Vertical Fusion Target Guide

Part Number: 713300

Guide:

The **Vertical Fusion Target Set** is used in the treatment of vertical tropias or strabismus. Each Black Card fits most commercial illuminated Vectograph Viewers. The cards provide the doctor and patient with targets that provide the appropriate feedback to help in the reduction of the angle of deviation. The procedure for using these targets was first spoken about by the late Dr. William "Bill" Ludlam. According to Dr. Ludlam, by using a set of targets like this and performing jump duction activities, one would actually change the underlying strabismic posture. This is done in lieu of building compensatory ranges and generally results in resolution of the problem in a shorter period of time with longer lasting results.

Product Contents:

Four Black Cards each with six Anaglyph boxes from ½ inch square down to ¼ inch square. Set also includes reversible red/green metal frame goggles.

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Figure 1 shows the ½" size cutouts.

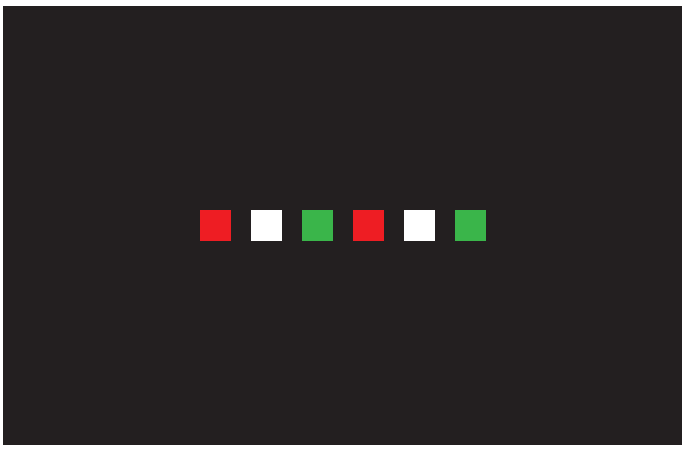

Figure 2 shows the ¼" targets.

NOTE: The two middle sizes are not shown.

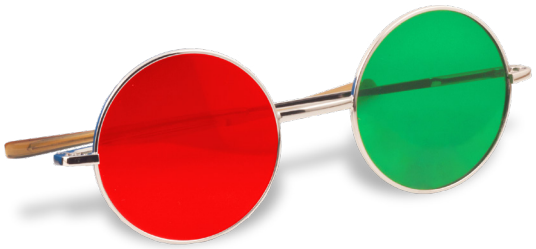

Figure 3 shows the Light Red/Green Anaglyph Glasses.

Lighting Environment:

Perform in subdued office lighting with illumination from the Dual Illuminated Vectograph Viewer.

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Figure 4 shows one of the targets on a Vectographic holder with the light turned on.

Therapy Procedure:

Prior to begin the jump duction procedure it is important to have a good measure of the amount of deviation. Several measures may be helpful to get a more comprehensive view of the problem. The measures may not all come to the exact same value and the degree of variation may provide additional clinical insight. In all verticals one must be aware that frequently a head tilt by the patient may be used to compensate for some of the deviation. Therefore, a measure of 8 PD OD hyper in one instance may be the same as 10 PD hyper in another instance if in one there was a head tilt and the other a different head tilt was present.

A good place to being is with a standard Von Graefe measure or Thorington Card with Risley prisms at distance and near. Use good bracketing technique coming from one side then the other and then retaking both measurements with the measuring prism in front of the other eye. Additionally measurement of the fixation disparity and the associated phoria may be very helpful. In the following a single number will be used for purposed of example. In most instances the starting point for the treatment will be the Van Graefe measurement of the vertical deviation.

The red green glasses and the filters in the targets have been matched for as good of a cancellation as can be achieved. With the red lens over the right eye, the right eye sees each of the red boxes as red and the white boxes as red. The red filter in the lens and green colors of the target cancel, so those two boxes are black. As a result, the black appearing green boxes blend into the background and the person sees just 4 red boxes with the right eye. Conversely, the left eye with the green filter on sees four boxes as well. These consist of the two green boxes, which are seen as green and the two white boxes which are seen as green as well. The two red boxes on the target again are cancelled by the green filter in the glasses. Therefore, each eye sees four boxes when viewing the target with the other eye covered.

If the target is viewed in a normal binocular manner with no overt strabismus (eye turn) manifesting itself, the person should see six boxes all in a horizontal line as can be seen in figures 1, 2 and 4. A person with a vertical deviation without any suppression and without any compensating vertical anomalous correspondence will see eight lit boxes with either the red or the green boxes higher than the other depending on the relative positions of the eyes.

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To begin the activity compensatory prisms should be put on. NOTE: It does not matter if the prisms are in front of or behind the red green glasses supplied.

With compensatory prisms in place the patient should again see only six boxes all in a single horizontal line.

NOTE: Should a patient report seeing only four boxes, all of the same color, they are suppressing one eye. Often if you have a patient blink their eyes the second set of boxes will be noticed once again.

