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5 **In Office Control Therapy Manual of**  
6 **Procedures**

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9 **ATS-VT**

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13 **March 20, 2008**

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## In-Office Control Therapy Therapist Guidelines

### **General Protocol:**

Patients receiving therapy will have weekly, 60 minute visits with an individual therapist for 16 weeks, 15 minutes visual acuity measurement and home therapy review and 45 minutes control vision therapy. The visit with the therapist must occur every 7 days ( $\pm 4$  days). Each day the patient will perform 2 hours of daily patching with 60 minutes of patched near activities. The 60 minutes of near work will be divided into 30 minutes of "traditional" near work (reading, coloring, hand-held video games, etc.) and the other 30 minutes of near work will be assigned computer homework. Each patient will be asked to keep a homework log to record the amount of time the patient wore the patch at home as well which activities were performed. The patient should bring the homework log to each weekly office visit for the therapist to review. A copy of the homework log will be forwarded to JAEB.

### **General Sequencing of Procedures:**

The procedures for in-office control therapy are described in detail in this chapter. The therapy is divided into three phases. Each phase will require approximately 5 weeks to complete. The goals listed at the end of each activity are designed to give the therapist the ability to reach an endpoint or move into different phases within the same activity.

### **Choosing Activities for Each Therapy Visit:**

Within each phase, the activities are divided into four categories. At each in-office therapy visit, the therapist must perform 4-5 activities with the patient. The therapist must choose one activity from each of the categories listed within the patient's current phase of therapy. The total therapy time should still always remain 45 minutes. Once a patient has mastered an activity, it does not have to be revisited but may be in the interest of providing variety for the patient. For weeks 1-5, the patient must complete activities from phase 1. The patient will perform activities from phase 2 during weeks 6-10 and then progress to phase 3 activities from weeks 11-16. The patient is not required to meet all endpoints of each activity to move from one phase to the next.

### **General Therapy Principles**

1. **Always use positive reinforcement:** The patient should always be verbally rewarded for a good effort. Even if the patient is unsuccessful at the required skill, the therapist should encourage the patient and commend their hard work.
2. **Always ask the patient how their eyes feel and what they are doing:** The therapist should try to establish an awareness on the part of the patient of what they are doing to make the targets clear, single, and visible. The therapist should encourage the patient to "keep their eyes working together" and "keep the targets clear" throughout each activity.
3. It is critical for the therapist to coach the control therapy with the same enthusiasm as the active vision therapy to maintain masking.

## 88 **Home Therapy Program**

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90 Patients are required to wear the patch on the non-amblyopic eye 2 hours per day. During the two hours,  
91 thirty minutes will be spent doing "traditional" near activities while the other thirty minutes will be spent doing  
92 the home computer program. On the days of in-office treatment, the patient will still do 2 hours of patching  
93 with 30 minutes of "traditional" near activities but will not perform the computer software.  
94

95 Patients are expected to perform 30 minutes of vision therapy at home each day between office visits. The  
96 patient should be assigned the computer program after each week's session. The computer program which  
97 will be utilized is the Amblyopia iNet. The program has been modified to serve as a control computer therapy  
98 program. The therapist will indicate that the program is designed to further improve the patients' visual  
99 acuity, accommodation, monocular fixation, and eye-movements.  
100

101 Each site will receive a copy of the patient and doctor disc for the program and a doctor's manual, which  
102 details the operation of the program. The patient disc will be used to train the therapist on what the patient  
103 will experience at home. The doctor disc will allow the therapist/investigator demonstrate the program to each  
104 patient, review the patient's performance each week.  
105

106 The therapist will be responsible for giving the patient a copy of the program, demonstrating how the patient  
107 interacts with the program and setting up the initial information needed to monitor the activities. Set-up and  
108 implementation of the computer based therapy can be found in the doctor's manual for the program.  
109

### 110 1. Amblyopia iNet Program includes the following activities:

- 111 • Follow the Letter
- 112 • Concentration
- 113 • Laser Ball
- 114 • Penguin Peek
- 115 • Letter Jump
- 116 • Space Ball
- 117 • Chipmunk Chase
- 118 • Find the Target
- 119 • Capture the Target
- 120 • Traffic Jam
- 121 • Skiing  
122

123 The patient will complete 6 of the activities each day for a set amount of time, depending on  
124 the phase. Initially the target size will correspond to 20/200 and will automatically decrease to  
125 20/100 at the 8 week interval. The therapist will be able to monitor the time spent on the  
126 program through the server connection which is identical to the connection and information  
127 that will be obtained for the active therapy program.  
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## **In-Office Control Therapy Procedures for ATS-VT**

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- Parquetry Blocks (Phase 1, 2, & 3)
- Visual Memory (Phase 1 & 2)
- Kirchner Arrows (Phase 1 & 2)
- Figure Ground (Phase 1 & 2)
- Rotating Patterns (Phase 3)
- Visual Closure (Phase 2 & 3)
- Flashlight Tag (Phase 2 & 3)
- Tachistoscope (Phase 2 & 3)
- R/G Playing Cards (Phase 2 & 3)
- Filtered Hart Charts (Phase 1, 2, & 3)
- Visual Analysis (Phase 1, 2 & 3)
- Yoked prism (Phase 1)
- Versions (Phase 1 & 2)

151 **Sequence for In-Office Therapy for Control Office Based Vision Therapy**  
 152 **Group** (*All Therapy will be completed with both eyes opened*)  
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<b>First Week Office Visit</b>				
<b>In Office</b>	<b>Eye Teaming*</b>	<b>Visualization*</b>	<b>Eye Movement*</b>	
	Versions (1) <u>must be done</u>	Visual Memory (1)	Yoked Prism (1) <u>must be done</u>	
	Parquetry Blocks (1)		Figure Ground (1)	
	Visual Analysis Grid (1)			

