

Clinical Investigation of Laser Vision Correction Using an All-Solid State Deep-UV Laser: two year experience

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Introduction

- First wide experience with Katana LaserSoft: **one year follow-up.**
- **Two years experience**
- The purpose of this study is to evaluate the **efficacy**, **safety** and **stability** of this laser system with standard treatments.
- Surgery: phorefractive cheratectomy (PRK)

Patients and Methods

TOTAL TREATMENT

554 eyes

mean age 38+/- 13

mean refractive error sf.eq. -2,32D +/- 2,96

myopia and myopic astigmatism

425 eyes

mean refractive error sf.eq. -3,43D +/- 2,37

max sf.eq. -12,50D

hyperopia and hyperopic astigmatism

91 eyes

mean refractive error sf.eq. +1,86D +/- 1,09

max sf.eq. +6,13D

mixed astigmatism

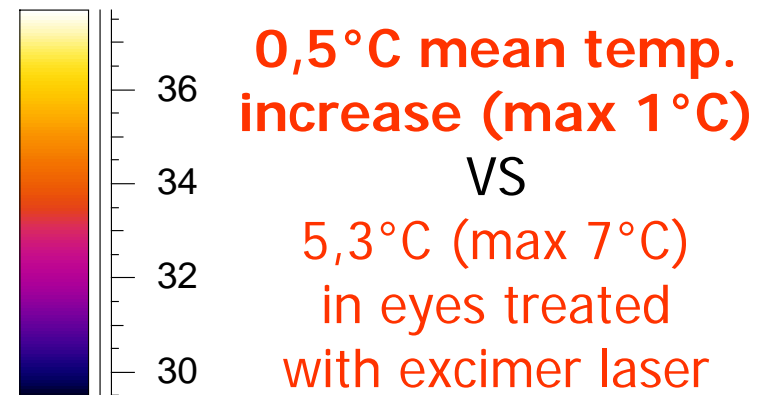
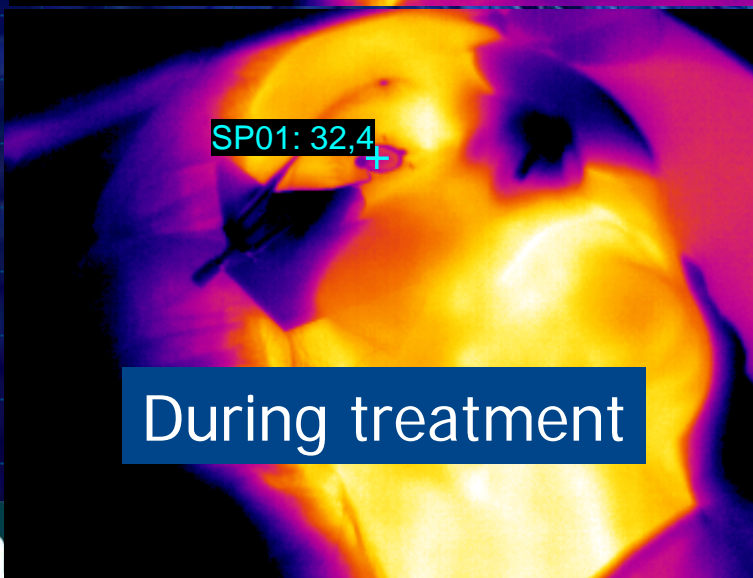
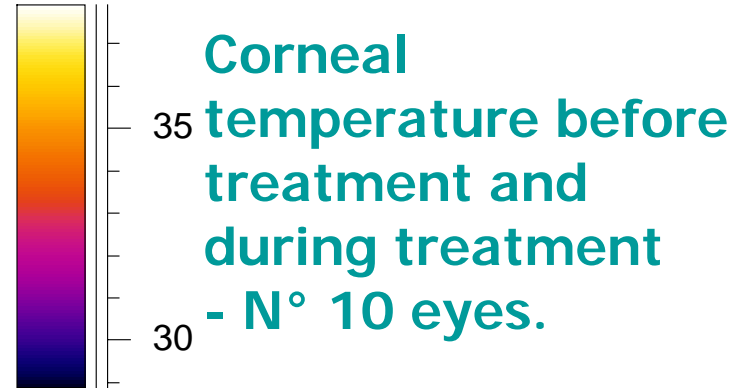
38 eyes

