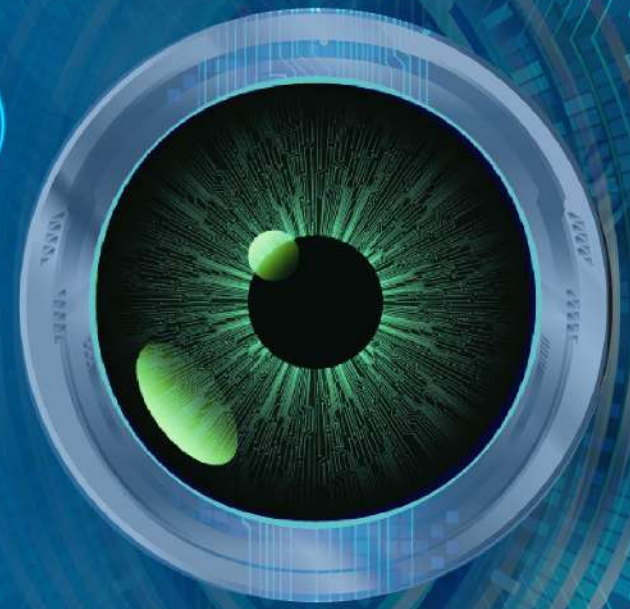
NATIONAL FORUM

IOL Revolution

HIGH QUALITY VISION

DIRETTORE SCIENTIFICO: GASPARE MONACO

RESPONSABILE SCIENTIFICO: GIANLUCA RUBIOLINI



02 / 03 OTTOBRE 2026

MILANO

SHERATON MILAN SAN SIRO

IOLREVOLUTION.IT

NATIONAL FORUM

IOL Revolution

HIGH QUALITY VISION

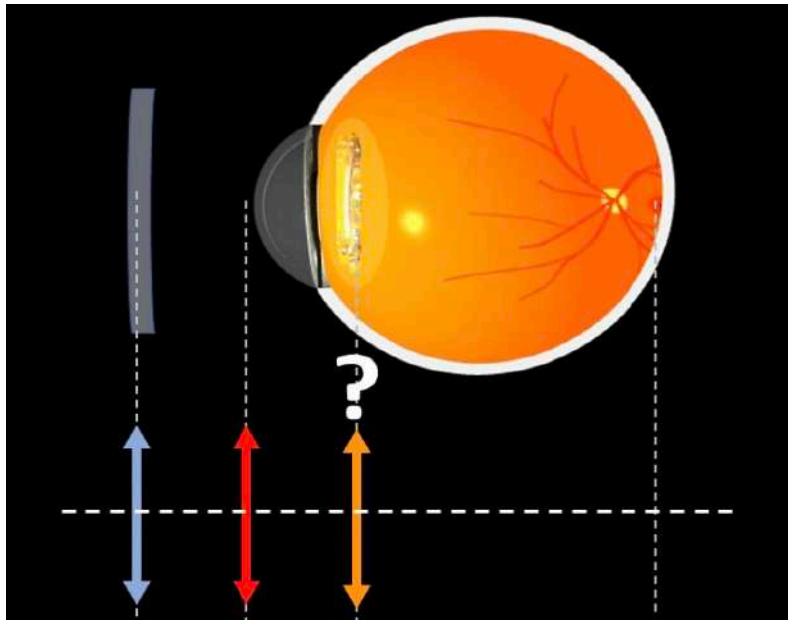


