EyeMatters
A PATIENT CARE RESOURCE

WELCOME TO EYEMATTERS - VISION CENTER EDITION.
This newsletter gives you the opportunity to get quick facts on topics relevant to your
day-to-day work. Keeping up to date on product facts and knowing what’s new in the
industry is a key factor in good patient management. The format of the EyeMatters
newsletter is also structured with our busy schedules in mind. You will get the bottom
line on important topics. You’re also invited to share your ideas for future topics.
I hope you find the EyeMatters newsletter to be a helpful tool.
– Bill Baldwin OD, 2007 Wal-Mart Optometrist of the Year, Griffin, Georgia

ACHEIVING THE BEST VISUAL OUTCOMES FOR ASTIGMATIC PATIENTS
The traditional basis for comparing toric lens designs has been their ability to orient and stabilize on the eye.
The reason is simple – astigmatic correction is dependent on a stable, but also a centered lens.
Prism ballasting and double slab off are commonly used techniques to help optimize lens stability.
Prism ballasting removes mass from the superior and inferior portions, leaving thin zones tucked under the
eyelids. The Bausch & Lomb PureVision® Toric Lo-Torque design balances the prism stabilizing geometry,
 anterior and posterior refinements to the optic zone and a mass-reducing comfort chamfer to successfully
stabilize the vertical thickness profile of the lens.
Double slab off (also referred to as peri-ballast, dynamic stabilization, or dual thin zone) also has thicker
zones aligned with the inter-palpebral aperture, but these thicker portions are restricted to the lens periphery.
Both designs utilize geometric thickness profiles, or “active zones”, and the forces exerted by the lids,
including the squeezing forces during blinking, and gravity to influence orientation.

**Prism Ballast vs. Double Slab Off Stabilization Designs**

In prism ballasting, one large “active zone” gradually increases in thickness from the superior to the inferior
section of the lens. There is a single rotational orientation, and the lens is designed to have specific
interactions with the upper and lower lids.
Double slab off “active zones” reside in four distinct zones in the mid-periphery. Each zone has a steeper
slope and less surface area to create a lens/lid interaction for with-the-blink re-orientation. It also has a
horizontal symmetrical design. This makes achieving symmetry complex because depending on the lens
orientation, each of the active zones may be interacting with either the upper or lower lids.
The force exerted as the upper lid sweeps over the lens contours is probably the most important factor
influencing good lens orientation, and these active zones are larger in a ballasted design than in a double
slab-off design.

Eye care professionals are now looking at other lens attributes when recommending a lens for their patients
including better vision in different lighting conditions, long-lasting comfort and more convenient wear
schedules.

MONOVISION VS MULTIFOCAL – WHAT’S BEST FOR LONG-TERM SUCCESS?
A common myth when fitting presbyopes in contact lenses is that “fitting monovision takes less chair time than multifocal contact lenses.” Ultimately, chair time is driven by patient satisfaction and a key driver of patient satisfaction is proper management of expectations. Whether we are fitting monovision or multifocals, we have to take
the time to explain what we are doing, why, and set follow-up visits for patients as
the prescription is adjusted.
Monovision is a little more complicated than it first appears. Explaining the impact on stereopsis, compromised acuity in the
intermediate ranges, and alternating ocular suppression is a challenge and usually takes
more time than we initially anticipate. Even if a patient understands what to expect, a
certain percentage will not adapt successfully, requiring repeat visits and
more total chair time.
As eye care professionals, we know it’s a natural process for the brain to select the
clearest image at any particular distance, but unnatural for it to select between eyes.
This makes the idea of multifocals more intuitive to a patient. Patients understand
that both eyes do the same thing at the same time with a multifocal lens – a more
natural way to see.

As patients’ mature, their vision capabilities
change. Monovision patients find that the disparity between the distance and ADD
inevitably becomes too great, and they will
start to drop out of contact lenses
altogether.

In contrast, correcting Presbyopia with
multifocal lenses allows you to keep the
patient in contact lens wear as their ADD
needs increase. Bausch & Lomb Multi-Focal
contact lenses incorporate an increased
depth of field along with additional plus in

>continued on next page
IMPROVING VISUAL QUALITY FOR YOUR LOW TO MODERATE MYOPES

Approximately 42% of the patient population are -3.00D or less.¹ To give these patients exceptional visual quality, 3 simple rules can be followed.

