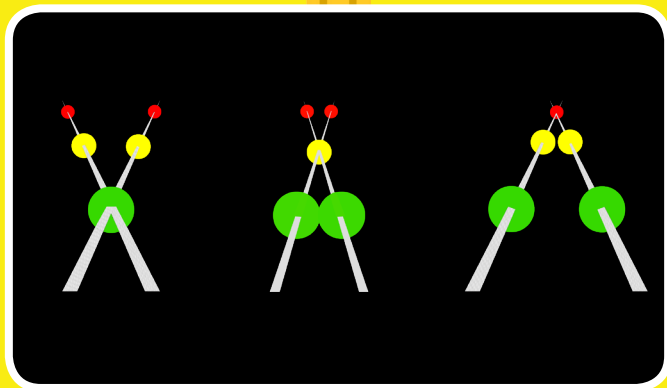
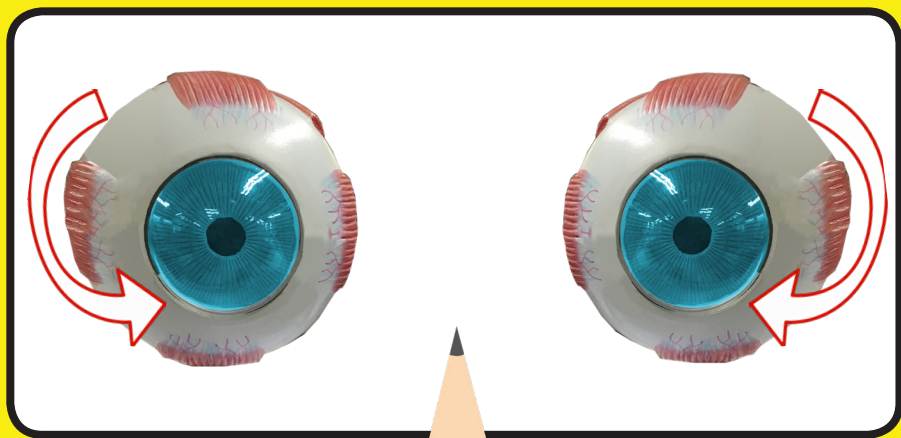


Eye Exercises

To strengthen eye muscles

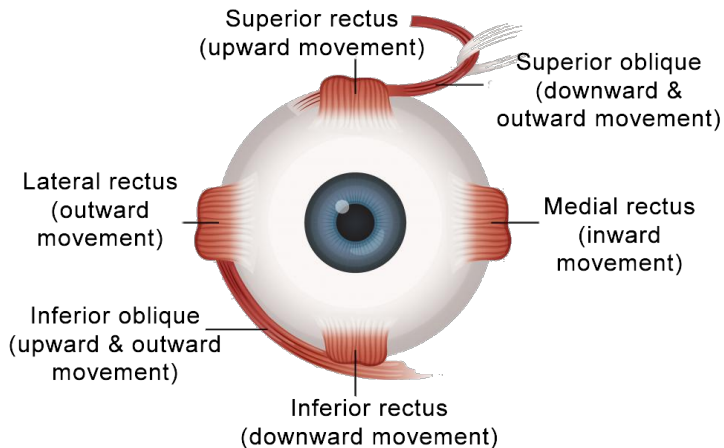


Matheson Optometrists

Specialist Therapeutic Optometrists

Convergence Exercises

When doing close tasks, we have to both actively focus on the object we are looking at and also converge our eyes so that both eyes turn in and see the object singly. When we converge our eyes, the medial rectus muscle of each eye has to contract at the same time resulting in both eyes turning in together. Sometimes the convergence response is inadequate and our eyes do not turn in enough. This is called convergence insufficiency



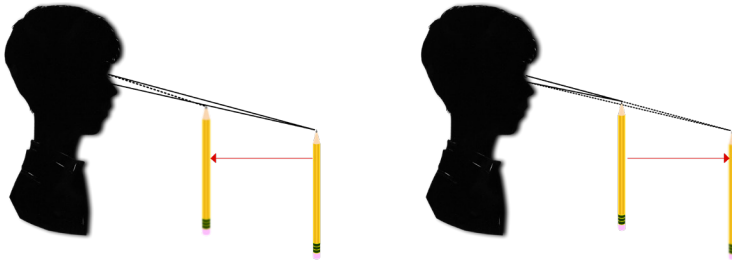
We can give the patient orthoptic exercises. These exercises are to make the medial rectii muscles of both eyes fitter and stronger in much the same way that “press-ups” make your arm muscles more powerful. This results in stronger muscles with greater fusional reserves and dispenses with or reduces the need for prismatic spectacles. The exercises can be tiring if done correctly, but result in a stronger more functional visual system. The old saying, “no pain, no gain” applies

We can strengthen our convergence system in 3 main ways:- exercising our Slow or Pursuit vergence system (Pencil To Nose), our Fast or Saccadic vergence system (Jump Vergence) or by utilising physiological diplopia exercises (Brock String).

