

SCHWIND AMARIS® 750S – early LASIK outcomes. One-month clinical results

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Introduction

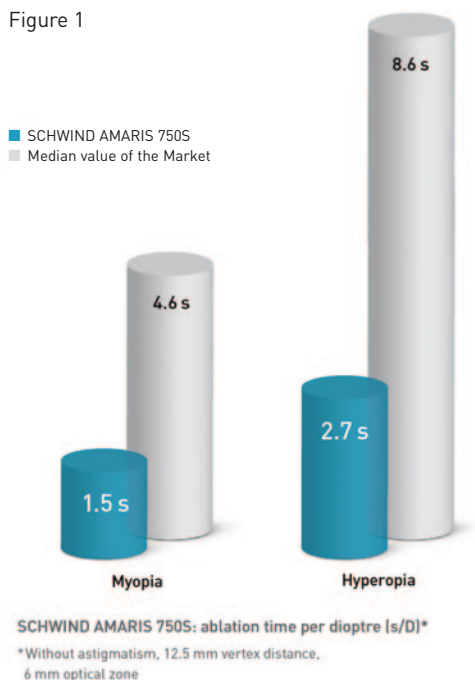
The demands placed by the patients on the treatment methods and the attainable results in corneal surgery are constantly increasing. Those who can offer shortest treatment times with perfect results have the upper hand. With a pulse rate of 750 Hertz the SCHWIND AMARIS 750S sets a new standard – so that your patients feel satisfied that you can do the best possible for them today.



Figure 2

Thanks to the 6D turbo eye tracker, it combines superior speed with extremely high precision. The result is maximum comfort during treatment: short treatment times, an optimised workflow and a highly efficient patient management system.

Figure 1



Methods

- All LASIK procedures have been performed with the SCHWIND AMARIS 750S
- All patients were corrected with SCHWIND CAM "Aberration-free" treatment
- 95% of all treated eyes (174/183 eyes) were aimed to be treated with Static Cyclotorsion Control (SCC)
- The optical zone was set in a range of 6.3 mm to 8 mm
- Preoperative refraction:
SEQ: -0.50 D to -9.50 D
Sphere: 0.00 D to -8.75 D
Cylinder: up to -4.75 D
- All data from the 183 eyes had been analysed for a postoperative period of one month

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Results

A scattergram is the best way to show the predictability of the refractive outcome. Figure 3 shows attempted refraction [D] vs. achieved refractive change for each single eye at one month postoperatively.

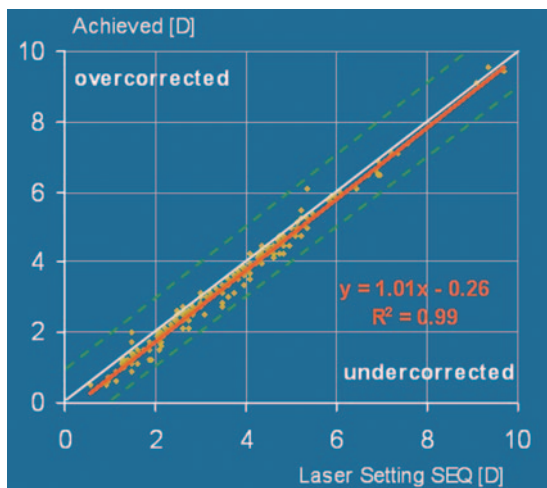


Figure 3: Laser settings SEQ vs. achieved change in 183 eyes

The narrow scatter between laser settings and achieved SEQ (spherical equivalent) at one month is obvious. The mean postoperative SEQ was $-0.14 \text{ D} \pm 0.19 \text{ D}$.

Refractive outcome

In figures 4a and 4b the refractive outcomes in terms of spherical equivalent (SEQ) and defocus equivalent are displayed. Impressive 84% of all 183 evaluated eyes are in the

range of $\pm 0.25 \text{ D}$ of SEQ and 98% are within $\pm 0.50 \text{ D}$ in terms of defocus equivalent.

