

HOYA VisuPro Advanced Focus Lenses: Bridging Science, Vision, and Practice for Young Presbyopes

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1. Overview

Young presbyopes, typically aged 38 to 45, represent a rapidly growing group of spectacle lens wearers entering the earliest stages of presbyopic change.¹ Unlike mature presbyopes, this demographic leads highly active, technology-driven lifestyles, spends prolonged hours on digital devices, and expects uncompromised vision at all distances without compromising aesthetics, comfort, or adaptability.

Although amplitude of accommodation and flexibility begin to decline, young presbyopes often do not associate early symptoms—eye strain, headaches, near blur, or fluctuating clarity—with presbyopia. These concerns are commonly attributed to stress, fatigue, or extended screen use, resulting in delayed recognition and under-treatment.

From an optical perspective, young presbyopes occupy a unique functional gap. Traditional single vision (SV) spectacle lenses fail to relieve near and intermediate demands, while conventional progressive addition lenses (PALs) may feel excessive, overly complex, or difficult to adapt to at this stage. This mismatch highlights the need for a purpose-designed lens category that provides subtle, behavior-aligned visual support without compromising distance clarity or binocular comfort.

HOYA addresses this unmet need with VisuPro Advanced Focus Lenses, engineered specifically for young presbyopes.

Leveraging proprietary Focus Max Optimization and Binocular Harmonization Technology, VisuPro introduces low-level near-vision enhancement to reduce accommodative load, stabilize near clarity, and enhance overall visual comfort—while

By bridging the gap between single vision and progressive lenses, VisuPro offers a seamless, effortless visual experience tailored to modern lifestyles. For Eye Care Professionals (ECPs), it represents an innovation-led solution for managing this under-recognized yet rapidly expanding patient segment.

2. The Invisible Challenge: Understanding the 38-45 Age Demographic

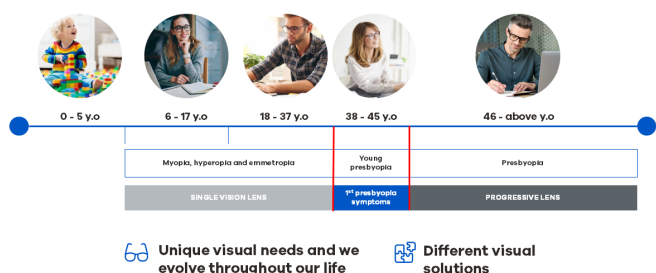
In today's digital-intensive world, Eye Care Professionals face a unique challenge: identifying and addressing the needs of young presbyopes who may not recognize their own visual discomfort. These patients, typically aged 38-45 occupy a critical transition zone between SV adequacy and the need for PALs. Unlike traditional presbyopes who present with clear near-vision complaints, this younger cohort experiences subtler symptoms that are easily attributed to other causes.¹

The Changing Eye: Visual Needs Throughout Life

As patients move out of their twenties and into their late thirties, the visual system begins a gradual transition from full accommodative flexibility toward the earliest stages of presbyopia—what we are now calling “young-presbyopia.” Framing this life-stage shifts against Duane's classic amplitude-of-accommodation data (Duane 1922) help explain the changes seem in visual performance. Between ages 38 and 47, Duane reported a drop from roughly 4.60D to 2.50D.¹ Clinically, this decline coincides with intermittent fatigue, near-to-far blur, and mild eyestrain. Instrumental testing confirms both reduced amplitude of accommodation and slower response speeds as the “accommodative reserve” erodes. As the crystalline lens elasticity starts to decline, patients begin to report everyday frustrations and discomfort.

- “I have to hold my phone farther away to read text”. Objects that used to be crisp at arm's length now seem a little fuzzy, so they instinctively push them out.
- “After about 20 minutes on the computer, my eyes feel tired and heavy.” Prolonged near work triggers a sense of fatigue or heaviness around the temple and brow .
- “Switching between my laptop and my notes feels slow—I almost miss what I am looking at.” They notice a delay or a brief blur when moving focus between distances.

