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Muscat Eye Laser Center

Aberration-Free LASIK With Excimer Laser

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MC Arbelaez: travel expenses reimbursement from SCHWIND eye-tech-solutions
S Arba Mosquera: employee of SCHWIND eye-tech-solutions

Purpose: To assess the efficacy, predictability, and safety of LASIK for the surgical correction of low to moderate myopia with astigmatism

Subjects: 98 eyes with a manifest refraction spherical equivalent
All candidates for Aberration-Free laser refractive surgery

Materials: SCHWIND AMARIS 1050RS excimer laser with different repetition rates

Methods: All eyes underwent treatment with the non wavefront-guided aspheric algorithm of the SCHWIND AMARIS 1050RS excimer laser working at different repetition rate. All eyes were targeted for emmetropia. Refractive outcomes and corneal higher order aberrations were analyzed pre- and postoperatively. Three-month postoperative outcomes are reported for each repetition-rate.

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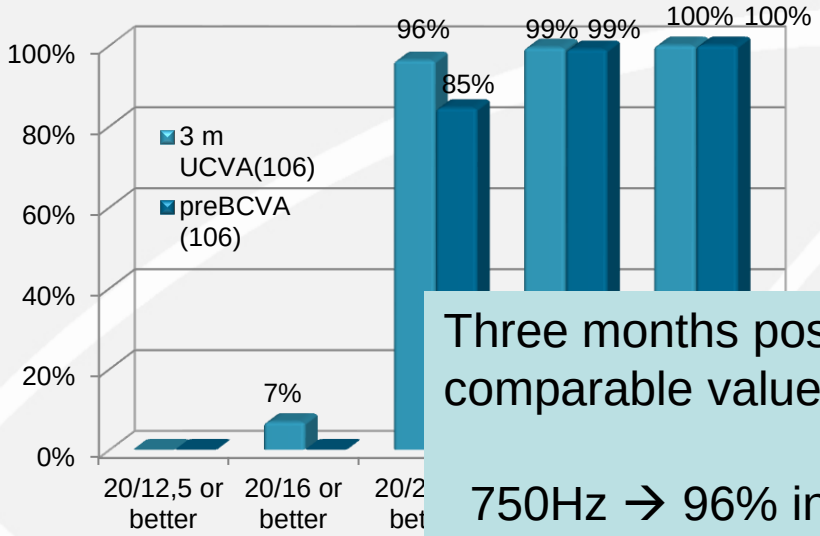
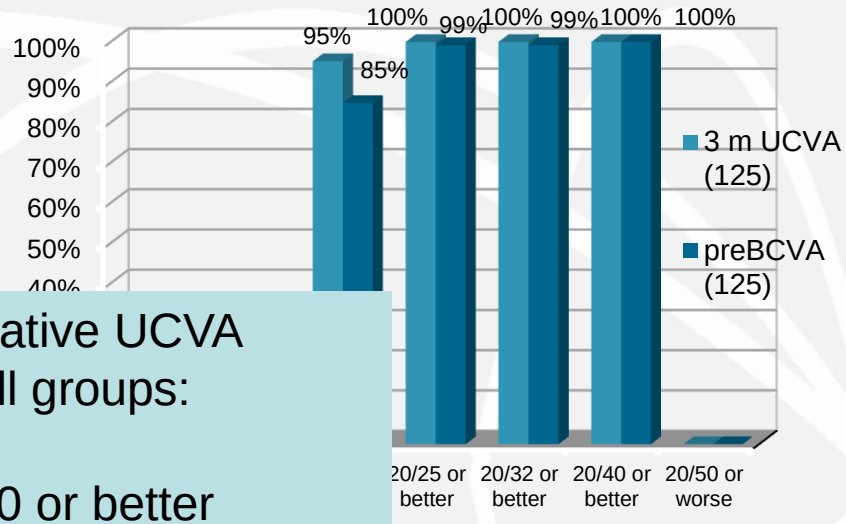
Visual Acuity preop BCVA vs postop UCVA – Percentage

