

The influence eye micromotions on the accuracy of estimation of Zernike coefficients from eye transverse aberration measurements was investigated. By computer modeling, the following frequently found eye aberrations have been examined: defocusing, primary astigmatism, spherical aberration of the 3rd and the 5th orders, as well as their combinations. It was determined that the standard deviation of estimated Zernike coefficients is proportional to the standard deviation of angular eye movements. Eye micromotions cause the estimation errors of Zernike coefficients of present aberrations and produce the appearance of Zernike coefficients of aberrations, absent in the eye. When solely defocusing is present, the biggest errors, caused by eye micromotions, are obtained for aberrations like coma and astigmatism. In comparison with other aberrations, spherical aberration of the 3rd and the 5th orders evokes the greatest increase of the standard deviation of other Zernike coefficients.

Key words: eye micromotions, wave-front deformation, eye transverse aberrations, Zernike polynomials, astigmatism, spherical aberration, spatially resolved refractometer.

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