Visual needs throughout life



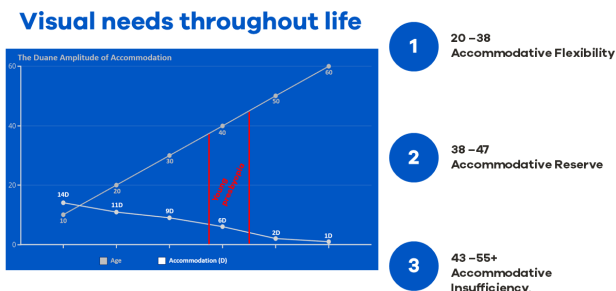
[Figure 1 – The visual transition gap between SV and PALs]

Compounding these age-related shifts is our modern, device-driven lifestyle. Studies indicate young presbyopic wearers show a significant increase in response delay when refocusing between distances—averaging over a second delay during this time. During real-world digital activities, patients switch focus roughly 300 times per hour often between a smartphone held closer than the traditional tablet or book distance of 16" (40 cm) to computer at about 25" (63 cm).²

When questioned directly about their vision, many will report it as "fine" or "good enough." This perception gap requires a different approach to patient education and care. 80% of adults spend more than 3 hours a day on screens. A significant percentage of millennials spend an average of 7 hours a day on digital devices.^{3,4} The paradigm is that patients also know that this much screen usage "isn't good for their eyes".

Visual Needs Across Life:

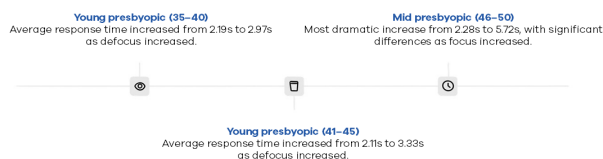
- **20–38 years:** Full accommodative flexibility
- **38–47 years:** Reduced accommodative reserve
- **43–55+ years:** Accommodative insufficiency



[Figure 2 – Typical accommodative range and focus points for adults in daily activities based on Duane Amplitude of Accommodation]¹

Impact on Visual Performance:

Even at early stages, defocus slows visual processing. Individuals aged 35–40 experience a 0.78-second increase in response time under blur, while those aged 41–45 see an increase of 1.22 seconds. Mid-presbyopes (46–50) demonstrate delays up to 5.72 seconds.⁵ These changes affect daily activities, including reading, digital tasks, and driving, highlighting the importance of timely correction.



[Figure 3 – Impact of Defocus on Visual Response Time in Presbyopes]⁵

Based on another research, the focus group participants switched focus on average 333 times per hour.⁶

- With 85% of those switches being near-to-near focus switches.⁶
- No single focus was longer than 6 minutes.⁶

For the Eye Care Professionals (ECPs), recognizing and measuring these early functional changes—through dynamic accommodative response tests, near-point convergence measurements, and digital-device simulation protocols—opens the door to a new category of "young-presbyopia" solutions.

3. PAL Non-Adaptation and Emerging Binocular Vision Challenges

Improving Presbyopic Outcomes

We know that a disproportionate of non-adapts are related to PALs. Study indicate this rate to be about 7%.⁹ The vast majority of these are often first time PAL wearers. With the majority of first time PAL wearers only starting at +2.00D or higher, early intervention can dramatically improve these outcomes, leading to both improved patient satisfaction and commercial revenue and profitability outcomes.

By proactively recommending lenses with accommodation support to young presbyopes, the disconnect between clinical reality and patient adaptation presents a significant opportunity to improve outcomes in later life stages of the maturing presbyope.

Despite the well-established clinical benefits of early PAL intervention, young presbyopes in the 38–45 age range remain significantly under prescribed for progressive lenses at low add powers. Assuming that patients with +2.00 ADD are usually around 50 - 55 years old, it means that patients can spend more than 10 years without adequate vision correction.

