PRO TO PRO
CONTINUING EDUCATION

Product Spotlight – Varilux® Comfort Max

DELIVERING POSTURAL FLEXIBILITY FOR PAL WEARERS WITH THE NEW VARILUX® COMFORT MAX LENS

By Pete Hanlin, ABOM

[1 CE CREDIT]

It's a fact—people are spending more time in front of digital devices than ever before. Increasingly digital lifestyles often dictate that progressive addition lens (PAL) wearers adopt rigid, uncomfortable postures in their daily lives. *Varilux Comfort Max* lenses adapt to the wearer's natural posture, delivering the 20/Happy vision they desire and providing enhanced postural flexibility for all-day-long vision comfort. In this ABO-earning course, you will learn how *Varilux Comfort Max* lenses will help you elevate your mid-range progressive lens offering, bring new patients into the category with a lens preferred by 9 out of 10 new PAL wearers, and drive better patient retention.[1, 2]

Progressive lenses are intended to provide comfortable vision at all viewing distances. Yet, according to Essilor's internal estimates of the 2.1 billion presbyopes worldwide, 85 percent are not corrected with progressive lenses.[3] In fact, 3 in 5 people over 40 years old have not tried PALs yet, according to a 2018 quantitative study.[4] While price may be an obstacle, the main reasons for not wearing progressive lenses or abandoning them are discomfort and non-adaptation.[5]

LEARNING OBJECTIVES:

Participants will learn about:

1. Digital Life and Postural Constraints.
2. What made *Varilux Comfort Max* possible.
3. Unique Flex Optim™ Technology.
4. Real wearer approved innovation.
5. Your complete range of Varilux® lenses.

TO EARN CONTINUING EDUCATION CREDIT:

This course has been approved for one (1) hour of Ophthalmic Level 2 continuing education credit by the ABO. To earn ABO credit, please review the questions and take the test at 2020mag.com/ce.
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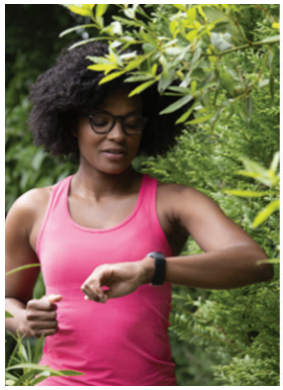


Adaptation to progressive lenses requires motor adjustments of the eye and head to align the visual axis with the "good zone" of vision according to the target object's distance. A posturally flexible progressive lens solution that alleviates discomfort and increases the ease of adaptation can tap into that vast market of underserved current and new presbyopes. This course will explore *Varilux Comfort Max,* a new innovative PAL design, to help people deal with the increasingly complex visual environment surrounding them.

NEW VISION CHALLENGES AND DIGITAL DEVICE DISCOMFORT

Our visual environment has become increasingly complex, with increased amounts of time spent working, socializing and playing on digital devices. Due to this, progressive lens wearers may experience issues and discomfort fostered by this intense increase in digital screen visual demands.[6,7] Adaptation to PALs requires motor adjustments of the eye and head to find the right zone of vision in the lenses to see target objects clearly. Rapidly changing visual target distances throughout the day further complicates the use of PALs. Computer users often experience visual fatigue. Smartphone users often experience neck and shoulder pain due to musculoskeletal disorders (MSDs). Postural inflexibility—confining yourself to one rigid, static posture—strains your muscles.[8]

A lack of postural flexibility—confining yourself to one rigid, static posture—strains your muscles

In the digital age, several factors contribute to new vision challenges. They are the variation in focal distances of digital device screens, a closer than standard reading distance (i.e., 13 inches for smartphone versus 16 inches to read a book)[9] and a longer daily average screen time.[10]

