Soft torics: first choice for your astigmatic patients

Anna Sulley and Dr Graeme Young explain how the latest research has dispelled the myths and misconceptions surrounding toric soft contact lenses.

**KEY POINTS**

- Toric prescribing is increasing but more astigmats could potentially wear contact lenses
- Astigmats are often unaware that toric contact lenses are an option for them
- Soft torics offer a number of advantages for astigmats of all types
- The latest toric soft lenses provide advantages over traditional designs and clear, stable vision in real world situations
- Fitting toric lenses is easy and quick with a modern lens design
- Practitioners can expect to fit toric soft lenses successfully to a wide range of patients
- Vision and comfort are comparable to spectacles with toric soft contact lenses

There was a time when toric soft contact lens fitting was considered a speciality and the preserve of the dedicated few. Today, soft torics have gained wide acceptance. But could even more astigmats wear toric contact lenses? How successful and easy to fit are the latest designs? And if your astigmatic patients are not wearing them, why not?

Recent studies have provided answers to these questions along with insights into patient and practitioner attitudes to correcting astigmatism.

**Could more astigmats wear toric contact lenses?**

Few practitioners ignore cylinder in a spectacle correction but the proportion of toric soft lenses fitted falls short of the level expected if all astigmatic soft lens wearers were fully corrected.¹

Nearly a half of potential soft contact lens wearers (47 per cent) have astigmatism of ≥0.75D in at least one eye (Figure 1), the level at which torics are normally considered. For myopes, the incidence is higher still (55 per cent).² Yet industry figures suggest that in 2010 only about one in five soft lens fits in the UK was a toric lens (19 per cent).³
Prescribing trend data suggest a higher figure (35 per cent) fitted with toric designs but this still falls short of potential fitting levels. Astigmats are also known to be over-represented among contact lens drop-outs, suggesting that poor vision as a result of uncorrected astigmatism is a contributory factor in contact lens discontinuation. Astigmats are also known to be over-represented among contact lens drop-outs, suggesting that poor vision as a result of uncorrected astigmatism is a contributory factor in contact lens discontinuation.5-8

Market research conducted this year in the UK and Italy provides some insights into barriers to fitting soft torics. Although practitioners are aware that toric lenses are a better option for patients, perceptions remain that they are complicated and time-consuming to fit.9 Concerns about increased chair-time, the need to explain astigmatism and how toric lenses work, and the tendency to overestimate patients’ satisfaction with their current correction, are among the perceived barriers.

Business considerations, such as the assumption that patients want the cheapest option or that toric lenses are less profitable than other options, hinder some practitioners. Some lack confidence in their fitting skills or knowledge of the latest products. Practitioners may consider astigmatism to be too low to require a toric lens or assume that astigmatism is sufficiently corrected with spherical lenses. Furthermore, they may be less likely to consider a toric for part-time lens wearers.

Do astigmats know about toric soft lenses?

A recent UK study provided more insights into astigmatic patients’ reasons for not wearing toric lenses.10 The research involved three groups of astigmats: spherical contact lens users, contact lens drop-outs and spectacle wearers who had never worn contact lenses. The most common reasons given by spherical contact lens wearers for not using toric contact lenses were lack of awareness that there were contact lenses for astigmatism or that they even had astigmatism. Other reasons were that toric lenses were too expensive or that their practitioner had failed to offer them. For astigmatic dropouts, a factor in discontinuing lens wear was that contact lenses did not meet their specific vision needs. Spectacle-wearing astigmats’ reasons for not wearing contact lenses reflected wider beliefs among non-lens wearers: that spectacles were more convenient or that contact lenses would be uncomfortable to wear. Cost was also perceived as a factor in this group.

An online survey among 600 astigmats and 200 non-astigmats has also shown that awareness of toric lenses is low among vision-corrected consumers in the UK.11 While almost all (94 per cent) were interested in learning more about astigmatism only 55 per cent of astigmats were aware of toric lenses as an option. Practitioner recommendation was the most critical factor in their selection of contact lenses.

