Haag-Streit’s Lenstar Myopia is Changing Myopia Management

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The device has proven itself a valuable part of our clinical and educational work, and it highlights the ways that the myopia management field continues to progress.

Axial length is one of the most critical measures of myopia progression. With a variety of laser ocular biometers available, it is essential to find the right instrument for these evaluations based on each clinic’s setup, types of patients encountered, and the user interface, as well as the additional features each instrument and software module offers. We have been using Haag-Streit’s Lenstar Myopia in both a clinical and educational setting for the last few months. The additional features and the improved user interface incorporated in its EyeSuite Myopia software have significantly impacted our experience in both areas.

Monitoring of Myopia Progression and its Association with the Change of Treatment

While the Lenstar Myopia is equipped to handle many of the same functions as other optical biometers, such as axial length measurements, keratometry, and vitreous chamber depth, it also has some unique functions. Haag-Streit divided the EyeSuite Myopia software into three categories: refraction, biometry, and environment. Each category allows the eye care professional to customize everything from treatment options, patient’s ethnicity, parental history of myopia, and visual- and lifestyle-related history, such as time spent outdoors or time spent doing near work.

Using charts and data from over a dozen key myopia studies, ECPs with the Lenstar Myopia can track their patients’ progression as each factor changes. For example, if a low-dose atropine treatment was initiated and recorded, the graphs will project the patient’s expected myopia progression based on the available efficacy evidence for the corresponding treatment; it would also show the progression throughout the child’s life if proactive myopia control was not considered. The software also allows practitioners to track their patients’ progress with various treatments. In cases where a patient is undergoing combination treatments or recently switched from one
modality to another, the EyeSuite Myopia software will indicate the evidence-based efficacy of each treatment, including the current and projected rate of progression.

The biometry segment of the Lenstar Myopia's EyeSuite Myopia software

ECPs can access patients' axial length history in the biometry section while also factoring in their age. Tracking this data over time allows for a better understanding of not only the physiological ocular growth but also the axial elongation associated with the progression of myopia. The data in the EyeSuite Myopia also predicts what progression will look like based on previous axial length changes and treatment modalities. As more studies are being released and new findings related to myopia management are published, practitioners can input the evidence into Haag-Streit's EyeSuite Myopia software to ensure that the recommendations are based on the most current and comprehensive information available. Similarly, if there are regional differences in either the availability or the anti-myopia efficacy of the treatments, such region-specific differences can be easily customized into the EyeSuite Myopia software. Given the great potential for customizations, the EyeSuite Myopia module greatly facilitates ECPs in delivering the most specific and personalized care based on patients' needs and the options available to the practitioners.

Lastly, the environmental portion is where doctors can gauge how patients' lifestyles positively or negatively impact their myopia progression. This information allows ECPs to clearly show patients and their parents how the progression of myopia can be impacted simply by behavioral modifications and to make a clear message that rather than a pre-determined outcome, the progression and control of myopia is a dynamic process that is constantly influenced by the environmental exposures and treatments.

Customization is Key
Given the significant individual variability regarding the relationship between refractive errors and axial lengths, being able to track the changes of those key variables over time, rather than just snapshots of the measurements compared cross-sectionally, can significantly enhance the reliability of disease progression or efficacy evaluation and the quality of care. Additionally, being able to customize so many exposure factors based on each patient’s situation is critical not only to allow an individualized approach in patient care but also for communication to the parents. At the end of the exam, the Lenstar Myopia generates a Myopia Progression Patient Report. This can be entirely customizable depending on the practice's needs and goals.
The customizable Myopia Progression Patient Report

The following data can be electronically shared with parents to highlight important findings:

- myopia progression over time
- axial length growth over time
- all measurements taken during the exam
- all graphs that were generated on the Lenstar Myopia during the exam that predict myopia progression based on treatments, lifestyle, and environmental factors
- treatment methods that have been chosen
- basic outlines of myopia, the risks associated with untreated myopia, and why myopia treatment is important
- information about side effects or treatment goals.

With this tool, we can clearly outline to parents with a visual aid where their child’s myopia is headed, what their progression has been since the last visit, and what we hope to accomplish with our treatments.

Compared to the exam report generated from many other ocular biometers, the longitudinal tracking feature and the report offered by the EyeSuite Myopia module really sends a powerful message that the characteristics related to the development and the control of myopia is unique to each patient based on the patient’s age, physiological growth, and their lifestyle, etc. Despite the available evidence from clinical studies reporting the average treatment efficacies compared to the controls, its applicability to each individual patient needs to be interpreted cautiously. Instead, continuous monitoring of each patient’s own change over time is the most sensitive way of detecting subtle abnormalities, and consequently, timely adjustment of the treatment regimen.

Clinical versus Research and Educational Uses

The Lenstar Myopia is very useful in both clinical and research settings, though it is used for different purposes and yields different outcomes. In clinical practice, the instrument has been valuable in evaluating our patients, both our ongoing patients and those new to myopia control therapies. We are also using the Lenstar Myopia for new clinical studies that compare this new instrument to other ocular biometers regarding aspects such as patients’ in-session experience, ease of operation, and more.

From an educational standpoint, many of our interns were training on the older model of Haag-Streit’s Lenstar biometer or the Zeiss IOL Master. With the EyeSuite Myopia module available, our students are able to compare...
their experiences with multiple ocular biometers and appreciate the new features that are specially designed for myopia management.

One important feature of the Lenstar Myopia as an educational tool is the highlighted warning signs if excessive variability exists when taking repeated measurements. This feature is highly useful in facilitating the students’ awareness of the factors influencing the reliability of the measurement, especially with a more automated setting. Oftentimes, students practice use of the instrument with “trained patients” who do not rely much on the instructions given and are easily maintaining great fixation. This is usually not the case when working with pediatric patients. The warning sign feature and its additional troubleshooting instructions greatly help our students master the instrument on more challenging patients.

Advancements for the Future
While customization and educational opportunities are two user-friendly components of this device, some features could be added as the instrument continues to be updated. Incorporating peripheral axial length measurements, retinal profiling, and corneal changes associated with SCL or orthokeratology lenses would enhance this device’s use in myopia management significantly. Additionally, updating the reporting features, such as graphic illustrations of axial length measurements, would be another way the Lenstar Myopia could improve.

Right now, the device has proven itself a valuable part of our clinical and educational work, and it highlights the ways that the myopia management field continues to progress.

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