EYE MOVEMENT ACCURACY

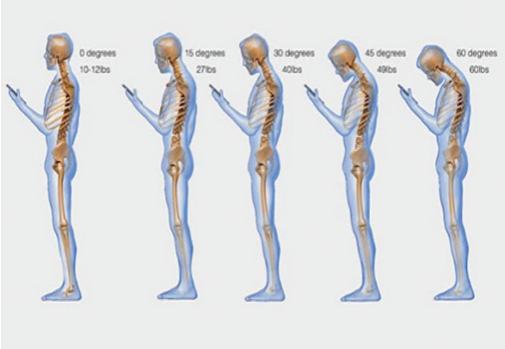
Several studies show that discomfort may increase for the wearer during prolonged tasks, particularly computer[11] use and driving.[12] In "The Ocular Assessment of Diurnal Arousal Variations," Journal of Vision August 2017, Vol.17, 1153. the author informs us that eye movement accuracy is not constant throughout the entire day. We experience visual fluctuations throughout the day. A larger area of usable vision on the progressive lens allows the wearer to cope better with these daily fluctuations.[13] Adaptation to progressive lenses requires not only eye movement adjustments but also new strategies to allow flexibility in head positioning. The restriction of head positions due to optical constraints related to PAL wear may lead to locked or frozen and uncomfortable head and neck postures which can eventually lead to musculoskeletal disorders.

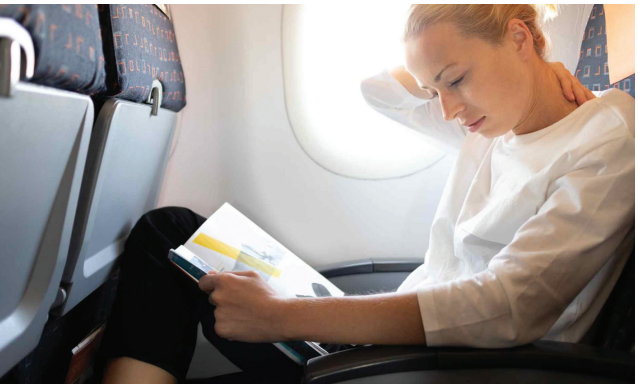
Eye movement accuracy is not constant throughout the entire day, requiring more effort to perform fine-tuned gaze changes.

Musculoskeletal disorders (MSDs): 62 percent of office workers have neck and shoulder musculoskeletal disorders (MSDs). Evidence suggests that sustained static head postures may cause musculoskeletal disorders. You could be putting as much as 60 pounds of weight on your shoulders just from reading a smartphone over a period of time.[14]

POSTURAL FLEXIBILITY

Ergonomic principles reveal that holding one static or rigid posture for a given visual task is not ideal. The ideal posture is "the next one," as regularly changing one's posture during a task helps prevent muscle tension and reduce stress on the body. Air and train travel provide a good illustration of this phenomenon. While we may start the journey comfortably, sitting in one rigid posture with restricted movement can lead





to long-term complications as seen in the case of MSDs.

Continuing with the airplane analogy, you feel cramped and uncomfortable while sitting on an airplane because you are confined and unable to naturally shift positions. To be comfortable, you need more space and the ability to move around. Just like you need postural flexibility to move your body and get the blood flowing when traveling, you also need lenses that provide you the freedom to be flexible so that you can maintain visual comfort and clear vision over a wide range of postures, activities, viewing distances and angles. To attain postural flexibility in a progressive lens, we need a lens design technology that expands or stretches the vision zones. *Varilux Comfort Max* lenses eliminate the postural rigidity that results from the small vision zones of most PAL designs that require us to limit head and neck movement.

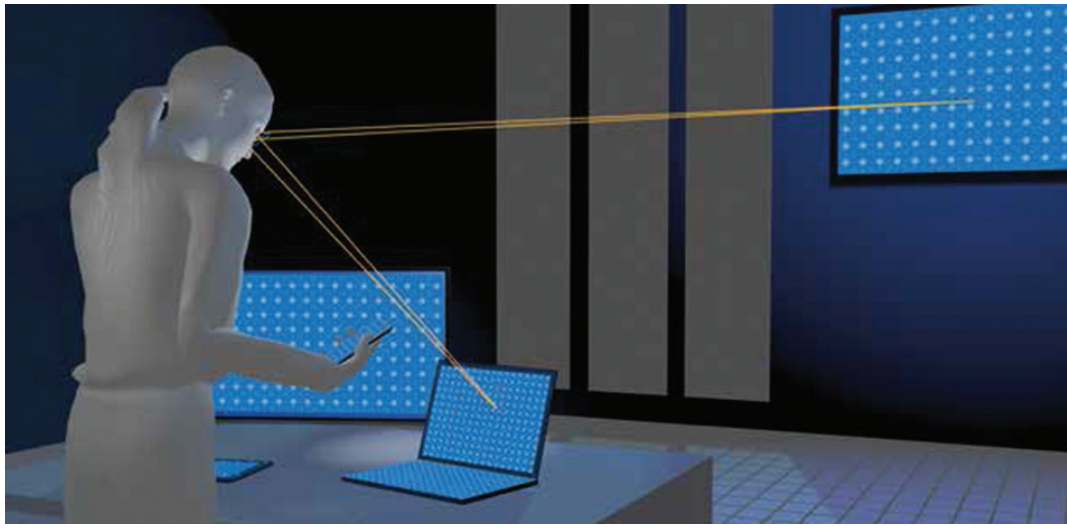
WHAT MADE *VARILUX COMFORT MAX* POSSIBLE?

