Trifocal IOLs

Clinical Outcome at 6 months

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Financial Disclosures

Consultant to:

- Nidek
- Staar Surgical
- PhysIOL

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Clinical Evaluation of Trifocal IOLs Study Design

- Prospective Study on consecutive patients.
- 36 patients (72 eyes).
- Inclusion criteria:
  - Bilateral cataract.
  - Stable tear film.
  - No ocular co-morbidity.

Exclusion criteria:

- Patients with high corneal irregularities.
- Significant dry eyes.
- Conditions that might affect visual rehab. (AMD, glaucoma, amblyopia…)

- Phacoemulsification with Trifocal IOL:
  - Spheric (POD F): 37 eyes
  - Toric (POD FT): 35 eyes

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PODF (PhysIOL)

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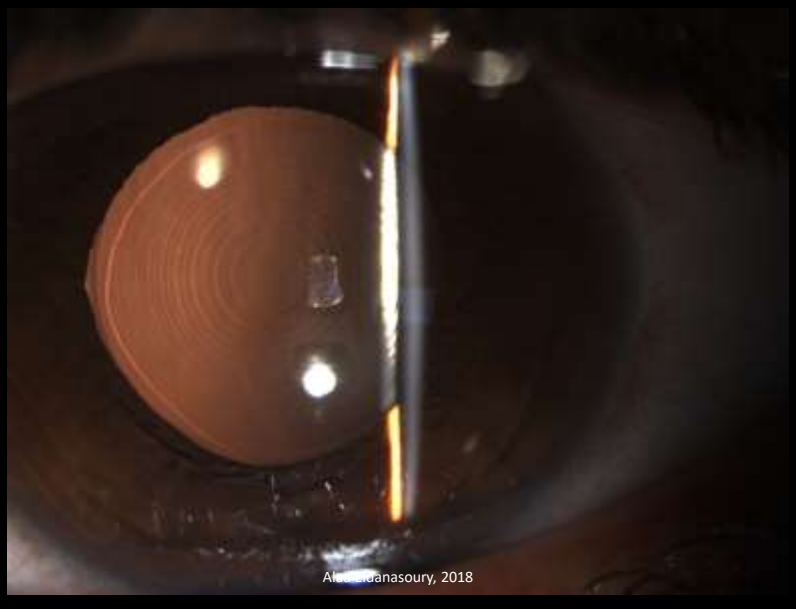

Clinical Evaluation of Trifocal IOLs:

I. Visual Acuity: "F.I.N.e"
   - Uncorrected.
   - Distance corrected.

II. Range of pseudoaccommodation:
   - Defocus curve.

III. Quality of vision:
   - Scatter (OSI, HD Analyzer).
   - Entire eye HOA (OPD scan III)
   - Modulation transfer function (cut off ratio).
   - Contract Sensitivity (HACSS, CTS).

IV. Patients' satisfaction:
   - Subjective questionnaire.

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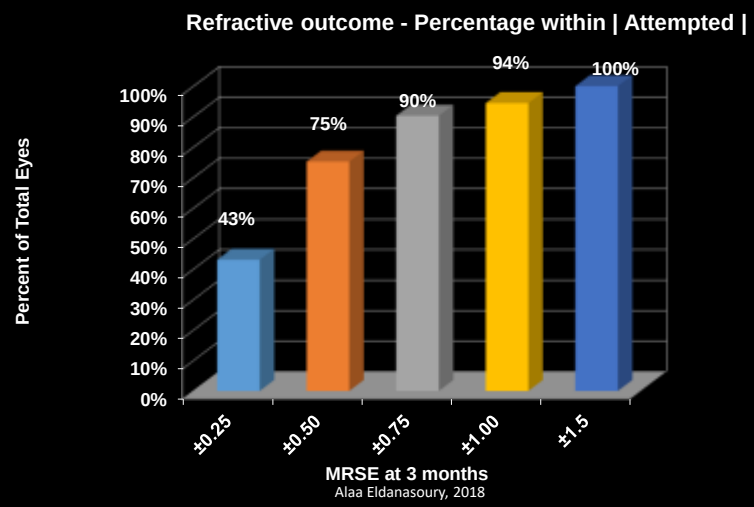
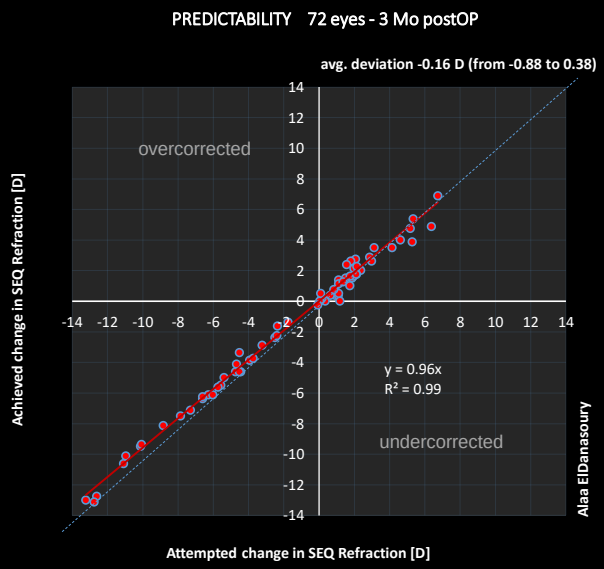
I- Evaluation of Visual Acuity