750 Hz



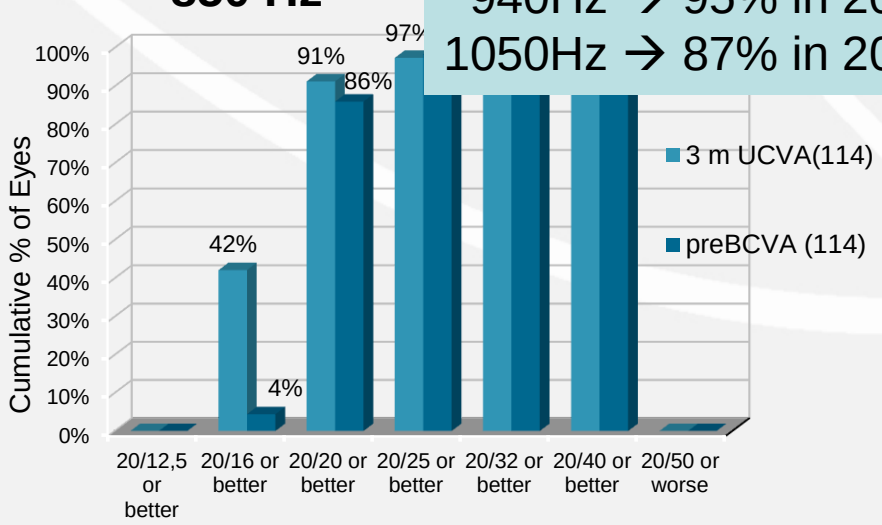
940 Hz

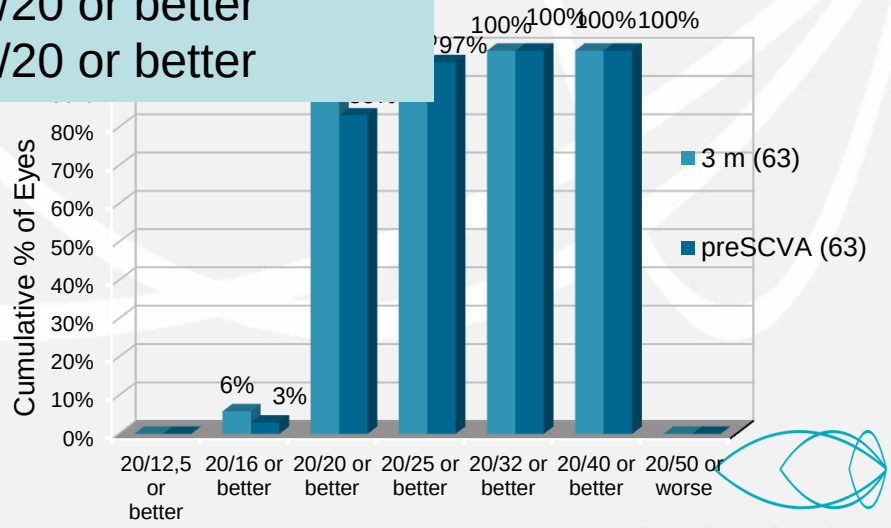


Three months postoperative UCVA comparable values in all groups:

750Hz → 96% in 20/20 or better
850Hz → 91% in 20/20 or better
940Hz → 95% in 20/20 or better
1050Hz → 87% in 20/20 or better