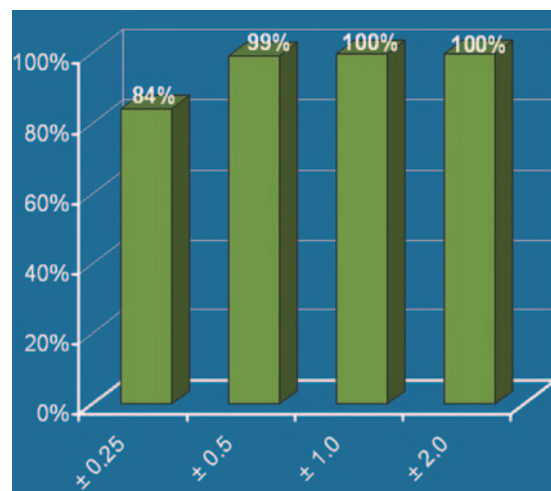


Figure 4a: Refractive outcome percentage within attempted SEQ, 183 eyes

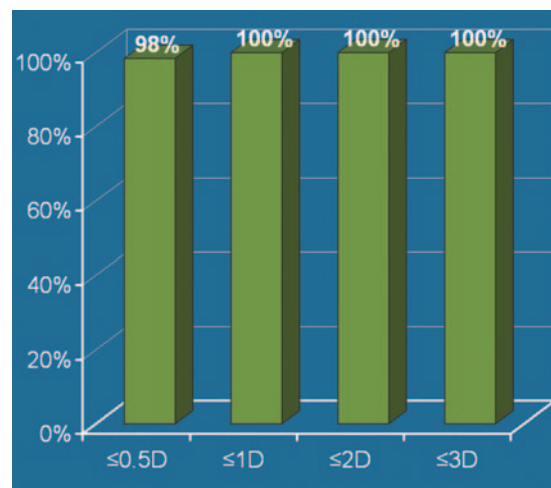


Figure 4b: Defocus equivalent – percentage, 183 eyes
Defocus equivalent is described as:
Sphere [D] + $1/2 * |\text{Cylinder}|$ [D]

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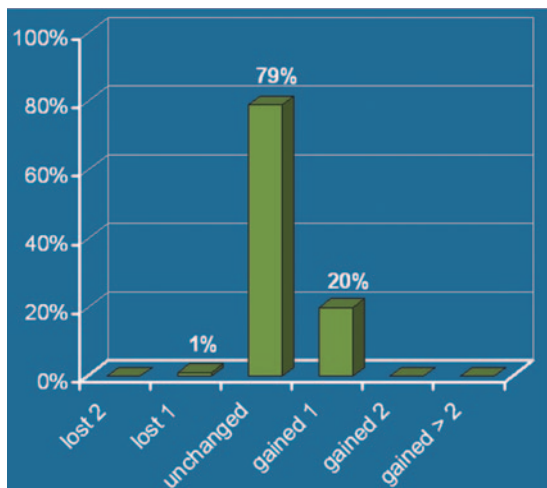


Figure 5: Change in BSCVA-Safety, 183 eyes

Change in BSCVA-safety

Safety is described by the change in best spectacle corrected visual acuity (BSCVA). The number of Snellen lines which changed from preoperatively to postoperatively is displayed in figure 5.

At one month 20% of the evaluated eyes gained one Snellen line. No patient lost more than one Snellen line.

Pre-op BSCVA versus post-op UCVA

Figure 6 displays the preoperative best spectacle corrected visual acuity (BSCVA) vs. the postoperative uncorrected visual acuity (UCVA) at one month.