Refractive Outcome at 6 months

68 Eyes – 34 patients



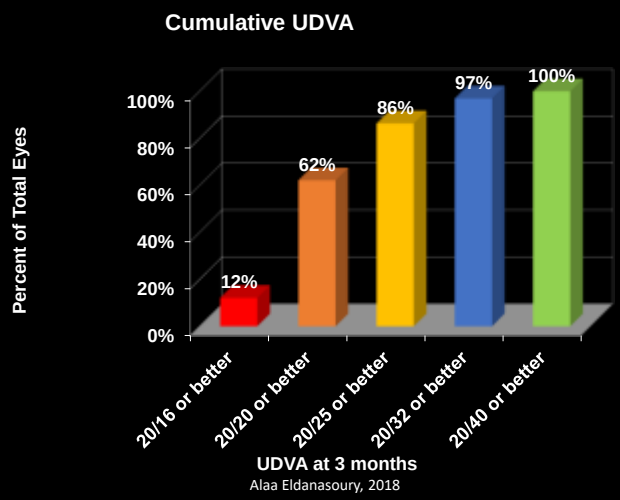
Refractive predictability



I- Evaluation of Visual Acuity

Cumulative UDVA at 6 months (monocular)

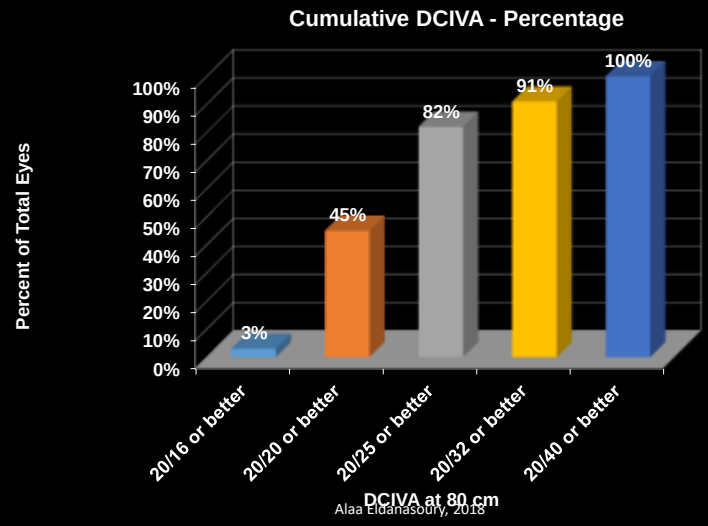
66 Eyes of 33 patients



I- Evaluation of Visual Acuity

Binocular DCIVA at 80 cm

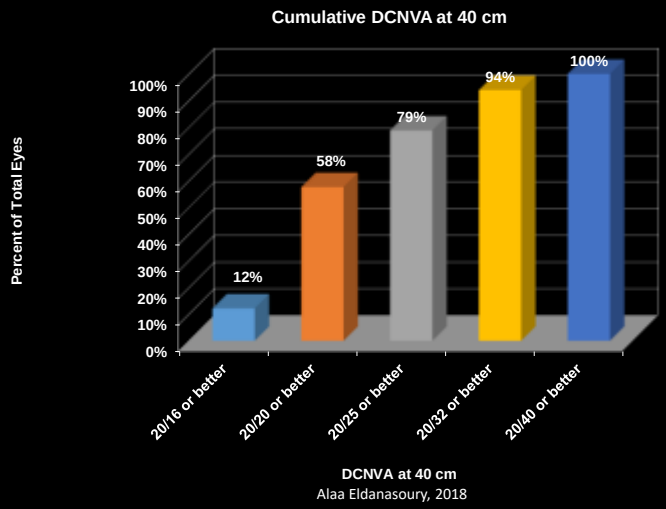
N = 33 patients



I- Evaluation of Visual Acuity

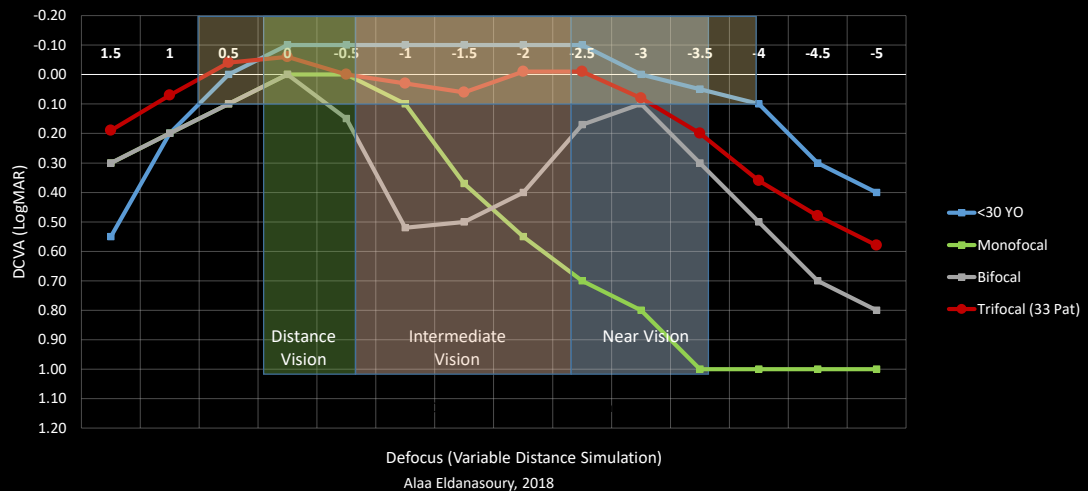
Binocular DCNVA at 40 cm

N = 33 Patients



II- Evaluation of Range of "pseudoaccommodation"

Defocus Curve



III- Evaluation of Quality of Vision

A- Contrast Sensitivity "HACCS"

Clinical Trial Suite "CTS":