We generally recommend 12 weeks of intensive exercises which comprise 5 minutes slow convergence, Pencil To Nose and then 5 minutes jump vergence followed by a further 5 Brock String exercises. If this is done correctly for 12 weeks the problem in most cases is dramatically reduced. If some exercises are done periodically afterwards the eye muscles and the visual system stays strong. These exercises are be tiring, but by exerting your eye muscles you will make them stronger.

Slow or Pursuit Convergence - Pencil to Nose Exercise Technique

Hold a pencil about 50cm from the nose at slightly below eye level. Concentrate on the tip of the pencil ensuring that it remains in focus and is seen singly. Next slowly bring the pencil towards the nose, maintaining focus and single vision. This will become more difficult as the pencil gets closer. Keep advancing the pencil till you cannot keep it single. At that point pull the pencil away by about 5cm, regain single vision and slowly bring it closer again, striving to get it slightly closer than the previous attempt each time. Stop after 5 minutes. Persevere, it is making your eyes better!



Fast or Saccadic Vergence – Jump Vergence Exercise Technique

Once again start with the pencil at about 50cm from the nose. We also need a vertical target to look at a distance of at least 2m away. Fixate for 5 seconds on the distance target, ensuring it is in focus and single, then transfer to the pencil, ensuring that it remains in focus and single. Hold this for the count of 5 seconds each time. It is helpful for children doing this to count out loud to 5 slowly. Then transfer fixation to the distance target for 5 seconds, trying not to let it split into two. Bring the pencil 4cm closer and refixate on it keeping it single for the count of 5. Repeat this over and over again for 5 minutes or till you can get it within 2cm of the end of your nose. If the pencil appears double despite your best efforts, pull it away 2 cm and regain single vision. Then try to get it closer and single again. Persevere, it is making your eyes better!



Physiological Diplopia - Brock string Exercise Technique

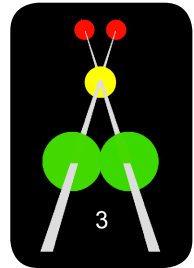
A Brock string is a string with three beads, usually green, yellow and red. The beads should be a snug fit on the string, such that the beads can easily be moved to different positions on the string, as below.



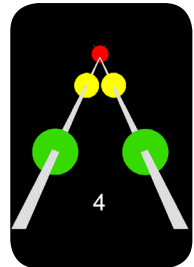
1. One end of the string is tied to an object at eye level such as a door handle or the back of a chair. The other end is held at the end of the nose, so that they can look down the string at a particular bead.

2. The green bead should initially be about 30cm from the nose, the yellow bead is about 60 cm away and the red bead is about 90cm away.

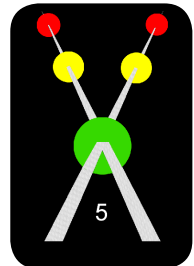
3. The patient then looks at the yellow bead. Due to a phenomenon called "Physiological Diplopia", they should see one yellow bead, two red beads and two green beads. If this is not seen it is probably because the brain is suppressing the image from the non-dominant eye. To combat this the dominant eye needs to be covered up so that the other eye can concentrate on the yellow bead. When the dominant eye is uncovered the doubled images of the red and green beads can be usually seen.



4. Next, focus to the red bead so that you see one red bead and two yellow and green.



5. Next, focus to the green bead so that you see one green bead and two of the others.



6. Next, transfer your eyes first to the yellow bead, then the red bead, then the yellow bead, and then to the green bead, over and over again holding your focus on each bead for 5 seconds.

7. Having mastered this, move the green bead closer to the nose in 2 cm steps. Between each step focus up and down the string at the other beads.

8. Over time and over several sessions, move the green bead closer until convergence is comfortably achieved at 20cm from the nose.

This exercise should last for 5 minutes.

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