

Introduction

The eye has two primary focussing structures. The first is the cornea-the clear front surface of the eye. This has the majority of focussing power. The second structure is the intra-ocular lens, within the eye, immediately behind the coloured iris (Fig 1). This lens is flexible and it constitutes the mechanism by which the eye's power can be adjusted to maintain a focussed image at a variety of distances.

When viewing a distant object (if the eye is perfectly sighted) the lens should be in a completely relaxed state. The total ocular system, including the cornea and lens, will bring these parallel rays of light from a distant object to a focus at the retina (Fig 1).

For light from a near object to be focussed a muscle contracts and the lens flexes. This changes the power of the eye, again maintaining a focussed image on the retina (Fig 2). The closer an object is the more the lens has to flex to maintain clear vision. When you focus at near the lens will flex to focus and as soon as you look into the distance again the lens relaxes. In this way the lens is constantly adjusting to whatever distance you are viewing.

Early Presbyopia

Unfortunately as you get older your intra-ocular lens hardens and will no longer flex as comfortably. This is presbyopia. The hardening of the lens is a slow process and it is not usually until you enter your 40s that a noticeable difficulty in near vision becomes apparent.

In the early stages the lens is still relatively flexible so reading difficulties are not always apparent. For instance if you are feeling fit and rested, and the light is good, you may read perfectly comfortably. Under less favourable conditions, perhaps late in the evening when you are very tired and the light poor, your optical system is under stress and you can no longer cope. At this stage people often feel it is not their eyes at fault but blame workloads or lighting. Also because the closer the object is the more your lens needs to flex, you may find you need to move the near task away from you. One of the earliest solutions to the problem is simply to hold all near work further away.

Presbyopia Progression

As the lens hardening continues it becomes increasingly difficult to focus at near. The periods of time when you feel you can cope diminish and the periods when you struggle increase.

To correct the problem your Optometrist can prescribe reading spectacles. These supply the focussing power your own lenses can no longer create. Unfortunately the spectacle lenses we supply do not readjust between distance and near as your own lenses were capable of doing. The result is reading glasses remain focussed at near and if you look up in them the distance vision will be quite blurred. This can be very inconvenient, particularly for certain occupations, and we need to discuss the options available to alleviate this problem.

The first reading spectacles prescribed should be quite weak, since your own lenses are still capable of focussing to some degree. You may only need your glasses occasionally at first, perhaps when you are very tired or the print is particularly small. However the hardening of the lens does not stop and you find you become more dependent on your spectacles. Eventually you find your existing glasses are no longer adequate and a stronger power will be needed. It is certainly true once into reading glasses you do not get out of them, however it is untrue the spectacles create the problem, their need simply follows the progressive hardening of the intra ocular lens.

Distance Vision

On a positive note, presbyopia should not affect your distance vision. Your lenses should be flat and relaxed when looking into the distance, therefore a lack of flexibility will not impact distance vision. Presbyopia only affects your ability to adjust the eyes to closer objects

