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EYESUITE IOL

Improved refractive outcomes

EyeSuite IOL provides excellent IOL calculation and enables improved outcomes for spheric-, toric- and multifocal-IOL with any patient.

IOL CALCULATION FOR ANY PATIENT

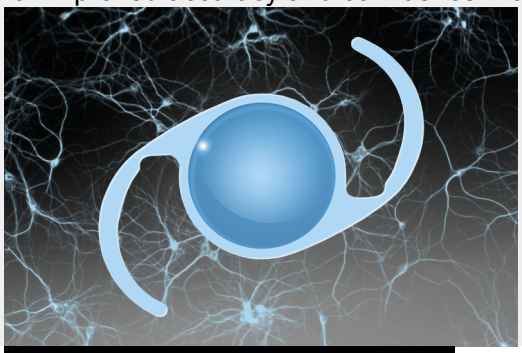
Stay on target any time

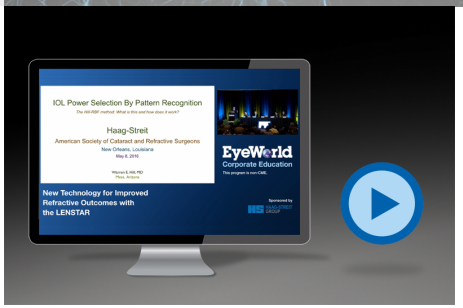
Standard IOL calculations provide good results in average eyes; they fail in short and long eyes as well as eyes with special anatomic features. EyeSuite IOL features the Barrett and Olsen formula, enabling excellent refractive results with any patient anatomy.

IOL CALCULATION FOR ANY PATIENT

Hill-RBF Method - Pursuing a new level of accuracy

The Hill-RBF Method represents a new approach in IOL calculation, based on pattern recognition, data Interpolation and a validating boundary model, for improved accuracy and confidence with IOL power prediction.





IOL CALCULATION FOR ANY PATIENT

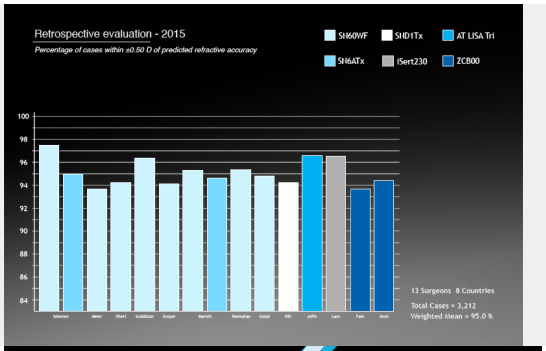
Hill-RBF Method - Thinking out of the box for a new level of performance

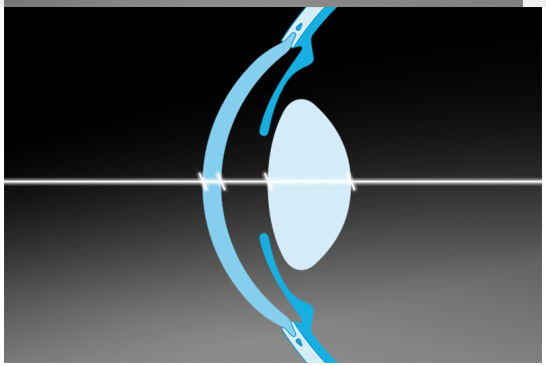
RBF stands for Radial Basis Function, which is like a neural Network, specialised in feature extraction and feature recognition and can handle multiple factors and non-linear relationships. Based on the input parameters axial length (AL), anterior chamber depth (ACD) and corneal curvature (K) it finds the right pattern that lead to an accurate IOL prediction. It is combined with a boundary model, this means that the Hill-RBF Method only provides a result if the respective prediction is accurate with a very high probability. First clinical trials prove that the RBF performs excellent and may even outperform the current most advanced theoretical formulae.