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<b>Phase 1</b> (approximately weeks 2-5)				
<b>In Office</b>	<b>Eye Teaming*</b>	<b>Visualization*</b>	<b>Eye Movement*</b>	
	Parquetry Blocks (1)	Visual Memory (1)	Figure Ground (1)	
	Kirschner Arrows (1)		Yoked Prism	
	Visual Analysis Grid (1)		Filtered Hart Chart (1)	
	Versions			



<b>Phase 2</b> (approximately weeks 6-10)				
<b>In Office</b>	<b>Eye Teaming</b>	<b>Visualization</b>	<b>Eye Movements</b>	<b>Coordination*</b>
	Parquetry Blocks (2)	Tachistoscope (2)	Figure Ground (2)	Flashlight Tag (2)
	Visual Analysis Grid (2)	Visual Memory (2)	Visual Closure (2)	
	Kirschner Arrows (2)	R/G Playing Cards	Filtered Hart Chart (2)	
	Versions			



<b>Phase 3</b> (approximately weeks 11-16)				
<b>In Office</b>	<b>Eye Teaming</b>	<b>Visualization</b>	<b>Eye Movements</b>	<b>Coordination</b>
	Parquetry Blocks (3)	Rotating Patterns	Visual Closure (3)	Flashlight Tag (3)
		Tachistoscope (3)	Filtered Hart Chart (3)	
	Visual Analysis Grid (3)	R/G Playing Cards (3)		

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\* Labeling of different categories is for therapist to give context of the activities to the patient and the parents. The label is not intended to reflect areas of improvement.

168  
169 **Parquetry Blocks**  
170 **Phase 1, 2, & 3**  
171

172 **Purpose:**

- 173 • To improve visual discrimination  
174 • To improve fine motor control  
175 • To improve eye teaming skills  
176

177 **Equipment:**

- 178  
179 1. Parquetry blocks  
180 2. Parquetry pattern books Levels 1-4  
181 3. Plano lens flipper  
182 4. Yoked prism 6Δ  
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185 **Procedure:**

- 186 1. The patient should be seated at a desk and the parquetry book should be placed in front of him/her  
187 starting with the first image in book 1. The patient will progress through the books in sequence as  
188 his/her ability dictates. The book level is not influenced by the phase of therapy.  
189 2. For every phase of treatment with this activity, the patient is asked to duplicate the design shown in  
190 the book using the appropriate blocks on the table (not on top of the pattern)  
191 3. Therapist should ask the patient if the design the patient made looks like the pattern in the book. If  
192 the two are different, the patient should be encouraged to figure out which blocks are incorrect. The  
193 therapist may indicate a specific side or area of the shape if the patient is having a difficult time with  
194 the design  
195 4. As the patient's proficiency and understanding of the task improves, the patient should continue to  
196 more difficult patterns in the book. When the patient completes book 1, he/she should move to book 2  
197 and continue to move through the books in successive order.  
198 5. The time limit for this procedure will be 8-10 minutes  
199

200 **Phase 1 (Sessions 1-5):**

201 The patient is asked to perform this activity without the use of flipper lenses.

202 **Phase 2 (Sessions 6-10):**

203 The patient is asked to perform this activity while looking through a plano lens flipper. The flipper should  
204 be flipped at the completion of each parquetry pattern. The therapist should remind the patient that the  
205 lenses will stress the eyes and they will have to work hard to keep the patterns and blocks clear and  
206 single.

207 **Phase 3 (Sessions 11-16):**

208 The patient is asked to perform this activity while looking through an 6Δ yoked prism flipper. The flipper  
209 should be flipped at the completion of each parquetry pattern. The therapist should explain that this  
210 flipper may make the image "jump" when it's flipped. The patient should be coached to work hard and  
211 keep his eyes working together to keep the image of the patterns and blocks clear and single.

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**Coaching:**

- If patient is having a difficult time creating the design on the table the therapist should have the subject attempt to complete the pattern on top of the page in the book.
- If the patient is still having difficulty the therapist should indicate the shapes the patient needs to use to complete the pattern.
- The therapist should remind the patient to keep their eyes working together while looking through the flippers to keep the target clear and single.

**Goal:**

Start with first image in level one book and continue through level 4 book during the course of the therapy. The parquetry book level is not dictated by the patient’s phase of therapy. The therapist should record the highest book and pattern number. Moving between books is designated by completion of the images with 80% accuracy.

## Visual Memory

### Phase 1 and 2

#### **Purpose:**

- To improve the patient's ability to recall visual information while using the eyes together as a team

#### **Equipment:**

1. Parquetry blocks
2. 6Δ Yoked Prism Flipper

#### **Procedures:**

1. The therapist should show a series of 3 blocks to the patient for 5 seconds, and then cover the blocks so the patient can no longer see them.
2. During the presentation the therapist should encourage the patient to remember the colors, shapes and sequence of the blocks.
3. The patient will then demonstrate that he/she remembers the pattern by picking the blocks out of a series of blocks previously laid out on the table by the therapist. The therapist should then show the patient the original sequence and ask if they are identical.
4. Once the patient has shown the ability to get 4 out of 5 trials correct and easily replicate the set of three blocks the therapist should add an additional block to the patterns until a maximum of sequence of eight shapes can be memorized 4 out of 5 times.
5. Time for this procedure will be 8-10 minutes

#### **Phase 1 (Sessions 1-5):**

The patient performs the visual memory task with no flipper lenses.

#### **Phase 2 (Sessions 6-10):**

The patient performs the visual memory task while looking through a 6Δ yoked prism. The patient should flip the flipper after each visual memory trial. The therapist should tell the patient that the flipper will increase the level of difficulty of this task. The patient may notice the image will jump with each flip and the therapist should coach the patient to work hard to keep the image clear and single.