Biometria e ELP: dove la precisione vince o perde

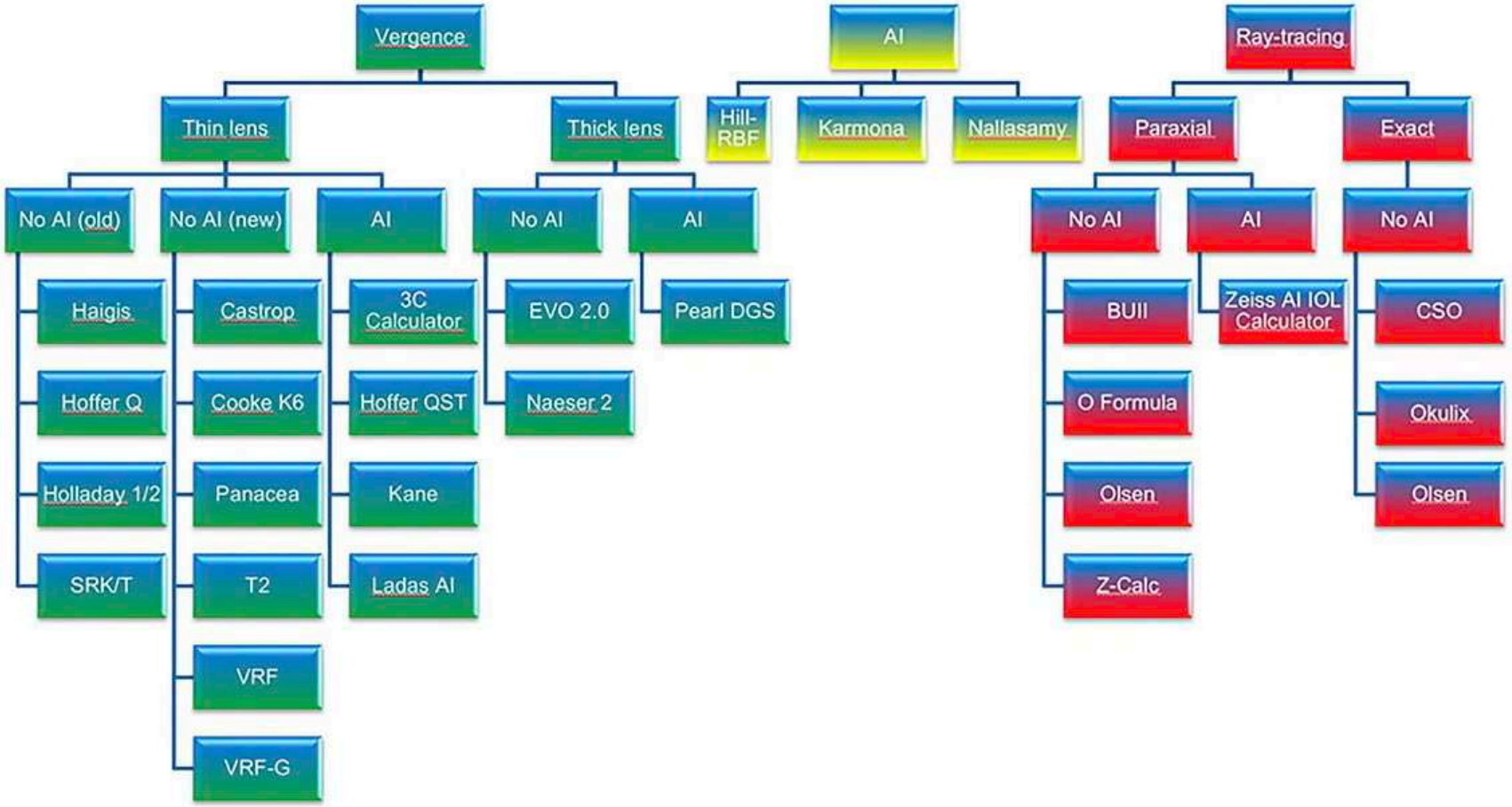
Taroni Leonardo

Cos'è la ELP

«Effective lens position was the term used to denote the position of the lens in the eye, specifically the distance that the principal plane of the IOL will sit behind the cornea»

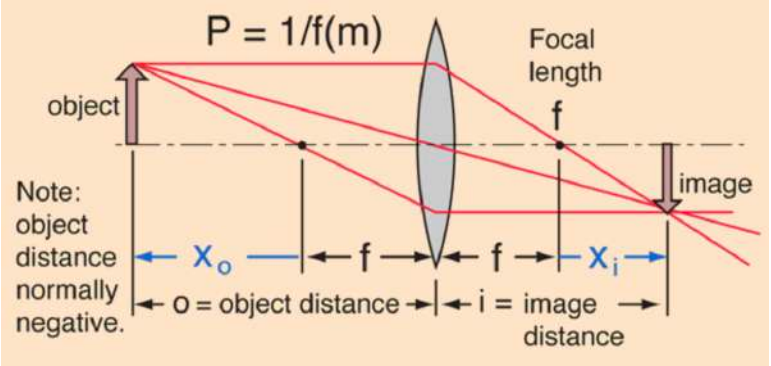


Formule ed ELP



Thin Lens Formulas (vergence)

