

# MONOVISION IS NOT THE ONLY SOLUTION

**Keith Cavaye examines why contact lens practitioners have avoided dealing with the presbyopic contact lens wearer's problems.**

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**F**or years, contact lens practitioners have steered clear of dealing with the presbyopic contact lens wearer's difficulties due to the unavailability of reliable bifocal products and the high costs involved, especially if the result is failure.

The classic solutions have been:

- Reading overspecs - a reliable

method giving good quality vision.

- Distance overspecs - only workable when distance is infrequently used.
- Refractive compensation - works for early presbyopia.
- Monovision - can work well, but is still a compromise, with stereopsis lost.
- For the adventurous, rigid or soft traditional bifocals or multifocals -

varying success with different designs.

Recently, along with the introduction of new lens materials such as biocompatible, super oxygen permeability with silicone hydrogels and photochromatic gas permeables, we also have a new batch of designs mainly in soft lens material for the presbyope. It may yet be too early to quantify their success, but what has been removed is much of the financial risk of trying these lenses, as most are monthly disposable and so can be trialled with diagnostics free of charge from suppliers. This has led to a dramatic increase in the trying and supplying of this lens style. An ever-increasing patient age profile also adds to the incentive for trying something new. In the first year of launch in the USA, the Acuvue Bifocal took 10 per cent of the new fit disposable market and is now the fourth most commonly prescribed disposable lens - quite an achievement from a standing start. All modern disposable lenses use simultaneous vision correction, which means that distance, intermediate and near light rays are focused on the retina at the same time. The brain then interprets and uses these images as required. The quality of vision should be independent of direction of gaze, which is not the case with the alternating vision system of some rigid bifocal designs or indeed most spectacle lens designs. One advantage of the simultaneous system is that the lenses do not have to orientate themselves. This usually requires prism ballasting, which adds to the lens thickness and decreases permeability. It is the aim of this article to explain some of the benefits and issues of the current disposable front runners in this new market, for which the range facts are illustrated in [Table 1](#).

## The Patient

Patient selection, as with all contact lens fitting, requires particular attention. The past success of an existing single vision wearer is a good start, but by no means does this exclude the new wearer.

For the existing wearer, the main area of contention is likely to be the element of compromise in the vision. This, in truth, will always happen with simultaneous methods of correction. It may affect distance, near or possibly all distances. The motivation to continue wearing contact lenses needs to be established. If not high, failure is the likely outcome. Generally, this motivation is not hard to measure by asking questions about usage, wearing times and introducing the subject of discontinuing wear completely.

With beginners to contact lens wear, other factors come into play. As well as the visual compromise, we have the

issues from fitting the older eye. In practical terms, I suggest that attention is paid to:

- Dry eyes - A reliable form of tear assessment should be performed, as older eyes may be dryer.
- Handling - Will this presbyopic new wearer cope with insertion and removal? Hyperopes will naturally find this even more difficult. Investigate any age related handling issues, like arthritis.
- Loose lids - This is only likely to be a factor with rigid alternating bifocal designs, but could be a cause of low fitting lenses, which will not work so well with simultaneous correction either.
- Motivation - Why are they considering lens wear now? Are they a serious prospect or is the patient just trying to look younger at social events - not that this need necessarily be a contraindication, as soft lenses can be worn without strict wearing regimes.

As part of the assessment process, dominance needs to be established. For years, it has been assumed that the dominant eye should have full correction for distance and the non-dominant eye a bias for reading, as we do for monovision. There is some recent doubt about which eye should be favoured in this way, with a school of thought suggesting a reversal of the accepted method. Personally, I feel that distance vision and dominance go together.

Various tests for dominance have been documented, but I recommend one simple way is to get the patient to look down your consulting room focimeter. The eye used will be the dominant one. This may prove difficult with binocular instruments!

**The Lenses**

**Focus Progressives from Ciba Vision (figure 1)**

As with most multifocal contact lenses, the optics work on the aspheric principle. The Focus Progressive has a centre near portion with a high amount of add power in a small central zone, leaving enough pupil area to give a large peripheral distance zone.

Moving outwards towards the edge from the centre, a region of intermediate vision is experienced. Adds up to +3.00D may be accommodated. The optical model shown has been described as a Mexican Hat.