#### **Coaching:**

- If the patient is having a difficult time remembering the sequence of shapes have them look at the shapes and then tell them to close their eyes and visualize the sequence for a few seconds, and then re-create the sequence.
- If they are still having problems decrease the number of blocks in the sequence by one and have them perform the visualization again.
- The therapist should remind the patient that the flipper will stress his/her eyes and the patient must work hard to keep his/her eyes working while performing this task.
- As the patient moves from phase 1 to phase 2, the therapist should remind the patient that he/she is progressing to a higher level of difficulty.

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**Goal:**

Ability to correctly reproduce a sequence of 6-8 blocks according to color and shape 4 out of 5 trials with the 6Δ yoked prism.

## **Kirschner Arrows**

### **Phase 1 & 2**

#### **Purpose:**

- To improve directionality
- To improve eye teaming skills

#### **Equipment:**

1. Laminated ATS VT Kirchner arrows (Black and white for phase 1/color for phase 2)
2. Plano lens flippers
3. Yoked Prism flippers (6Δ and 8Δ)

#### **Procedures:**

##### **Phase 1 (Sessions 1-5):**

1. Attach the four sheets of black and white arrows in a 2'x2' square pattern approximately eye level on a wall while the patient stands 1 meter away.
2. The patient should initially hold the plano lens flipper in front of his eyes and is instructed to look at the arrows and keep them clear
3. The patient should be asked to read the arrows left to right and to say out loud the direction of each arrow. The patient should "flip" the plano lenses when they begin a new line of arrows
4. The therapist should encourage the patient to look hard through the flippers to always keep the arrows clear and single.
5. The patient should spend the first therapy visit using the plano flipper. At subsequent visits where this activity is chosen during phase 1, the therapist should have the patient complete the activity with the 6Δ yoked prism and then the 8Δ yoked prism. The therapist should tell the patient that the flippers are of increasing difficulty and they will cause the image of the arrows to "jump" with each flip. The therapist should tell the patient that they will have to work hard to keep the arrows clear and single while still keeping their place during the activity.

##### **Phase 2 (Sessions 6-10):**

The instructions for phase 2 are the same as phase 1 except the patient will view the colored Kirschner arrow charts. The patient should be instructed to call out the direction AND the color of each arrow as he reads across the chart. The patient will follow the same flipper sequence (plano→6Δ yoked prism→8Δ yoked prism) throughout this phase.

#### **Coaching:**

- The therapist should encourage the patient to "look carefully" at each arrow to correctly identify the orientation and color. The patient should be told that both eyes must work together to correctly identify the arrows.
- The therapist should instruct the patient to "work hard" to keep the arrows clear and single while looking through each side of the flipper.
- The therapist should ask the patient if he/she can feel his eyes working through the lenses.

If the patient gets lost reading the chart, the therapist may point to the arrows to help him get back on track.

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**Goal:**

The ability to say the direction and color of the arrows correctly and quickly without errors using the flipper lenses

## Figure Ground (Modified from the CITT MOP)

### Phase 1 & 2

#### Purpose:

- To improve eye teaming skills
- Develop visual processing skills

#### Equipment Needed

1. Computer with Computer Aided Vision Therapy (CAVT) program
2. Polaroid glasses
3. Neutral Density Filter

#### Setup

1. Turn on the computer, the neutral density filter should be in place before the patient arrives.
2. Click on VIPS Icon
3. Click on Therapy Menu button
4. Select Visual Figure Ground Skills

#### Procedure

##### **Phase 1 (Sessions 1-5):**

1. Select Shape counting
2. Max shapes should be set at 8; Shape Edge Thickness set to 4; Practice time 10 minutes
3. Autopacing should be checked and the advance on 10 correct should also be checked. AUTOPACING controls the maximum number of shapes presented, it increases the number after 10 correct responses. (See figure 1)
4. Place the Polaroid glasses on the patient
5. Select the therapy button
6. Select Start then Next Set
7. The screen will have show dots with shapes arranged around the screen the patient should be instructed to count the number of shapes as quickly as possible.
8. The therapist or the patient should type in the answer and press <ENTER>
9. If the answer is incorrect the program will inform the patient and let them try again.
10. If they are incorrect a second time the program will outline the shapes in green. Have the patient count the shapes that are highlighted to see where the shapes are located. Once they do select next set.
11. When the patient is correct the program will indicate this and will highlight the shapes. Once the shapes are highlighted select Next Set
12. Remind the patient to try to count the shapes as fast as they can.
13. Press Stop and then scores to see the percent correct if the patient grows frustrated with the program.
14. The activity should take 8-10 minutes to complete

377 **Phase 2 (Sessions 6-10):**

- 378 1. Select option Shapes on Shapes
- 379 2. Background shapes should be either Circles or Squares and the Foreground Shapes Filled Circles or
- 380 Filled Squares
- 381 3. Max shapes should be set at 8; Shape Edge Thickness set to 4; Practice time 10 minutes
- 382 4. Autopacing should be checked and the advance on 10 correct should also be checked. AUTOPACING
- 383 controls the maximum number of shapes presented, it increases the number after 10 correct responses.
- 384 (See figure 2)
- 385 5. Turn Autopacing ON. AUTOPACING controls the background complexity. The maximum number of possible
- 386 background targets increases when the correct response is given ten times
- 387 6. Place the Polaroid glasses on the patient.
- 388 7. The screen will show a background of Squares or Circles, (dependent upon the therapist choice) and Filled
- 389 Squares or Circles in the foreground. Ask the patient to count the number of foreground targets as quickly
- 390 as possible.
- 391 8. Type in the answer and press <ENTER>.
- 392 9. If the answer is incorrect the program will inform the patient and let them try again.
- 393 10. If they are incorrect a second time the program will outline the shapes in green. Have the patient count
- 394 the shapes that are highlighted to see where the shapes are located. Once they do select next set.
- 395 11. When the patient is correct the program will indicate this and will highlight the shapes. Once the shapes
- 396 are highlighted select Next Set
- 397 12. Press Stop and then scores to see the percent correct if the patient grows frustrated with the program.
- 398 13. The activity should take 8-10 minutes to complete

399 **Coaching**

400 Tell the patient to try to keep the targets single and clear. The patient should be sure to

401 blink his/her eyes normally to make sure that each eye is getting correct information and

402 can work as a team.

