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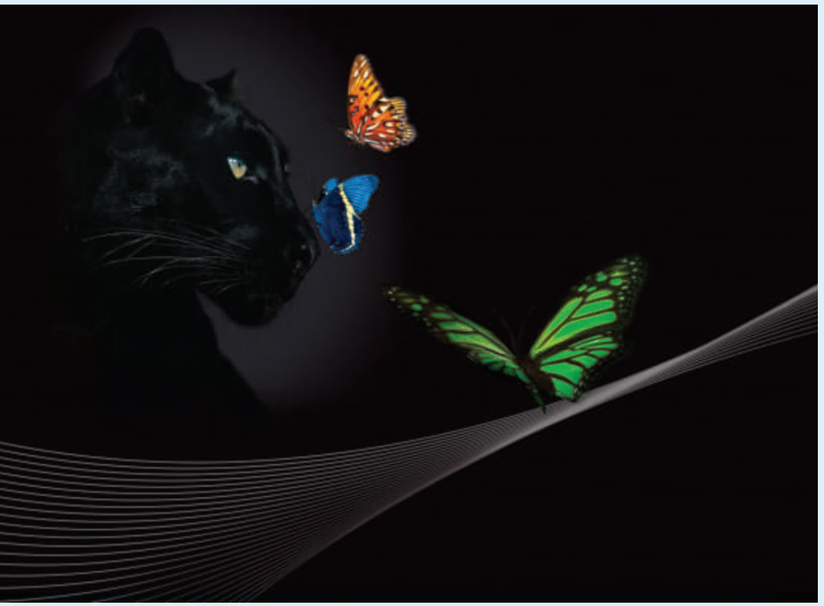

SCHWIND PresbyMAX: A Universe of Possibilities

Enhancing outcomes in presbyopic laser vision correction

By Tobias Ewering

Presbyopia is a natural part of aging, typically beginning in the early-to-mid forties. As the crystalline lens stiffens, the ability to focus on near objects declines. Factors such as occupation, refractive error, and physical characteristics influence onset and progression, often necessitating correction for both near and far vision.[1]

SCHWIND began modern bi-aspheric presbyopic ablation profiles in 2009 with a "symmetric" treatment; the profile included the same myopic target of ~-0.5 D myopia in combination with increased range of focus, equal for both eyes.[2,3]

Today, more patients are seeking freedom from glasses and contact lenses, and advanced surgical options – like SCHWIND PresbyMAX – can provide that independence.[4]

PresbyMAX is a customizable treatment planning module of the SCHWIND AMARIS excimer laser family platform that integrates objective and subjective patient data to optimize vision at all distances. Surgeons can individually set parameters for spherical aberration induction and near-eye target myopia. Treatments are available in multiple modes—Aberration-Free, Corneal Wavefront-guided, or Ocular Wavefront-guided—supporting personalized strategies.

Since its inception, PresbyMAX has evolved into three core treatment models:

- **µ-Monovision** creates the same range of focus in both eyes. However, the dominant eye

Surgeons around the world share their experiences of using the SCHWIND platform

Dr. David Kang,
Eyereum Eye Clinic, Seoul, South Korea

"The high versatility of the SCHWIND platform allows me to perform advanced customized corneal procedures on a wide range of patients, including those with presbyopia. I regularly perform KLEx in the distance eye and PresbyMAX corneal wavefront- guided (CW) ablations in the near eye. Both FemtoLASIK and SmartSurfACE (TransPRK) techniques are used depending upon the cornea. Lately I have found a passion for performing bilateral CW TransPRK in PresbyMAX Monocular for prior laser vision correction (LVC) eyes. After seeing its positive impact in terms of visual quality for both near and distance vision, my wife decided to undergo this procedure. She now sees me with younger eyes!"

Dr. Detlev Breyer,
Breyer, Kaymak and Klabe & PremiumEyes Eye Surgery Clinic, Germany

"I currently use the SCHWIND AMARIS 1050RS in combination with the PresbyMAX Hybrid protocol to achieve laser blended vision — an approach originally developed for extended depth of focus (EDOF) intraocular lens (IOL) procedures and known as the 'Düsseldorf Formula'.

The unique adaptability of the PresbyMAX planning module enables full customization of both the target refraction and the induction of spherical aberration (SphAb), tailored to the individual visual needs of each patient. This method, which I call PresbyEDOF, facilitates a personalized strategy for achieving EDOF.

In most cases, I target the near eye for a postoperative refraction of -1.50 D, combined with a controlled induction of 0.75 D of spherical aberration to create the desired EDOF effect. The distance eye, under the Hybrid profile, typically receives approximately 50 percent of the EDOF modulation applied to the near eye.

I was so confident about the precision and safety of SCHWIND technology that five years ago I chose to undergo PresbyMAX SmartSurfACE (TransPRK) myself. The outcome fully met my expectations. It also strengthened my enthusiasm in recommending the procedure to presbyopic patients with a clear crystalline lens as a safer alternative with better optical results in comparison to Clear Lens Exchange. For patient comfort and easier retouching, I personally prefer FemtoLASIK PresbyEDOF."

