HOYA EYEGENIUS

The future of vision examination

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Today's intensive use of digital devices is creating visual stress

Computers, tablets and smartphones have become an integral part of our daily lives. In fact, it is hard to imagine life without them. Up to 90% of adults use digital devices for at least two hours a day*.

## The future of vision examination

The ability to be constantly connected has significantly changed the way we work, communicate and interact. But for all their benefits, digital devices are also causing unprecedented levels of visual stress. 53%* of people who use a single device report experiencing eye strain, a figure that rises to 75%* when two or more devices are used simultaneously.

**New challenges to the eyes**

Prolonged periods spent looking at and switching between digital screens at short distances – typically 20-30cm – are leading to a number of asthenopic complaints. These include headaches, burning eyes, neck and back pain, sensitivity to light and difficulty shifting from near to distant vision or vice versa.

Many asthenopic complaints can be attributed to fixation disparity. However, detecting and correcting fixation disparity accurately can be a challenge.

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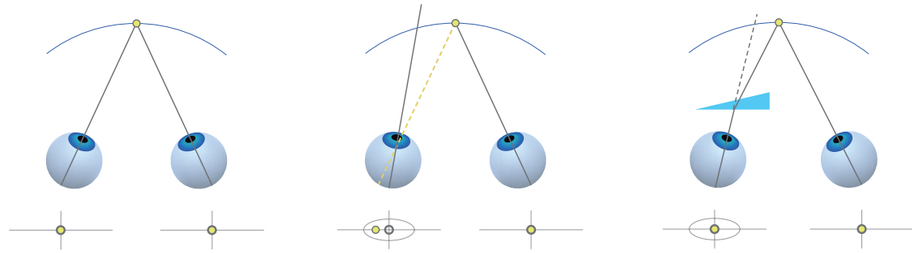
** The Vision Council 'The 2016 digital eye strain report': Eyes Overexposed: The Digital Device Dilemma; Las Vegas, January 2016*

## About fixation disparity

Binocular vision is ideal when the visual axes of both eyes intersect at the fixation target (or object).



### Ideal binoculair vision
No fixation disparity

*Even in the case of normal binocular single vision, small misalignments of the visual axes within Panum's area may exist. The misalignment may be vertical, horizontal or both and is called fixation disparity.*

### Uncorrected fixation disparity
EXO-fixation disparity

*Fixation disparity occurs as a result of visual stress and could lead to asthenopic complaints.*

### Corrected fixation disparity
EXO-fixation disparity

*The management of fixation disparity is based on accurate prismatic prescription, which places the image in the centre of Panum's area.*

Most asthenopic complaints are due to fixation disparity

# A completely new approach to vision examination

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Hoya EyeGenius is a completely new system for full vision examination with a unique Hoya method for measuring and correcting fixation disparity. Based on an interactive test procedure, it involves your customer directly, offering maximum engagement and reliability. It is the fastest solution on the market today, delivering the ideal prismatic prescription in under ten minutes.

A special range of Hoya EyeGenius lens designs helps you correct fixation disparity at the highest rate of adaptation.

In this way, Hoya offers you a complete vision examination system, from refraction to prescribing exactly the right lenses.

**Step 1** Refraction & preliminary investigation

**Step 2** Pre-tests

**Step 3** Hoya fixation disparity module

**Step 4** Correction

| Procedure | Tests |
|---|---|
| Refraction | • *Amsler grid* • *glare sensitivity* • *photo stress recovery time* • *twilight vision test* • *Ishihara - colour blindness test* • *astigmatism tests* |
| Supplementary | • *Snellen letters* • *loan letter, numbers* • *images for children* • *tumbling E. Landolt's rings* • *ETDRS* • *Allen pre-school* • *contrast sensitivity chart* |
| Binocular vision | • *Worth 4 dot test* • *Schober test* • *Osterberg tests (stereo)* • *random dot* • *binocular balance tests* • *polarized phorias tests* • *MCH sequence* • *Mallett test* |
| Hoya fixation disparity module | *Unique method to measure and correct fixation disparity. The aligning prism is calculated directly from the measured fixation disparity value without using prism trial lenses.* |

## The intelligent solution for fixation disparity

Pre-tests incorporated into the software identify customers who suffer from asthenopic complaints and determine whether the Hoya EyeGenius fixation disparity module is needed.

- Unreliable measurement values are automatically excluded, ensuring the procedure is safe and reliable
- No prism is used during the measurement, making the procedure more precise and comfortable for the customer
- Aligning prism is calculated to 0.01 pdpt accuracy directly from the measured fixation disparity value
- The ideal prismatic prescription is delivered in less than ten minutes

Clinically validated examination procedure

EyeGenius was developed in collaboration with the Institute of Optometry in Olten, Switzerland. The system and procedure is the result of six years of clinical research and extensive trials. It has a high rate of detecting horizontal and vertical values of fixation disparity.

n|w University of Applied Sciences and Arts Northwestern Switzerland School of Engineering

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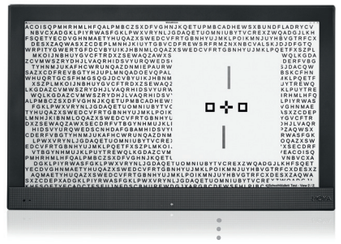
# The future is now...

Hoya EyeGenius is a unique system for complete vision examination. Specially developed software runs on a set of devices: far vision, near vision and an iPad used as a remote control.



*Far vision device;*
*24" with line by line polarised LCD*

*EyeGenius remote control application running on iPad*

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*Near vision device;*
*10.1" 3D tablet (Android based), no 3D glasses required*

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## Hoya EyeGenius lenses

Fixation disparity can be corrected with lenses with prismatic correction. These compensate for misalignment of the eyes and removes the stress on the visual system. Due to the small angles of fixation disparity, an extremely precise prismatic prescription is needed. Hoya EyeGenius can provide this.

The system's comprehensive set of vision tests is supported by a range of advanced lenses to help correct fixation disparity at the highest rate of adaptation. Hoya EyeGenius lenses are available in the following designs: Hoyalux iD MyStyle V+, Hoyalux iD LifeStyle V+ X-Act and Nulux iDentity V+.

Hoya EyeGenius lenses are well-balanced providing consistent clarity across the entire surface of the lens at the same level.
Even first-time wearers of a prismatic prescription will experience the benefits of:

- Perfectly balanced visual fields under binocular conditions
- Improved spatial perception
- Reduced swaying feeling

As a result, Hoya EyeGenius lenses help correct fixation disparity at the highest rate of adaptation and can reduce asthenopic complaints.

# The future of vision examination

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# EYEGENIUS

- Completely new system for full vision examination
- Unique Hoya method for measuring and correcting fixation disparity
- Supported by a range of lenses to help correct fixation disparity at the highest rate of adaptation
- Easy to implement and use
- Interactive, enhanced customer experience
- Fast; takes less than ten minutes
- Extremely accurate and comprehensive
- Safe; less risk of customer complaints

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www.hoya.eu

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