



# Case studies in contact lenses

## Part 2

In the second of a series of case histories, **Dave Spicer** describes how he achieved success for a myopic astigmatic presbyope

**A** 50-year-old male who runs a building company and hence often works in dirty and dusty environments, was first fitted in 2009 with monovision correction using daily disposable toric contact lenses binocularly with the dominant eye being prescribed for distance. A daily disposable, as opposed to a reusable, was recommended, it being a more hygienic modality.

However, near vision was unacceptable and was felt to be due to the limited availability of cylinder axes at that time in daily disposable toric lenses as monovision appeared to be tolerated with optimal correction of his astigmatism. With this outcome, but the patient still preferring to remain with daily disposables, the near correction in the left eye was adjusted to provide full distance correction and +1.25D reading glasses were prescribed for use over the contact lenses.

In addition, the left eye was also refitted with a spherical daily disposable lens to minimise the blur that may have resulted from using a toric soft lens with an axis 25 degrees different to the spectacle axis.

### Follow up at one week

#### General

Wearing time was 14 hours five days a week, two hours at the time of examination. He was happy with distance vision and was coping with reading glasses but he found them inconvenient.

#### Slit lamp examination

This was unremarkable, with all key physiological areas including corneal staining, limbal hyperaemia, bulbar and palpebral conjunctival redness graded 1.0 or lower.

#### Fit

R Good centration, 0.25mm movement on blink, smooth return on push-up. No lens markings to observe rotational stability or orientation.

L Good centration, 0.25mm movement on blink, smooth return on push-up.

### ASSESSMENT

Right eye		Left eye	
<b>Refraction</b>			
-1.75/-0.75 x105 ADD +1.25D	6/4.8	-2.50/-1.00 x 65 ADD +1.25D	6/4.8
<b>K readings</b>			
7.52 @ 15 x 7.65 @ 105		7.61 @ 155 x 7.84 @ 65	
<b>Dec 2009 Initial trial lenses –</b>			
<b>Dominant eye</b>		<b>Non-dominant eye</b>	
Focus Dailies Toric 8.6 14.20 -1.75/-0.75 x 90 6/4.8-		Focus Dailies Toric 8.6 14.20 -1.25/-0.75 x 90 N6 with difficulty	
<b>Prescribed lenses</b>			
Focus Dailies Toric 8.6 14.20 -1.75/-0.75 x 90 6/4.8-		Focus Dailies Aquacomfort Plus 8.70 14.00 -2.75 6/7.6+2	
+1.25D reading glasses			

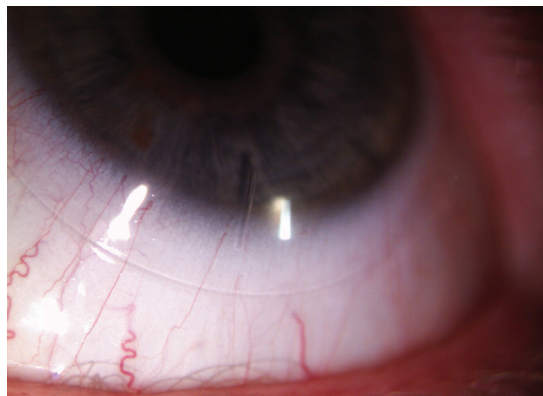


Figure 1

#### Vision

Over refraction R plano 6/4.8  
L plano 6/7.6+2 Binoc VA 6/4.8 Near VA with readers N5.

#### Comfort

R Slightly aware of lens throughout the day. L is comfortable. Difference in overall comfort possibly results from differences in design between the larger toric lens which also has a greater thickness profile, compared to the spherical lens. R and L both feel dry by 11 hours of wear.

No change to specification was made and the lenses were ordered. The patient was advised to use rewetting drops when required and to schedule

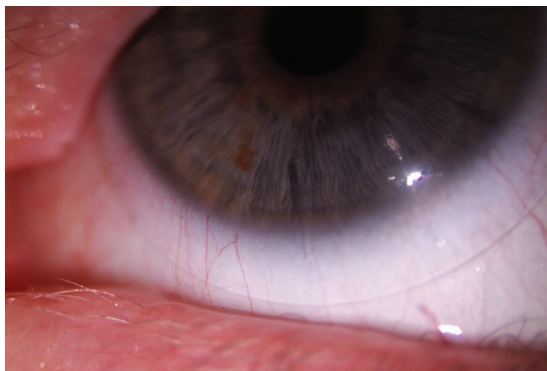
an aftercare appointment after three months.

### Aftercare and refit

The patient's three-month aftercare coincided with the launch of an alternative daily disposable toric in April 2010 with a more extensive parameter range, offering a closer match to his cylinder axis. With the patient still feeling inconvenienced by the need for reading glasses and end of day dryness, he was trialled with the new daily disposable toric to more accurately match his cylinder axis in both eyes and to enable him to trial once again a daily disposable toric lens in his left eye. This would help establish whether he could succeed with monovision as had originally been attempted the previous year.

Additionally, the new lens uses an embedded wetting agent technology so it would be seen if this offered any comfort improvement over his existing lenses at the end of the day.