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405 **Goal**

- 406 1. The patient can keep the targets on the screen clear and single
- 407 2. The patient can accurately complete the figure ground task with 80% accuracy
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Figure 1: Shape Counting Set-Up Screen Phase 1

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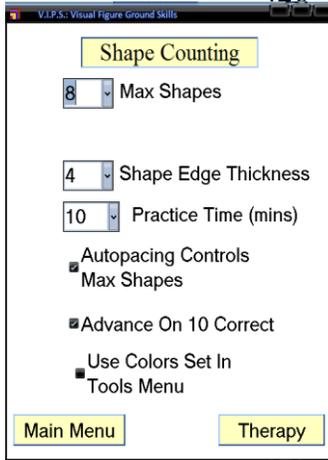
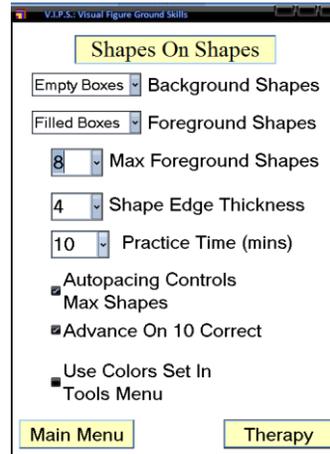


Figure 2: Shapes on Shapes Set-Up Screen Phase 2



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## 438 **Rotating Patterns** (Modified from the CITT MOP)

### 439 **Phase 3 (Sessions 11-16)**

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#### **Purpose:**

- To improve eye teaming skills
- Develop visual processing skills

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#### **Equipment Needed**

1. Computer with Computer Aided Vision Therapy (CAVT) program
2. Polaroid glasses
3. Neutral Density filter

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#### **Setup**

1. Turn on the computer, the neutral density filter should be in place before the patient arrives.
2. Click on VIPS Icon
3. Click on Therapy Menu button
4. Select Visual Spatial Skills

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#### **Set-Up**

1. Select Rotating Patterns
2. Display speed set to 5.00
3. Maximum squares should be set at 12
4. Practice time 10 minutes
5. Grid borders should be on
6. Autopacing should be checked and the advance on 10 correct should also be checked. AUTOPACING controls the time the initial pattern is presented, it decreases the time after 10 correct responses. (See figure 3)
7. Place the Polaroid glasses on the patient
8. Select the therapy button
9. Select Start then Next Set

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#### **Procedure**

1. A 5x5 blue grid will be presented on the left side of the therapy screen. A random number of the small squares in the grid will be filled in creating a green colored pattern. Three green grids, containing various patterns based on the green grid, are found to the right of the green target grid. A question is presented at the bottom of the screen asking which of the green patterns is rotated clockwise, counter clockwise or flipped upside down.
2. To answer, press the button (1,2, or 3) that corresponds to the correct green grid. If incorrect, the patient will be shown the correct grid and asked why the pattern they chose is incorrect. Have the patient indicate why their choice is incorrect and why the pattern indicated by the computer is the correct pattern. If this procedure is difficult, make a 5x5 grid on paper and copy the green pattern onto the paper grid. Experiment with rotating the paper pattern to determine which one of the green patterns is correct.
3. Press Stop and then scores to see the percent correct if the patient grows frustrated with the program.
4. The activity should take 8-10 minutes to complete

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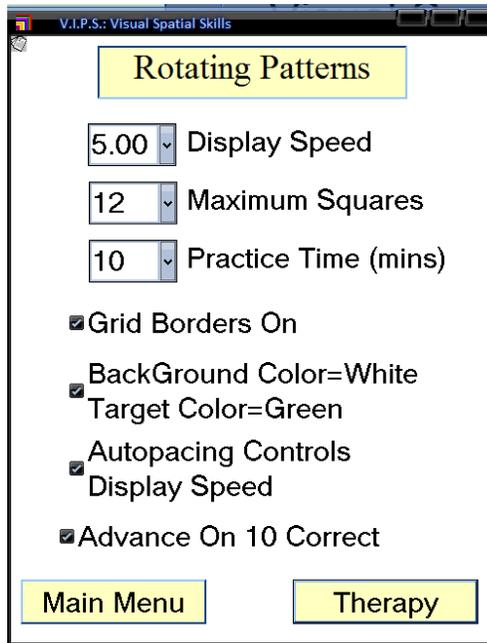
**Coaching**

The therapist should tell the patient to try to keep the target single and clear and to blink his/her eyes if the target figure ever disappear.