Once the compensatory prism is in place you are ready to begin. The essence of the activity and the benefit to the person as suggested by Dr. Ludlam was in the making of a jump duction. To perform this activity a 2 or 3 prism diopter (PD) lens is to be used. The prism can be placed in front of either eye but the direction will vary depending on which eye you choose. The prism will ALWAYS be used in the direction that would reduce the compensating prism.

For example: if the patient shows 10 PD of left hyper deviation and you place this prism in front of his left eye he should now see 6 boxes in a single horizontal line. The direction of prism to use is either Base Up in front of the left eye or Base Down in front of the right eye. Either will work just as well. The essence of this is that you are actually performing a jump duction activity between two lenses with the current compensatory lens being the more powerful and the handheld lens effectively reducing the amount of compensatory prism in front of the patient.

When the prism is first introduced one of the rows of colored boxes will jump vertically and the patient should see eight boxes for a moment; four of each color. The two rows should then move toward each other and fairly rapidly blend together into a single row of six boxes again. If the rows remain eight and do not fuse back together in under 8-10 seconds then you may need to try a lower powered jumping prism.

Once the rows have come back together have the patient hold it for 10 seconds or so and then remove the prism. The rows of colored boxes should double again and be seen as eight boxes but now the configuration should be opposite. Over time these two rows should again be merged into a single row and held.

This should be repeated many times. In general, the greater the number of times the prism is popped in and popped out and the patient regains fusion with all six boxes lit up and in line per training session the better the quality of that training session. In general, it is better to several 6-8 minutes sessions per day of this activity than to do sessions of this one activity longer than 10 minutes.

Once the activity becomes easier, you may consider reducing the compensatory prism in the glasses being worn.

DIFFERENT SIZES

The kit comes with four different sizes of colored boxes. The larger box is a good place to start and is generally more forgiving of small misalignments of the eyes in space. Over time work from the larger to the smaller sets of boxes. Additionally you may find it helpful to work at different distances from the targets. The same prism while at a further distance from the target typically is a greater challenge for the patient.

The goal is to reduce the need for the compensatory prism and to build comfortable binocular vision without a head tilt being needed to achieve fusion. These targets provide the patient, doctor, and therapist with feedback as to what is happening and where the patient is looking in space.

Acknowledgements:

Good-Lite acknowledges that inspiration and extensive guidance has been provided by Dr Paul Harris at Southern College of Optometry.

References

Ludlam, William, “Orthoptic Treatment of Strabismus”, JAOA, 1-10/#2891961

Ludlam, William, “Management of Infantile Strabismus – Research Issues and Standards of Care, JOVD, Vol 24, #2 pp 8-14 1993

Harris, Paul, et al., OEP Clinical Curriculum, VT 3 Amblyopia and Strabismus course

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Replacement and Accessory Parts:

Replacement Parts	
Part Number	**Description**
913159	Front black base plate cut with six .75 inch squares
913190	Back black base plate cut with six .75 inch squares
913160	Front black base plate cut with six .5 inch squares
913191	Back black base plate cut with six .5 inch squares
913161	Front black base plate cut with six .375 inch squares
913192	Back black base plate cut with six .375 inch squares
913162	Front black base plate cut with six .25 inch squares
913193	Back black base plate cut with six .25 inch squares
910209	Plastic green transparent sheet
910210	Plastic red transparent sheet
591900	Light Red/Green Anaglyph Glasses

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Replacement and Accessory Parts:

Optional Accessories	
Part Number	**Description**
489300	Adult Near Thorington Card with Transilluminator Adapter
555800	Adult Near Thorington with push-button LED light
205001	Long Handle Red Maddox with 45º Lines
621707	Dual Illuminated Vectograph Viewer
681900	Large Red/Green Anti-Suppression Goggles
681906	Large Red/Green Anti-Suppression Goggles Set of 6
682000	Small Red/Green Anti-Suppression Goggles
682006	Small Red/Green Anti-Suppression Goggles Set of 6
445700	Prism on a Stick .05 Diopter
445701	Prism on a Stick 1 Diopter
445702	Prism on a Stick 2 Diopter
445703	Prism on a Stick 3 Diopter
445704	Prism on a Stick 4 Diopter
445705	Prism on a Stick 5 Diopter
445706	Prism on a Stick 6 Diopter
445707	Prism on a Stick 7 Diopter
445708	Prism on a Stick 8 Diopter
445709	Prism on a Stick 9 Diopter
445710	Prism on a Stick 10 Diopter
445712	Prism on a Stick 12 Diopter
445715	Prism on a Stick 15 Diopter
445720	Prism on a Stick 20 Diopter
445725	Prism on a Stick 25 Diopter
445730	Prism on a Stick 30 Diopter
445735	Prism on a Stick 35 Diopter
445740	Prism on a Stick 40 Diopter
445745	Prism on a Stick 45 Diopter
445750	Prism on a Stick 50 Diopter