850 Hz





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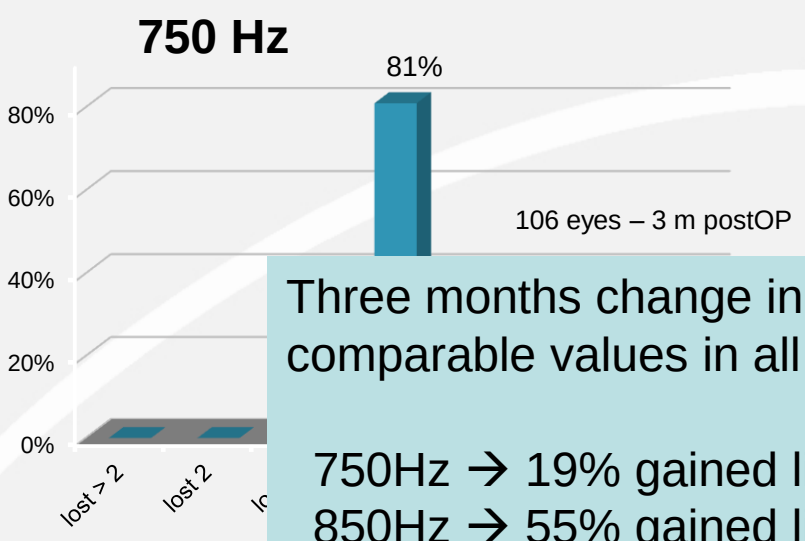
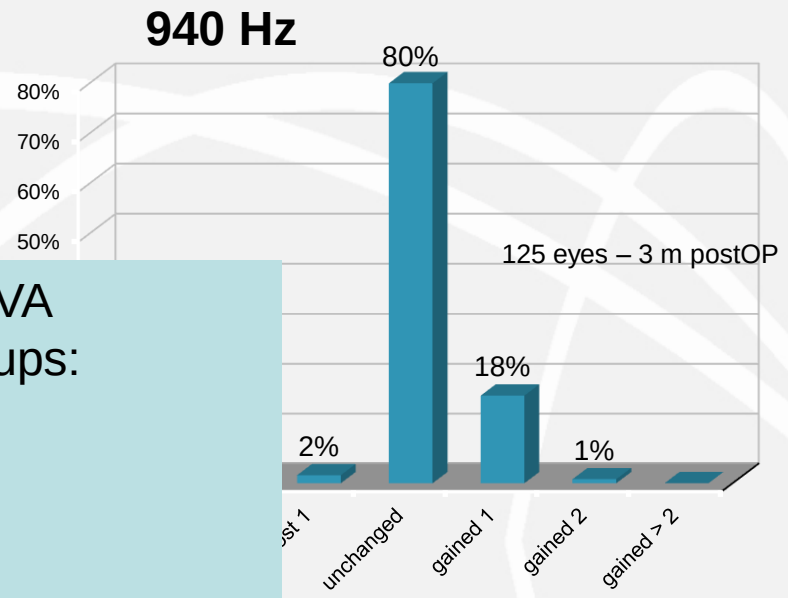
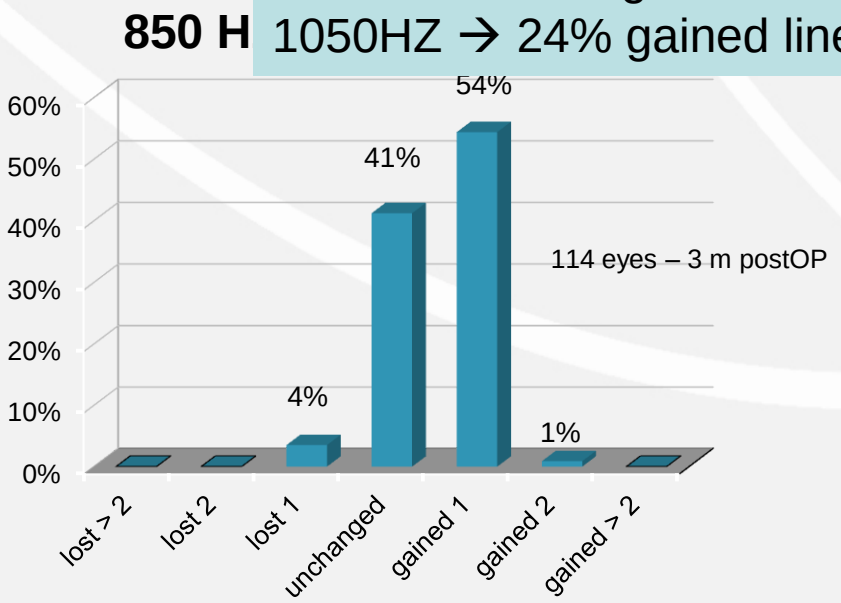
Safety Change in BCVA – Percentage 'Safety'