mean refractive error sf.eq. -0,31D +/- 0,66

max sf.eq. +2 D; min sf.eq. -4,50D

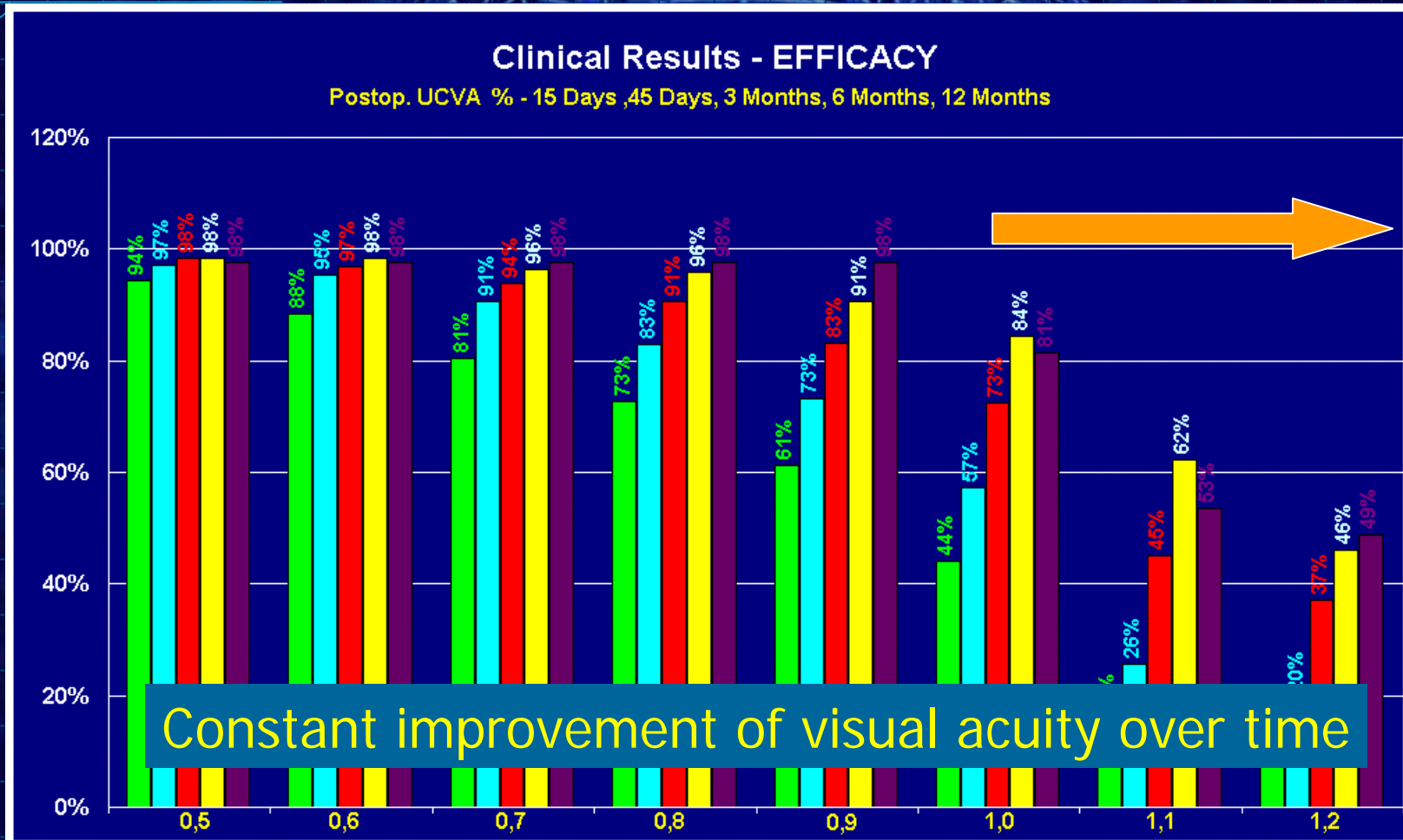


Clinical Result: corneal temperature during treatment

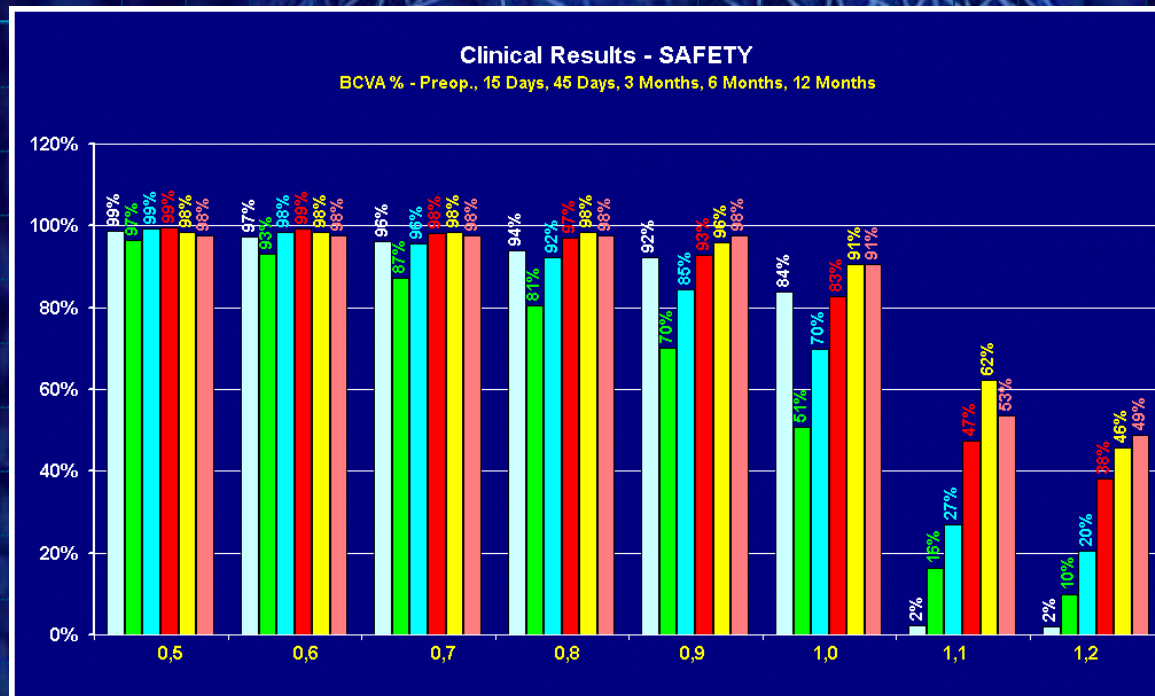