**Goal**

1. The patient can keep the targets on the screen clear and single
2. The patient can accurately complete the rotating patterns task with 80% accuracy

**Figure 3: Rotating Patterns Set-Up Screen**



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## Visual Closure (Modified from the CITT MOP)

### Phase 2 & 3

#### **Purpose:**

- To enhance visual processing
- To discrimination of fine detail

#### **Equipment Needed**

1. Computer with Computer Aided Vision Therapy (CAVT) program
2. Polaroid glasses
3. Neutral Density filter
4. 6Δ yoked prism flipper

#### **Setup**

1. Turn on the computer, the neutral density filter should be in place before the patient arrives.
2. Click on VIPS Icon
3. Click on Therapy Menu button
4. Select Visual Closure Skills
5. Select Block by Block Activities
6. Select Characters under Blocks
7. Different Characters set to 4
8. How many of each set to 3
9. Font Style is Tool's Menu Font
10. Practice time 10 minutes
11. Time bar sec to 0.30 secs
12. Target Character Upper Case Letters (See figure 4)
13. Place the Polaroid glasses on the patient
14. Select the therapy button
15. Select Start then Next Step then Erase Tiles to begin the procedure

#### **Procedure**

##### **Phase 2 (Sessions 6-10)**

1. The target area starts out as a blue field, as the program progresses "tiles" are removed to show a white background with letters randomly placed. The patient should be instructed to watch for the letters and to press the corresponding letter key when they think they can identify a letter on the screen. The program will indicate if it they are correct or incorrect. Scoring is based on correct responses.
2. The patient should be instructed to try to look for the letters and figure out which are hidden in the pattern as fast as they can.
3. The program will end after the patient has found all of the letters in the current trial. At times this may be longer than 10 minutes.
4. If needed the therapist can select stop and then select scores after the patient has completed a screen to make it fit within the 8-10 minutes we have allowed for this activity.

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**Procedure**

**Phase 3 (Sessions 11-16):**

Phase 3 is performed the same as phase 2 except the patient must view the target through a 6Δ yoked prism flipper. The prism flipper should be flipped after each trial.

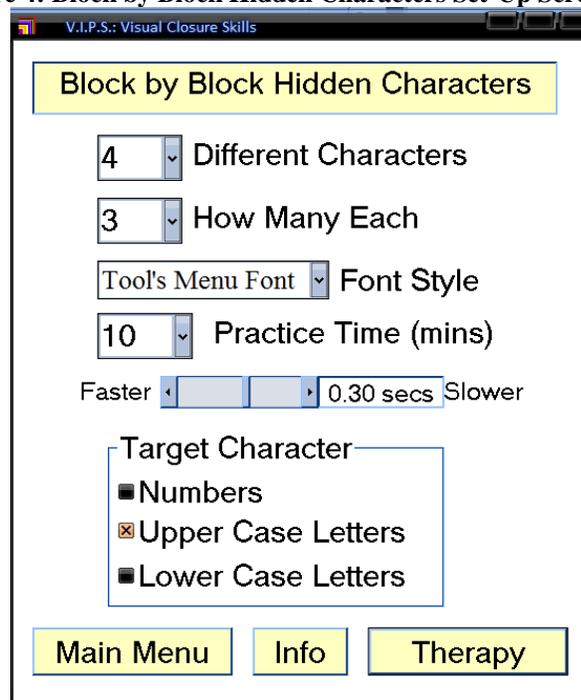
**Coaching**

- The therapist should tell the patient to try to keep the target single and clear. The patient should be sure to blink his/her eyes normally to make sure that each eye is getting correct information and can work as a team.
- With the introduction of the prism flipper, the therapist should tell the patient that the flipper will “stress” his/her eyes while performing this activity and that they must work hard to keep both eyes working together.

**Goal**

1. The patient can keep the targets on the screen clear and single
2. The patient has an 80% average correct response rate

Figure 4: Block by Block Hidden Characters Set-Up Screen



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## Visual Analysis Grid (Modified from CITT MOP)

### Phase 1, 2, & 3

#### **Purpose**

To improve focusing and eye teaming skills while under stress

#### **Equipment**

1. Computer with Computer Aided Vision Therapy (CAVT) program
2. Polaroid glasses
3. Neutral Density filter
4. 2Δ yoked prism flipper
5. 8Δ yoked prism flipper

#### **Set-UP**

1. Turn on the computer, the neutral density filter should be in place before the patient arrives.
2. Click on VIPS Icon
3. Click on Therapy Menu button
4. Select Visual Spatial Skills
5. Select Geo Boards

#### **Procedure Phase 1 (Sessions 1-5)**

1. Select Display speed OFF
2. Select number of lines 5
3. Practice time 10 minutes
4. Select 5-Dot pattern
5. Autopacing on to Number of Lines, advance on 10 correct, (See Figure 5)
6. Patient will NOT wear the Polaroid glasses for this phase
7. Select the therapy button
8. Select Start and then Next Set
9. The program will present a grid with five squares with lines forming a pattern on the left hand side. The patient is to reproduce the pattern on the right hand side. They can start at any square. In order to start they click on a square and then select another square to "connect" the two. When they think their pattern matches the computer pattern the can click Check Answer.
10. If they are correct the computer will tell them and they simply select next set.
11. If they are incorrect the computer will tell them, and ask them to try again. If there are too many mistakes for the patient to complete the pattern they may click erase. That will erase all of the lines.
12. Continue the activity for 8-10 minutes

#### **Procedure Phase 2 (Sessions 6-10)**

Phase 2 is similar to phase one except that the number of lines is increased to 10 and the pattern is changed to a 9 dot grid. Everything else on the set-up screen remains the same (See Figure 6) The second change is that the patient will wear the Polaroid glasses and use the 2 yoked prism flippers. The patient will flip the lenses after each pattern is complete.

#### **Procedure Phase 3 (Sessions 11-16)**

Phase 3 is designed to build upon phase 2. The only change on the Set-up screen will be the number of lines will increase to 12, (See Figure 7). The patient will also use the 8 yoked prism flippers during this phase. Again they will flip the lenses after each pattern is complete.

