

Keep myopia under control

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There has been a lot of interest and research in optometry for many years regarding the aetiology of progressive myopia. The previously held theory of genetic causation is generally now disputed with a greater acceptance of environmental factors playing a significant role in myopia development. These environmental factors include excessive close work causing focusing inflexibility and living an indoor or restricted space lifestyle, together with theories of peripheral retinal blur contributing to irregularly-

shaped/myopic eye growth.¹

The use of plus additions at near and reducing blur awareness to the peripheral retina are considered key factors in myopia control. Consequently, suggestions of using multifocal soft disposable contact lenses as a possible option to slow myopic progression^{2,3} sparked my interest to trial these lenses over the past 18 months for patients who meet certain criteria. Patients were selected who presented with myopia and were suitable for

CASE REPORT

H dW, 13-year-old female

The patient was examined on 02/07. She was a good student who enjoyed reading. Myopia had developed approximately 18 months previously. Her subjective refraction had increased in myopia by -1.50 OU in 18 months and was:

R -1.75/-0.50x95 (6/6)

L -1.50/-0.50x95 (6/6)

Near retinoscopy showed a lag of accommodation of R & L +0.75 over the distance prescription, as well as reduced accommodative facility. Her near phoria (Howell card) was ortho. She was fitted with Proclear D (distance centre, near periphery)

R -2.00/Add+1.50

L -1.75/Add+1.50.

Review after 14 months

The patient had developed severe allergies; previously comfort and acuity were reported as fine. I advised her to suspend contact lens wear if allergy persisted and review again in two months.

Review 17 months after initial fitting

The patient had been doing a lot of reading and studying recently and noted some distance blur with contact lenses.

Over-refraction R -0.50 sph L -0.50/-0.50x90.

I suggested increasing the prescription by R -0.25, L -0.50 but patient requested R -0.50 L -0.75. The new contact lens prescription was R & L -2.50/+2.00

Summary

A myopic shift of approximately -0.50 in 18 months with multifocal contact lenses, compared to a -1.50 shift in the previous 18 months with a single vision distance spectacle prescription.

There appeared to be a significant slowing of the rate of progression of myopia in a 13-year-old female who was typically at risk of increased progression due to growth and her high school near vision load.

Poor lifestyle has taken a toll on children's vision but LIZ WASON proves that the onset of myopia may be controlled

contact lens wear, together with accommodative dysfunction and/or esophoria at near.⁴

The contact lens design of choice was a Proclear distance centre, near periphery soft monthly disposable contact lens. These lenses have a range of near additions of +1.00, +1.50 and +2.00.

With the recent growth of research, confirming many factors is worth consideration in the development of myopia. Certainly advising on environmental demands of stress and excessive close work, poor lifestyle diet and exercise, as well as providing appropriate lens and near addition prescriptions, are now commonly accepted in optometry.

Bifocal soft contact lenses offer a potentially beneficial combination of convenience and cosmesis with the possibility of control or reduction of myopia progression. Australian and overseas optometrists have experienced significant clinical benefits in minimising further progression of myopia by fitting children with suitable patterns of myopia, accommodation and vergence, with distance centre, near periphery bifocal soft contact lenses. No doubt larger scientific studies will follow.

1. Kurtz D, Hyman L, Gwiazda JE et al. Role of parental myopia in the progression of myopia and its interaction with treatment in COMET children. *Invest Ophthalmol Vis Sci* 2007; 48: 562-570.
2. Aller C, Wildsoet C. Bifocal soft contact lenses as a possible myopia control treatment: a case report involving identical twins. *Clin Exp Optom* 2008; 91: 394-399.
3. Tarrant J, Severson H, Wildsoet CF. Accommodation in emmetropic and myopic young adults wearing bifocal soft contact lenses. *Ophthalmol Physiol Opt* 2008; 28: 62-72.
4. Gwiazda JE, Hyman L et al. Accommodation and related risk factors associated with myopia progression and their interaction with treatment in COMET children. *Invest Ophthalmol Vis Sci* 2004; 45: 2143-2151.

CASE REPORT

TT, 11-year-old Asian male

The patient was examined on 07/07. His parents were concerned with the progression of myopia over the previous two years since spectacles were first prescribed. His current spectacle prescription was prescribed one year before. It was:

R -3.00/-0.25x120 (6/9)

L -3.00/-0.25x35 (6/12)

Subjective refraction was:

R -3.75sph (6/6-)

L -4.00sph (6/6)

Near retinoscopy over the distance prescription showed a lag of accommodation of R +0.50,

L +1.00/-0.25x30 together with a very low accommodative facility.

Near phoria through the distance prescription (Howell card) was an unstable one to three prism dioptres (pd) esophoria with associated reduced base-in fusional break and recovery.

Proclear D (distance centre) contact lenses were fitted with prescription:

R -3.75 Add+2.00

L -3.75 Add+2.00

Review nine months later

The patient reported good comfort and no problems with his vision. Over-refraction was plano right and left eye so no change was necessary.

Summary

With the use of bifocal contact lenses there was a good control of myopic shift. There was no progression of myopia over nine months compared to a rapid progression of about -4.00 D in the previous two years.

CASE REPORT

AM, 9-year-old female

The patient was examined on 03/03. She presented for optometric assessment reporting learning difficulties and occasional blur when looking from near vision to board. Subjective refraction was:

R +0.25/-0.50x100 (6/6)

L +0.25/-0.75x90 (6/6)

Near retinoscopy measured a lag of accommodation of R & L +1.00/-0.25x90, with low accommodative amplitudes and low base-out and base-in fusional recoveries. Near phoria (Howell card) was two pd exophoria, but one to three pd esophoria with -1.00 and seven pd esophoria with -2.00.

SOLA Access Low spectacles were prescribed for school and all close vision tasks to provide optimal accommodative-convergence function for reading.

Reviews after 24 and 40 months

No major change in distance refraction was found, accommodative amplitudes had improved, fusion recoveries were much better, and near phoria was two pd exophoria. Minus AC/A ratios were also much improved and now only three pd eso with -2.00 OU. She and her mother reported great improvements in reading, spelling, creative writing, with the best school reports ever.

Review 20 months later

An eye examination was conducted elsewhere nine months previously, when she was prescribed single vision distance only spectacles, of prescription:

R 0.00/-0.75 x110

L -0.25/-0.50x60

Subjective refraction was:

R -0.50/-0.50x105

L -0.50/-0.50x70

Near retinoscopy over distance pre-

scription was R & L +0.75 accommodative lag, with reduced accommodation amplitude right eye, inconsistent accommodation facility, and near phoria (Howell card) of ortho.

She and her parents were concerned with deterioration in distance vision and concentration for near and school tasks. She was prescribed Proclear D contact lenses of:

R & L -0.75/ Add +1.00 (VA 6/5 and near phoria Ex 2)

Review was scheduled for six months.

Summary

A myopic shift occurred when the near reading addition was removed from the spectacle prescription with nine months of single vision spectacle wear, compared to no change in four-and-a-half years of blended lens wear. Monitoring of her myopia will continue with the use of multifocal contact lenses.