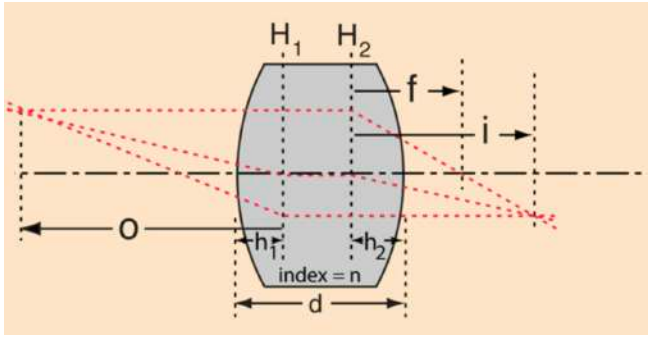
$$P = \frac{n_v}{AL - ELP} - \frac{n_a}{\frac{n_a}{\frac{1}{\frac{1}{R} + d} + V_K} - ELP}$$

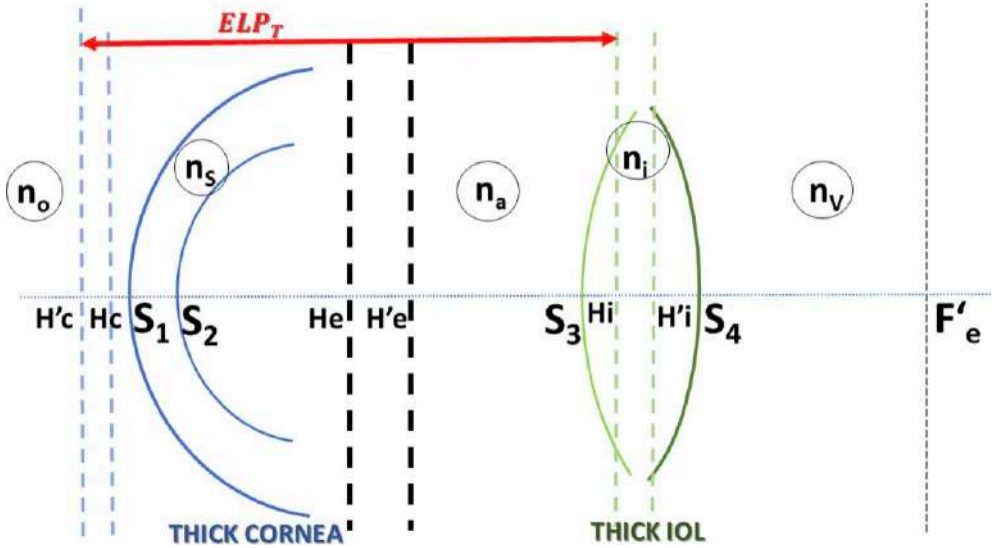


Generation	Description
First	Before 1980s, here the ELP was a constant of 4mm in every patient and every lens (mainly for ACIOLs)
Second	In 1980s, Binkhorst used AL, single variable predictor, as a scaling factor for ELP (9)
Third	In 1988, two variable predictor, K & AL improved scaling accuracy of ELP (10)
Fourth	In 1995, Olsen & co-workers improved ELP accuracy by adding 2 more variables – pre op ACD & lens thickness(11)

Thick Lens Formulas (vergence)

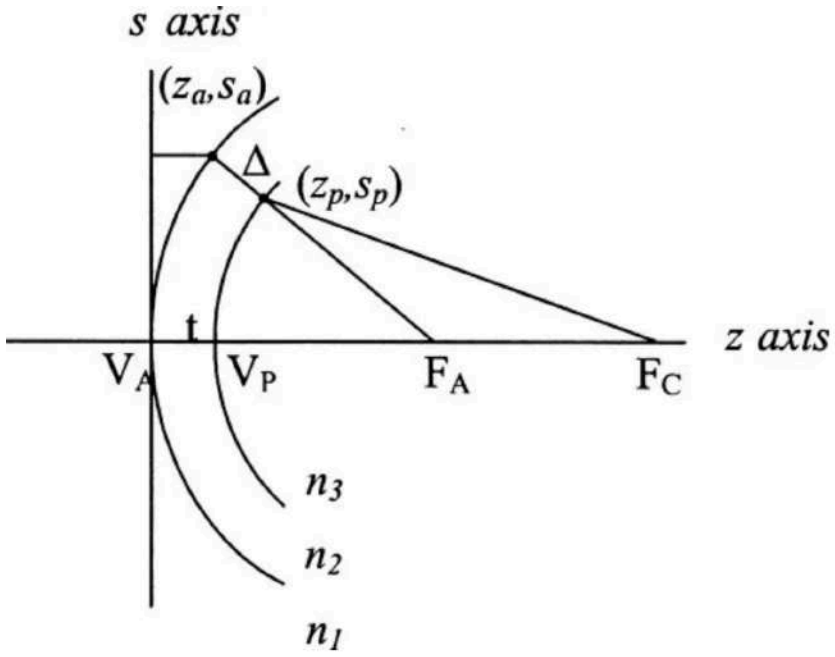
$$P = \frac{n_v}{AL - ELP} - \frac{n_a}{\frac{n_a}{\frac{1}{R} + d} - ELP + V_K}$$

