

Gross Convergence Therapy

Brock String (Level 1)

Objective

The objectives of Brock String are to:

1. Develop the kinesthetic awareness of converging and diverging
2. Develop the ability to voluntarily converge
3. Normalize the near point of convergence

Equipment Needed

1. Brock String
2. Flip lenses (-2.00 D)

Setup

1. Use two beads and about 1 m of string.
2. Instruct the subject to hold the string taut and against the bridge of his or her nose.
3. Set one bead about 60 cm (red bead) from the subject and the other about 30 cm away (green bead).

Procedure

1. Ask the subject to look at the closer bead and describe what he or she sees. Because of physiological diplopia he or she should report that he or she sees one green bead and two red beads. In addition, he or she should perceive two strings crossing at the green bead with one string extending from his or her right eye and the other appearing to extend from his or her left eye.
2. Ask the subject to fixate the far bead (red) and he or she should now report one red bead with the strings crossing at the red bead. He or she will also see two green beads.
3. It is important to explain the meaning of these observations to the subject. Use the following explanation. "We are doing this exercise to teach you how to cross your eyes. The exercise lets you know what your eyes are doing at all times. The way vision works is that wherever your eyes are pointing you have single vision. Everything else in front or behind the object you are looking at will be seen as double. Look at the green bead and you will see one green bead, two red beads behind it and a string that crosses right at the green bead and forms the letter "X". The strings should look as if they are extensions of your right and left eyes. Where you perceive the two strings cross is actually where your eyes are aimed. Thus, if you are trying to look at the green bead but the strings appear to cross farther away than the bead, this is an indication that you are looking too far away. Use this information to try and correct your eye position and look closer."
4. If the subject experiences difficulty accomplishing any of the goals listed above there are several techniques the therapist can use to help him overcome this obstacle.
 - a. Suggest that subject try and get the "feeling" of looking close and crossing his or her eyes.
 - b. Have the subject touch the bead that he or she is trying to fuse. This kinesthetic feedback is sometimes enough to help the subject achieve single vision.
 - c. Use binocular minus lenses to stimulate accommodative convergence.
5. Once the subject is able to fuse the near and far beads instruct him to hold fixation at the near bead for 5 seconds and then switch fixation to the far bead and hold for 5 seconds.
6. Have him repeat this three times and then move the near bead 5 cm closer while always maintaining the far bead at 60 cm.
7. Have the subject repeat the step of alternately fixating the far and near beads for 5

seconds, 3 times.

8. Continue moving the near bead closer until he or she can successfully converge to a distance of 2.5 cm from his or her nose.

Endpoint

1. The subject can successfully converge to a bead placed 2.5 cm from his or her nose.
2. The subject should be able to appreciate the different feeling and effort associated with converging and diverging.

Brock String (Level 2)

Objective

The objectives of Brock String are to:

1. Develop the kinesthetic awareness of converging and diverging
2. Develop the ability to voluntarily converge
3. Normalize the near point of convergence

Equipment Needed

1. Brock String
2. Flip Lenses (-2.00 D)

Setup

1. Use about 1 m of string, one bead at 2.5 cm and the other at 1 m.
2. Instruct the subject to hold the string taut and against the bridge of his/her nose.

Procedure

1. Instruct the subject to fixate the bead at the end of the string (1 m) to try and see that the two strings cross at the bead.
2. Now have the subject very slowly fixate closer and closer until he/she is fixating at the close bead at 2.5 cm in front of his/her nose. It is important to emphasize to him/her that the change in fixation from far to near should be very gradual.
3. After the subject can converge all the way to his/her nose, reverse the process and have him gradually diverge to the end of the string. Repeat this procedure for 20 repetitions.
4. Now have the patient remove all the beads from the string. Ask the patient to slowly converge from 1 m to 2.5 cm and to always see the "X."

Endpoint

1. The subject can voluntarily converge to a distance 2.5 cm from his or her nose.
2. The subject should be able to appreciate the different feeling and effort associated with converging and diverging.