Non-Adaptation Trends in PAL Prescribing

Non-adaptation remains a persistent challenge in PAL dispensing. Data shows presbyopes account for 88.1% of non-tolerance cases⁷, primarily due to:

- 61% prescription-related issues⁷
- 22% dispensing-related factors⁷

Approximately 25% of re-checks occur in patients aged 30–49, representing emerging young presbyopes. Following these re-checks, 87% of prescriptions require adjustments of 0.25–0.50D, illustrating the demographic's sensitivity to even minor refractive inaccuracies.⁸

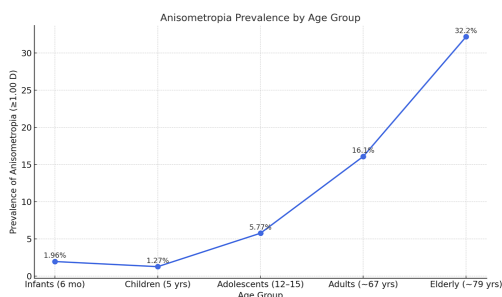
Anisometropia: A Growing Binocular Vision Concern

Anisometropia—defined as a refractive difference of $\geq 1.00\text{D}$ between eyes—is increasingly prevalent. This imbalance can disrupt binocular vision and lead to symptoms such as headaches, dizziness, eye strain, and reduced depth perception.⁹

Tolerance and Fusional Capacity

- Most individuals can compensate for ~ 1 prism diopter (Δ) of vertical prism¹⁰⁻¹²
- Vertical disparities $> 2\Delta$ often result in diplopia, eye strain, headaches or visual discomfort¹⁰⁻¹²
- Vertical fusional reserves are limited ($2\text{--}3\Delta$) including adaptation and reserves compared to horizontal prism ($15\text{--}20\Delta$)¹⁰⁻¹²

Because of these limitations, even small differences in prescription, fitting height, or lens design between eyes can significantly affect comfort and adaptation, particularly for PAL wearers.¹⁰⁻¹²



[Figure 4 – Anisometropia Prevalence by Age Group]¹⁰

Anisometropia is at least 10 times more common in the elderly than in children⁹

These findings underscore the need for accurate refraction, binocular vision evaluation, tailored lens designs, and patient education on adaptation expectations.

4. Understanding the Visual Challenge

Young presbyopes rarely present with clear or explicit complaints of near-blur. Instead, they often describe symptoms such as visual fatigue, headaches, or reduced concentration, often attributing these issues to external factors like poor lighting, posture, or stress. Despite experiencing early functional changes, many report that their vision feels “good enough,” creating a perception gap that delays corrective intervention

Proactive clinical assessment is essential. Targeted functional assessments such as dynamic accommodation testing, near-point convergence evaluation, and task-specific simulations help ECPs identify early accommodative decline and emerging near–intermediate fatigue before it affects daily performance or quality of life.

This enables timely intervention with solutions like HOYA VisuPro Advanced Focus Lenses, providing enhanced near and intermediate support without compromising distance clarity and binocular comfort.

5. Shaping the Future of Presbyopia Care: VisuPro Advanced Focus Lenses, for a New Era of Vision

The HOYA VisuPro Advanced Focus Lens represents a new category of performance eyewear engineered specifically for the demands of young presbyopes.

The VisuPro spectacle lenses are specifically designed to offer holistic solutions. Available in 2 variations targeting two different wearer groups: VisuPro All Day and VisuPro Flex. Tailored to the needs of both existing spectacle wearers and non-spectacle wearers. VisuPro All Day is dedicated to spectacle wearers who wear glasses throughout the day while VisuPro Flex is designed for wearers who use their spectacle lenses primarily for near distance activities such as emmetropes, contact lens wearers and post-refractive surgery patients. More than a transitional solution between single vision (SV) and progressive addition lenses (PALs), it introduces a new category of performance eyewear tailored to young presbyopic needs.

Central to its value are advanced technologies that address:

- Delayed focusing and re-focusing due to defocus sensitivity (how much visual quality drops when the eye is defocused)
- Increasing anisometropia in aging populations which can influence their binocular vision
- The need for personalized solutions for optimal comfort and seamless vision all day long
- Designed to support visual comfort in case of visual fatigue and eye strain when focusing on near distance tasks and using digital devices.