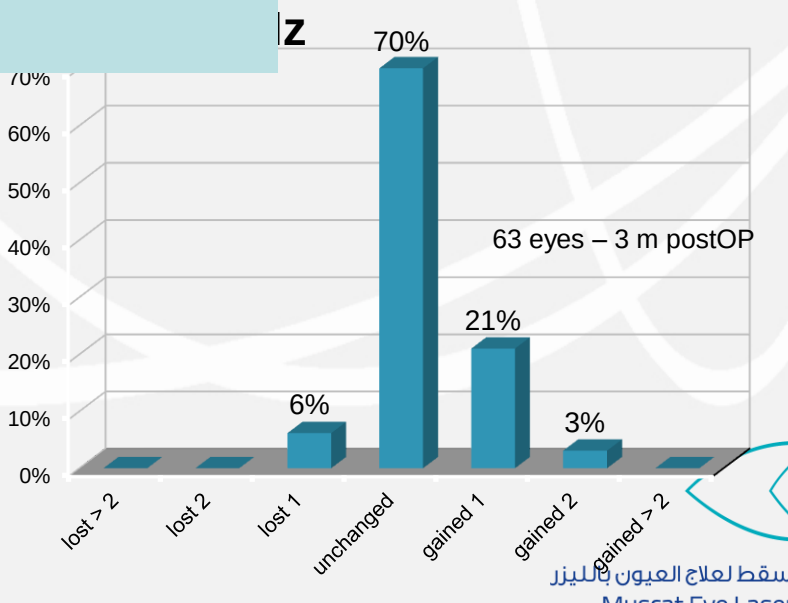




Three months change in CDVA comparable values in all groups:

750Hz → 19% gained lines
850Hz → 55% gained lines
940Hz → 19% gained lines
1050HZ → 24% gained lines





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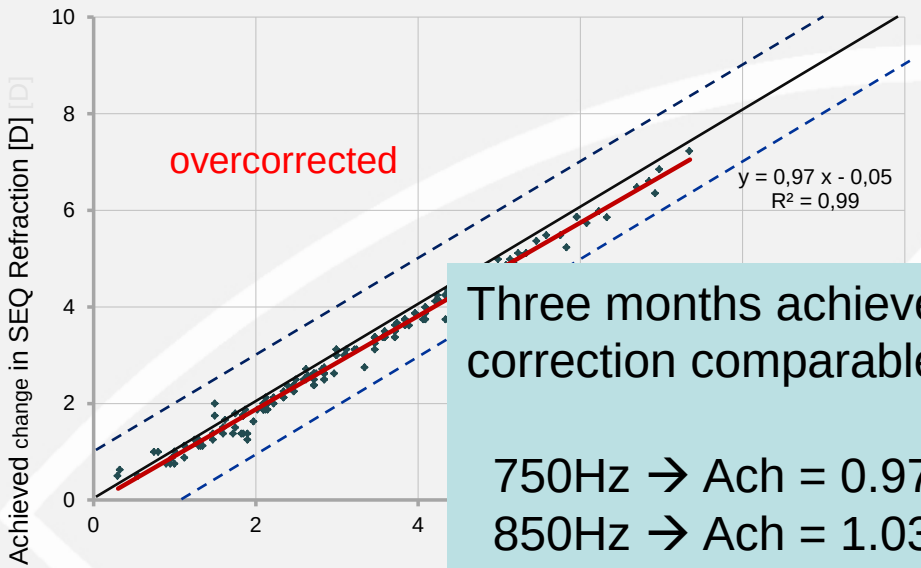
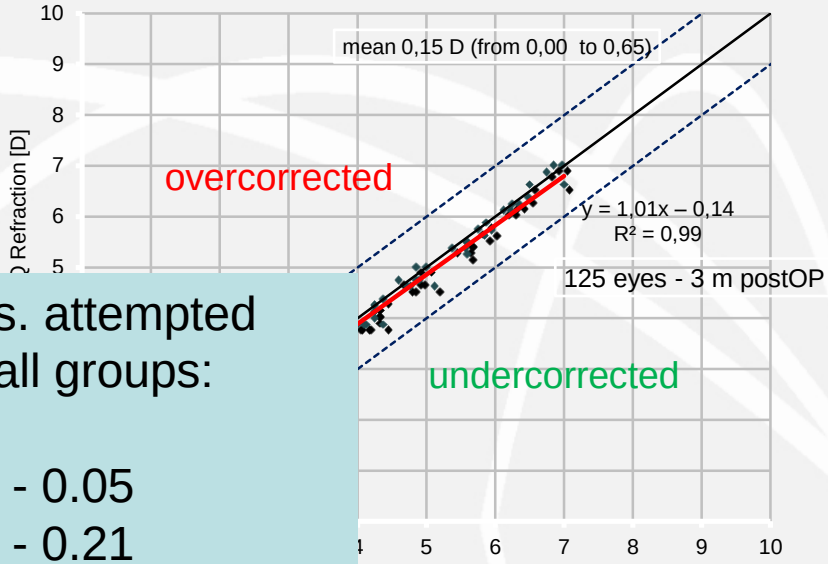
Scattergram

