Instructions for completing the Haigis constant optimization Excel spreadsheet for optical biometry:

The Excel spreadsheet "Haigis-300.xls" is for collecting the data necessary to optimize the a0, a1 and a2 constants for the Haigis formula using optical biometry, as well as most popular theoretical formulas. Please provide data for a minimum of 200 patients (250 cases is better and 300 cases will give the best outcome) who have all had the same intraocular lens implant. The axial length range for your data series should be as broad as possible, with a range from at least 20 mm to 28 mm being ideal.

Data

The **Patient Identifier** should be a HIPPA compliant reference that will allow you to identify this particular case in the event that a data entry must be double-checked. **Axial Length** is entered in mm. **Phakic ACD** is the measurement in mm from the corneal vertex to the anterior lens capsule. If you are using the Haag-Streit Lenstar, the Phakic ACD is the same and the central corneal thickness + the aqueous depth. *Do not simply enter the Lenstar "AD" (aqueous depth) or the optimized lens constants produced will give consistent hyperopia.* **Pre-op K1** and **K2** are the power in diopters of the two principal meridians obtained by keratometry. **IOL Power** is the power of the intraocular lens implanted at the time of surgery in diopters. **Target SE** does not need to be entered. This is not part of the calculation process and is offered simply as a way of tracking what the intended refractive objective was for each individual case. **Post-op Sphere** and **Post-op Cyl** are the components of the final, stable post-operative manifest refraction. Auto-refractions should not be entered into these fields.

Which cases should I include?

For these patient entries, enter cases where you are certain of the quality of the pre-operative measurements, uncomplicated surgery and those for which a clear, stable endpoint manifest refraction was possible. In other words, this data should represent cases that reflect your best work.

You should exclude cases were the pre-operative measurements were in question, those with complications during surgery, such as: capsular tears, sulcus fixated lenses, aphakic and pseudophakic IOL exchanges, indwelling silicone oil, prior retinal detachment, etc. and those for which the final refraction is less than optimal. For refractive stability, it is important to include cases only where the capsulorhexis is round, smaller than the optic, and centered.

Best-corrected visual acuity should be 20/40, or better and the refraction should be stable. For the sake of this exercise, a four to ten week postoperative refraction is considered to be stable. It is very important that cases only be excluded for pre-operative and intraoperative issues and *not for a refractive outcome that is different than anticipated*. A data set that has been edited for refractive outcomes may significantly skew the optimized lens constants.

For optimization of the a0, a1 and a2 Haigis constants, the blue fields must be filled in and the tan fields left alone, as they contain data, or internal formulas and/or Excel macros. It is not necessary to fill in the final post-operative visual acuity, or the target refraction (green fields) for this exercise.

Do not make changes in the spreadsheet

Please do not enter anything except data into the blue fields, and please be careful not to change anything on the spreadsheet itself. Deleting rows, cutting and pasting data as text, adding columns, or making format changes may disrupt the internal mathematics of the spreadsheet running invisibly in the background. It is also important to double-check all entries, data entry errors (such as transposed digits, or axial length entered for IOL power) will corrupt the final result. It is usually a good practice to have two people review all data entries for accuracy.

What do I do with the spreadsheet?

When you have entered as many cases as possible, please send it back to Dr. Hill at hill@doctor-hill.com as an e-mail attachment.

As it says on the web site, the request for optimization must come directly from the surgeon whose data is represented. Requests from support staff or practice administrators will be returned unanswered.

What do I get back?

Dr. Hill will carefully run a multi-step regression analysis, calculating the a0, a1 and a2 constants for this particular IOL. Some routine statistical filtering of the data may exclude a handful of cases that fall well outside an initial prediction model.

Using this same data, lens constants will also be optimized for the Holladay I, SRK/T, Hoffer Q, Holladay II and Barrett Universal II formulas using the same methodology as the authors of these formulas. There is no charge for this service for physicians. This service is not available to industry without prior arrangements.

How is the data used?

If submitting **IOLMaster data** for analysis, it will be assumed that we have your permission to add these outcomes to Dr. Haigis' Users Group for Laser Interference Biometry (ULIB) web site for this particular IOL.

http://www.augenklinik.uni-wuerzburg.de/eulib/index.htm

If submitting **Lenstar data** for analysis, your cases for a particular IOL model will be pooled with those from other surgeons to generate a large data set from which Lenstar constants will be derived.

There is space available on the spreadsheet for 300 cases. It is not required that you enter that many cases, but try to provide as many as possible. The more cases, and the wider the axial length range, the better the overall accuracy for a greater number of cases.

If you have any questions, feel free to contact Dr. Hill at hill@doctor-hill.com

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