Clinical Results: EFFICACY

Postop. UCVA % over time

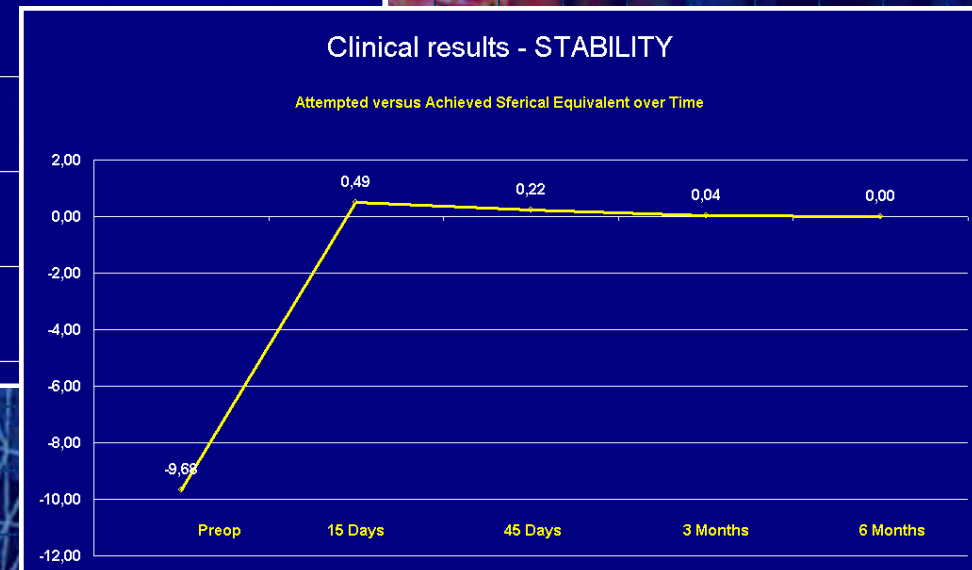
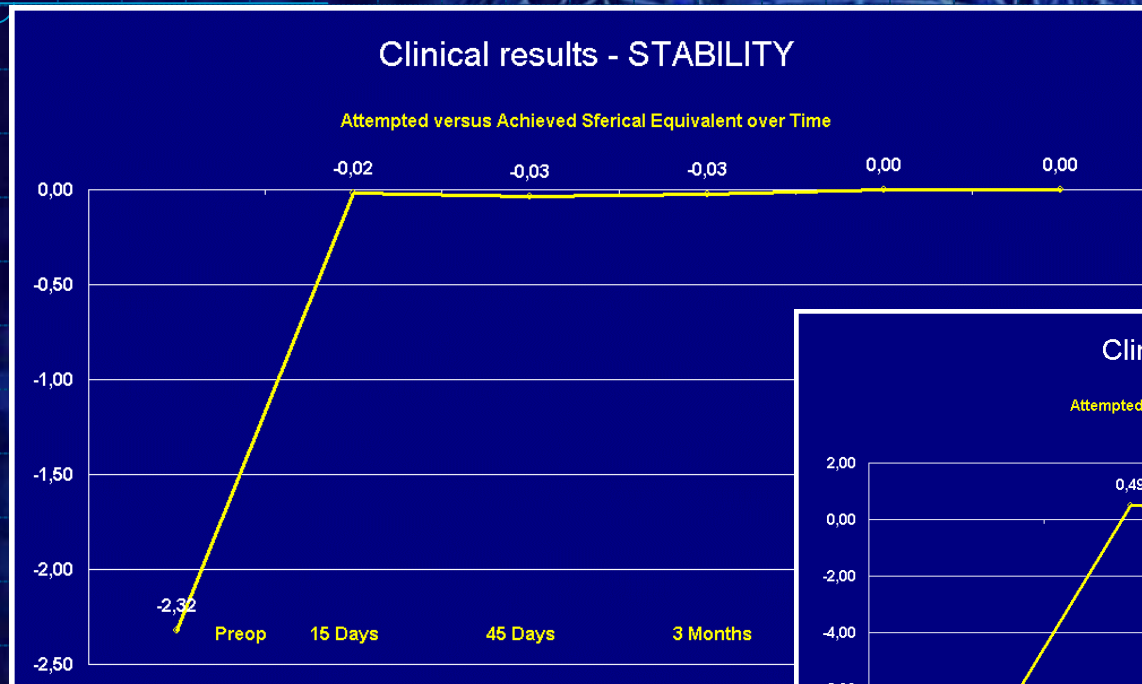


Clinical Results: SAFETY



➔ Before surgery 84% of the eyes had a BCVA of 1.0 or better: after 3 months 83% of the eyes showed a BCVA of 1.0 or better; the percentage increased to 91% after 6 months, to 91% after 1 year. BCVA value reaches the preoperative value just after 3 months.