VisuPro spectacle lenses integrate Focus Max Optimization technology, Binocular Eye Model, Binocular Harmonization Technology and lens individualization to deliver comprehensive solutions that are designed to enhance natural and effortless vision, performance and visual precision across all activities and viewing distances. An additional advantage is that this category's goal is to contribute to a smoother transition to PAL spectacle lenses in the next stage of the presbyopic development, mature presbyopia. This potentially will decrease the chance of non-adaptation in the progressive addition lens category.

Insight 1 – Addressing Young Presbyopes' Increased Defocus and Response time with Focus Max Optimization

Visual response speed declines as presbyopia progresses. Research shows a significant increase (delay) in visual response time as defocus increases, particularly in the early stages of presbyopia, where the average recognition time under blur conditions increases approximately 1.5 seconds in people aged 35–45 when no correction is applied.⁵ This significant change can affect how quickly we process visual information and can impact daily activities requiring quick visual decisions like driving, reading and using digital devices.

Focus Max Optimization technology is designed to support visual comfort. This technology enhances the spectacle lens design with additional support in near addition vision zone, specifically 10mm below the PRP (Prism Reference Point), targeting the visual space most used for digital and close-up work. It offers wearers improved clarity and faster visual processing when switching focus between distances.

Benefits to the Wearer:

- For VisuPro All Day wearers, this means fluid transitions across all visual zones with sharper and more comfortable focus during desk activities and digital device usage*.
- For VisuPro Flex wearers, especially those who rely on near-vision tasks (contact lens users, post-refractive surgery patients, etc.), it is designed to support visual comfort during close-up tasks, can reduce eye strain and is intended to help maintain visual comfort during extended digital use.

VisuPro advanced spectacle lenses are designed to support a wide range of visual correction needs. They incorporate Focus Max Optimization technology which offers different power levels based on the usage needs and the different target profiles of young presbyopes, both full time wearers with VisuPro All Day and non-spectacle or occasional wearers with VisuPro Flex.

VisuPro All Day

- Type 1: +0.57D
- Type 3: +0.95D
- Type 5: +1.32D

VisuPro Flex

- Type 1: +0.58D
- Type 2: +0.77D
- Type 3: +0.96D
- Type 4: +1.16D

These power range variations provide targeted near-vision support, ensuring tailored solutions for both full-time spectacle wearers and those requiring enhanced near vision performance during specific tasks.

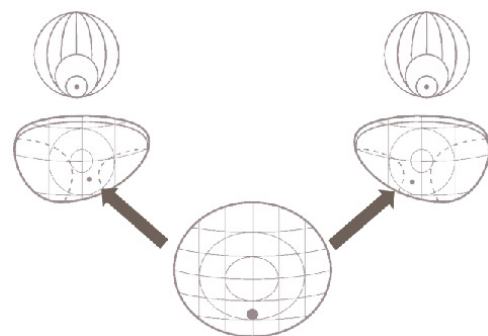
Insight 2 – Tackling Anisometropia and Global Prescription Disparities with HOYA Binocular Eye Model and Binocular Harmonization Technology

Anisometropia reflects a disparity in refractive status between the eyes, which can challenge visual harmony and binocular integration.

Standard accommodative support lenses often fail to accommodate these asymmetries, leading to poor binocular integration and discomfort.⁹ HOYA's patented Binocular Eye Model (BEM) and Binocular Harmonization Technology (BHT) are designed to support binocular balance and visual comfort.

Binocular Eye Model (BEM)

The Binocular Eye Model assesses how both eyes work together through various gaze directions, identifying asymmetries in magnification, convergence, and prismatic effect. This assessment of the advanced focus lens design's binocular performance enables to enhance vision in a dynamic and digital world.