**USE THIS IN YOUR PRACTICE TO:**
- Review your own prescribing rate for torics as a proportion of all soft lenses fitted
- Challenge your reasons for not recommending torics to all astigmats

**USE THIS IN YOUR PRACTICE TO:**
- Ensure patients are aware they have astigmatism and of all available options for correction
- Explain the benefits of toric contact lenses to astigmats and address their concerns
These findings suggest the need for practitioners to enhance communication with patients and adopt a more proactive approach to discussing toric lenses and their benefits.

**What contact lens options are there for astigmats?**

Practitioners have a range of options for fitting astigmats with contact lenses. Toric soft lenses now come in a wide range of materials, modalities and replacement frequencies. With modern fitting banks, trialling astigmatic patients with soft torics is now as convenient as spherical lens fitting. Manufacturing advances have led to improvements in reproducibility and optical quality. Lens designs are more predictable in fit, orientation and stability, as well as being available in a wider range of parameters.

If the astigmatism is corneal, spherical RGP lenses are an option. These lenses provide good vision quality and are relatively easy to fit but generally less comfortable than soft lenses. In cases of high corneal toricity the fit may be unstable but toric back surface RGPs can prove successful in cases where even toric soft lenses are unsatisfactory. Other options to consider are hybrid lenses, large-diameter lenses or, in exceptional cases, RGP sclerals. All have their place in fitting astigmats with contact lenses.

With low levels of astigmatism, practitioners may be tempted to fit spherical soft lenses with increased thickness or higher modulus material in the belief that a thicker or stiffer lens will drape less on the cornea and so mask more astigmatism. However, studies have shown no significant masking effect with either strategy.12-14

While some consider the use of aspheric soft lenses may improve visual performance in low degrees of astigmatism compared to spherical soft lenses, there is scant evidence in the literature. However, ocular aberrations vary considerably between individuals, which may explain the varied success with this type of lens. The visual performance of an aspheric lens when fitted to low astigmats decreased with larger pupils and did not match the visual acuity achieved with full astigmatic correction.15

Unilateral astigmats are another group worth considering. A recent study found that a surprisingly high proportion of patients, nearly a half, have significant astigmatism ($\geq0.75D$) in one eye only.2 Patients in this group who are more likely to require astigmatic correction include those with astigmatism in their dominant eye, an oblique axis, low sphere power, large pupils or a history of unsatisfactory visual performance.

For presbyopic astigmats, the choice of a single contact lens remedy is more limited although the motivation to remain free from spectacles may be strong. Some patients may need a well thought-through combination of contact lenses and spectacle correction for different tasks and situations.

Multifocal RGP lenses are generally more suited to existing RGP wearers and again require additional fitting skills. The success of translating RGP bifocals depends on lid tonicity and position, while aspheric multifocal designs are less suited to older presbyopes, those with critical distance visual demand or with large pupils.16 Toric soft multifocal lenses are a useful addition, although at present most are custom-made lenses with a limited choice of material.

**USE THIS IN YOUR PRACTICE TO:**

- Review the pros and cons of the available contact lens options for correcting astigmatism
- Tailor your recommended choice of correction and lens to the individual patient

**How do the latest soft toric designs perform?**

Recent studies have led to a better understanding of the factors that influence lens fit and allowed a reassessment of soft toric fitting.17-19

A recent literature review of developments in toric lens design and their impact on performance looked at the various methods used to stabilise rotation: prism-ballast, periballast, thin zone (also known as double slab-off or dynamic stabilisation), truncation and back surface and front surface torics.20 The review concludes that newer lens designs tend to reduce lens rotation and improve rotational stability. Better reproducibility, more frequent replacement schedules, expanded parameters, high permeability and better wetting characteristics have also contributed to increased success.

Prism ballasting was the first method used to stabilise the lens in the eye although designs have since been refined, resulting in prism-free optics and thinner lens profiles with improved oxygen delivery. With thin-zone designs, the central portion of the lens can be manufactured in thicknesses approaching spherical lenses of similar powers, optimising comfort and enhancing oxygen performance, although sometimes at the expense of rotational stability.
Of the thin-zone designs, Edrington notes that Accelerated Stabilisation Design (ASD) lenses are more stable during large versional eye movements, less affected by gravity and show a more stable rate of reorientation than other designs. Other authors have investigated the performance of ASD compared with traditional designs. In prism-ballasted and dual-thin zone designs, the lens interacts with the lid even when the lens is properly aligned. With ASD, when the lens is in the correct position there is less destabilising lid interaction; the upper and lower lid forces continually orientate and stabilise the lens.

