

Convergence weakness/ Convergence Insufficiency (CI)

information for parents and guardians



This leaflet describes convergence weakness and the treatment which may be given.

Convergence is the ability to bring your two eyes in together towards your nose at the same time. Convergence is important for all near tasks and enables us to read comfortably.

Convergence weakness or sometimes called Convergence Insufficiency (CI) is a weakness of convergence; when the eyes are unable to work together when looking at nearby objects caused by a weakness of the eye muscles used to pull the eyes inwards.

If you have convergence weakness you may have symptoms such as:

- Blur or double vision when reading
- Headaches or eyestrain after reading or other close work.

CI can be improved by exercises, which will be given to you by your orthoptist

These need to be done little and often to rebuild the strength of the muscles and improve symptoms.

These exercises may feel uncomfortable initially, as the muscles begin to strengthen. Some patients report that their symptoms get worse before they get better. This will ease over time, so don't give up! Several different exercises can be given, dependent on your symptoms.

During the exercises, you may be aware of the world around what you are focussing on becoming double. This is a completely normal phenomenon known as Physiological Diplopia, and is nothing to be worried about!

Your CI may be secondary to other general health conditions which may impact your treatment regime, your orthoptist will discuss this with you.

When to do the exercises?

You will be advised by the orthoptist how often to carry out the exercises. 'Little but often' is the best regime; practicing 4-6 times a day for 1-2 minutes at a time.

Remember that as with any form of exercise, your eye muscles may feel more tired or uncomfortable at first. This is because you are using muscles that are not used to working as hard as they should be. This will improve with continued exercising.

It is important to **relax the eyes afterwards**, either by closing the eyes or looking in the distance (the end of the room), for a few seconds. This relaxes the muscles and avoids "cramp".

Do not practice for longer periods than advised by the Orthoptist and try to avoid exercising when your eyes are particularly tired or you are unwell.

Here are the exercises you have been prescribed: (clinician tick the one that applies)

- Smooth convergence of target to nose exercises
- Dot card/jump convergence
- Cat Stereograms
- Fusion bars

Please only do the exercises you have been prescribed

These exercises have been prescribed by your orthoptist and with motivation and dedication can treat your symptoms.

Which glasses to use for the exercises: (clinician tick the one that applies)

- Reading glasses
- Single vision glasses
- Varifocal glasses
- Bifocal glasses
- Prism
- Other

[Only information sheets on prescribed exercise will be given to the patient]

Smooth convergence of target to nose exercises

Aim: to keep the target as one image for as long as possible as you bring it gradually closer. The closer you get towards your nose the harder the exercise will become.

1. This exercise is usually done with a target on a lollipop stick, which your orthoptist will provide.
2. Begin with the target held at arm's length and slightly below eye level, ensuring your head is straight and still. Focus on the target ensuring it's clear and single.
3. Move the target slowly towards your nose making sure that the target stays clear and single for as long as possible.
4. If the target becomes blurry stop moving the target towards your nose and try to make it clear. Don't look away.
5. If the target becomes double (ie. you see 2 of it), stop moving the target towards your nose. Don't look away. Using your eye muscles, try to force the 2 images together to make 1 single image again. Make sure you keep both eyes open and focus on the target.
6. If a clear or single image is achieved: continue to move the target towards your nose, trying to maintain clear and single vision.
7. If you are unable to make it clear or single again despite trying hard to do so, try taking the target back a short distance (2 or 3cms) away from the nose and try again. Starting from step 2 attempt to repeat the process.



Dot card / jump convergence

Aim: to be able to see the dot closest to your nose singly and hold it for a count of 10.

1. Keep your head straight, hold one end of the dot card against the tip of your nose. Hold the card straight or angled slightly downwards in a position where you can see all the dots properly.
2. Look at the dot furthest away from you and try to make your eyes see this as one (ie. singly) by gently using the eye muscles to pull the eyes inwards. When you see this furthest dot singly, all the other dots should appear double and they will fan outwards towards you. See Figure 1
3. If you can make the end dot single, hold it for the count of 10 whilst keeping the dot single.
4. Once you are able to do this look at the next dot closer to you and do the same. Make it single by gently pulling inwards with the eye muscles. See Figure 2.
5. If the dot you are looking at goes double, (see Figure 6) stop and try and join the images. If you can join the images continue to move onto the next dot. If you can't join the dot go back to the previous dot and get it single and then reattempt to move to the next dot closer to you.
6. As you near the middle dot on the dot card the lines will form an 'X', crossing at the dot that is being focused on. See Figure 3.
7. As you move onto the dots closest to your nose the lines will start to form an arrow pointing towards your nose. See Figure 4 & 5.



