

WARSHOWSKY

Stop 'n Go

Free Space Fusion Trainer ©1985

JOEL H. WARSHOWSKY, O.D.

Abstract

The Stop 'n Go Free Space Fusion Trainer^a represents a new binocular vision therapy technique. Its unique design combines the use of anaglyphs to voluntarily attain chiasmatic or orthopic fusion with immediate patient feedback. Unlike other free space fusion cards, accommodation is minimized so that the ability to control fusional vergence is enhanced.

Key Words

Stop 'n Go card, free space fusion, anaglyph, chiasmatic fusion, orthopic fusion, kinesthetic, proprioception

The Stop 'n Go card^a represents a unique free space (i.e., out of instrument) training technique. Both divergence and convergence can be trained with a minimum of accommodative effort. This type of technique more closely approximates natural seeing conditions than instrument training. In general, therapy techniques that approximate natural or normal conditions are thought to be more effective in achieving the desired objectives of a vision therapy program.¹

Basic underlying goals of binocular techniques include increasing fusional divergence and convergence ranges, a decrease in latency in the fusional response and an increase in velocity of the fusional response.¹ Most commonly, a change in the stimulus to vergence occurs while accommodation is maintained at a particular demand level to ensure clarity.

The uniqueness of the Stop 'n Go technique lies in the combining of anaglyph (red/green targets) and free space fusion with targets which are relatively free of detail. The anaglyph targets and filters provide a source of immediate feedback to the patient for both divergence and convergence and do not require the degree of inhibition of accommodation during convergence or stimulation of accommodation during divergence as other free space vergence cards (i.e., Lifesavers,^b Eccentric Circles^c), where the maintenance of target clarity is part of the procedure.

Awareness of the Procedure

Training techniques afford opportunity for patients to not only be aware of the

nature of a change in function, but additionally to realize that these changes are, in fact, internally driven and under their control.² The ultimate goal of therapy is the internalization of change in visual function and process.² In order for this to occur, the patient must understand the intended change in function that the technique affords.³

The Stop 'n Go card provides the opportunity for patients to become aware of the kinesthetic/proprioceptive feeling associated with convergence and divergence functions without the need to be aware of clarity. The instructional set provided to the patient, "Feel as if you are looking close and crossing your eyes," does not include, "Keep what you see clear." Rather, the design of the Stop 'n Go card accentuates the kinesthetic/proprioceptive feeling necessary for vergence function and not vergence combined with the inhibition or stimulation of accommodative vergence.

Design and Use

The Stop 'n Go card is illustrated in Figure 1. The patient wears anaglyph glasses with red covering the right eye and

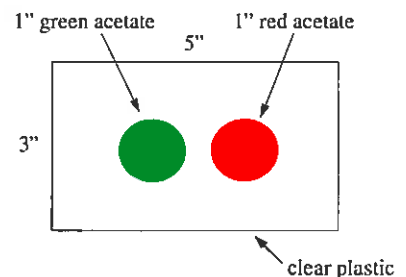


Figure 1. Stop 'n Go Card Design

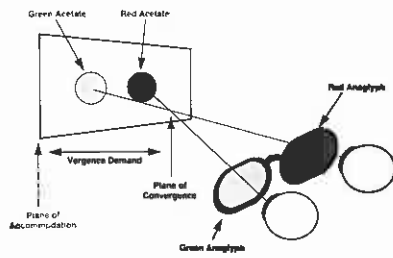


Figure 2. Arrangement for Chiastopic Fusion

green covering the left eye. The patient holds the card at eye level at a 13" to 16" distance from his midline. The card is held so that the red acetate is in front of the right eye and green acetate in front of the left. When the patient converges an appropriate amount closer than the plane of the target, the right eye views the left target while the image of the right target falls on the nasal retina of the right eye. The left eye views the right target with the left target falling on the nasal retina of the left eye. The two centrally fixated targets are fused and the patient perceives them as a black circle in the middle of the card (chiastopic fusion) (see Figure 2). Two other images will be perceived as clear (i.e., transparent), one to the right and one to the left of the fused dark central image (Figure 3).

