

Summary: Evaluation of visual functions after laser correction of ametropia

1. We evaluated the quality of vision of 55 patients (110 eyes) with myopia from -0,5 dpt to -6,00 dpt after laser correction with PRK and LASIK. We compared the results between group A after laser correction with the excimer laser Esiris (Schwind, Germany) and group B after correction with Amaris (Schwind, Germany). We investigated subjective visual perception, standardized visual acuity and contrast sensitivity under photopic and mesopic conditions as well as glare sensitivity at 1, 3, 12 and 24 months postoperatively.
2. Subjective perception: One month after the procedure, there were significant differences in questions concerning the overall visual quality, while watching TV and driving during the day and at night, with group B patients significantly more satisfied. Twelve months after the procedure, 100% of the patients of both groups were satisfied with their quality of vision.
3. Visual acuity: In group A, photopic and mesopic visual acuity significantly decreased 1 month after the procedure and then increased and differed only insignificantly from the preoperative values. In group B, photopic and mesopic visual acuity was changing insignificantly upto 3 months after the procedure and then increased significantly to values above those before the procedure.
4. Contrast sensitivity: In group A, postoperative photopic contrast sensitivity changes are insignificant. Mesopic contrast sensitivity significantly decreases 1 month after the procedure and then gradually increases but stays at lower than the preoperative values. Contrast sensitivity of group B transiently decreased only in the lower frequencies. Photopic and mesopic contrast sensitivity at mid- and higher frequencies increased, initially insignificantly at 1 month after the procedure and then mainly significantly, above preoperative levels. Preoperatively, values of visual acuity and contrast sensitivity were insignificant, postoperatively, the differences were mainly significant with group B with greatly improved values.
5. Glare sensitivity: Postoperative glare sensitivity of group B was significantly lower than that of group A. Both groups had glare sensitivity values within the normal range.

6. **Conclusion:** We concluded that the improved quality of visual perception of patients in group B is due to a more precise and less injuring procedure on laser Amaris.