Presbyopia

Professional Excellence in Eye Health

THE COLLEGE OF OPTOMETRISTS

Overview

There are two main parts of your eye which are responsible for focusing light onto your retina at the back of your eye so that you can see clearly.

These are your cornea, which is the transparent dome-shaped part at the front of your eye which covers your iris, and the lens inside your eye. The lens inside your eye changes shape to allow you to see things that are close to you.

As you get older the flexibility of the lens inside your eye reduces. This means that you are less able to focus on things that are close to you, so you may need to have reading glasses. This leaflet explains why this happens and what the various options are for correcting it.

Watch our video about presbyopia at **lookafteryoureyes.org/presbyopia**.

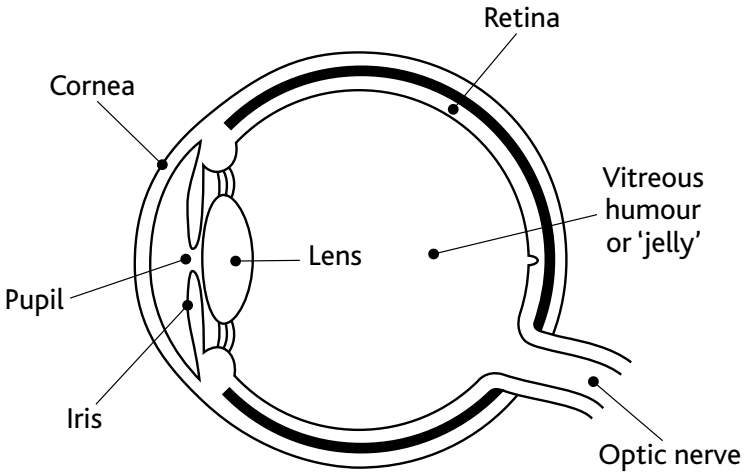
If you have any concerns about the health of your eyes, please visit your local optometrist. Optometrists are the eye health specialists in the community.

What is presbyopia?

When you are looking at something that is far away, your eye – if you are perfect-sighted – is shaped so that the object is clearly focused on your retina. This means that the image is clear.

When you look at something close up, for example to read a book, the muscles inside your eye that surround the lens contract to make the lens change shape. This focuses the light from the book onto your retina. The lens inside a child's eyes is elastic, and so can change shape easily to enable them to change focus from looking at something far away to looking at something close up. As we get older, however, the lens naturally stiffens and so it changes shape less easily. This means that we can no longer focus on things that are close to us and have to hold them further away to see them clearly.

A change in focusing tends to become more noticeable when we reach our late thirties or forties.



This is more noticeable when we want to look at something very close to us, such as when threading a needle. It may also mean that it may take longer for us to focus from looking at something close up to looking at something far away (or vice versa).

The exact age at which you will notice it will vary depending on several things, including whether you are long- or short-sighted, but the change in focusing tends to become more noticeable when we reach our late thirties or forties. This is when we tend to find it difficult to focus on things that are at the normal reading distance. It is quite common to see people who are presbyopic holding things further away from them in an attempt to see them clearly.

Presbyopia gets worse as you get older. It affects your vision of things that are close to you first. Your vision of things that are further away – such as the computer – is not affected until later, when your lens has lost almost all of its elasticity.

When the lens has lost its elasticity, you will need glasses to focus on objects at the different distances you need to see. This may mean having separate pairs for distance and reading, and maybe for middle distance such as looking at the computer or reading sheet music.

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What is the treatment for presbyopia?

Presbyopia is a natural part of ageing and there is no cure for it. The solution is generally to wear glasses for reading. Because reading glasses focus light that comes from objects that are close to you, you will find that if you wear them and look at something far away, it will appear blurred. This is quite normal, and you will often notice people peering over their reading glasses to see clearly in the distance. If you do not want to do this, or prefer not to have a separate pair of reading glasses, the alternatives are bifocal or varifocal lenses.