Initial examination after five minutes showed 0.25mm movement on blink, good centration with lens markings for the right lens stable at the 6 o'clock position and those for the left stable at 5 degrees clockwise. Orientation was consistent in all positions of gaze



(Figures 1, 2 and 3).

The patient noticed that initial comfort was better than would have usually been experienced on insertion with the previous lenses.

### Action

A further four pairs were provided for the patient to evaluate and he was asked to return wearing the final pair. He was instructed to evaluate his vision during normal distance and reading tasks so that on his return he could report back on his overall vision.

### Follow-up appointment

The patient was able to wear the contact lenses successfully, both in terms of his vision, which he felt was sharp for distance and near, as well as in relation to the comfort which was significantly better than with the previous lenses. In this respect, he reported that whereas he felt ready to remove the previous lenses by 12 hours but often persisted, the new lenses would remain comfortable until removed after more than 14 hours of wear. In addition, on insertion the right toric contact lens was immediately comfortable, as was the left, unlike in the previous toric design worn in the right eye which was more noticeable throughout the day.

Over-refraction and fitting at follow-up were identical to that recorded at the initial fitting earlier that week and slit-lamp examination showed no change from baseline. The patient was successful with his monovision correction, finding that both distance and near vision were very sharp and consistent even throughout the day, which often involves prolonged periods working in awkward positions, which might otherwise cause rotational instability of the contact lenses.

The final specification was unchanged from the trial lenses issued. The patient had been wearing them every day for between 13 and 15 hours and was instructed to continue if comfortable and return for his next aftercare appointment in three months.

Figure 2

### THREE-MONTH AFTERCARE AND REFIT

Right eye	Left eye
1-Day Acuvue Moist for Astigmatism 8.6 14.50 -1.75/-0.75 x 100	1-Day Acuvue Moist for Astigmatism 8.6 14.50 -1.25/-0.75 x 70
A spherical over refraction was performed: plano 6/4.8	A spherical over refraction was performed: plano N4
Binoc VA 6/4.8 N4	

### Management plan and discussion

This case outlines how existing toric patients, who may have either previously been fitted with reusables, or wear a daily disposable toric but with a compromised prescription due to limited powers and axes, should be routinely reviewed and refitted when lenses with wider parameter ranges become available. In this case, by better matching the contact lens prescription to the ocular refraction in the non-dominant left eye, the patient was able to successfully use a monovision correction. In the previous toric design, either due to the nearest available cyl axes being 25 degrees out, or due to unquantifiable lens rotation due to the absence of lens markings, the near vision had been too blurred. In this case as well as in the author's general experience and in recent independent research<sup>1,2,3</sup> the Accelerated Stabilisation Design (ASD) used in other Acuvue astigmatism products has provided excellent rotational stability. The benefit is that it limits variability in vision during activities that involve eye and head movements.

Of all the hydrogel materials the author has fitted, his own experience has been that the etafilcon A material, combined with the Lacreon technology where polyvinyl pyrrolidone (PVP) is embedded within the lens matrix, which is used in the Acuvue Moist products, helps in providing better end of day comfort. A recent piece of research<sup>4</sup> looked at tear film stability over 10-second periods between blinks for a group with dryness symptoms

and an asymptomatic group by imaging higher-order aberrations and the impact on retinal image clarity, for spherical 1-Day Acuvue Moist and 1-Day Acuvue.

The 1-Day Acuvue Moist lens maintained a more stable tear film between blinks due to its improved wettability compared to the 1-Day Acuvue lens, which within four seconds resulted in degradation of the retinal image. It is therefore also worth remembering that surface wettability can have a significant impact on vision.

The short time required to refit this patient was time well spent as the overall result in terms of vision and comfort was excellent, delivering a far better result for the patient. Sometimes, either through lack of time or a philosophy of 'if it ain't broke, don't fix it', practitioners shy away from recommending new products, especially if it involves a toric contact lens, but in the author's opinion patients should always be offered the opportunity to trial any product that has the potential to improve their contact lens wearing experience and satisfaction. ●

### References

- 1 Zikos GA, Kang SS, Ciuffreda KJ *et al*. Rotational stability of toric soft contact lenses during natural viewing conditions. *Optom Vis Sci*, 2007;84:11 1039-45.
- 2 Chamberlain P, Morgan P, Maldonado-Codina C, and Moody K. A vision chart to quantify disturbances in acuity during wear of toric contact lenses. *Optom Vis Sci*, 2008; E-abstract 85079.
- 3 Chamberlain P, Morgan P, Maldonado-Codina C, and Moody K. A vision chart to quantify disturbances in acuity during wear of toric contact lenses. *Optom Vis Sci*, 2008; E-abstract 85079.
- 4 Koh *et al*. Effect of Internal Lubricating Agents of Disposable Soft contact Lenses on higher order Aberrations after blinking. *Eye Contact Lens*, 2008 Mar;34(2):100-105.

● Optometrist **Dave Spicer** runs his own independent practice in Oxfordshire and is a professional affairs consultant for Johnson & Johnson Vision Care

Figure 3

