fixators.

### Procedure:

- Hold the first fixator at approximately 15cm from patient's nose.
- Now patient looks at a second fixator at approximately 30cm from nose. While looking at the closest fixator they should notice that the further fixator has gone double.
- Now patient looks at the second fixator and should notice that the first fixator has gone double.
- Bring the furthest fixator 2-3cm closer and repeat the test. A certain amount of effort is required for patient to pull eyes in to maintain a single image.
- Push the closest fixator 2-3cm away from you and repeat the exercise.

\*Using two different colored pens makes it easier for the patient to recognize which pen they are seeing double.

# Line Tangles

\*Addresses visual tracking, visual attention\*

## Materials:

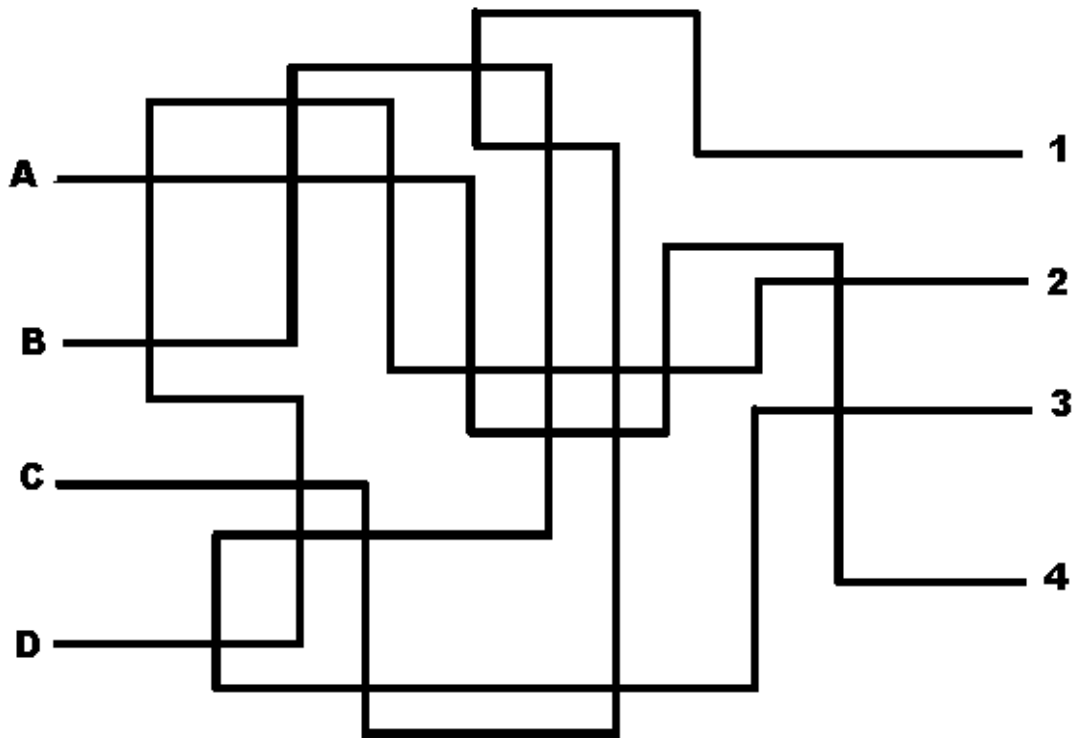
- Flat work surface
- Tracking worksheet (below)

## Set-Up:

- Patient should be seated at a table, in a quiet room with limited distractions.
- Therapist may choose to have normal lighting, or dimmed lighting based on patient's tolerance to light.

## Procedure:

- Instruct patient to match the letters on the left to the numbers on the right.
- Ensure patient's head is in midline and both eyes are open during task.



## Version/Duction Exercises

\*Addresses visual scanning, smooth pursuits, assesses nystagmus\*

Versions: Rotation of both eyes together, moving eyes to the right, left, up, down, and diagonally.

Ductions: Rotation of one eye individually (with other eye occluded), including adduction, abduction, elevation, depression, and diagonal movement.