Clinical Results: STABILITY



Total treatments

Myopia sf.eq. > 8D: over-correction

Clinical Results vs FDA Targets

6 months results

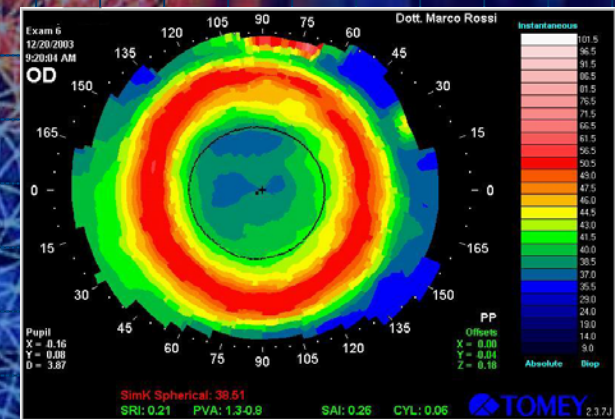
CLINICAL RESULTS	FDA	KATANA
Efficacy Variables		
• UCVA 1,0 or better	50%	84%
• UCVA 0,5 or better	85%	98%
• MRSE $\pm 0,5D$	50%	97%
• MRSE $\pm 1D$	75%	98,5%
Safety Variables		
• BCVA Loss > 2 lines	< 5%	2%
• BCVA Worse than 0,5	< 1%	0%

Clinical Results: centering

- Difference between center of the treatment and pupil center.
- Difference altitudinal maps: myopic treatments (30).
- Mean \pm SD: 0.163 ± 0.057

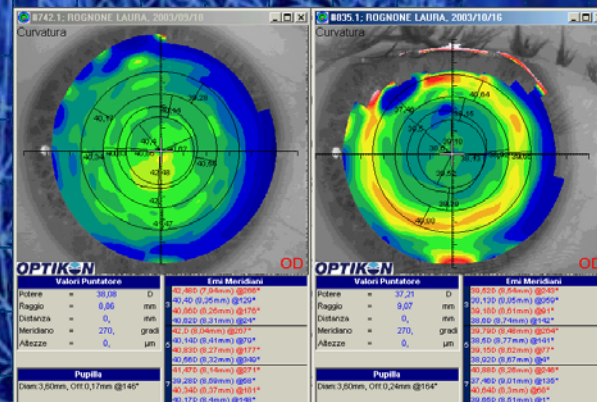
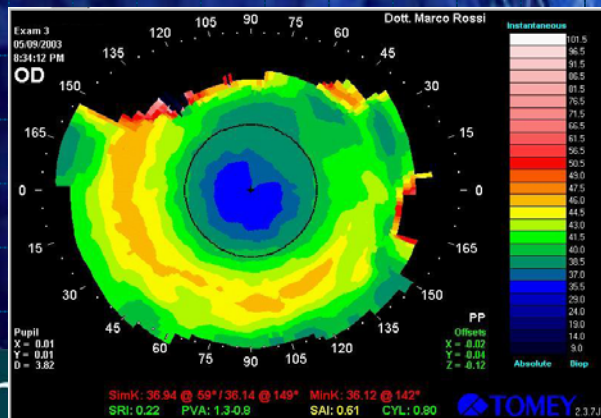
lower 95% conf. limit: 0.127

upper 95% conf. limit: 0.2



Clinical Results: Ablation

- Regularity of the ablation.
- Difference between pre-op and post-op coma at 3 mm and 5 mm; topographic analysis; myopic treatments (30).
- Coma 3 mm: $P = 0.7817$ not significant
- Coma 5 mm: $P = 0.3894$ not significant



Conclusion

◆ Advantages:

- Effective and safe laser for refractive surgery
- Reduced corneal inflammation: less pain, faster corneal healing, faster visual recover

◆ Disadvantages:

- Overcorrection in high myopia due to longer treatments: the problem should be solved with 2 KHz frequency



Thank you for your attention

Dr. M. Rossi

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