IOL CALCULATION FOR ANY PATIENT

Hill-RBF Method - Thinking out of the box for a new level of performance

Read below what Dr. Hill and his international team found, when they tested the new Hill-RBF Method:
For retrospective testing, looking at 3,212 independent cases from 13 surgeons in eight countries, the outcomes have been impressive with a weighted mean ±0.50 D accuracy of 95%.
“No one’s ever seen numbers like this,” Dr. Hill said.
What is even more impressive than the accuracy is the consistency from one beta test site to the next across Europe, the Middle East, Africa, North and South America, Asia, India, and Australia. This level of consistency reveals that the outcomes are technologically driven.
“In summary, this is a new approach based on pattern-recognition, data interpolation, and a validating boundary model, but just adds an additional level of confidence, and the accuracy of this methodology is due to an increase in flexibility,”
The RBF Method is now available on-line at: d is going to be integrated exclusively in the Lenstar with the fall release of EyeSuite this year.





IOL CALCULATION FOR ANY PATIENT

Lens thickness - improved results

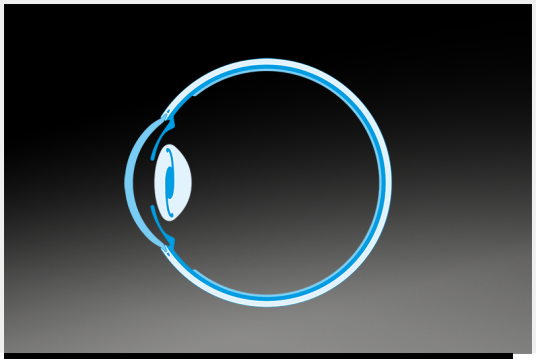
Standard formulae use axial length and K measurements to calculate IOL power, limiting their performance with unusual eyes. Barrett and Olsen use more parameters, including anterior chamber depth and lens thickness to estimate implant power. This improves the prediction of the implant position and enables better results, independent of the patient anatomy.

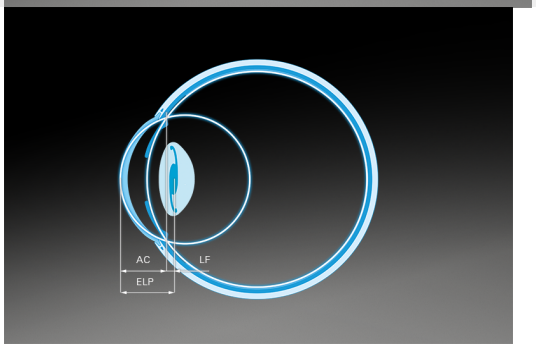
IOL CALCULATION FOR ANY PATIENT

Lens thickness - improved results

Prediction of the implant position is the proverbial Achilles Heel of any standard IOL calculation formula. Hoffer Q, SRK/T and Holladay 1 calculate the ELP based on axial length measurement and K reading and assume that a long eye leads to deeper anterior chamber as well as steep K and vice versa. Many studies on eye anatomy have shown that short eyes often have fairly standard anterior chamber depths; this explains why these formulae

tend to misestimate IOL power in non-average eyes.
Barrett and Olsen use more directly related parameters to calculate the implant position. The most important parameters in this respect are anterior chamber depth (ACD) and lens thickness (LT). Modern IOLs are implanted in the capsular bag of the crystalline lens and therefore ACD and LT are directly related to the implant position post-operatively.





