

Predicting post-operative visual acuity with the HEINE LAMBDA 100 Retinometer

“How well will I be able to see after the operation?”

While this is the most important question for many patients prior to eye surgery, it is frequently difficult for the treating physician to answer. That's because when it comes to media opacities such as cataracts, checking visual acuity is often difficult if not impossible. Moreover, many patients simultaneously suffer from several comorbidities affecting visual acuity, such as cataracts and age-related macular degeneration.¹ This makes it even more difficult to estimate the extent to which a patient will benefit from cataract surgery and how well he or she will be able to see following the operation. Clinical studies have shown that for patients with media opacities, the HEINE LAMBDA 100 Retinometer provides physicians with a significant opportunity to quickly and easily estimate the visual acuity that may be achieved by surgery.

Easy exam in under 2 minutes

The HEINE LAMBDA 100 Retinometer is based on the principle of light interference and has been routinely used in everyday clinical practice for more than two decades. The compact, handheld device is placed against the patient's forehead. The physician moves the retinometer to look for a gap in the opaque media through which the patient can recognize a red point of light. This point of light projects a black-red line pattern onto the retina; the patient is then asked to identify the angle of the line pattern. Finer line patterns can be selected by turning the dial for visual acuity on the device, while the angle of the pattern can be changed using a lever. Progressively finer line patterns with different angles are selected until the patient can no longer recognize the pattern or its angle. The value of the last recognizable line pattern indicates potential visual acuity,^{2,3} making it possible to quickly estimate how well the patient will be able to see after surgery.

A useful tool for patient education

Studies have shown that even in patients with media opacities, the HEINE LAMBDA 100 Retinometer can predict potential visual acuity with relative accuracy – predictive accuracy was especially strong for patients with moderate cataracts.³⁻⁵ A current, retrospective data analysis of 374 eyes showed that in 60 % of cases, the visual acuity predicted by the HEINE LAMBDA 100 Retinometer corresponded to the results following cataract surgery. In this respect it is particularly encouraging that in cases where predictions were not accurate, the retinometer tended to underestimate potential visual acuity: In 94.5 % of cases a further retrospective study (n = 164 eyes) showed that visual acuity was accurately predicted or underestimated.⁵ In contrast, there is little risk that the results will be overestimated – an outcome that would surely lead to disappointment for the patient. As a result, the retinometer is well suited for educating patients about the prospects for the operation and for strengthening the trust between doctor and patient.

Helpful in surgery planning

This is especially true for patients with cataracts who suffer from comorbidities affecting visual acuity – i.e. nearly a third of all cataract patients.^{1,5} For these patients in particular, the retinometer facilitates patient education and surgery planning. If a patient suffers from macular pucker in addition to cataracts, for example, the retinometer can be used to determine the visual acuity that can be achieved by cataract surgery alone. The physician can then explain to the patient why cataract surgery will be sufficient or why combined surgery to treat both the cataract and the macular pucker may be recommended. If an ocular comorbidity is present, the retinometer is especially suited to identifying patients who can expect only minimal post-operative improvement in their visual acuity.⁵ This allows physicians to manage patient expectations prior to surgery.

Conclusion: Even for patients with media opacities, the HEINE LAMBDA 100 Retinometer provides a generally conservative estimate of the visual acuity that can be expected after surgery. This allows physicians to give patients a realistic idea of the expected result and to avoid creating false hope, thereby fostering trust between the physician and the patient.

At a glance – the HEINE LAMBDA 100 Retinometer in daily practice

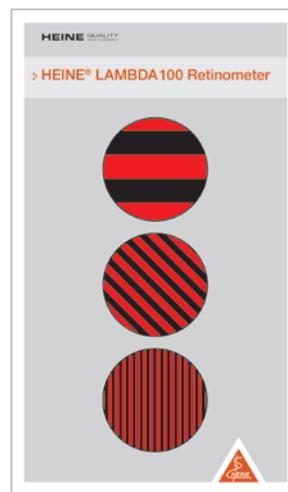
- ✓ Exam can be completed in under 2 minutes
- ✓ Easy to perform
- ✓ Has a clinically relevant, predictive value which reinforces both patient and physician certainty
- ✓ A useful tool for patient education
- ✓ Helpful in surgery planning
- ✓ Fosters trust between patient and physician



Figure 1: Patient exam using the HEINE LAMBDA 100 Retinometer.



Figure 2: Line patterns of various thicknesses and angles.



References:

1. Lundström M, et al. J Cat Refract Surg 2012; 38:1086-1093.
2. User manual for the HEINE LAMBDA 100 Retinometer.
3. Mistlberger A, Alzner E. Spektrum Augenheilkunde 1995;9/2:77-79.
4. Mimouni M, et al. Eur J Ophthalmol. 2017; 30:27:559-564.
5. Bamahfouz A, et al. Int J Sci Stud 2015;3:105-109.