### Coaching

- The therapist should encourage the patient to look at the whole pattern before starting to “draw” it on the computer screen
- If the patient is having difficulty the therapist should have them verbally tell the therapist where they are going to start a line and which box it will go to
- If they have trouble in later phases due to the prism flippers, then the therapist can decrease the prism amount until the patient becomes more comfortable with them
- To challenge the patient the therapist may set a display speed of 4-5 secs. This will cause the activity to also incorporate visual memory, this can be done at any phase of the activity.

### Goal

- The patient to score 80% correct on the activity per phase.

Figure 5: Geo Boards Phase 1 Set-Up screen

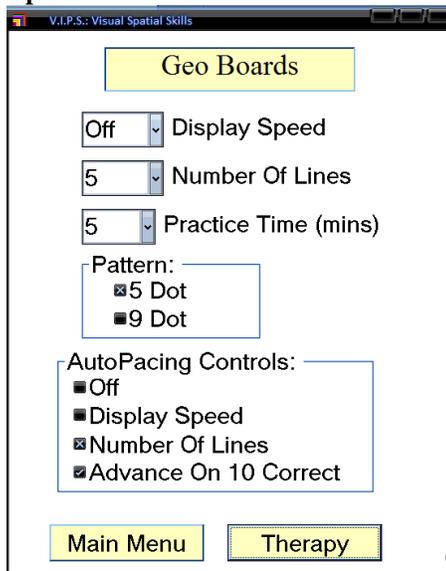


Figure 6: Geo Boards Phase 2 Set-Up Screen

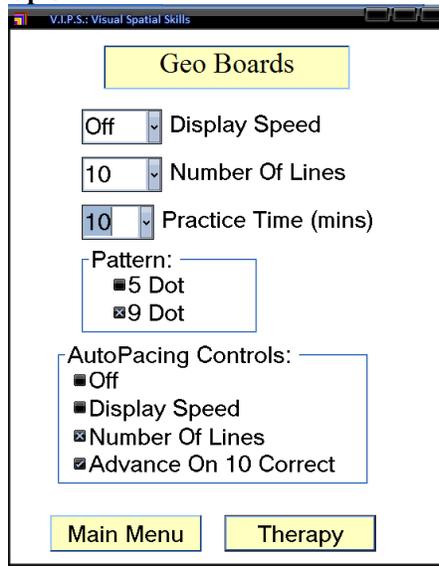
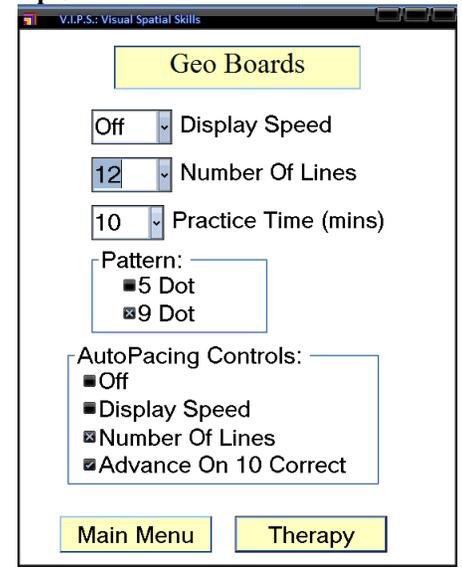


Figure 7: Geo Boards Phase 3 Set-Up Screen



# Flashlight Tag

## Phase 2 & 3

### Purpose:

- To improve eye teaming skills
- To improve localization skills

### Equipment

1. ATS VT flashlights (will have colored filters over bulb)
2. Polaroid glasses
3. 6Δ yoked prism glasses

### Procedure:

#### **Phase 2 (Sessions 6-10):**

1. In a dimmed room the patient and therapist will each hold a flashlight. The patient must wear the Polaroid glasses.
2. The patient and therapist should both point their lighted flashlights at a wall 2 or more meters in front of them. The therapist should instruct the patient to keep their light on the therapist's light as the therapist moves his light left to right. The therapist should tell the patient that he must keep both eyes working to see both lights with the glasses on.
3. Once the patient can keep his light on the therapist's light, the patient will be instructed to "catch" the therapist's light with theirs.
4. The therapist will move their light in a slow random pattern while the patient keeps his light superimposed on top of the therapist's light. As the patient's ability to keep his light aligned with the therapist's light improves, the therapist should move with increasing speed and randomness.
5. Once the patient "catches" the therapist's light they will start over.

#### **Phase 3 (Sessions 11-16):**

This phase is performed the same way as phase 2 except that the patient is instructed to keep his light aligned with the therapist's light on the wall while flipping the 6Δ yoked prism flipper. The therapist should explain that with each flip of the flipper, the lights will appear to jump and the patient must work hard to keep both lights visible and keep them lined up. The therapist should prompt the patient to flip the flipper every 5-10 seconds (the speed of the flips can be increased as the patient's skill level improves).

### Coaching:

- If the patient is having difficulty the therapist should instruct the patient to try and see both lights at the same time and see if they can feel their eyes working together.
- If the patient is having a difficult time "catching" the therapist's light the therapist should slow down their movements and use predictable patterns (e.g. clockwise circle, left to right line)

### Goal

Patient should be able to keep their light on the therapist's light when moved in a specific pattern and should be able to "catch" the light quickly. Goal to maintain the light on the therapist light 80% of the time.

