

# Comparison of Contrast Sensitivity and Higher-Order Aberrations after Small Incision Lenticule Extraction and Femtosecond LASIK for Myopia

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# Purpose

- To evaluate and compare postoperative contrast sensitivity and higher-order aberrations (HOA) between small-incision lenticule extraction (SMILE) and femtosecond laser-assisted laser in situ keratomileusis (FS-LASIK).

# Methods

- Sixty-four eyes of 32 patients with myopia and astigmatism were enrolled into this prospective comparative case series.
- Inclusion criteria were spherical equivalent of the subjective manifest refraction (SE) being less than 10 diopters and a difference of less than 0.50 diopters (D) between the SEs of the eyes.
- One eye of each patient was treated with SMILE and the fellow eye treated with FS-LASIK.

# Methods

- Randomisation was performed using a sealed envelope system.
- Nine-month postoperative outcome measures included the changes in contrast sensitivity and corneal higherorder aberrations.
- SPSS 20.0 was used for statistical analyses.

# Results

- The mean age of the patients was  $26,52 \pm 4,58$  years.
- Fifteen patients (47%) were male and 17 patients (53%) were female.
- Mesopic and photopic contrast sensitivities of FS-LASIK treated eyes at 1,5 cpd are better than those SMILE group, significantly ( $p=0,021$  and  $p=0,009$ ). However, there were no significant differences between the groups at 3 cpd, 6 cpd, 12 cpd and 18 cpd.

# Results

- The higher-order aberrations (HOA) after SMILE changed from 0.363 to 0.523  $\mu\text{m}$ , and after FS-LASIK from 0.380 to 0.503  $\mu\text{m}$ .
- The changes in HOAs were similar between groups ( $p>0,05$ ).

# Conclusion

- For the treatment of myopia and astigmatism, SMILE and FS-LASIK techniques are safe and have similar clinical outcomes.