The lenses are calibrated with a single power, rather than a distance Rx, along with an add. The simple advice for start point of fitting is: Calculate best distance sphere and add to it half the reading add. This gives the lens power to be tried. For example: Spectacle Rx -3.00/-0.75axis 180 add +2.00, gives best sphere of say -3.25DS.

	ACUVUE	RHYTHMIC UV	PROGRESSIVE	OCCASIONS
Supplier	Vistakon	Lunelle	Ciba	Bausch & Lomb
Modality	2 weekly	monthly	monthly	1 to 3 monthly
Water content	58%	73%	55%	38%
DK (Oxygen permeability) of material	28	45	16	8.5
Centre (t)	0.07	0.17	0.1	0.08
Design	Concentric	Aspheric	Aspheric	Aspheric
Centre distance	- 5 Zones	Centre near	Centre near	Centre distance
BOZR	8.5	8.6	8.6	Aspheric
Diameter	14.2	14.2	14	14
Powers	+6.00 TO -9.00	+6.00 TO -6.00	+6.00 TO -7.00	+6.00 TO -9.00
Adds	+1.00, +1.50 +2.00, +2.50	One Add up to +2.00 max	One Add up to +3.00 max	One Add up to +1.50 max

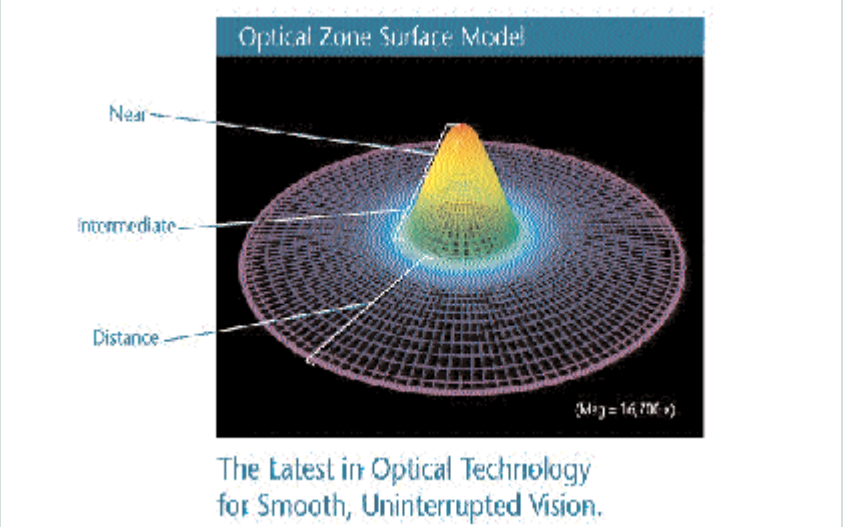
Table 1: Lens specifications.

Add to this half of the +2.00 add, +1.00, to give a final power of -2.25D as first trial lens. Both eyes are fitted on this principal. For those who prefer, a table is supplied by Ciba to remove the calculations.

As is common with bifocal and multifocal over-refraction, it is recommended that both eyes are kept open. Also, small changes have a larger than expected effect, so work with

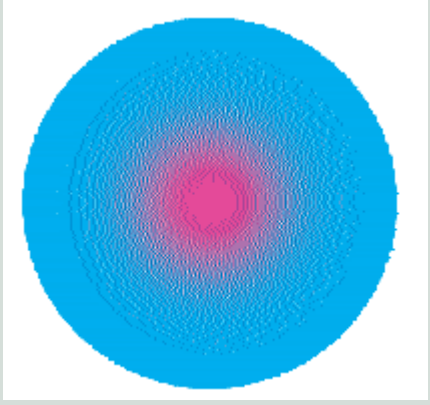
0.25 spheres rather than 0.50 spheres. The end point is the lens power that gives the best balance between distance and near vision.

To improve near vision, with both eyes open, maximise plus power in both eyes until satisfactory. Check distance, and reduce plus power if necessary. Extra plus power may be more acceptable in the non-dominant eye.



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Above: Figure 1 - Representation of the CIBA Progressive. (Diagram reproduced with permission from CIBA).



Right: Figure 2 - Rhythmic UV Multifocal - FOCUS CONTROL SYSTEM - Plus power decreasing with distance from the centre. (Diagram reproduced with permission from Lunelle).

