Wrightington, Wigan and Leigh Teaching Hospitals
NHS Foundation Trust

Home Exercises to Improve Convergence Insufficiency (weakness of the eye muscles)

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Home Exercises to Improve Convergence Insufficiency

Patient Information

Orthoptic Department

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What is Convergence Insufficiency?

Under normal circumstances, the eye muscles will pull both eyes inwards towards the nose smoothly when looking at an object close up. Normally this occurs without effort and allows comfortable use of binocular (both eyes) vision whilst reading or doing other close work. Weakness of these eye muscles may cause problems in coordinating the eyes at close range – this is called Convergence Insufficiency.

What Causes Convergence Insufficiency?

There are many different causes, but the possibilities include a change of occupation involving increased close work, an intensive period of close work (e.g., studying for exams), overwork, worry, recent illness, or whiplash. Sometimes no reason is found.

What symptoms does Convergence Insufficiency cause?

Typical symptoms are headaches in the front of the head and around the eyes, eye strain, and sometimes difficulty in changing focus from distance to near. Blurred vision or double vision may also be noticed.

What treatment is available?

Normally, eye exercises, which can be practiced at home, will be recommended. If exercises are carried out regularly, improvement is usually quite rapid, and within a few weeks, symptoms should improve. Some people do need longer to improve and may take several months to get completely better. The eye exercises will be supervised by an Orthoptist, who is a specialist in eye muscle balance and coordination. The Orthoptist will explain which exercises are best for each individual patient and explain how to carry them out. Advice will be given on the frequency and duration of the exercises, and a follow-up appointment will be arranged. It is important to attend the follow-up appointment to check on progress and to change the exercises if necessary.

What will happen if the symptoms are not cured by exercises?

The Orthoptist will probably recommend further tests with an Ophthalmologist to determine if there is any other cause of the symptoms.

Exercises Explained

Convergence to a Pen

It is probably best to get somebody to read these instructions to you as you do the exercise.

These are basic instructions, and variations on these may be given by the Orthoptist, tailored to your needs.

You may be advised to use a pen or sometimes a small picture or piece of reading print attached to a small wooden stick. For the purposes of these instructions, a pen is described, but the principles are the same whatever target is used.

- With your head straight, start with the pen at arm's length, straight ahead and at eye-level or slightly below eye-level. Focus on the tip of the pen and make sure it is single and clear. Move the pen slowly towards your nose, making sure that the pen stays single for as long as possible.
- If the pen goes double (i.e., you see 2 pens), stop moving the pen immediately but continue to look at it and use your eye muscles to “pull” the images together to make one pen again. Do not do this by closing one eye, by blinking, or by looking away from the pen, as this will not exercise the muscles. The sensation you will feel is one of going cross-eyed; do not worry, this is normal and is necessary to achieve results.
- If you can make the stationary pen single again by pulling your eyes in, then start to slowly move the pen towards you until it doubles up again. Repeat the process of stopping, trying to use your eyes to make the pen single again, and then proceeding as before.
- If you can only move the pen in towards your nose so far before it goes double, and if you are unable to make it single again despite trying hard to do so, try taking the pen back a short distance (2 or 3 centimeters) away from the nose and try again. Do not go right back to the beginning each time the pen doubles up. You need to work hard around the area where the pen starts to go double – this will improve your convergence insufficiency.

The aim of the exercises is to be able to watch the pen move slowly all the way to the end of your nose and to keep it single all the way. The closer you get towards your nose, the harder the exercise will become.

If you are in any doubt about the pen convergence exercises, ask the Orthoptist to demonstrate it to you at your next visit.

Incidentally, if whilst doing this exercise you happen to notice that you can see double of other objects in front of or behind the pen, do not worry. This is a normal phenomenon called physiological diplopia, just ignore it.

The Orthoptist will advise you how frequently and for how long to do this exercise.

Jump Convergence

This exercise helps you learn to control & strengthen the movements of your eyes between distances.

You will need a distance fixation point 3-4 meters away and a near target such as a pen.

1. Hold the pen at arm's length and look at your distance fixation point.
2. Then quickly "jump" your fixation to look at the pen and make the pen single. If the pen is double, "pull your eyes in" to make it single again.
3. Once it is single, "jump" your fixation back to the distance target.
4. When you can do this with ease, move the pen in slightly.
5. Re-fix in the distance and jump your fixation back to the pen.
6. Continue to do this until the pen is almost touching your nose.

The Dot Card



- These are double-sided dot/letter cards for measuring the near point of convergence and accommodation and for home exercises.
- Dot cards treat convergence insufficiency more effectively than simple pen push-up exercises by ensuring correct ocular alignment.
- Dots are placed at 3cm intervals along the card, which is held lengthwise touching the end of the nose so that the dots are 6cm to 24cm from the eye. Clear instructions are included, but additional information for correct treatment of convergence insufficiency should be given by a qualified practitioner.
- 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.
- Look at the furthest dot and try to make your eyes see this as one (i.e., 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. This is normal.
- If you can, make the furthest dot single, count up to 10 slowly whilst keeping the dot single.
- Once you are able to do this, look at the next dot up the line closer to you and do the same. Make it single by gently pulling inwards with the eye muscles.
- When this dot appears single, all the other dots should appear double – making an X pattern crossing through the dot you are looking at. This is normal. Again hold this position, keeping the dot single, for a short count of 10 (slowly).

- 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. If you are unable to make even the furthest dot single, it may be that this exercise is too advanced for you at this stage, in which case the Orthoptist will advise you. However, some people do find this exercise difficult at first, so do persevere.

Make sure you make a conscious effort to pull your eyes in to look at the dots – the sensation is one of going “cross-eyed”. Sometimes discomfort is felt during the exercises. This is normal, and it is necessary to keep exercising despite this discomfort, but the exercise should not cause actual pain or bring on a headache – consult the Orthoptist if this happens.

If you can only get a short way down the dots but no further – keep practicing!

Take each dot in turn slowly and do not proceed to the next dot until you are able to hold the previous one single for a count of 10. The aim of the exercise is to be able to see the dot closest to your nose singly and hold it for a count of 10.

The Orthoptist will advise you how often to do this exercise and will tell you about relaxing your eyes after exercising.

Relaxation

It is extremely important to relax the eye muscles properly following exercising. This will avoid problems such as convergence spasm, which can occur in very rare cases if some of the eye muscles do not relax sufficiently.

The eyes may feel uncomfortable following exercising, and this is to be expected. However, too much exercising and/or not enough relaxation may make the eyes feel more uncomfortable than is necessary.

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.

After the exercises, make sure you either close your eyes for one minute or look far into the distance (e.g., out of the window) for a minute before undertaking any other activity. This is

as important as doing the exercises themselves.

Always follow the instructions carefully and ask if you are unsure about anything.

Contact Information

If you have any questions regarding this leaflet, please telephone the Orthoptic department on: **0300 707 2310**

Orthoptic Department
Entrance B
Second Floor
Wigan Health Centre
Frog Lane
Wigan WN6 7LB



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