

FACT SHEET

Myopia (Short Sightedness) Control:

We now need to take it seriously

Trying to control progression of short sightedness has been an ongoing endeavour for many years. Because there are so many factors affecting the development of short sight, genetic as well as environmental, the research has often been difficult to interpret. However there is now clear evidence we can retard myopia progression.

Professor Bruce Evans, Director of Research at the Institute of Optometry explains the evidence now indicates there are viable options for parents to consider for their children.

Professor Evans, pictured, does stress, if myopia control was not multi-factorial we would have solved it by now.



It is important, therefore, to give parents realistic expectations. While we can slow progression we cannot, as yet, halt it. So, is it worth considering? The answer would appear to be yes. Why?

Health and Lifestyle

Short sighted eyes are more prone to eye problems such as retinal detachment, and myopic macular degeneration. Any reduction is therefore important.

A reduction in myopia also aids quality of life. A reduction from -4.00 to -2.00 would give comfortable reading, while a drop from -2.00 to -1.00 would allow many indoor tasks without spectacles.

Eye Growth from Birth

We are all born 'Long Sighted', meaning our eyes are slightly small; this is normal. Children of age 2 should be about +2.00. As we grow our eyes lengthen and we become less long sighted. Unfortunately, for some children, especially if genetically pre-disposed, the growth doesn't stop. The eye length moves beyond the neutral point and these people become short sighted. This is why the individual may not become short sighted until their teens. New contact lens strategies can reduce myopia progression by, on average 50%. Meaning, of course, some people may have greater or lesser effects.



A not-for-profit resource MyopiaCare is now available to check out on line at:

<https://www.myopiacare.org/>

This group presents a predictive test to estimate an individual's predicted myopia progression. The Myopia Care Web App is found at:

<https://myopia.care/index>

The theoretical mechanism of myopia progression

Figure 1: In eyes destined to remain normally sighted the retinal image is equally focussed across the entire retina (the 'image shell' is represented as the red arc - Fig 1) and not simply the central macula. The macula is the portion of the retina at the centre of vision used for accurate vision such as watching TV and reading

Fig 1: Normal vision with aligned 'image shell'.

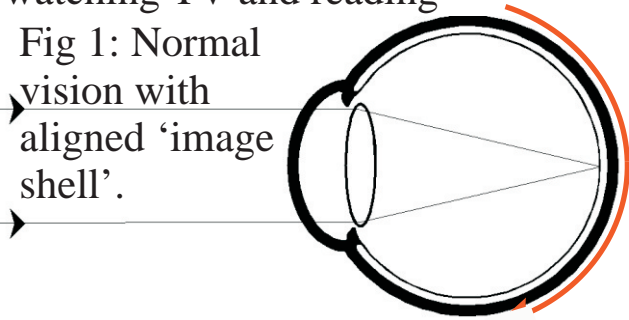


Figure 2: A push toward short sight is induced when the 'image shell' is behind the retina in the periphery (Fig 2). The patient will not notice this as the central vision is clear. The 'peripheral defocus' stimulates the eye to grow in an attempt to bring this imaging into focus.

Fig 2: 'Image Shell' with 'relative peripheral defocus' inducing myopic growth.

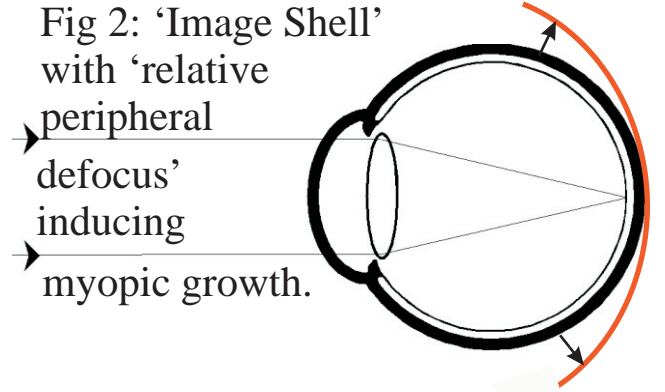


Figure 3: As the eye grows it becomes short sighted (myopic) and the patient will notice blurry vision as the increased eye length pushes the macula away from the accurately focussed point.

Fig 3: Short Sight induced as the eye grows in response to peripheral blur.

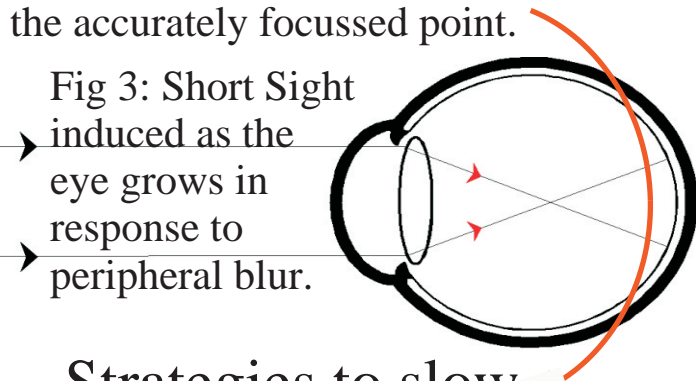
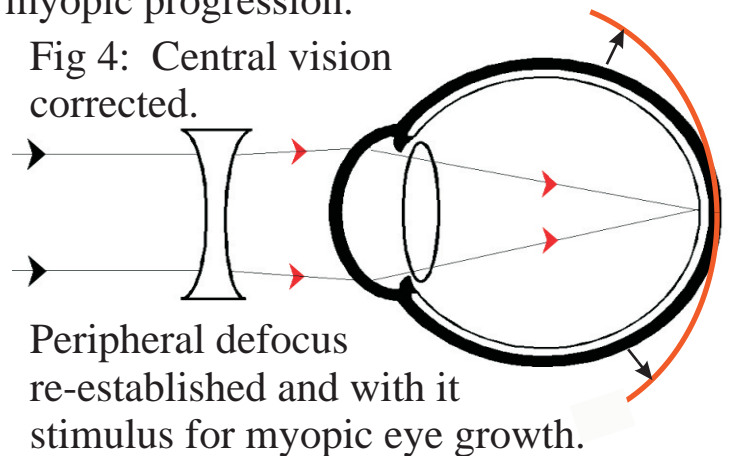


Figure 4: Once the eye is corrected for its central myopic blur the 'relative peripheral defocus' is re-established and with it the stimulus for further eye growth and myopic progression.

Fig 4: Central vision corrected.



Strategies to slow myopia progression

Before all else remember : Children who spend time outside and playing sports are less likely to develop myopia. Higher levels of natural light are also beneficial.

1) **MiSight** is a daily disposable contact lens specifically designed to reduce myopia.



2) **Multifocal** soft contact lenses with Centre Distance and Peripheral Near are also very effective. The Biofinity Multi-focus is the best lens at present.



3) **Orthokeratology:** Rigid Gas Permeable lenses which mould the cornea so no vision correction is required during waking hours (these lenses are worn during sleep). For further details see our Orthokeratology leaflet. This option may be preferred if unaided daily activities, such as swimming are important.