Bifocal glasses have two separate areas of the lens which are separated by a line: the top part of the lens focuses light from distant objects, and the bottom part of the lens focuses light from near objects. Varifocal lenses work in a similar way to bifocal lenses, but they have no line as the lens gradually changes its focus from top to bottom. This allows you to see objects at any distance clearly, simply by looking at the object and moving your head up and down so that your eyes look through the correct part of the lens.

Contact lenses are available for presbyopia if you do not want to wear glasses (see later).

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Are there exercises I can do to stop needing reading glasses?

Presbyopia is not caused by muscle weakness but by the lens stiffening as we age. There are no exercises that can help this.

Will presbyopia affect my distance vision?

If you are emmetropic (perfect-sighted), presbyopia will only affect your ability to see close up (reading, for example) and middle vision (using a computer, for example). It does not affect your distance vision, so you will still be able to drive without glasses.

If you are hyperopic (long-sighted), as you get older and the lens stiffens, both your distance vision without glasses and your near vision will become worse. You will then need to wear separate glasses for both distance and near vision, or have bifocals or varifocals, to see clearly. Your optometrist will tell you which applies to you.

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Will presbyopia affect my near vision?

If you are myopic (short-sighted), you will find that you can read more easily by taking your (distance) glasses off, although if you are very short-sighted you may have to hold things very close to see them clearly without your glasses. This is because your natural focus is close up, so you can see things clearly at this distance without your glasses. You may prefer to have bifocals or varifocals to stop you having to take your glasses off when you want to read.

I notice I mainly need my reading glasses at night – why is this?

It is very common to find that, if you need glasses, things are more blurry without them in dim light. This is because your pupils get bigger in poor light and you have less depth of focus. This means that you notice the blurriness more. The opposite effect is that you will often see better in bright light, for example outdoors in the sunshine when your pupils become smaller. This increases your depth of focus so that you don't notice the blurriness as much. You may also find that you are more tired at night, so your muscles find it more difficult to contract to change the shape of your lens.

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Will wearing glasses make my eyes worse?

No. As presbyopia is caused by the lens stiffening, and not the muscles weakening, wearing glasses will not make your eyes worse. However, you may notice that when you take your glasses off, things appear to be worse without the glasses than they were before you had them. This is simply because you are noticing how clear and comfortable vision should be. Before you had the glasses, you were unaware how blurry your vision really was because it changed slowly over the years.

Presbyopia will get worse as you age until you reach your late fifties, when you will have no natural focusing ability left. Unfortunately there is nothing you can do to stop it.

Can I use off-the-shelf reading glasses?

Ready-made reading glasses to correct presbyopia are available from optometrists. They are also available from many shops. They are designed for reading only and are not suitable for driving. They are only right for you if both of your eyes have the same prescription and you have no astigmatism.

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Research has shown that they are often not made to the same standards as prescription glasses (see note 1 below), so we would recommend you have a prescription pair for your main pair of reading glasses, although it is OK to have ready-made glasses as spares.

Even if you use ready-made reading glasses it is very important that you see your optometrist for regular eye examinations as people over 40 years of age are more at risk of eye diseases such as glaucoma and age-related macular degeneration. We produce leaflets on these conditions.

I don't want to wear glasses – can I have contact lenses instead?

Correcting presbyopia with contact lenses is more complicated than correcting it with glasses. This is because you can look through the different parts of a varifocal lens simply by moving your head or eyes. As contact lenses move with your eye, it is more difficult to do this and correct the focus both for distance and near vision, although bifocal and varifocal contact lenses are available and work well for some people. An alternative is to correct one eye for distance and the other eye for reading. This is called monovision. We suggest you discuss the various options for contact lenses with your optometrist.

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Note 1: Elliott, DB and Green, A. Many ready-made reading spectacles fail the required standards.
Optom Vis Sci. 2012. 89:E446-E451.

For more information, please talk to your local optometrist.

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Please visit **lookafteryoureyes.org** for more information.

This information should not replace advice that your optometrist or other relevant health professional gives you.

Your local optometrist

If you would like this leaflet in large print, please email **patients@college-optometrists.org**.

The College of Optometrists
42 Craven Street
London, WC2N 5NG

Website: lookafteryoureyes.org