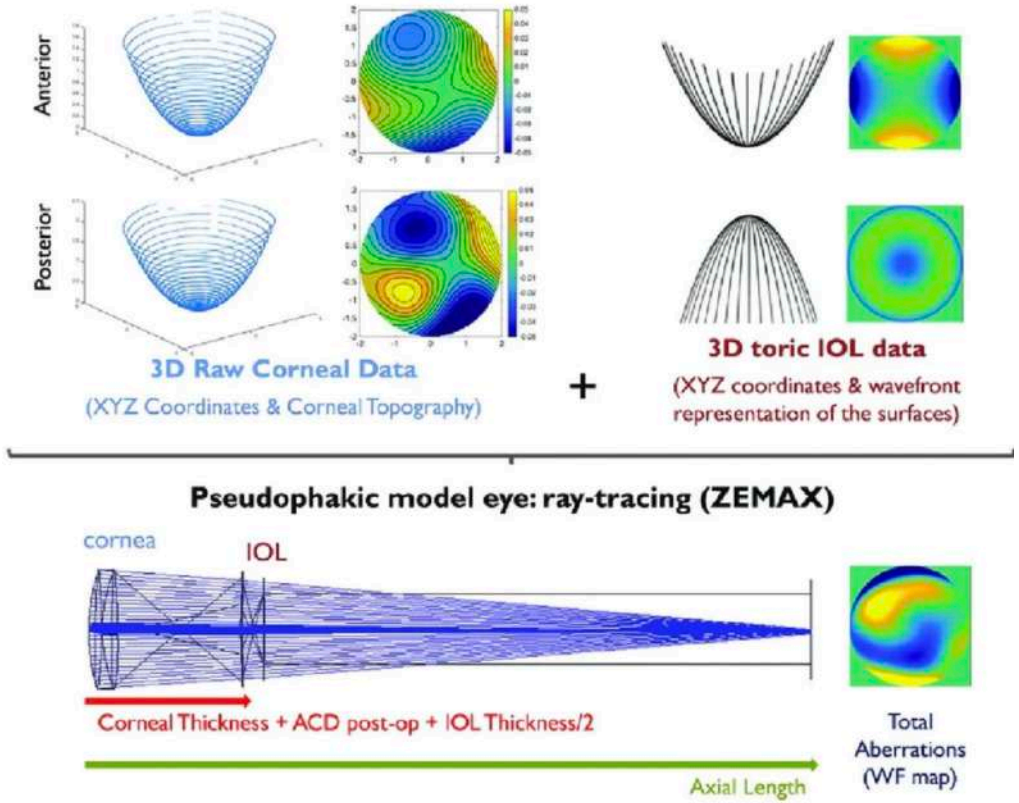




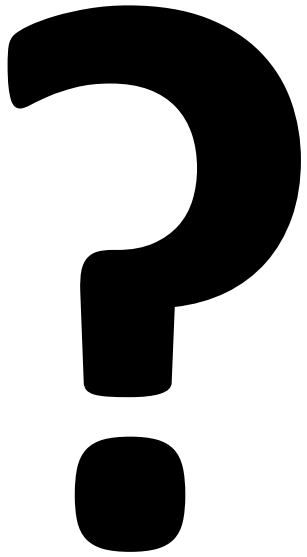
Ray-tracing Formulas

Legge di Snell





AI Formulas



La ELP e la Pratica Clinica

Sources of error in intraocular lens power calculation.

S. Norrby

J Cataract Refract Surg. 2008 Mar;34(3):368-76.