Attempted Change in SEQ Refraction [D]

750 Hz



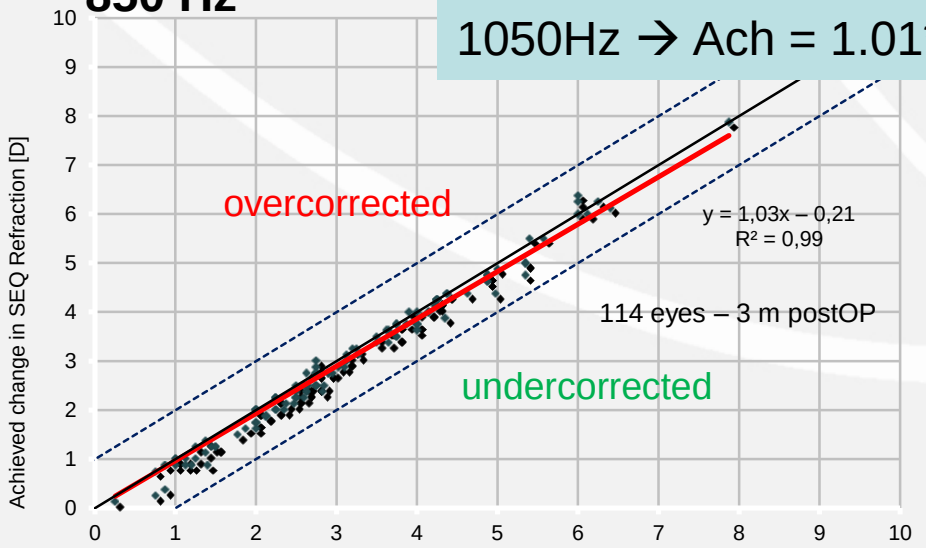
940 Hz

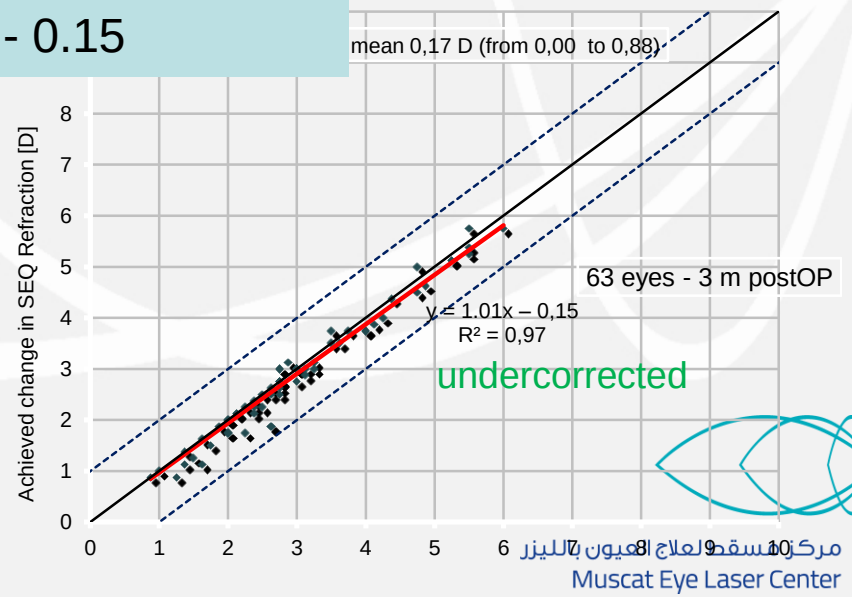


Three months achieved vs. attempted correction comparable in all groups:

750Hz → Ach = 0.97*Att - 0.05
850Hz → Ach = 1.03*Att - 0.21
940Hz → Ach = 1.01*Att - 0.14
1050Hz → Ach = 1.01*Att - 0.15