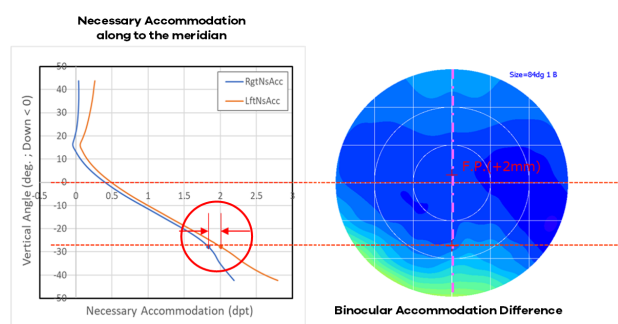
[Figure 5: Binocular Eye Model, a patented binocular performance measurement program]¹³

Binocular Harmonization Technology (BHT)

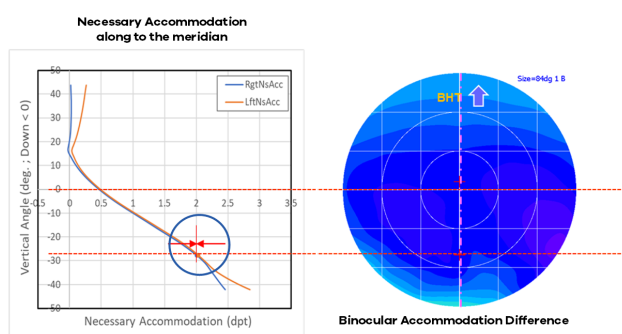
Binocular Harmonization Technology applies individual calculations for each eye, modifying the spectacle lens design to equalize image size and clarity on the retina, even during off-axis viewing. The calculation of the required binocular design and harmonization in the spectacle lenses prescriptions offer effortless focusing and help to maintain image consistency and clarity.

These technologies are particularly crucial when spectacle lens powers differ between right and left eye, a condition present in 87.5% of prescription orders globally.¹⁴ The combination of progression length and prescription differences from 0.50D and higher can have a huge influence on the wearers visual comfort.⁸ By expanding and compressing the power progression zones to match the difference in rotation need between eyes, BHT ensures smoother visual fusion and reduced fatigue.

Without BHT



With BHT



RE: S0.00 / LE: S+3.00 / ADD1.50

[Figure 6: Binocular Harmonization Technology Design verification]¹³

Insight 3 – VisuPro Lens Individualization: Because One Lens Doesn't Fit All

Every patient's visual system is unique, not just in prescription, but in anatomy, lifestyle, and how they wear their spectacles. VisuPro advanced spectacle lenses are individualized through a comprehensive approach that incorporates frame fitting parameters, facial anatomy, personal prescription values, and patient-specific lifestyle analysis using HOYA iSelect advanced lens recommendation tool.

This individualization improves not just vision, but spectacle lens comfort and aesthetic integration, resulting in a seamless wearing experience that young presbyopes appreciate.

Individualized Vision Gains

By customizing the spectacle lens design at this level, VisuPro minimizes adaptation time, enhances wearability, and promotes early user satisfaction, a key strategy for converting first-time presbyopes and guiding them towards continued use of full progressive addition spectacle lenses.¹³

Conclusion: The Technical Edge of VisuPro

VisuPro advanced focus lenses are comprehensive, technologically intelligent solutions, designed to support the evolving visual needs of digitally immersed young presbyopes.

By linking scientific insights to precise optical engineering, VisuPro supports better vision, faster focus, and binocular balance, all tailored to young presbyope patients' individual lifestyles.

For Eye Care Professionals, this means a product intended to support visual comfort and clarity and a valuable opportunity to grow their practices with a next-generation solution.

6. Integrating VisuPro into Clinical Practice

Integrating VisuPro advanced focus lenses into clinical practice requires a thoughtful blend of communication, diagnostic precision, and personalized care. By adopting a structured approach, Eye Care Professionals can confidently guide young presbyopes through early visual changes, ensuring both optimal clinical outcomes and a smooth, supportive patient experience.

Patient Education and Communication with Empathy

For many young presbyopes, the idea of needing reading spectacles or progressive lenses can feel premature. Their resistance often stems not from the severity of symptoms, but from the association with ageing.

Effective communication must therefore normalize presbyopia as a natural and expected change rather than a clinical or cosmetic milestone. Relatable analogies (e.g., a smartphone battery losing efficiency) help normalize visual changes and position VisuPro as a proactive enhancement.