# 685 Tachistoscope

## 686 Phase 2 & 3

### 687 Purpose

688 To improve visual memory speed

### 691 Equipment Needed

- 692 1. Computer with CAVT program
- 693 2. Neutral Density Filter
- 694 3. Polarized glasses
- 695 4. 6Δ yoked prism flipper

### 697 Setup

- 698 1. Turn on the computer, the neutral density filter should be in place before the patient arrives.
- 699 2. Click on VIPS Icon
- 700 3. Click on Therapy Menu button
- 701 4. Select Visual Memory Skills
- 702 5. Select Simultaneous Sequences
- 703 6. Display speed should be set at 0.50, font size at 30, sequence length 3, practice time 10 minutes
- 704 7. Target type should be set to numbers, Autopacing on to Sequence length, advanced after 10 correct
- 705 responses, (See Figure 8)

### 707 Procedure

#### 708 **Phase 2 (Sessions 6-10):**

- 709 1. Place the Polaroid glasses on the patient. The therapist should tell the patient that they must use both
- 710 eyes together to see the numbers that will be presented on the screen.
- 711 2. A screen is presented which displays three letters (initially)
- 712 3. The patient must remember the three numbers that are flashed on the screen
- 713 4. They enter the numbers in the order presented by typing the corresponding numbers using the keyboard
- 714 The patient then presses the <ENTER> once they have entered the sequence.
- 715 5. If the patient makes an error while entering the sequence they may press the <BACKSPACE> key on the
- 716 keyboard to correct the sequence before hitting <ENTER>
- 717 6. The program informs them if they are correct or incorrect. If they are incorrect the patient will have a
- 718 second opportunity to enter the correct sequence.
- 719 7. If they are correct the program informs them of that and then automatically gives them a new sequence.
- 720 Scores are based on right and wrong answers.
- 721 8. The activity should be done for 8 to 10 minutes.

#### 723 **Phase 3 (Sessions 11-16):**

724 The procedure is the same as phase 2 however, the patient must flip the 6 Yoked Prism flipper lenses for each  
725 tachistoscope presentation. Also the sequence length should be set to 5 and the target type set to numbers  
726 and letters, (See Figure 9). The therapist should tell the patient that the lenses will stress his eyes and they

727 will have to work hard to keep the letters clear and single. The therapist may ask the patient if they can feel  
728 their eyes working with each flip of the flipper.

729  
730 **Coaching**

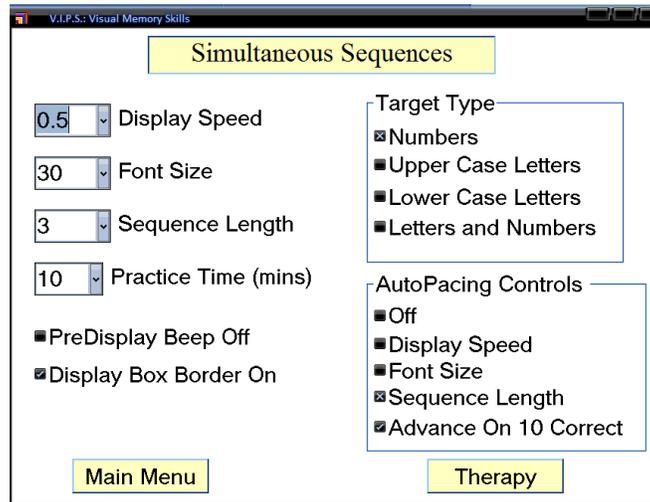
- 731 • The therapist should tell the patient to try to keep the target single and clear. The patient should be  
732 sure to blink his/her eyes normally to make sure that each eye is getting correct information and can  
733 work as a team.
- 734 • With the introduction of the 6 Yoked prism flipper lenses in phase 3, the therapist should tell the  
735 patient that the flipper will add visual stress while performing this activity. The patient should be  
736 encouraged to work hard while looking through the flipper to keep the target clear and single and keep  
737 both eyes working together.
- 738 • To challenge the patient the therapist can decrease the display speed or increase the sequence length  
739

740 **Goal**

- 741 1. The patient can keep the targets on the screen clear and single
  - 742 2. The patient gets 80% or greater correct on each trial
- 743  
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745

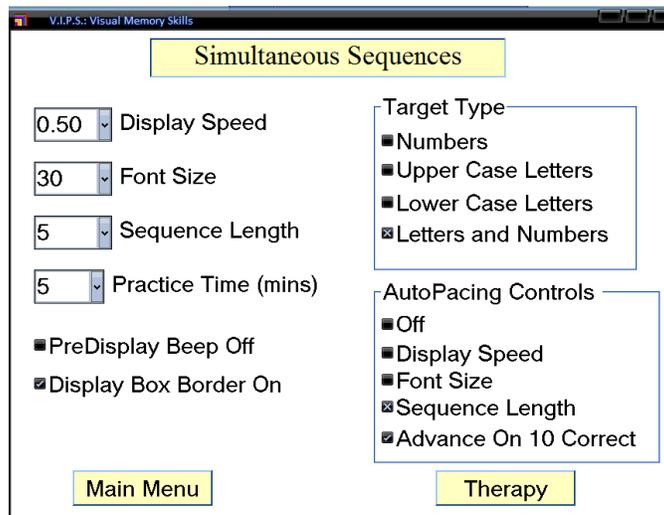
Figure 8: Tachistoscope Set-Up Screen Phase 2



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Figure 9: Tachistoscope Set-Up Screen Phase 3



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## R/G Playing Cards

### 750 Phase 2 & 3 (Sessions 6-16)

751

#### 752 Objective

- 753 1. To improve eye teaming skills

754

#### 755 Equipment Needed

- 756 1. R/G playing cards

- 757 2. Polaroid Glasses

758

#### 759 Procedure

- 760 1. The patient should wear the Polaroid glasses and be seated at a table with good illumination.

- 761 2. The therapist should shuffle 2 suits of cards and place them face down on the table top.

- 762 3. The patient should then turn over 2 cards attempting to find a matching pair. The therapist should ask the  
763 patient to name each of the cards to ensure that his eyes are working together. If the cards match, the  
764 patient picks the pair off of the table. If the two cards do not match, the patient must turn them back  
765 over, face down on the table.