- Conforms to ANSI* & ISO** guidelines.
- Fully automated system.

*American National Standards Institute

** International Standards Organization

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III- Evaluation of Quality of Vision – Clinical Trial Suite

Mesopic Contrast Sensitivity with Glare

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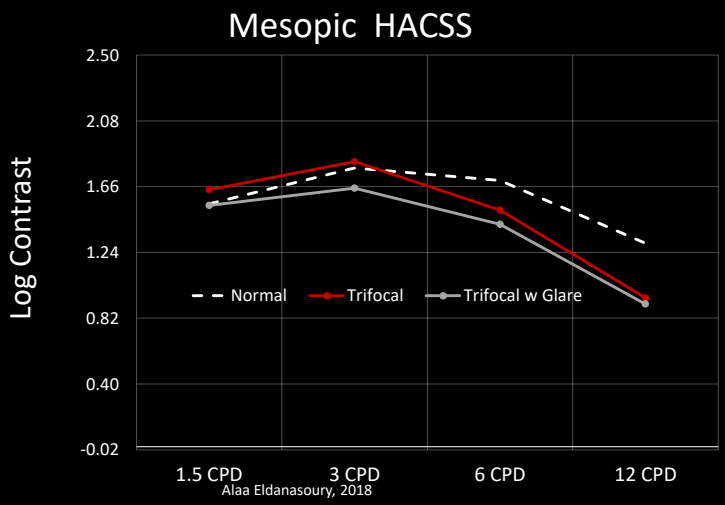
III- Evaluation of Quality of Vision

Average Contrast Sensitivity Curve

33 Patients @ 6 months



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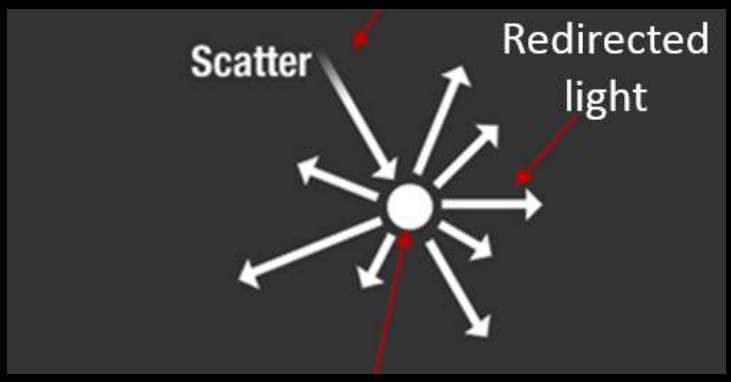
III- Evaluation of Quality of Vision

B- Scatter Measurement

- Scatter cannot be measured by aberrometers!