Proactive Detection: Recognizing Presbyopia Before Patients Do

Young presbyopes rarely report classic symptoms such as blurred near vision. Instead, they may report eye fatigue, concentration difficulties, or subtle lifestyle cues (adjusting phone distance, increasing room brightness). It falls on the ECPs to identify the early functional signs of accommodative fatigue.

Simple, conversational questions can reveal important clues. Patients who admit to holding their phones further away, experiencing discomfort after prolonged screen time, or feeling “tired eyes” at the end of the day may already be demonstrating early presbyopic behaviour.

Combine conversational screening with functional tests such as dynamic accommodation testing, near-point convergence, or task-specific simulations - provides a reliable foundation for early-stage diagnosis.

One of the most effective tools in the clinic is the VisuPro trial lens demonstration. Allowing patients to experience the lens over their full-distance correction often creates an immediate moment of relief and recognition, reinforcing the need for support and elevating acceptance.

Integrating VisuPro into the Consultation Flow

The adoption of VisuPro begins with identifying suitable candidates during routine examinations. Patients in their late 30s to mid-40s who are full time spectacle wearers, wearers who use their spectacle lenses primarily for near distance activities (i.e. emmetropes, contact lens wearers, post-refractive surgery patients like LASIK) and those with early symptoms of binocular imbalance or anisometropia will benefit greatly from advanced focus support.

Demonstrate benefits using real-world tasks such as switching between phone, computer, and distant targets – enhances understanding and confidence in patients. Utilize tools like HOYA iSelect questionnaire to align VisuPro variant whether VisuPro All Day or VisuPro Flex with patient lifestyle.

Addressing adaptation expectations is equally important. While most young presbyopes adapt rapidly, setting realistic expectations reassures patients and reinforces trust. This transparent approach, paired with personalized evaluation, helps ensure a smooth and positive transition to advanced focus lenses.

Enhancing Patient Engagement Through Modern Practice Communication

Young presbyopes are digitally fluent and respond best to communication that mirrors their lifestyle. For practices, this means presenting VisuPro in a fresh, modern, and educational manner across both digital and physical touchpoints.

Social media, interactive in-store displays, and visual merchandising help position VisuPro as a lifestyle solution rather than a simple lens product. When messaging aligns with their aspirations—maintaining performance at work, visual stamina, and daily comfort—patients better appreciate the relevance of VisuPro to their lives.

Retention and Long-Term Patient Management

The young presbyope journey does not end with lens dispensing. It is the beginning of a long-term visual management plan in which VisuPro plays an important early role.

A structured follow-up within several days of dispensing allows the practitioner to address early questions, provide reassurance, and ensure optimal adaptation. Document preferences and experiences build a detailed patient profile for future clinical decisions.

Regular examinations allow practitioners to detect evolving presbyopic needs and adjust support levels accordingly. Early introduction to VisuPro also prepares patients for a smoother future transition to progressive addition lenses as presbyopia advances, reinforcing the value of consistent follow-up care and long-term engagement.

Conclusion: Elevating Care and Practice Growth with VisuPro

VisuPro advanced focus lenses address a historically underserved patient segment by bridging the gap between single vision and progressive lenses. Young presbyopes — active, digitally engaged, and sensitive to visual comfort — often do not recognize their emerging presbyopic needs.

By integrating VisuPro into practice, Eye Care Professionals provide a comprehensive, technology-driven solution combining early detection, empathetic communication, individualized lens design, and seamless consultation. This approach enhances visual performance, reduces accommodative strain, and stabilizes binocular vision, improving satisfaction and long-term outcomes.

Beyond its functional benefits, VisuPro supports sustainable practice growth. Early intervention strengthens patient loyalty, facilitates premium lens pairings, second-pair opportunities, and smooth future progressive addition lenses transitions, while positioning practices as proactive, technologically advanced, and patient-focused.

Adopting VisuPro enables ECPs to meet the evolving needs of young presbyopes and establish their practice at the forefront of modern presbyopia management, delivering both exceptional patient care and tangible business impact.

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*The performance characteristics described in this article are based on design features and user experience observations and may vary depending on individual prescription and usage. This document is intended for educational purposes for eye care professionals and does not constitute medical advice or clinical claims.