850 Hz





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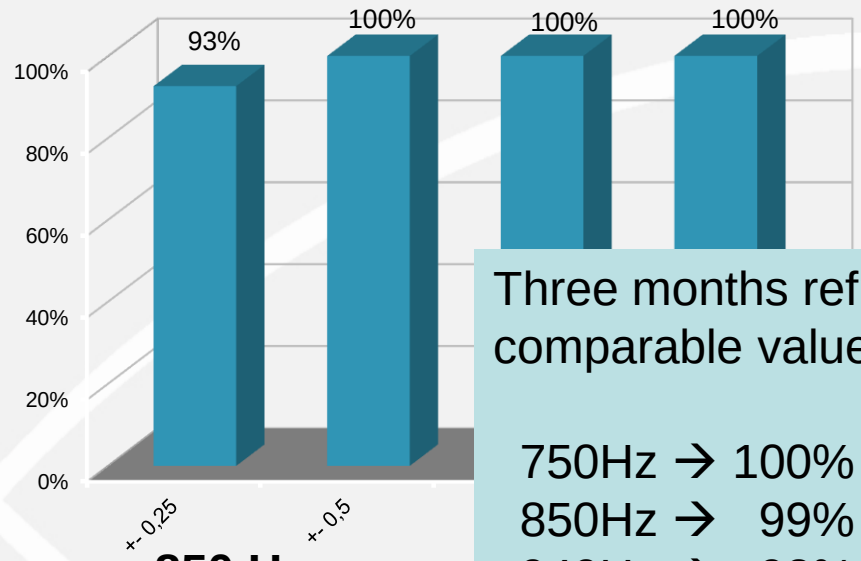
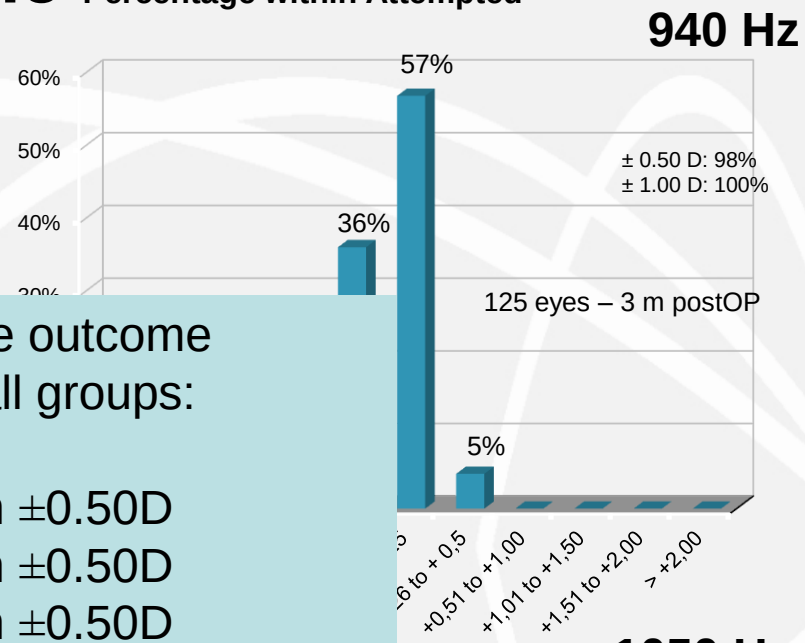
Refractive Outcome