8. Continue in the same way up the line of dots towards you making sure each one is single and holding each one for a count of 10. If you cannot make a dot single go back to the previous dot and try again.
9. Your orthoptist may adapt this exercise to enable you to achieve jump convergence.

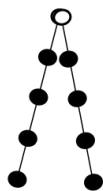


Figure 1

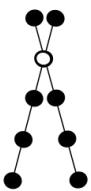


Figure 2

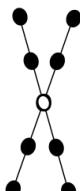


Figure 3



Figure 4

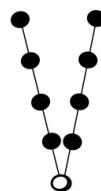


Figure 5

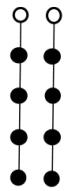


Figure 6

Cat Stereograms

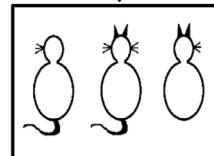
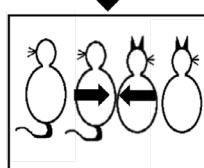
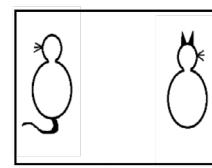
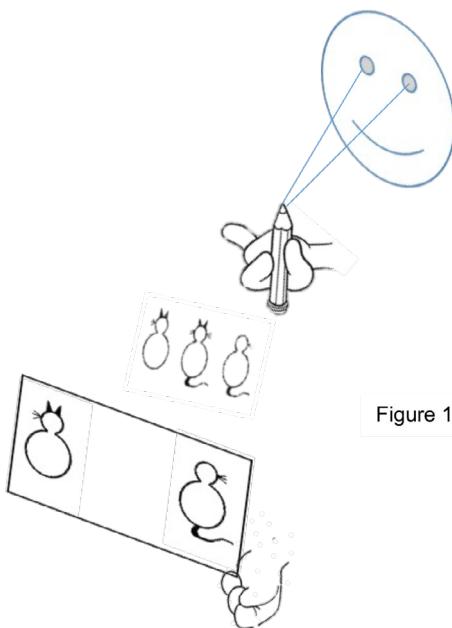
Aim: While looking at the pen, to see 3 cats behind and the middle cat has ears, tail and both sets of whiskers.

1. Hold the cat card at arm's length at the same level as your eye.
2. Then hold a pen half way between the card and your face. See Figure 1
3. Look at the top of the pen and concentrate on it. It should appear as a single image.
4. The cats behind the pen will then look like they are moving apart. Keep looking at the pen and NOT the cats though.
5. To start with, you may see four cats if you are looking at the pen. See Figure 3.
6. The aim is for you to be able exercise/control your eyes to see 3 cats behind the pen while still looking at the pen.

7. The middle cat should have ears, tail and both sets of whiskers.
See figure 4.

Stereograms can be very difficult to do as it is very tempting to look directly at the pictures; in this instance only two pictures will be seen - not three.

If you find it difficult the orthoptist can adapt the exercise for your condition.



Prism fusion bars

Aim: to achieve a single image whilst looking through each of the prisms in turn.

1. Look at an object up close/in the distance (delete as appropriate)
2. Hold the prism bar in one hand and place it in front of the eye (as labelled by your orthoptist), starting with the lowest strength prism.
3. Keep both eyes open and try and keep the target/object that you are looking at single.
4. Move the bar upwards so that you are now looking through the second prism. Aim to achieve a single image through this prism too.
5. If the object you are looking at is double, try to make it single. If this is not possible, move back to the first prism to regain a single image and re-try moving to the second prism. Repeat this move from the first to the second prism until you can maintain a single image easily.
6. Then move the bar down so that you are looking through the third prism and repeat the above process.
7. Continue practicing this, aiming to achieve a single image whilst looking through each of the prisms in turn.
8. If you are having trouble achieving a single image, move back to the previous prism and try again.

Exercise record chart: please tick each time you do your exercises

	Mon	Tues	Wed	Thu	Fri	Sat	Sun
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2							
3							
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