



Presbyopia Solutions

For many of our patients, uncorrected clear vision has never been an issue. However, they get quite an awakening when presbyopia sets in. This is when they start asking about reading glasses or surgery.



You can now discuss three surgical options with your patients, depending on their age, distance prescription, and vision needs. These options are

- Classic Monovision (LASIK / PRK / Monofocal IOL)
- Multifocal monovision (CK)
- Presbyopic IOLs
 - o Accommodating IOL (Crystalens)
 - o Diffractive IOL (ReStor)
 - o Multifocal IOL (ReZoom)

Classic Monovision

For patients who are well-adapted to monovision contact lenses, this may be the best solution with either laser vision correction or refractive lensectomy/cataract surgery with monofocal IOL replacement. Up to +2.75D ADD can be achieved with classic monovision.

Multifocal Monovision

With CK (Conductive Keratoplasty), less ADD can be achieved than with classic monovision – up to +1.75D. However, the central corneal power is not altered as much as with classic monovision because only the peripheral cornea is treated with CK (Figures 1). Therefore, for every 3 to 4 line gain in near vision, the eye gives up only 1 line of distance vision. With classic monovision, for every one line near gain, one line distance is lost. CK is the best options for plano presbyopes or mild hyperopes who want to gain intermediate vision, mostly, without giving up much of their distance acuity.

Presbyopic IOLs

For patients undergoing cataract surgery or refractive lensectomy, three types of presbyopic intraocular lenses are available. Crystalens is best-suited for patients with distance:intermediate vision needs. ReStor is mostly for patients with distance:near vision needs. All presbyopic lenses can result in some night-time glare. For most patients, this is not an issue. But for those with low tolerance for

night-time glare (i.e. truck drivers, police officers, etc) single-focus, distance only IOLs are the best choice.

Figure 2 can be used as quick reference guide when counseling a presbyopic patient.

For example, if your patient is a 56-year old -8.00 D myope, you can discuss laser vision correction (both LASIK and PRK), phakic IOL (in the event that the corneas are too thin or irregular for either LASIK or PRK), and refractive lens exchange with a presbyopic IOL. If the patient is a plano presbyope, for example, his surgical option is CK. ■

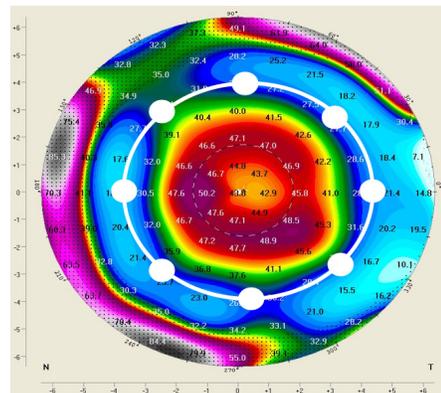


Figure 1: With CK, the central corneal power is not significantly altered. Therefore, the effect on distance vision is not as great as with classic monovision.

Pre- and Post-Op care of CK

Scott Lee, OD, Director of Clinical Care, Pacific Vision Institute

The pre-operative examination is very similar to the monovision contact lenses evaluation. Manifest refraction is done first to see if the patient is within the range for CK (i.e. plano to mild hyperope with up to 0.5D of astigmatism). Then, ocular dominance is checked. Loose lenses are used to determine the power needed to get a satisfactory near range. There are three choices here: +1.00, +1.75, and +2.50. With small amounts of ametropia, the effective add should be noted with each of the three options. If the patient is undecided with which lens is best, be conservative and go with the lower power as more power can be added later. If the distance eye has some hyperopia, binocular treatment may be indicated. I demonstrate the improved distance VA with a loose lens to show how treating both eyes can be beneficial. If the patient is unsure about correcting the distance eye, CK can first be performed on only the near eye to see how the patient likes it. The distance eye can always be done later if the patient wants better acuity. A cycloplegic refraction is advised to find any latent hyperopia in both eyes.