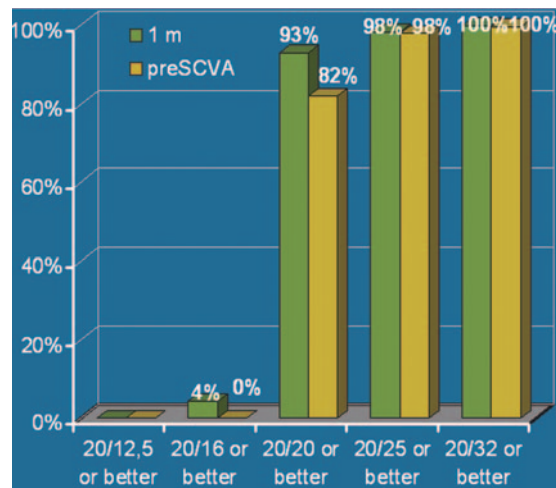


Figure 6: Pre-op BSCVA versus post-op UCVA – Percentage, 183 eyes

It shows that at the early clinical follow up of one month 4% of all treated eyes have an uncorrected visual acuity (UCVA) of already 20/16 or better.

In summary a significant change towards an improved visual acuity even in these early results is clearly obvious.

Astigmatism

Figures 7a and 7b show the double-angle scatter plot of the cylindrical value with a good postoperative scatter after three months. The mean postoperative cylinder was -0.09 D ±0.25 D.

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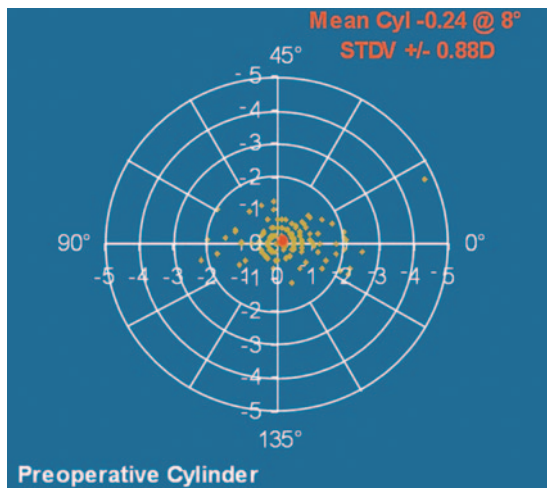


Figure 7a: Preoperative double-angle scatter plot of the cylindrical component

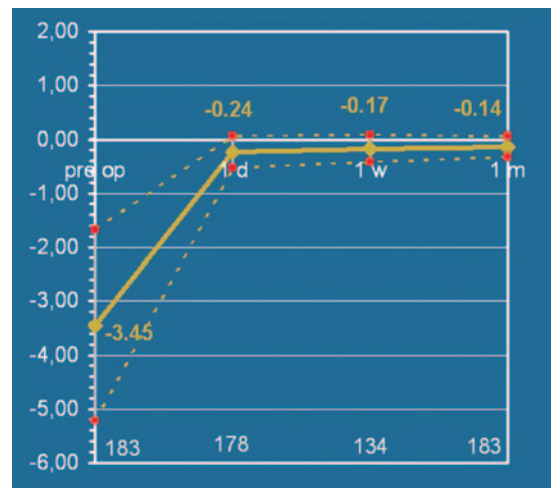


Figure 8: Stability timeline of the spherical equivalent over a time period

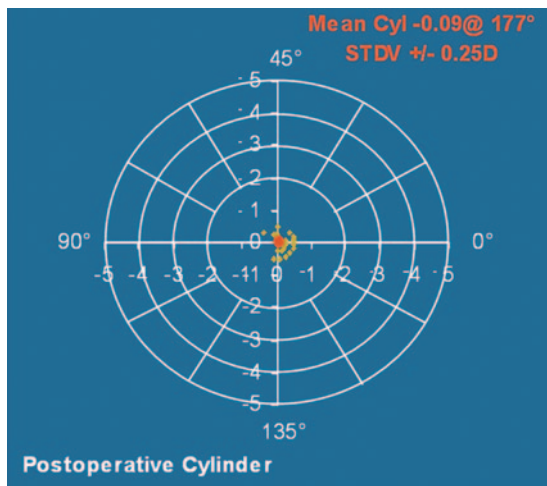


Figure 7b: Postoperative double-angle scatter plot of the cylindrical component

Achieved correction over time – stability

The stability of the results for the follow up examinations of one day, one week and one month in figure 8 shows the highly successful rate.