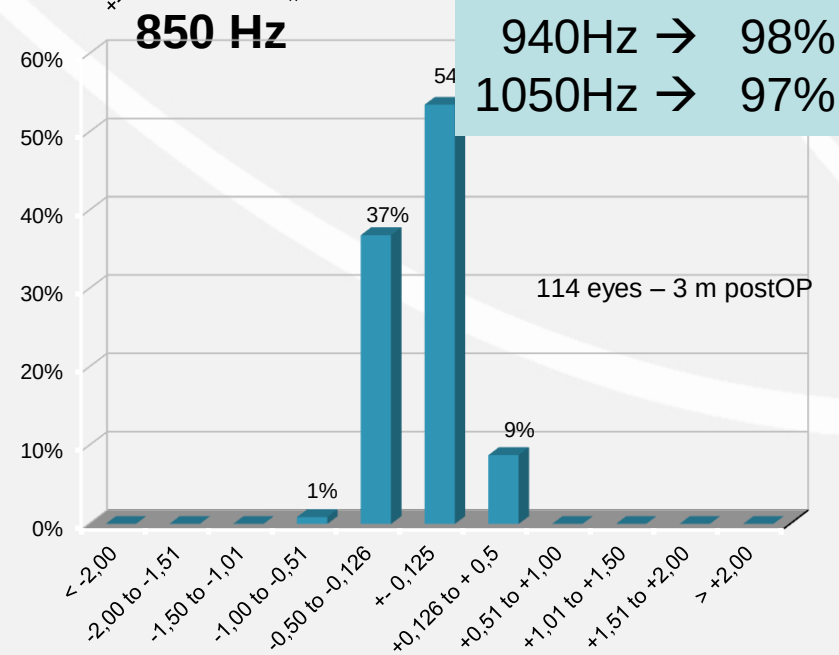
Percentage within Attempted

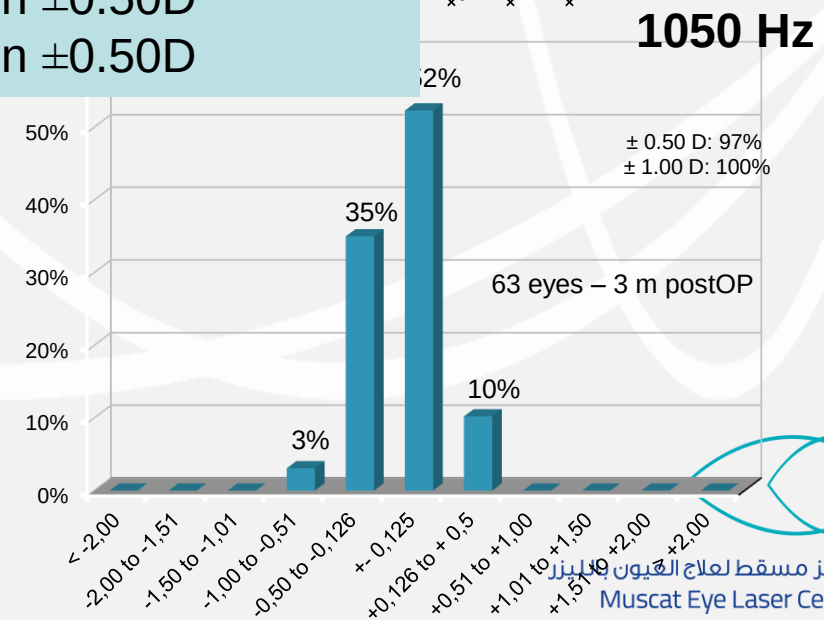




Three months refractive outcome comparable values in all groups:

750Hz → 100% within ±0.50D
850Hz → 99% within ±0.50D
940Hz → 98% within ±0.50D
1050Hz → 97% within ±0.50D