Varilux Comfort Max lenses are the result of a breakthrough in lens design evaluation. An updated LiveOptics™ R&D Process with a new Essilor Research and Development Avatar produces 3D simulation modeling. The Essilor Research and Development Avatar utilizes a 3D model of the environment and various fixation points of the scene, a model of the visual task and a model of the wearer. This modeling technology has the capacity to mimic the human visual system and in an industry first, can calculate postural flexibility for PAL wearers. The new Avatar uses two eyes and a rotating head to model the human visual system at multiple gaze directions and postures. The model is able to recreate the conditions experienced by the PAL wearer in an infinite number of real-life vision tasks in a 3D environment. The new Avatar model measures a number of postures to see a vision target sharply at a given distance. A posture is defined as a 1-degree angle variation vertically or horizontally.

Visual acuity as a function of lens aberrations: In the Essilor Research and Development Avatar model, the visual task is executed by the Avatar. Physical measurements such as head rotation angle, eye rotation angle, optical aberrations and so on can be determined for each measurement-to-performance indicator: Head and gaze efforts as a function of head and gaze angles and accommodation effort as a function of accommodation value. The Essilor Research and Development Avatar model has been used to evaluate the *Varilux Comfort Max* lens design with new performance indicators, including postural flexibility. Postural flexibility is defined as the range of head motions available to the wearer while maintaining his fixation on a given object point. More specifically, postural flexibility corresponds to the number of possible head positions (in head lowering and azimuth) so that the binocular visual acuity loss is less than 0.15 logMAR, assuming a best-corrected visual acuity for each eye.[15] The greater the postural flexibility, the higher the number of different head positions the wearer can adopt to look at a given fixation point, making it easier for the wearer to change their posture during prolonged vision tasks to increase their comfort.

THE NEW AVATAR USES TWO EYES AND A ROTATING HEAD TO MODEL THE HUMAN VISUAL SYSTEM AT MULTIPLE GAZE DIRECTIONS AND POSTURES. THE MODEL IS ABLE TO RECREATE THE CONDITIONS EXPERIENCED BY THE PAL WEARER IN AN INFINITE NUMBER OF REAL-LIFE VISION TASKS IN A 3D ENVIRONMENT.

Over 360 real-life situations were simulated to ensure a thorough comparison of the design's performance. *Varilux Comfort Max* lenses provide the best all-around perfor-



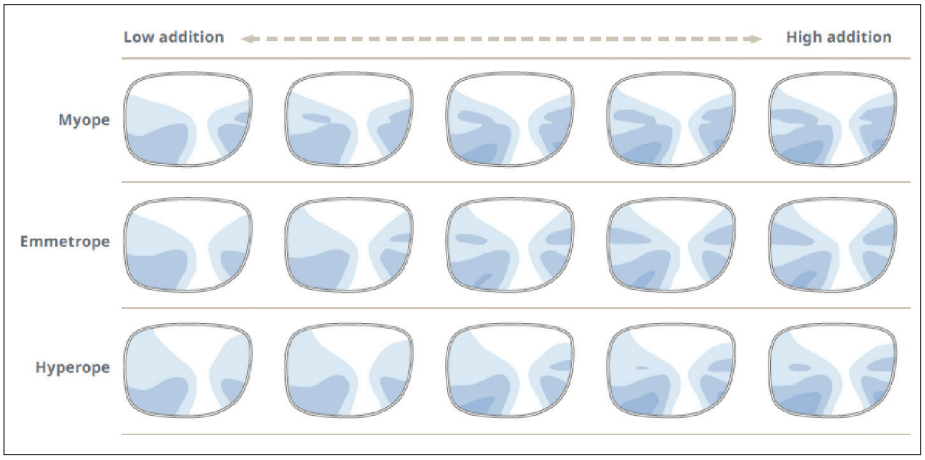
mance at all distances in terms of postural flexibility. Data from thousands of real wearers differing in prescription were analyzed. Postural flexibility criterion was computed for a large number of configurations with 72 different fixation points (i.e., visual tasks) that corresponds to nine fixation points per object on eight different objects.