The optimum response is best achieved when the card is held opposite a uniformly bright wall without background distraction. When the patient diverges relative to the plane of the target, a transparent center circle and two outer black circles are perceived (orthopic fusion) (see Figure 4). If either the anaglyph glasses or the card is reversed, convergence will produce a transparent center circle with black side circles and divergence with a black center circle and transparent side circles. It is the distinct change from black to transparent that enables patients to become more easily aware of postural change differentiating convergent and divergent function.

Sequential Therapeutic Applicability

The Stop 'n Go Free Space Fusion Trainer provides the patient with feedback acknowledging limitations in vergence function and offers the means to remediate these limitations unencumbered by the need to significantly inhibit or stimulate

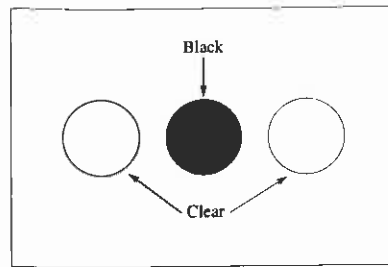


Figure 3. Result of Chiastopic Fusion

accommodative vergence. Its use will enhance a binocular vision therapy program by providing reduced demands when voluntary convergence and divergence are desired. In order to maximize the effectiveness of this technique, a sequential order of procedures is necessary, establishing a foundation upon which the Stop 'n Go card is utilized. Techniques fostering simultaneous perception and physiological diplopia are warranted.

The Brock String and convergence push-up techniques provide patients with the opportunity to experience simultaneous perception and physiological diplopia. Emphasis of physiological diplopia with fixation at a point of regard develops flat fusion control. With the mastery of simultaneous perception and physiological diplopia, patients are introduced to the kinesthetic awareness of voluntary vergence through the Stop 'n Go card. If necessary, a Brock String is attached to the Stop 'n Go card, reinforcing the awareness of voluntary control. The free space design encourages elaboration of this technique through variations of the treatment procedure. "Tromboning" the Stop 'n Go card provides dynamic interaction, increasing and decreasing convergent demand as the card is brought closer and further along midline from the patient. Flexibility can be achieved through a jump duction activity, binocularly adjusting between convergent and divergent posture. Further, additional flexibility can be fostered through changes in the field of gaze and the use of prism flippers. Once voluntary vergence control with the Stop 'n Go card is successfully accomplished, techniques such as Life Savers^b and Vectograms^c can be introduced, providing vergence demand in association with the inhibition or stimulation of accommodation. Here the image will be kept clear and single.

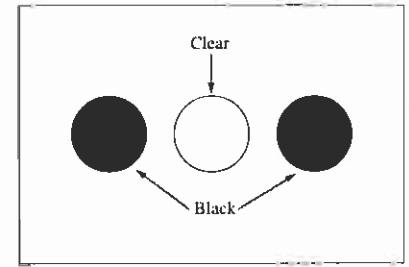


Figure 4. Result of Orthopic Fusion

Conclusion

The concept of a Stop 'n Go Free Space Fusion Trainer came about from the need to have patients become more easily aware of kinesthetic feedback associated with vergence control in a vision therapy program.

It is the purpose of this technique to limit the inhibition or stimulation of accommodative vergence influence on vergence function so that feedback is directed toward convergent and/or divergent demands. In so doing, voluntary vergence control is more quickly attainable with reduced effort. This technique is particularly indicated with younger children and other patients who have difficulty becoming kinesthetically aware of their vergence functions.

Sources of Equipment

- Optometric Extension Program Foundation, Inc., 1921 Carnegie Ave., Suite 3-L, Santa Ana, CA 92705-5510.
- Keystone View Company, 4673 Aircenter Circle, Reno, Nevada 89502.
- Bernell Corporation, 750 Lincolnway East, PO Box 4637, South Bend, Indiana 46634; 800-348-2225.

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Corresponding author:

Joel H. Warshowsky, O.D., FAAO, FCOVD

SUNY State College of Optometry
100 East 24th Street
New York, NY 10010

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