

COMPARISON OF THE FUNCTIONAL RESULTS OF BIFOCAL, TRIFOCAL AND EXTENDED-DEPTH OF FOCUS INTRAOCULAR LENSES

Purpose: Functional evaluation of three different intraocular lens (IOL) designs regarding the visual and reading performance at different distances and the quality of life.

Methods: 92 eyes were divided in 3 groups and received either the bifocal AcrySof Restor SN6AD1 (Alcon), the trifocal FineVision (PhysIOL) or the extended-depth of focus (EDOF) Symfony IOL (AMO). Postoperatively, uncorrected and corrected distance visual acuity (UDVA, CDVA), uncorrected and distance-corrected intermediate visual acuity (UIVA, DCIVA) and uncorrected and distance-corrected near visual acuity (UNVA, DCNVA) were evaluated. Reading acuity at the preferred near and intermediate distances was calculated by the SRD with consideration of the reading distance, speed and the print size. A subjective questionnaire was performed.

Results: Distance-corrected near vision was higher in the bifocal group than the trifocal group which was followed by the EDOF group. The opposite was the case for intermediate vision. All 3 IOLs showed similar preferred intermediate reading distances of ~65cm with similar reading acuities of the bi- and the trifocal IOLs. Halos on a scale from 1 to 10 were similar in the trifocal and the bifocal groups (median 5.1 and 5.0 respectively), followed by the EDOF group (median 6.35). There has been no statistically significant difference between the 3 groups: Kruskal-Wallis Test $p > 0.05$.

Conclusion: The examinations revealed advantages of each IOL. 90-100% of the examined patients would undergo surgery with the same IOL once again. The IOL has to fit the patient's lifestyle. Therefore, preoperative patient education about the benefits and drawbacks of each IOL is essential.