These lenses have been shown to orientate more quickly and accurately, and be more rotationally stable than prism-ballasted or dual-thin zone designs, and are significantly more stable during settling and large versional tasks than a prism-ballasted design. Studies have also shown that ASD lenses perform better than other designs when wearers are in a recumbent position, under gravity or in extreme versions and postural positions.

Newer prism-ballasted designs attempt to minimise destabilising interaction with the lower lid. There is evidence that recent improvements in prism-ballasted lens design have enhanced some aspects of their performance; for instance, modern prism-ballasted designs show similar re-orientation speeds to ASD lenses and generally re-orientate faster the further away from the normal orientation position.

Conventional measurement of VA does not fully reflect the real world experience of soft toric lens wearers since this records the best VA achieved during the period of the test, even if only fleetingly achieved. A recent study found that VA is reduced immediately after versional eye movements and suggested that more dynamic methods of assessing visual performance should be considered given the apparent inability of lens stability measurements to predict visual performance.

New research dispels some of the misconceptions about fitting toric soft lenses and demonstrates the ease and speed of fitting the latest designs. The study recruited 200 astigmats who had never worn toric lenses, with distance corrections of +4.00D to -9.00D and astigmatism between -0.75DC and -3.00DC in both eyes.

Three groups of patients - spherical contact lens users (SW), contact lens drop-outs (DO) and spectacle wearers (Neo) - were fitted with one of two toric soft lenses utilising ASD design: the daily disposable 1•DAY ACUVUE® MOIST® for ASTIGMATISM or two-weekly replacement silicone hydrogel ACUVUE® OASYS® for ASTIGMATISM. When categorised by level of astigmatism, 60 per cent were in the low cylinder group (<1.50D in at least one eye) and 40 per cent in the high cylinder group (≥1.50D in at least one eye).

A high proportion of eyes (88 per cent) were fitted at the first attempt, especially among existing spherical lens wearers (94 per cent) (Figure 2).

![Figure 2: Number of trial fit attempts by subject group](image)

![Figure 3: Lens orientation at the one-week assessment by subject group](image)

How easy is it to fit current toric soft lenses?

**USE THIS IN YOUR PRACTICE TO:**

- Question your patients carefully about how their lenses perform in different situations
- Find out about new ways of assessing visual performance with toric soft lenses
The first, initial fitting appointment took, on average, 22 minutes and spectacle wearers took only slightly longer (25 minutes). A majority of lenses orientated at the zero position (Figure 3), orientation position was stable over time, and lenses showed acceptable centration and movement. The ASD design proved versatile, since lens fit was judged acceptable in all but two subjects after one week and no subjects required any subsequent changes.

How successful are wearers with the latest designs?

Concern that patients may fail with toric soft lenses is also a barrier to practitioners recommending them. Again, the recent study of toric non-users would suggest that this concern is misplaced.10

Based on subjects successfully completing the one-month study, the success rate was high, at 92 per cent. Moreover previous dropouts were as likely as spherical lens wearers to succeed. These results compared favourably with those of a UK study in 2002 of lapsed wearers refitted with contact lenses.1 The success rate at one month for the lapsed wearers was 94 per cent in the new study, compared to a one-month success rate of 69 per cent for those drop-outs fitted with toric soft lenses 10 years ago. This difference in success rates may be attributed to improvements in toric soft lenses over the past decade.

The recent study also looked at success rates against pre-determined criteria relating to lens orientation and fit, VA, subjective vision and comfort. Lenses were required to have stable orientation after settling, good centration and movement, and binocular VA within one line of spectacle VA, as well as being in the top three boxes for vision and comfort. Overall, the success rate was high, at 75 per cent, and although success was highest among spherical lens wearers (80 per cent), the results were encouraging for drop outs (74 per cent) and neophytes (70 per cent). These strict criteria probably underestimate the true success rate.