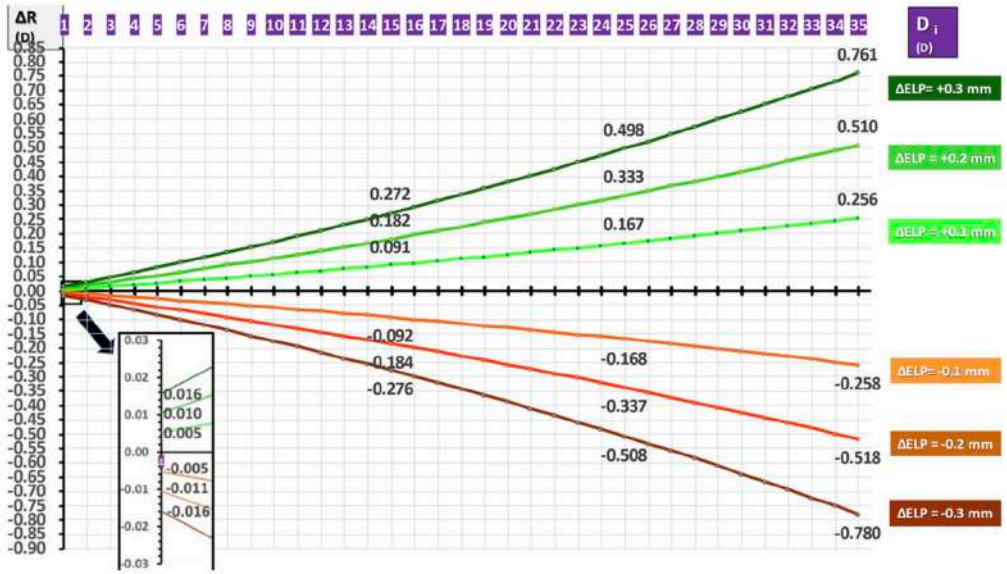
RESULTS: Preoperative estimation of postoperative intraocular lens (IOL) position, postoperative refraction determination, and preoperative axial length (AL) measurement were the largest contributors of error (35%, 27%, and 17%, respectively), with a mean absolute error (MAE) of 0.6 diopter (D) for an eye of average dimensions. Pupil size variation in the population accounted for 8% of the error, and variability in IOL power, 1%.

La ELP e la Pratica Clinica

tvst
Refractive Intervention

Theoretical Relationship Among Effective Lens Position, Predicted Refraction, and Corneal and Intraocular Lens Power in a Pseudophakic Eye Model

Damien Gatinel[1], Guillaume Debellemanière[1], Alain Saad[1], and Radhika Rampat[1]



"Rule of 9s" for Sulcus IOL Power

In-the-Bag IOL Power	Change to Sulcus IOL Power
0 to 9.0	no change
9.5 to 18.0	subtract 0.5
18.5 to 27.0	subtract 1.0
27.5 and up	subtract 1.5

Cataract Coach
Uday Devgan MD

Soluzioni

Thin Lens

OPTIMIZATION

Thick Lens and Ray-tracing

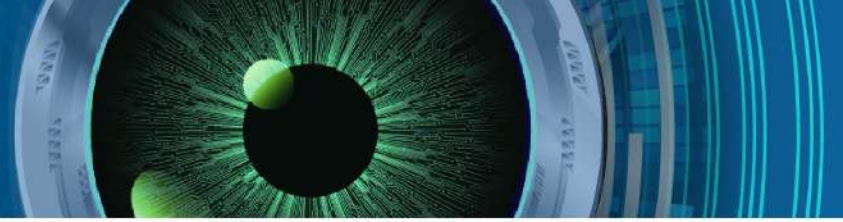
IOL INFORMATIONS/TECHNOLOGY

Soluzioni *«parziali»*

Sources of error in intraocular lens power calculation.

S. Norrby
J Cataract Refract Surg. 2008 Mar;34(3):368-76.

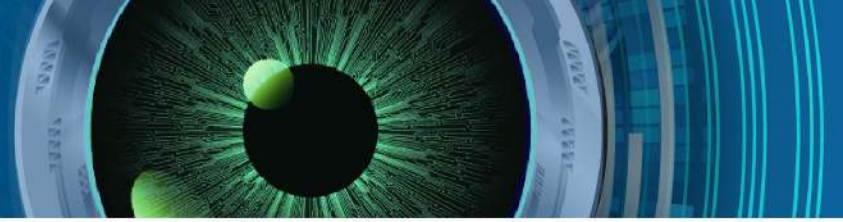
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Key points

La **ELP**:

- Ci indica la posizione «ottica» della IOL
- Varia in base al contesto fisico della formula
- Dipende dalle caratteristiche fisiche della IOL
- Non è **MAI** uguale alla posizione fisica della faccia anteriore della IOL nell'occhio



GRAZIE PER L'ATTENZIONE