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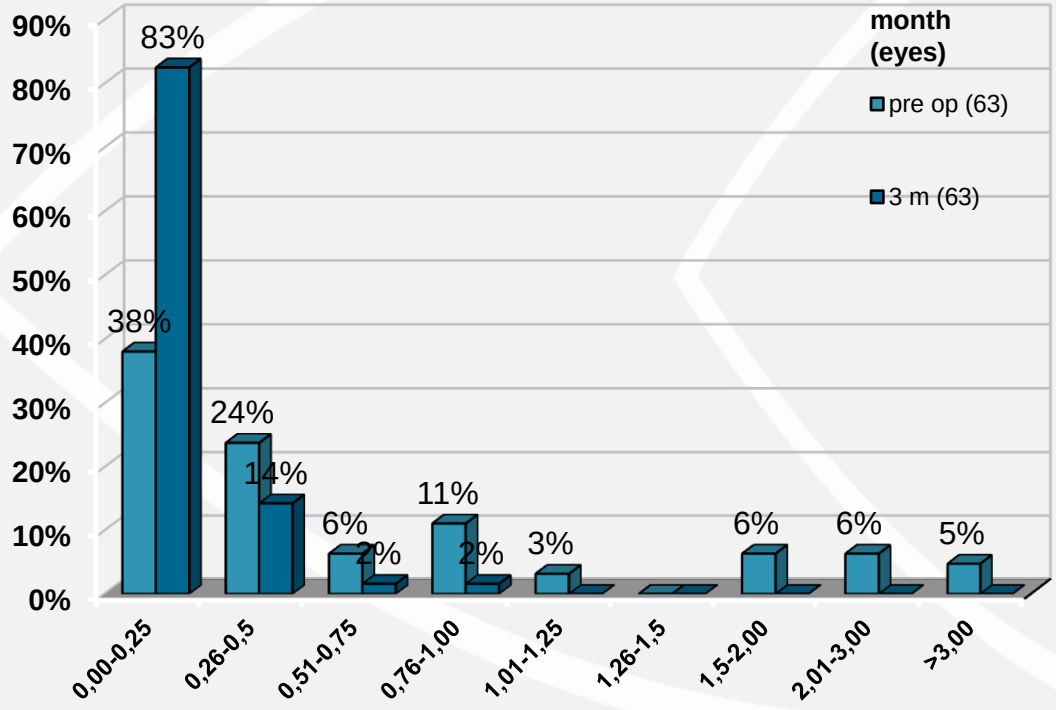
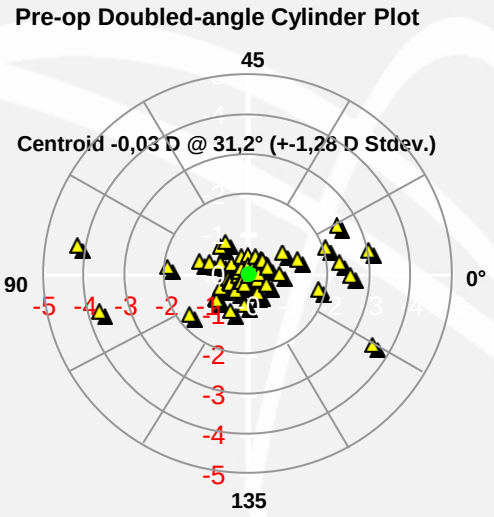
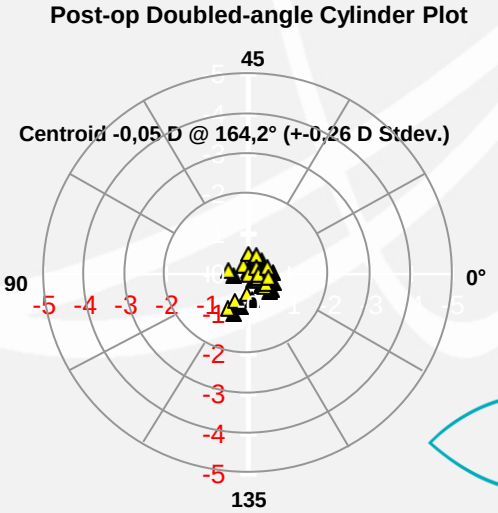
Refractive Astigmatism with the 1050 Hz







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Post-op UDVA and SEQ vs rep-rate

	750Hz	850Hz	940Hz	1050Hz
post-op UDVA mean LogMar	-0,005	-0,030	-0,006	0,009
post-op UDVA std.dev.	0,029	0,07	0,025	0,053

	750Hz	850Hz	940Hz	1050Hz
post-op +/- 0.25 D SEQ	93%	54%	57%	52%

Aberration-Free Laser in-situ Keratomileusis with the SCHWIND AMARIS 1050RS

Discussion:

- The number of eyes in the group with the highest laser rep-rate is limited to 63 whereas all others are significantly more than 100 eyes.

- Our visual and refractive outcomes are similar to those in other studies of LASIK using different combinations of femtosecond lasers and excimer lasers.

- Minor differences and variations had been noticed despite the hard- & software was not changed; except the laser rep-rate

Aberration-Free Laser in-situ Keratomileusis with the SCHWIND AMARIS 1050RS

Summary results:

- The results of LASIK treatments with 750Hz, 850Hz, 940Hz and 1050Hz are absolutely comparable
- 1050Hz results are with limited eyes as not all patients showed up for 3Month follow-up yet.

Conclusion:

- Treatments using repetition rates up to 1050Hz are safe, efficient and very predictable.
- Outcomes with 1050Hz are comparable to lower frequencies

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Thank you very much for your kind attention!

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