Materials:

- Fixator (i.e. penlight or pencil topper)
- Patch or cover for one eye during duction exercises

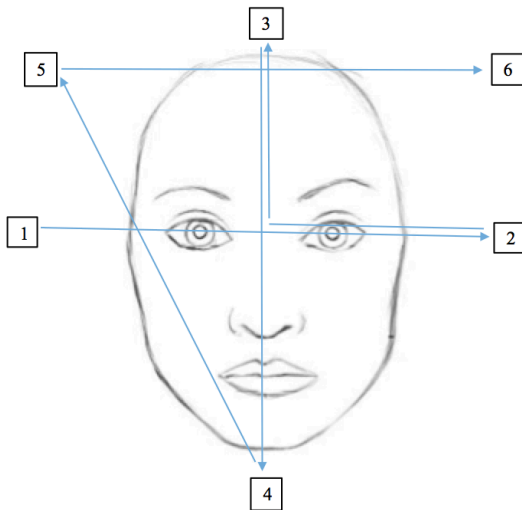
Set-Up:

- Patient should be seated, in a quiet room with limited distractions.
- Can complete in standing (with gait belt and assistance if needed) to add complexity and balance aspect to task.
- Therapist may choose to have normal lighting, or dimmed lighting based on patient's tolerance to light.

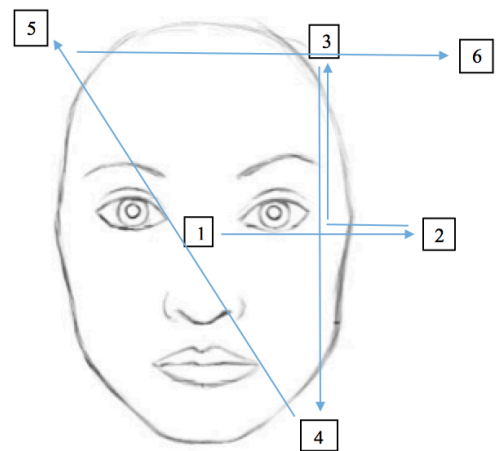
Procedure:

- Instruct the patient to track the fixator with eye(s) only in the following patterns, keeping head steady in midline.

**Versions:**



**Ductions:**



# Michigan Letter Tracking

\*Addresses visual tracking, visual discrimination, and memory\*

## Materials:

- Michigan Letter Tracking Worksheets
- Highlighters
- Stopwatch
- Flat work surface

## Set-Up:

- Patient should be seated at tabletop, in a quiet room with limited distractions.
- Therapist may choose to have normal lighting, or dimmed lighting based on patient's tolerance to light.
- Patient should trial activity on flat surface, however for some patients, it may be appropriate to place a binder or other slanted surface under the worksheet for easier viewing. The activity can then be graded up gradually until patient is able to track worksheets on flat tabletop surface. Patient can also complete in standing (with gait belt and assistance if needed) to increase complexity.

## Procedure:

- Patient tracks, with both eyes open, Michigan Letter Tracking worksheet paragraphs.
- Patient is to locate alphabet letters, in order, without skipping any letters. If patient skips a letter in the sequence, he/she will be unable to find the entire alphabet and therefore, will be cued that he/she has made a mistake. Therapist may need to assist patient in identifying mistakes for first few trials.
- Michigan letter tracking worksheets come in different fonts, and different visual acuity levels for increased complexity.
- Patient is timed.
- Letter tracking worksheets can be downloaded and printed from:
  - <http://learningmanagement.ca/michigan-tracking-worksheets/>