IOL CALCULATION FOR ANY PATIENT

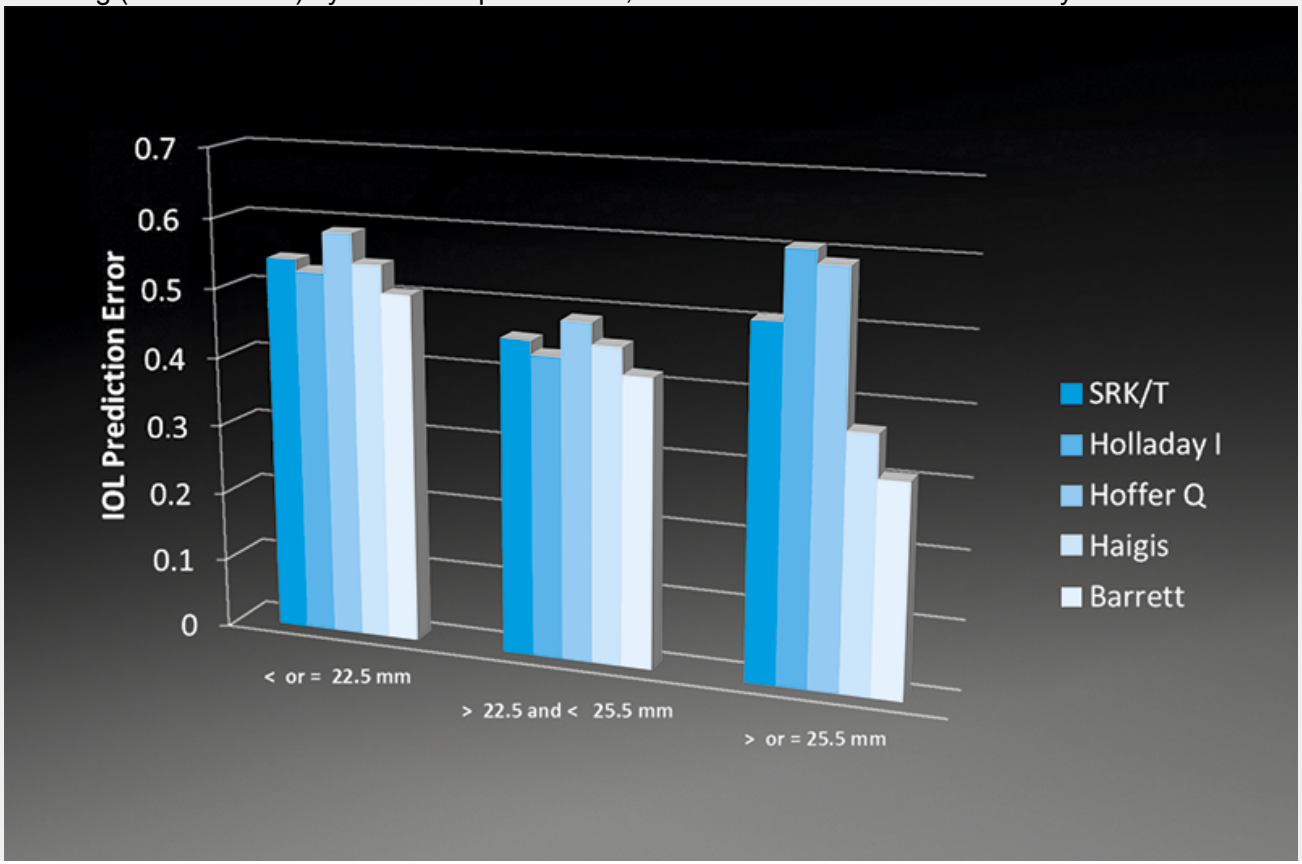
Barrett Universal II - a formula for all seasons

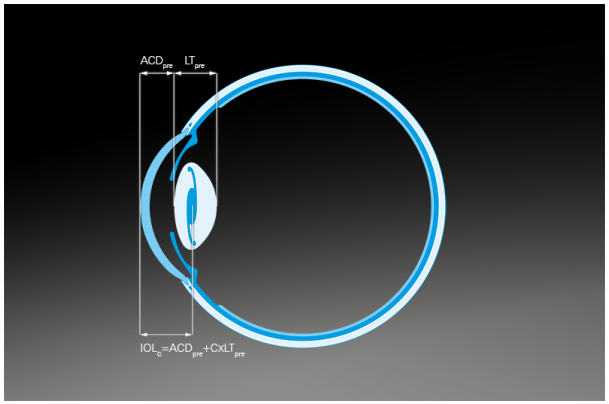
Unlike most standard formulae, the Universal II formula is a thick lens formula, taking into account the changes in optics design of IOLs at different powers. In addition to AL and Ks, it uses ACD, lens thickness and WtW measurement to predict the lens position and IOL power, leading to excellent refractive outcomes in all patients.

IOL CALCULATION FOR ANY PATIENT

Barrett Universal II - a formula for all seasons

The lens factor (LF) used to calculate the implant position is similar to the A-constant, surgeon factor, or C-constant of other formulae. However the Universal II formula recognized that this component of the estimated lens position (ELP) is also influenced by anatomic factors such as AL, K, ACD, lens thickness (LT), and white-to-white. In a recent retrospective study on pooled data of more than 5'900 eyes, it was shown that the Barrett Universal II formula performed significantly better than the standard formulae Haigis, Hoffer Q, Holladay 1 and SRK/T in average, short (AL ≤ 22.5mm) and long (AL ≥ 25.5mm) eyes. On the pooled data, Unversal II achieved 81% of the eyes within 0.5 D of the intended refractive result.