USEFUL VISION ZONE AND *FLEX OPTIM* TECHNOLOGY

The *Varilux Comfort Max* lens is a new design approach that focuses on managing vision instead of optics. The useful vision zone is the area of the lens in which you can see clearly. This concept is also referred to as "20/Happy vision." The useful vision zone is unique to each wearer and is calculated to maximize the wearer's range of horizontal and vertical gaze directions. 20/Happy is a concept known to nearly all practitioners. It happens when the brain perceives an image as clear. By focusing on achieving 20/Happy vision, the lens design emphasizes a larger area of usable vision for the wearer rather than a small area of perfect vision. Supported by *Flex Optim* technology for expanded individualization, this new lens design provides PAL wearers with

a stretched useful vision zone with a broader range of head movements. Head posture has to be variable and flexible to avoid musculoskeletal disorders.

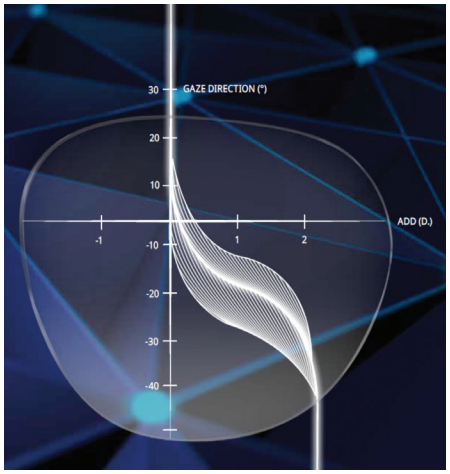
The two steps for *Flex Optim* technology are: 1. *Flex Optim* technology has distinct vision profiles that meet specific needs for each ametropia, and 2. *Flex Optim* technology goes beyond vision profiles to maximize postural flexibility for each individual. The development of a vision profile takes the principles of the *LiveOptics* R&D process as a starting point. *LiveOptics* was introduced



for the first generation of the Varilux Comfort® lens in 1993 and placed the wearer at the heart of the lens design conception. A progressive lens product is commonly computed for a range of prescriptions (Sphere, Cylinder, Axis, Addition), resulting in numerous combinations of different lenses. At Essilor, different lenses are derived from an original vision profile, which represents the basic optical parameters of the product. Each vision profile addresses specific ranges of prescriptions. This approach brings additional performance by providing different solutions for different segments of populations in response to their specific visual needs.

The visual behavior and needs of presbyopes differ by ametropia. Myopes need a wider visual field to transition between vision zones successfully. Hyperopes require a softer design to do the same task, and an emmetrope needs a solution that is in between myopes and hyperopes. *Varilux Comfort Max* lenses have 15 vision profiles to ensure that each wearer is associated with the vision profile that best matches the wearers' needs. The vision profiles are automatically defined and determined by Essilor's Design Calculator.

The power progression profile is the backbone of every progressive lens design. The shape of the progression profile greatly influences the positions and dimensions within the lens of the far, intermediate and near vision zones. Hence, the careful design of the progression profile is vital. *Flex Optim* technology has been designed to



provide good all-around visual performances by maximizing the wearer's postural flexibility. It adjusts the lens progression profile to each wearer, going beyond the vision profile to ensure a tailor-made solution.

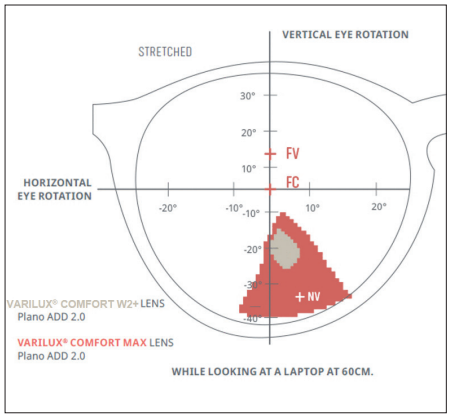
20/Happy—another name for the Useful Vision Zone

THE CONCEPTION OF THE VISION PROFILES OF THE *VARILUX COMFORT MAX* LENS WAS DEVELOPED BASED ON WEARER STUDIES. THE *VARILUX COMFORT MAX* LENS DESIGN RELIES ON OBJECTIVE SCIENTIFIC DATA AS WELL AS THE SUBJECTIVE WEARER FEEDBACK FROM A RANGE OF WEARER TESTS.