# Hart Chart Decoding

\*Addresses visual scanning, tracking, visual memory\*

## Materials:

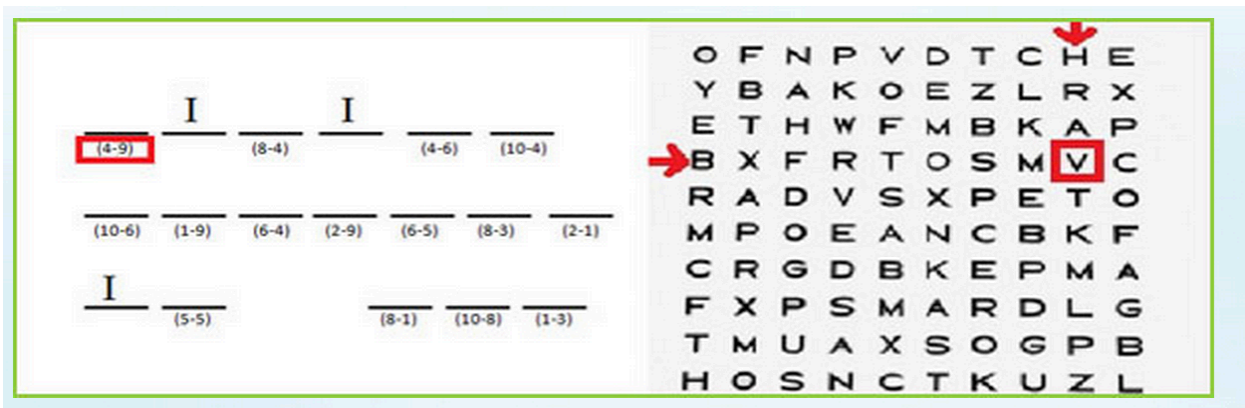
- Hart Chart
- Hart Chart Decoding Worksheet
- Pen or other writing utensil
- Flat work surface

## Set-Up:

- Patient should be seated at tabletop, in a quiet room with limited distractions.
- Activity can be completed with patient standing (with gait belt and assistance if needed) at elevated table top for increased complexity and balance re-training.
- Therapist may choose to have normal lighting, or dimmed lighting based on patient's tolerance to light.

## Procedure:

- Patient uses Hart Chart to locate letters in order to decode a message.
- Patient tracks up and down first, then left to right in order to locate the letters corresponding to the coordinates in the format (a,b), or (vertical, horizontal).



<http://hartchartdecoding.com/index.html#perform>

\*Find Hart Chart and Hart Chart Decoding Worksheets at:

<http://hartchartdecoding.com/index.html#perform>.



# Brock String

\*Addresses convergence, eye teaming\*

## Materials:

- Brock String

## Set-Up:

- Patient can be seated to start, or standing (with gait belt and assistance if needed) to increase complexity of task.
- Patient holds one end of the Brock string to his/her nose; therapist holds the other end. If patient is performing alone, patient can tie one end of the string to a doorknob or other secure object.

## Procedure:

- One bead should be placed far from the patient close to the other end of the string. The middle bead should be placed about 10 in. from patient's nose, and the near bead should be placed about 4 in. from patient's nose.
- Patient looks at the near bead. The bead should appear in single vision; if the bead appears double, this suggests an eye teaming issue. Instruct the patient to move the bead closer or further until it appears single. (The goal is to get the near bead closer and closer as the patient progresses, ideally to only 1 in. from nose).
- While looking at the near bead the patient should perceive two strings starting from their nose and converging in an 'X' at the near bead. As the bead is moved closer and closer, the strings should form a 'V' leading up to the near bead.
- Patient then shifts gaze to middle bead and far bead. Patient should see two strings forming a 'V' leading up to those beads.
- Can change the location of the beads slightly to perform activity again.
- Can ask patient to try to maintain single vision of the beads as the patient turns his/her head OR as the therapist moves her end of the string in a circular motion to pass through all fields of vision.

## Pointer in the Straw

\*Addresses depth perception, spatial orientation & awareness, and visual-motor integration and planning\*

### Materials:

- Straw
- Toothpick or other thin object as a 'pointer'

### Set-Up:

- Patient can be seated to start, and therapist can grade activity by eventually requiring patient to stand during activity.

### Procedure:

- Therapist holds a straw in various positions and fields of vision in front of the patient.
- Patient attempts to place tip of pointer in end of straw.
- Goal is for patient to place tip of pointer in end of straw without overshooting or undershooting the straw and without hitting the sides of the straw with the pointer.
- Patient should complete with both R and L hands.

## Marsden Ball

\*Addresses visual tracking, smooth pursuits, hand-eye coordination, visual-motor integration\*

### Materials:

- Marsden Ball (can be purchased or created with a tennis ball & string)
- Dowel for bunting (weighted or unweighted)- \*optional
- Colored tape or post-it note
- Clear space for patient to move around

### Set-Up:

- Marsden ball is hung from doorframe.
- Patient stands in front of Marsden ball with dowel.
- Therapist should apply colored tape or a post-it note to the middle of the dowel. Patient should aim to hit the ball on the spot marked by the tape or post-it note.