IOL CALCULATION FOR ANY PATIENT

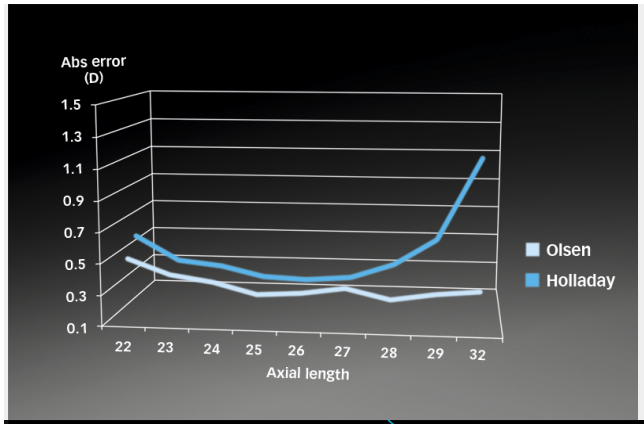
Olsen - the C-constant a new concept

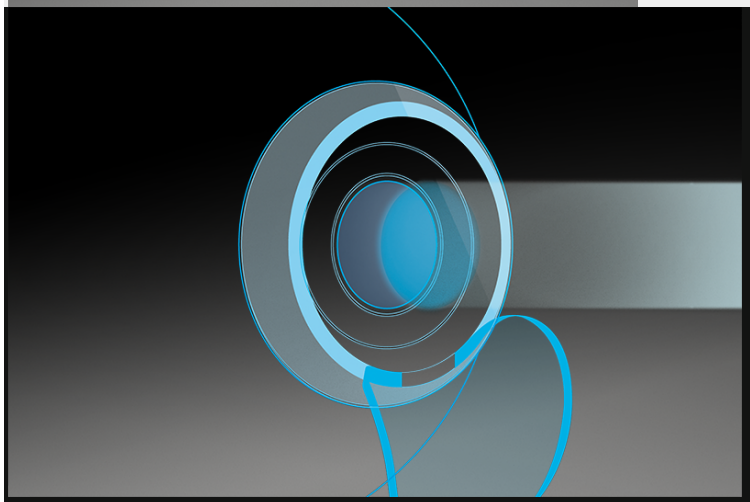
The Olsen formula uses ray tracing, a method well known from optics design, to calculate lens power and the concept of the C-constant to predict implant location. As an input parameter, apart from AL and Ks, Olsen uses ACD and LT measurement enabling excellent implant position prediction in all eyes.

IOL CALCULATION FOR ANY PATIENT

Olsen - the C-constant a new concept

The advantage of the C-constant is that it is directly associated with the relevant anatomy of the anterior segment and not dependent on the k readings or other factors. Therefore, the C-constant works in short and long eyes and would even work in other species if an IOL is implanted in the capsular bag using similar technique.
In a clinical series on more than 1700 eyes, Dr. Olsen assessed the performance of the Olsen formula as compared to standard formulae like Holladay 1 and SRK/T. All measurements were taken with Lenstar and independently of the eye length, the Olsen formula using the concept of the C-constant and paraxial and exact ray-tracing outperformed the standard formulae.





POST REFRACTIVE SOLUTIONS

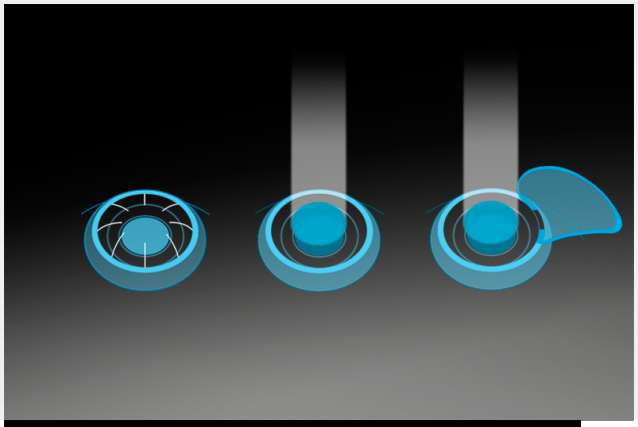
The right tools for post refractive patients