MAXIMIZING POSTURAL FLEXIBILITY

With *Varilux Comfort Max* lenses, patients can adopt 495 different postures when looking at a computer or desktop screen while maintaining visual acuity versus 268 postures with Varilux Comfort® W2+ lenses.[16]

The greater the postural flexibility, the easier it is for the wearer to change his/her posture during prolonged vision tasks, and the more comfortable they will be. Posture and gaze direction go hand-in-hand. When you turn your head, your eyes follow. Therefore, by maximizing the range of gaze directions, *Flex Optim* technology maximizes the range of postures too. With more postural flexibility, you are able to see naturally without having to struggle to find the right gaze direction—particularly useful in today's digital environment. By stretching the useful vision zone by 46 percent in *Varilux Comfort Max* versus *Varilux Comfort W2+* lenses, *Flex Optim* technology delivers postural flexibility for all-day-long vision comfort.



Useful Vision Zone Stretched by 46+ percent, allowing the wearer to see a given focal point from many angles. The result of *Flex Optim* technology is that it stretches the Useful Vision Zone 46+ percent versus *Varilux Comfort W2+* across vision distances.

WEARER-APPROVED INNOVATION: WHAT DO WEARERS HAVE TO SAY ABOUT *VARILUX COMFORT MAX* LENSES?

Essilor conducted a wearer study on current progressive lens wearers over the age of 40, and 100 percent of participants experienced easy adaptation to their new *Varilux Comfort Max* lenses. Wearers also gave an average satisfaction rating of 8 out of 10[18,19] for their vision across all distances, and 95 percent would recommend it. The conception of the vision profiles of the *Varilux Comfort Max* lens was developed based on wearer studies. The *Varilux Comfort Max* lens design relies on objective scientific data as well as the subjective wearer feedback from a range of wearer tests. In fact, at the end of each *LiveOptics* loop, wearers' responses give precious feedback about their specific visual needs. Essilor has acquired critical knowledge from analyzing more than 1,225 wearers who participated in 26 different wearer tests and by taking a deep dive into wearers' testimonials about their lens experience. Furthermore, Essilor carried out several research studies investigating differences in visual perception and visuomotor interaction related to ametropia.[20, 21, 22, 23]

Even people who have never tried PALs before adapted to *Varilux Comfort Max* lenses. In a study of people over 40 who have never tried progressive lenses including bifocal wearers, 9 out of 10 said they wanted to continue wearing *Varilux Comfort Max* lenses.

In fact, nearly all of these historically challenging wearers adapted to *Varilux Comfort Max* with little to no effort. Eighty-three percent got used to it without even thinking about it, and 91 percent expressed satisfaction with their vision in daily activities to be more clear.[24]

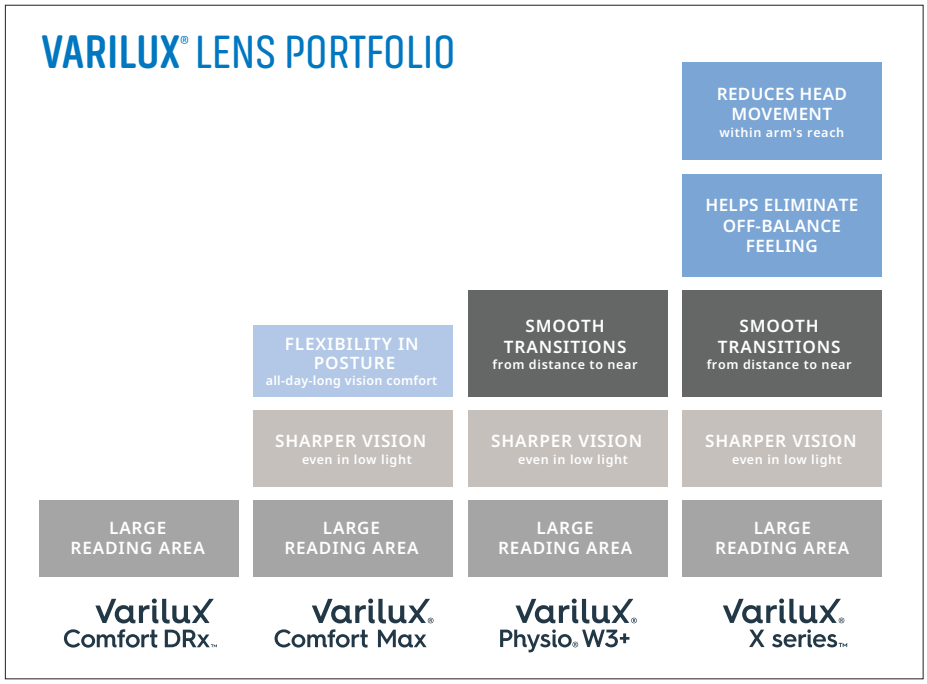
The Opportunity: The new range of the *Varilux* portfolio of lens designs will meet any patient's needs with its tiered design options. Varilux Comfort DRx™ lenses are the entry point. As we move up in the *Varilux* portfolio, *Varilux Comfort Max* lenses have been positioned in the middle of the portfolio.