Dr. Gustavo Tamayo,
BOGOTÁ LÁSER OCULAR SURGERY CENTER, Colombia

"Using the SCHWIND AMARIS system, our method is to use the peripheral approach to treat presbyopia. This technique preserves the central cornea for distance vision, while the pericentral zones are modified for near vision. This method highlights the versatility of the AMARIS system and is indicated for all types of presbyopia, particularly in patients under 55 years of age. Originally envisioned and designed by Gustavo Tamayo and Mario Serrano in Bogotá, Colombia, the technique has garnered excellent results: over 88 percent of the patients achieve full independence from glasses, with no loss of corrected distance visual acuity.

The treatment is combined with (corneal or ocular) wavefront-guided ablation (CustomEyes) for patients who are myopic, hyperopic, or present astigmatism. The approach involves the application of a peripheral ablation with varying depths, inducing peripheral myopia (in the form of spherical aberrations) that enhance depth of focus without affecting distance (central) vision."

Prof. Dr. Li Ying,
Peking Union Medical College Hospital, China

"I have been successfully using the advanced PresbyMAX profiles to treat presbyopic patients between the ages of 43 and 57. I most frequently use the Monocular version in combination with FemtoLASIK; it has proven especially effective for patients with high near-vision demands, such as painters and surgeons, helping them extend their professional careers by restoring functional near vision.

Thanks to its patient-tailored treatment planning options, SCHWIND PresbyMAX allows for maximum flexibility in addressing the specific needs of Chinese presbyopic patients, who often present with pre-existing myopia and astigmatism. A typical requirement in this population is to enhance near vision without compromising distance vision – a balance that PresbyMAX enables with precision.

My preferred approach is to target a low level of myopic defocus (approximately -0.50 D) in the non-dominant eye, combined with a moderate increase in spherical aberration. This setting corresponds to a near addition equivalent of about +0.50 D to +1.75 D, which offers a viable range of functional near vision while maintaining excellent distance acuity – particularly important for the visual demands of modern Chinese patients."

Dr Alain Hagège,
cataract and refractive surgeon, Paris, France

"I have specialized in refractive surgery for over 30 years, and have been exclusively using the AMARIS platform and PresbyMAX treatment for my presbyopic patients since 2018. Today I systematically use an addition of +2.25 D for my emmetropic and hypermetropic patients, whatever their age. I combine this with a target of around -0.25 D on the non-dominant eye, which I modulate depending on the ametropia. I can be a little more aggressive with the presby addition value for myopes.

I offer this treatment to patients who are keen to regain full autonomy in near and intermediate vision, and who are prepared to accept a slight correction for distance, even though they generally don't need it in everyday life. I prefer µ-Monovision treatment to maintain maximum balance between the two eyes, but may opt for a Hybrid approach if the patient seems reluctant to compromise too much with distance vision.

I don't worry about the risk of multifocal intolerance; I've encountered this very rarely with my patient selection process. I'm also reassured by my experience with the Presby Reversal option, which I was able to use for the retouching of one of my patients as well as others referred by colleagues. With this option I have achieved a best corrected acuity back to 10/10 in all cases."

focuses slightly more towards far vision and the non-dominant eye more on near vision.

- **Hybrid** uses different intended range of focus values in the dominant and non-dominant eye to provide faster recovery of distance visual quality and good vision at all distances.
- **Monocular** does not alter the range of focus in the dominant eye. The non-dominant eye receives the same increased range of focus and target myopia as with the other proven PresbyMAX types. This approach offers the least compromise on distance vision while improving intermediate and near performance.

This flexibility allows the software to emulate alternative presbyopic approaches with excimer lasers, be they bi-lateral symmetric,[5] µ-monovision,[6] or even balanced vision concepts.[7] Additionally, PresbyMAX includes a reversal function, enhancing safety and enabling approaches like peripheral presbyLASIK – placing near vision correction in the corneal periphery while preserving central distance vision.

PresbyMAX profiles are compatible with all AMARIS-supported laser techniques (FemtoLASIK, TransPRK (SmartSurfACE), etc.). Optical zone sizes are adaptable within software limits, often larger in surface than flap-based treatments, and typically require no manual refractive adjustments.

Peer-reviewed studies confirm the platform's safety and long-term efficacy, even for patients with high refractive errors or irregular corneas.[8-10] High satisfaction rates are linked to tailored aberration profiles and controlled induction of low myopia in the near eye. Notably, PresbyMAX Monocular has shown exceptional corrected distance visual acuity (CDVA) safety with no recorded reversals,[11,12] while Hybrid protocols typically yield the best overall unaided vision.[13] Postoperative contrast sensitivity and optical quality scores remain comparable to preoperative levels.[10,13-15] Although PresbyMAX allows reversal of multifocality,[16] its necessity and use is mostly anecdotal at this time.

Conclusion

SCHWIND offers fully personalized presbyopic treatments for patients' unique visual needs. The short treatment times and optimized thermal control of the SCHWIND AMARIS excimer laser family reduces stress on the cornea and enhances safety.[17,18] Moreover, the treatment is powered by up to 7D eye-tracking technology[19] for improved precision during laser treatment.

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