1. **Pick a lens that reduces both inherent and induced spherical aberrations.**
   Bausch & Lomb PureVision® lenses are designed to consistently reduce inherent spherical aberration across a range of powers. The chart below illustrates the +0.15 microns of inherent spherical aberration present in a typical eye, versus when PureVision lenses reduce the inherent aberration for a net spherical aberration of +0.02 at –1.00D.² ³

   ![Simulated Retinal Images](image)

   **Typical eye**
   - without aspheric design
   **PureVision**
   - with aspheric design

2. **Pick a lens that consistently reduces spherical aberration.**
   PureVision lenses are designed with enhanced aspheric optics to deliver high-quality vision. The chart below shows how a lens like PureVision, with an aspheric design, reduces spherical aberration to a greater degree than lenses without an aspheric design for the low negative powers.

   ![Graph of Lens Power vs Spherical Aberration](image)

   **Ideal lens**
   - Reduces spherical aberration across a range of powers

3. **Pick a lens that improves vision and reduces halos in low-light conditions,** such as driving at night, as illustrated below.

   ![Without aspheric optics vs With PureVision aspheric optics](image)
ASPHERAL OPTICS AND THE BENEFITS IN A TORIC LENS

The fundamental challenge of toric lens correction has always been its ability to orient and stabilize on the eye, allowing it to provide crisp, clear vision. Today, this is less of an issue. Today there are toric lens designs that achieve excellent stability. Now, patients are looking for additional benefits, such as comfort, health, convenience or enhanced visual quality.

In fact, 97% of eye care professionals agree that spherical aberration impacts the quality of their patients’ vision and should be corrected. Spherical aberration occurs naturally in the eye and is exacerbated by the introduction of contact lenses. This “inherent” and “induced” spherical aberration can significantly interfere with how precisely light converges to a focal point on the retina. The average amount of spherical aberration in the population is approximately +0.15 microns for a 6mm pupil. The magnitude of the aberration will increase as the pupil diameter increases. That’s why patients notice the effects of spherical aberration mostly in low-light situations as poor contrast, haze, ghosting, halos or glare.

With that basic discussion on aberrations, we can now begin to focus our attention on the design elements of a toric contact lens. Specifically we can look at the Bausch & Lomb PureVision® Toric lens which applies asphericity to the anterior surface of the lens, (see Figure 1). The front surface of the lens is an aspheric surface that reduces the spherical aberration (and is adjusted for each dioptic power). The back surface optic zone—the central optical portion—is the toric surface optimized for balafiloc A material.

The combination of these two surfaces offer an effective combination designed to minimize the astigmatic (sphere and cylinder refractive error) portion and the spherical aberration portions of the visual system (see Figure 2). The result:

- Significant reduction in positive spherical aberration compared to equivalent spectacle correction
- Positive spherical aberration reduced an average of .094 microns.

As these data suggest, your astigmatic patients can indeed enjoy the benefits of aspheric optics in a toric lens. However, it is critical that you select a manufacturer with proven experience in aspheric optics, as its application to a toric lens is a subtle, sophisticated science.

FOOTNOTES

2 The letter represents a 20/80 letter size viewed through a 6 mm pupil and an eye with no other aberration except spherical aberration.
3 Twenty subjects were dilated to achieve a minimum of 6 mm pupil diameter. Baseline spherical aberration was measured using a Zywave™ aberrometer. PureVision and Night & Day (-1.00D and -5.00D) contact lenses were inserted into 1 eye in random order. The measurement of spherical aberration was repeated with the contact lens in place. A second cohort of 20 subjects compared PureVision and ACUVUE Advance (-1.00D and -5.00D) contact lenses using the same protocol. PureVision spherical aberration measures were averaged between the 2 evaluations. A third cohort of 20 subjects compared ACUVUE Oasys and O2Optix (-1.00D and -5.00D) contact lenses using the same protocol. Results are presented as the change from baseline compared to the spherical aberration reported for the general population.
4 2005 results from an independent survey of eye care professionals by Image Engineering, Inc.
5 Adapted soft contact lens wearers were fitted with PureVision Toric lenses Spherical aberration was measured through dilated pupil. For the 20 patients that completed the study, a comparison of spherical aberration of PureVision Toric lens corrected eye to baseline (spectacle Rx equivalent) was conducted.

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