Varilux Physio® W3+ and Varilux® X Series™ lenses are the most premium products in the portfolio, and are your best options. With the tiered *Varilux* portfolio, you have a suite of products to help grow your progressive lens business. **What's in it for you?** You can reinvigorate your staff with new products and innovative solutions that create patient loyalty and increase satisfaction. *Varilux Comfort Max* strengthens your product offering, allowing you to expand your PAL business to younger emerging presbyopes while also capturing the PAL business of exsiting presbyopes who have rejected or never before worn progressive lenses. **What's in it for the patient?** *Varilux Comfort Max* lenses, the latest generation of *Varilux* lenses, provide enhanced postural flexibility for all-day-long vision comfort, giving the wearer the flexibility to change postures and easy adaptation.

HOW TO LEVERAGE *VARILUX COMFORT MAX* LENSES IN YOUR PRACTICE

First, *Varilux Comfort Max* lenses offer a progressive lens solution for the underserved presbyopes that never tried a PAL or couldn't adapt to other PAL designs. *Flex Optim* technology makes adaptation easy for the patient and fitting easy for the optician because *Varilux Comfort Max* lenses require no additional measurements to fit. With *Flex Optim* technology, new and advanced presbyopes will have the flexibility to change postures naturally, so they never have to feel constrained by their lenses. Second, practitoners now have the ability to trade up patients that are currently wearing classic *Varilux* designs such as *Varilux Comfort*, *Varilux Comfort DRx* and Varilux Comfort Enhanced™ into a *Varilux Comfort Max* design. These existing *Varilux* wearers will love the postural flexibility and the added comfort that *Varilux Comfort Max* lenses delivers. And finally, we received outstanding results from the wearer study of wearers who have never even worn progressive lenses, and we can confidently say that they would want to continue to wear *Varilux Comfort Max* lenses. You can expand your PAL business to new, younger presbyopes and even those advanced presbyopes who have never worn a PAL before.

VARILUX COMFORT MAX LENSES OFFER A PROGRESSIVE LENS SOLUTION FOR THE UNDERSERVED PRESBYOPES WHO HAVE NEVER TRIED A PAL OR COULDN'T ADAPT TO OTHER PAL DESIGNS. _FLEX OPTIM_ TECHNOLOGY MAKES ADAPTATION EASY FOR THE PATIENT AND FITTING EASY FOR THE OPTICIAN.



While progressive lens adaptation is quick and effortless for some presbyopes, others struggle for days or weeks or do not adapt at all. Adaptation challenges may happen, especially for new PAL wearers, presbyopes with complicated prescriptions and those who use a wide variety of digital devices. Adaptation to PALs requires the regulation of eye and head movement in order to find the right vision zone according to the distance of the given object. *Varilux Comfort Max* lenses with *Flex Optim* technology provide wearers with wider useful vision zones and greater postural flexibility, enabling them to adopt multiple and variable head postures during prolonged vision tasks. Essilor R&D's one-of-a-kind Avatar model tests the lens performance in a virtual environment. *Varilux Comfort Max* lenses were tested by wearers in real-life conditions. The test results showed that new wearers and previous PAL non-adapts experienced easy adaptation and wanted to continue wearing the lenses. Show your patients you won't compromise on their vision care by recommending *Varilux* lenses. ■

Sources provided upon request