

This is but one of the many exciting presentations that Dr. Sayegh and The EYE Center team and collaborators throughout the world have made at major conferences in the month of May 2015. The calculator presented is being used in several continents throughout the world with surprising success and excellent outcomes for the patients operated of cataract surgery.

- **Universal IOL Calculator as an Exploration Tool for the Integrity of IOL Power Formulas**

Purpose

The use of IOL power calculator as an exploration tool to verify the integrity of IOL formulas

Methods

An IOL calculator for both spherical and astigmatism (UniversIOL) was developed based on the implementation of established IOL formulas and optical principles. It was validated against existing calculators in devices by multiple manufacturers. It was then used as a powerful exploration tool where millions of calculations can be performed and parameter space explored to identify concordance or discordance of different formulas and areas of unphysical or unphysiological behavior for certain values of biometry.

Results

Known results regarding concordance and discordance of IOL formulas as well as medium length, short and long eyes were reproduced, as partial validation of the approach and tool. In addition areas of unphysical behavior were identified. These were related to corneal height calculation and effective lens position value clipping.

Conclusion

The use of a validated universal IOL calculator is a powerful tool for the selection of appropriate formulas in different circumstances and identifies areas not previously recognized as questionable.