Interestingly, the likelihood of success did not appear to be predicted by age, sex, or level of astigmatism. The success rate by these criteria was identical for older patients (>45 years) compared with younger patients and was only marginally better for lower astigmats (<1.50D in at least one eye) than for high astigmats. Myopes tended to be more successful than hyperopes although none of these differences was statistically significant.

While spherical lens-wearing astigmats with low to moderate astigmatism are probably the best candidates for upgrading to toric lenses, many lapsed wearers and current spectacle wearers of all ages and refractions can be very successful.

Will my astigmats see as well as in their spectacles and will they be comfortable?

Research shows that practitioners are concerned that soft torics may not meet patient expectations, particularly in relation to vision.9 Yet according to the latest study, vision with toric soft lenses can be at least as good if not better than other modes of correction.10 All three groups of astigmats achieved a mean monocular VA with the ASD lenses that was within one letter of 6/6, and a mean binocular VA approximately half a line better than 6/6. As expected, VA with the toric lenses was significantly better in the spherical lens wearing group compared to their habitual lenses. For the other two groups combined (i.e. spectacle wearers), VA was comparable to their habitual spectacles. Results for vision quality reflected those for VA.
Practitioners may also perceive toric lenses to be less comfortable than spherical lenses but this study suggests otherwise. Among the spherical lens-wearing group, comfort and symptoms were comparable between the toric and habitual lenses. The study design replicated the most likely sequence of lens wear in normal practice and therefore gives some insight into the likely experience of spherical wearers when switching to torics.

**USE THIS IN YOUR PRACTICE TO:**
- Remember that vision and comfort with toric soft lenses can be as good as with spectacles
- Allay any concerns about switching spherical soft lens wearers to torics

**Will this grow my contact lens patient base?**

While the latest toric soft designs offer clinical advantages for astigmats, commercial considerations also play a part in contact lens usage.

Research suggests that some practitioners perceive contact lenses as less profitable than spectacles or believe that time spent explaining torics may be wasted if patients are not prepared to upgrade. There is also evidence that cost is a factor in astigmats not wearing toric soft lenses.

On profitability, the case for contact lenses over spectacles is strong. The London Business School study showed that, although the profit contribution of contact lenses is initially poorer, in the medium-term it is greater than spectacles alone. Toric lenses are a growth sector in value terms; industry data for the first half of 2011 show that the UK market for torics grew at nearly twice the rate of spherical lenses (7.2 per cent vs 3.7 per cent).

Some authors have suggested using contact lenses as an aid to spectacle dispensing to allow patients to experience contact lens wear. Getting patients to trial the lenses in practice so that you can demonstrate the benefits is an important tool in breaking down barriers.

A recent study introduced the concept of ‘cost-per-wear’, based on lens replacement and number of days per week worn, and showed that toric lenses have a similar cost-per-wear to spherical lenses.

Upgrading wearers from spherical lenses to torics requires careful questioning to elicit issues with their current correction and explanation of the additional features and benefits of toric lenses in relation to these issues. Adding a simple question, such as ‘On a scale of 1-10, how happy are you with your vision?’ allows the introduction of a lens that delivers better vision, which can then be demonstrated on the chart by holding up a cylindrical overcorrection.

**Conclusions**

Despite increasing uptake, potentially, more astigmats could wear toric soft lenses. Practitioner recommendation is the most critical factor in choice of vision correction yet many astigmats are either unaware that contact lenses, and soft torics in particular, are an option, or are unaware that they have astigmatism. Of all the options available, toric soft lenses offer many advantages over other methods of correction and are suitable for a wide range of patients.

The latest toric soft designs deliver a predictable and stable fit in dynamic as well as static situations. A high proportion of astigmats who are not currently using toric soft contact lenses can be easily and quickly fitted with toric soft lenses and will achieve high levels of success. Spherical contact lens-wearing astigmats have better vision when refitted with toric soft lenses and comfort is rarely compromised. Spectacle wearers achieve vision and comfort comparable to spectacles when fitted with these lenses.

Many astigmats who are not currently using toric soft contact lenses could do so successfully, irrespective of age or refractive status.
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