If the patient has never tried monovision before, I carefully explain the pros and cons concerning binocular visual quality. The patient

45-59 y.o.	Monovision LASIK/PRK	CK	Refractive Lens Exchange	Phakic IOL
Myopia < -10 D	X		X	X
Myopia > -10 D	(X)		X	X
Hyperopia < +1.75D	X	X	X	
Hyperopia > +1.75D	X		X	X
Plano		X		
60+ y.o.				
Myopia < -5 D	X		X	
Myopia > -5 D	(X)		X	
Hyperopia < +1.75 D	X	X	X	
Hyperopia > +1.75D	X		X	
Plano		X		

Figure 2: Summary guide for treatment options in 45+ year old patients

should understand that small print and prolonged reading may still require reading glasses and distance vision may be blurrier in darker conditions, such as nighttime driving. I also inform them that an additional treatment may be necessary in the future just as they would need to change their reading prescription as the presbyopia advances. The loose lens test is a good indicator if the patient will accept the monovision. There should be little apprehension on the patient's part when shown the lens. I ask the patient if the lens makes the vision better, worse, or no different at both distance and near. I let the patient tell me if the trial lens makes them feel imbalanced or dizzy instead of bringing it up myself. I don't want to put it in their head that it should make them feel uncomfortable. I also mention that depth perception may be decreased. This may deter people who play sports like tennis. If the patient is unsure about their feelings, then a contact lens trial for a week will give them a better feel for it. The best lens to simulate CK is the Baush & Lomb aspheric multifocal. And, of course, be cautious with those A-type sharpeners.

Visual recovery following CK is similar to hyperopic LASIK. There is a small amount of regression expected at first so the near range will seem closer than the patient expects. This initial overcorrection may make the adaptation period with binocular vision a little more difficult to start. Glasses and even a contact lens may be used during this time to help with vision needs. Through the first 1-2 months the near range will gradually move away from the patient until it reaches the desired reading distance. If the distance eye is treated, the VA may start off less than 20/20 and then improve through the same amount of time. If the patient remains more myopic than intended at the end of three months, cycloplegic refraction should be performed to rule out accommodative spasm. This, however, is rare with mild hyperopes and plano presbyopes.

As presbyopia progresses, additional treatment may be required. However, the FDA results indicate good stability over time (Figure 3).

During the first few weeks, the patients may experience slight haziness, dryness, glare and halos. Additionally, some may experience mild stinging and foreign body sensation during the first week as the CK spots heal.

Immediately following the procedure, Vigamox and Acular are used QID for 4 days and non-preserved artificial tears every 1-2 hours for the first 3-4 weeks. The same restrictions apply as with LASIK: no water, sweat, or eye make-up for 1 week and no rubbing for 1 month.

With the proper screening process and pre-operative testing, CK patients should be thrilled with their new found freedom from readers. ■

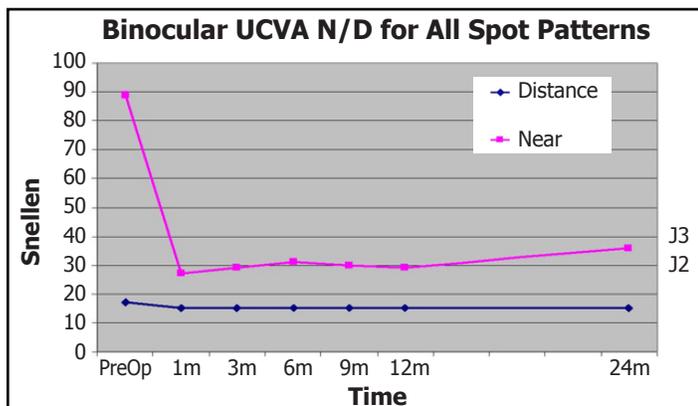


Figure 3: FDA results for binocular uncorrected distance and near vision after CK

Sight Gags by Scott Lee, O.D.



2006 calendar of the Upcoming Events for PVI Affiliated Doctors:

- 10/04/06: PVI Grand Rounds - Conductive Keratoplasty (CK)
- 11/15/06: PVI Grand Rounds - Cataract & Lens
- 03/16/07: 6th Annual Cornea, Cataract, & Refractive Surgery Symposium