### Procedure:

- Patient holds the dowel on either end, with the tape or post-it note target facing the ball.
- Patient bunts ball with dowel, trying to hit the target on the dowel directly on a number or letter on the Marsden ball.
- Patient calls out the numbers or letters as he/she hits them.
- Patient can also use pointer finger to palm to hit number and letter targets, calling targets out as he/she hits them. Patient can alternate hands for bilateral integration and added complexity.



# Magic Eye

\*Addresses 3D vision\*

## Materials:

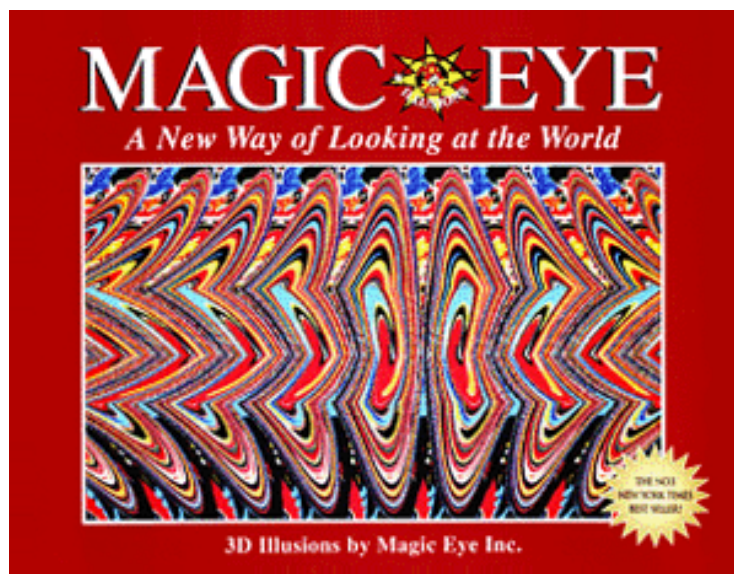
- Magic Eye Book

## Set-Up:

- Patient should be seated in a room with limited distractions and adequate lighting.

## Procedure:

- Patient starts with the Magic Eye book, opened to desired page, close up to his/her nose.
- Patient slowly moves book out away from nose until patient can see an image “jumping off the page.”
- Once patient identifies 3D object, patient can move book in an H, Z, and circular pattern while trying to maintain the 3D image.
- If patient cannot see the 3D image, have patient try moving the book far to near, rather than near to far. Patient can also try crossing eyes to obtain 3D image.



\*Images similar to the ones found in the Magic Eye book can be found online at <http://www.vision3d.com/sghidden.html>.

## Ideas for Balance/Vestibular Activities

- Brain Gym Lazy 8's in standing.
- Play a card game with patient standing at table-top.
- Nu-Step while patient moves head side to side and up and down; can add "I Spy" game or simple math & spelling tasks to increase complexity.
- Brain Gym Cross crawls.
- Pick up cones from floor or various shelf heights.
- Toss weighted ball.
- Balance board, while reaching or tossing objects.
- Pass weighted ball side to side or overhead and between legs.
- Bounce weighted balls against trampoline.
- Tap weighted ball in 'A' pattern, holding ball with both hands, lift ball overhead then tap walker handles or table side to side.
- PNF patterns with weighted dowel (sitting or standing).

## Occupation-Based Vision Activities

- Locating cities on map of Michigan.
- Locating items and/or prices on restaurant menu.
- Reading and interpreting a bus schedule.
- Locating stores on a mall store directory.
- Read a recipe and make a grocery list based on required ingredients.
- Find information in a phonebook.
- Find products/prices in a Patterson Medical catalog.

## Useful Free Apps for iPad

- Spot It
- Lumosity
- Memory Matches
- Brainwell
- Neuro Nation
- Mind Games- Brain Training Games
- Tilt Maze Lite
- Labyrinth Tilt Maze