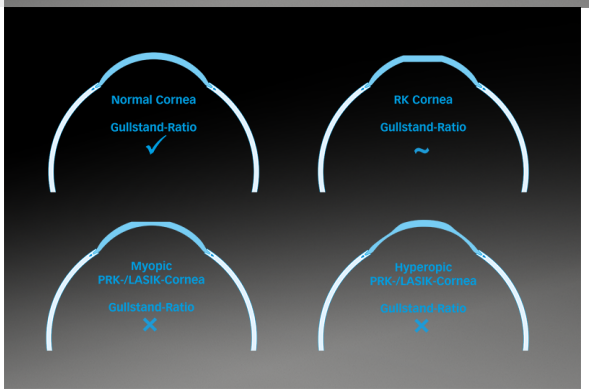
IOL calculation in post refractive patients is one of the most demanding tasks in cataract surgery. To support the surgeon with this challenge, EyeSuite IOL features a comprehensive set of cutting-edge formulas for post refractive patients with or without clinical history.

POST REFRACTIVE SOLUTIONS

Best in class formulae for premium results

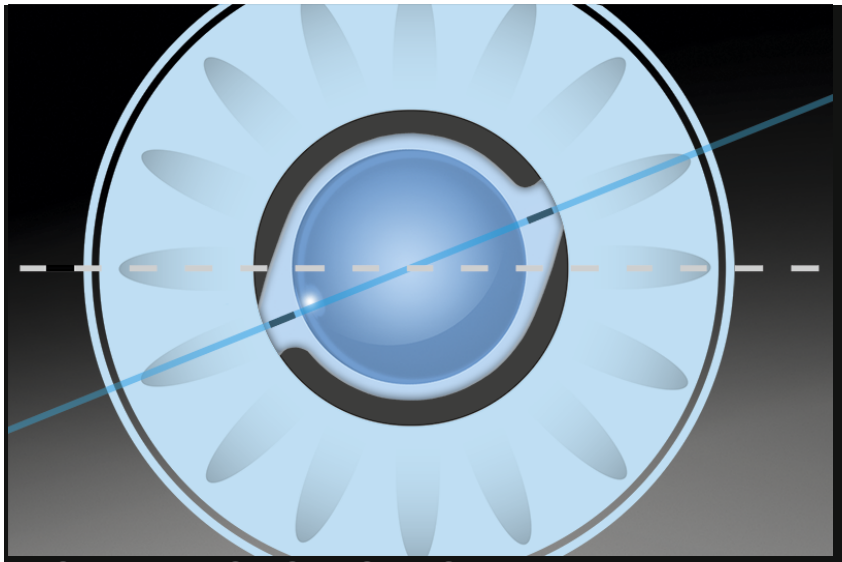
IOL power calculation in patients with prior RK, LASIK or PRK, presenting with no history, is easily achieved with the integrated Barrett True-K and Shammas No-History method. If the change in refraction caused by the refractive procedure is known, then the Barrett True-K with history, Masket and modified Masket formulae may also be used.





The challenge with post refractive corneas is that the Gullstrand ratio of the anterior to the posterior corneal curvature is no longer given. This leads to two main issues. Firstly, the K-readings are reported too flat with the cornea after an intervention to correct myopia and too steep for a prior hyperopic patient. Secondly, in standard calculation formulae, the lens position is calculated based

on AL and K-readings. Since the Ks no longer represent the initial cornea, the lens position calculation is wrong as well. Post-refractive formulae overcome both issues by correcting either the formula or the result for the issues mentioned.



EXCELLENT TORIC RESULTS

Match axis and cylinder

Getting the cylinder value and axis location right is key with toric IOL. The optional EyeSuite IOL Toric Planner features the Barrett Toric Calculator for excellent IOL prediction and an intuitive graphical planning interface to create sketches to transfer the plan to surgery.

EXCELLENT TORIC RESULTS

Excellent calculation, intuitive planning

The EyeSuite IOL Toric Planner provides the user with an intuitive tool to plan the toric intervention on high resolution eye images. Using the incision optimization tool enables the surgeon to put his incision in the exact right location to achieve the minimum anticipated residual astigmatism, with the lowest toric power IOL implanted.

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