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Aspherical IOLs for correction of spherical aberrations with and without bluelight filter: A comparison study

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Purpose: Aspherical IOLs are available in different styles, 3-piece, single-piece, aberration-free, aberration-correcting and with or without bluelight filter. The purpose of this study is to compare the clinical performance of two aberration correcting IOLs (one with and one without bluelight filter) by use of visual acuity, contrast sensitivity and colour sensitivity.

SETTING: Augenzentrum Dr. Hamacher, Starnberg, Germany.

METHODS: This retrospective clinical trial included 100 eyes of 50 patients (age 51 to 85 years) with cataract. A first group of 25 patients received bilaterally the Tecnis Z9000 (AMO), the second group of 25 patients received bilaterally the MicroSil MS 612 ASP-Y (Dr. Schmidt Intraocularlinsen). Distance visual acuity with and without correction was analysed at 3 months postoperatively. Contrast and colour sensitivity and wavefront data were analysed, too. The contrast sensitivity was determined by use of the Ginsburg Box (Vision Science Research Corporation, San Ramon, CA), wavefront analysis was performed by the I-Trace (Tracey 3.1, Houston Texas, USA) and the colour sensitivity was evaluated by use of the Farnsworth-Munsell system.

RESULTS: Both groups showed the same level of postoperative spherical aberrations, which were close to 0. Contrast sensitivity and colour sensitivity were similar in both groups, too. The mean uncorrected postoperative distance visual acuity (UCVA) improved in both groups to 20/25, the mean best corrected visual acuity (BCVA) was in both groups 20/20.

CONCLUSIONS: Both IOLs provide in average a significant reduction of spherical aberration close to 0, no differences between the two groups were seen for uncorrected/best corrected visual acuity, contrast sensitivity and colour sensitivity. Hence it follows that the blue light filter has no influence on the visual comfort.