To improve distance vision, with both eyes open, reduce plus power in both eyes until satisfactory. Recheck near vision, adding plus power if necessary. Again, extra plus power may be more acceptable in the non-dominant eye.

#### Rythmic UV Multifocal from Lunelle (figure 2)

Another aspheric front surface design, where the positive power increases from the periphery to the centre, ie: centre near. The lens is described as being for the 'young presbyope' or with an add of +0.75 to +2.00. Again, the add is not specified individually, but fixed. The material is well proven with the highest water content of its competitors with 73 per cent. Although the Rythmic UV Multifocal is thicker than its competitors at -3.00, this high water content gives a creditable DK/t (oxygen transmissibility) of 26.5.

Selection of the first trial lenses is very simple. Take the spherical value of spectacle Rx in negative cylinder form and use this as the lens power chosen. Perform monocular over-refraction to determine most plus acceptable, whilst still giving satisfactory distance vision. Assess binocular performance at distance and near. If near acuity is insufficient, add plus power in 0.25 stages, particularly to the non-dominant eye.

#### Acuvue Bifocal from Vistakon (figure 3)

This unique lens design is described by Vistakon as 'pupil intelligent'. It consists of five alternating concentric power bands that are sized and spaced to optimise vision under varying light conditions.

cyl value	sphere adjustment
-0.25	add -0.25
-0.50	add -0.25
-0.75	add -0.50
-1.00	add -0.50

Table 2: Determination of best sphere.

With this lens, the final specification incorporates a distance power as well as one of four possible additions. This gives a bigger opportunity for trying something different, but can also complicate the issue. To determine best sphere, **Table 2** is used.

The first add to try is the usual spectacle add. The chance of the add requiring some adjustment is high. To improve distance vision, add -0.25 to the dominant eye first, and to both if necessary. Alternatively, try decreasing the add in the dominant eye.

To improve near vision, +0.25 can be added to the non-dominant eye or both if necessary. Adding +0.50 to the reading addition of the non-dominant eye may also do the trick. It should be noted here that it is quite common to require different reading adds in each eye to achieve a good result.

If difficulty is still experienced, Vistakon recommend trying something different - enhanced monovision. This procedure encompasses a normal spherical lens in the dominant eye combined with a bifocal in the non-dominant. With spectacle adds of up to +1.50, add an extra +0.50 to the distance power of the bifocal lens. For spectacle adds over this, adjust the distance power by +0.75. I recommend this as an approach that can be tried with any bifocal or multifocal system.

#### Occasions from Bausch & Lomb

This earlier design has been available for some years and is now somewhat forgotten. It is the only lens described here which uses 38 per cent Hema as its material. It, like the Lunelle Multifocal, only serves early presbyopes, with a fixed nominal addition of +1.50.

The starting point is again the best spherical equivalent after taking back vertex distance into account. To this figure, add -0.25 and fit this as first trial lens. Distance over-refraction is then carried out, adjusting the lenses as necessary. If the expected result is not

achieved, Bausch & Lomb also recommend either an element of monovision is introduced or the enhanced monovision technique of a sphere in the dominant eye combined with Occasions in the other, possibly with extra plus.

This lens, along with the Lunelle design, is the simplest to fit, but has a limited range.

#### Summary

Presbyopic contact lens fitting adds another dimension to a routine day. Patient satisfaction can be great, but a few ground rules can be helpful in avoiding disappointment with these new lens designs.

- Pick your patient. They must be happy to accept an element of compromise.
- Trial in good light conditions and explain the need for good light when reading.
- See them within one week. An adjustment is usually required. Delaying this will discourage the wearer.
- Small adjustments can have a large effect
- Play down the expected result. The patient will then be surprised how good the lenses turn out to be!

Sometimes, we also need to be encouraging. If I tell a patient that I have a great new spectacle lens that also lets them read, but they can't read looking up, it has blurry channels down each side and is no good for reversing the car, how many varifocal spectacles do you think I would sell?

Unfortunately, there will be some failures. So then it's back to good old monovision!

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Right: Figure 3 - Acuvue Bifocal - zone arrangement. (Diagram reproduced with permission from Vistakon).