- 766 4. The patient continues to turn pairs of cards over trying to find all the matching pairs on the table. The  
767 patient should be instructed to try to remember the location of each of the cards so that matching pairs  
768 can be found more quickly.

- 769 5. The patient continues until all the matching pairs are found.

- 770 6. The patient should perform this activity for 6-8 minutes.

771

#### 772 Coaching

- 773 • The therapist should instruct the patient to be sure to blink his/her eyes normally to make sure that  
774 each eye is getting correct information and can work as a team.

- 775 • The patient should be asked to name each card as it is turned over to ensure that his/her eyes are  
776 working well together.

777

#### 778 Goal

779 Successful matching of all the cards on the table.

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## **Filtered Hart Chart**

### **Phase 1, 2, & 3**

#### **Purpose**

1. To improve eye teaming skills at distance

#### **Equipment Needed**

1. Large Letter Chart
2. Large Red/Green Bar reader (Do not use the Red-Green glasses)
3. Plano flipper
4. Yoked 6Δ prism flipper
5. Yoked 8Δ prism flipper

#### **Procedure**

1. Place Red/Green Bar reader over large letter chart page so the stripes are orientated vertically.
2. The patient should stand 1 meter from the Hart Chart and view the letters through the flipper.
3. The patient should start at the upper left corner and read the letters horizontally flipping the flipper at the end of each line.
4. When patient has read entire chart have them again start at the upper left corner and read vertically down each column again flipping the flipper at the end of each row.

#### **Phase 1 (Sessions 1-5):**

The patient should use the plano lens flipper.

#### **Phase 2 (Sessions 6-10):**

The patient should use the 6Δ prism flipper and should flip the flipper after each set of 5 letters.

#### **Phase 3 (Sessions 11-16):**

The patient should use the 8Δ prism flipper. Instead of reading consecutive letters, the therapist should do letter searches with the patient. The therapist should pick 3 consecutive letters either horizontally, vertically, or diagonally oriented and ask the patient to locate the letters on the chart while flipping the flipper. The patient should flip the flipper every couple of seconds while performing the search.

#### **Coaching**

- The therapist should tell the patient to keep both eyes working together to keep all the letters visible. The therapist should instruct the patient to alert the therapist if any of the letters disappear.
- The patient should be told that the flipper will stress their eyes and require them to work harder to read across the letters. The patient should concentrate hard to read all the letters.
- If the patient struggles to keep his place, the flippers can be removed initially. The therapist may also point to letters on the chart to help the patient find his place.

#### **Goal**

To be able to read the letters quickly without making more than three mistakes in 60 secs with each of the prism flippers.

827 **Versions**

828 **Phase 1 & 2**

829

830 **Purpose**

831 To improve the binocular input of both eyes and help develop a kinesthetic awareness of eye movements  
832 Prepare the patient for the Kirschner arrow activities

833

834 **Equipment Needed**

835 Laminated Kirschner arrow  
836 Red lens glasses

**Procedure**

**Phase 1**

1. Therapist stands 1 meter from the patient.
2. The patient is instructed to *"watch the target as I move it only using your eyes, do not move your head."*
3. The therapist will then move the target 1 foot to the patient's right.
4. The therapist will now instruct the patient to look at the target. *Now look at it while I count to 10. While looking at the target keep it clear."*
5. The therapist will repeat the above instructions while moving the target in Left, Up and Down gaze. A set is completed when all four directions are completed. After each set the therapist should ask about eyestrain and fatigue.
6. Five sets should be completed before the therapist moves back to 2 meters
7. The same initially instructions will be completed but this time the target will be moved out two feet in the four directions.
8. Finally the therapist will complete the activity standing at 2 meters but moving the target out to 3 feet.

**Phase 2**

Is completed in the same manner but the patient will use red lens glasses for the activity. The instructions are the same as in phase 1.

**First In-Office Visit**

This activity must be completed during the first in-office visit.

**Phase 1 (Sessions 2-5):**

The therapist will use the single Kirschner arrow target

**Phase 2 (Sessions 6-10):**

The therapist will use the single Kirschner arrow target while the patient wears the Red lens glasses

### **Coaching**

- The therapist can instruct the patient to move their head and follow the target with their head and eyes.
- The therapist can move the target slower and watch to make sure the patient's eyes are following the target.
- Be sure the patient can complete five sets at the distance being worked on before increasing the distance between the patient and therapist, or the distance the target is moved.

### **Goal**

Is for the patient to become comfortable with the Kirschner arrow target

# **Yoked Prism**

## **Phase 1**

### **Purpose**

To improve the eye teaming skills of the patient's eyes using lenses

Prepare the patient to use stronger power flipper lenses during later activities

### **Equipment Needed**

2 prism diopter yoked prism flippers lenses

Isolated visual acuity lines between 20/200 and 20/100

### **Procedure**

1. The patient stands one meter away from the visual acuity chart and the therapist tells the patient to read the letters on the chart. After each letter is read the patient should flip the lenses to the other side.
2. The patient should be instructed to read the line forward and backwards five times, indicating if there are any problems keeping the letters clear and single
3. If the patient can do this easily with the 2 prism diopter lenses the therapist can have them do the activity again with a higher prism amount.

### **First In-Office Visit**

This activity must be completed during the first in-office visit.

### **Coaching**

- The therapist can instruct the patient tell them if the letter get blurry or double
- The therapist should also ask about eyestrain while performing the activity
- The therapist can have the patient move closer to the chart
- The therapist can remove the flippers and have the patient slowly read the letters forward and backward
- The therapist can also have the patient look at a letter for a few moments with a lens before flipping the lenses and moving to the next letter

### **Goal**

Is for the patient to become comfortable with using the prism flipper lenses