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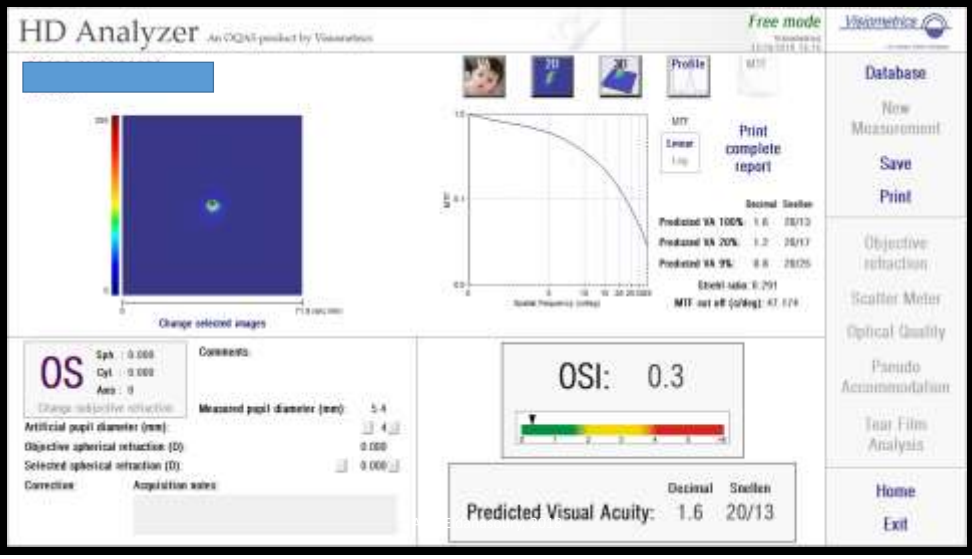
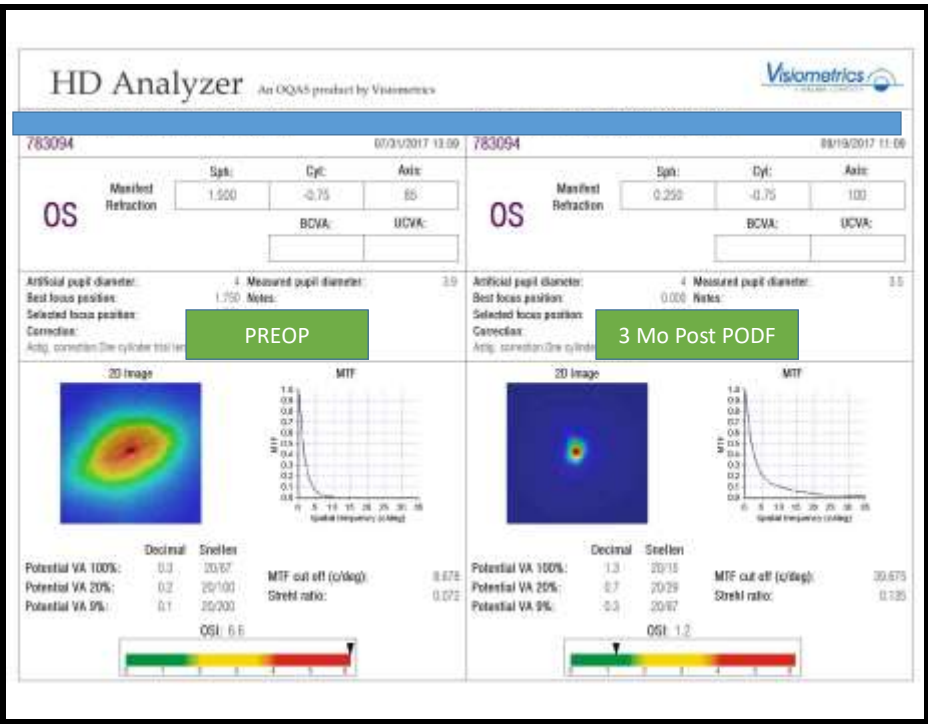
Objective Scatter Index





IV- Evaluation of Patients Satisfaction

Subjective Questionnaire at 6 months

- All patients are very satisfied or satisfied with FINe vision
- 12.5% patients reported halos at night.
- 87.5% patients had non-disturbing photic phenomena when asked.
- No patients were dissatisfied with vision at any distance.
- No patients is using spectacles at any distance.
- All patients would have the same lens again.

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What did we learn:

- Trifocal IOLs give satisfactory far, Intermediate and near vision.
- Night vision phenomena remain but the trade-in is very satisfctory.
- Essentials to achieve good results:
  - Well informed patient.
  - Objective measure of preop quality of vision (OSI, CST)
  - Tear film assessment.
  - Accurate IOL power calculation.
  - Correction of corneal astigmatism.

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Thank You!