

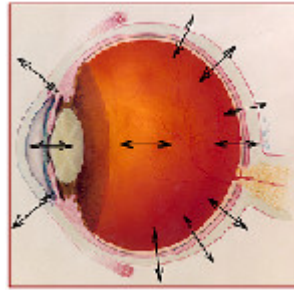


SEMINARIO DE IMÁGENES Y VISIÓN

INSTITUTO DE OPTICA (CSIC)

Pulsation of the anterior part of the eye: spectral characteristics and correlation with the cardiopulmonary system

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ABSTRACT

The human eye undergoes fast, continuous movements. Investigation of eye movements assumes the constant form of the eye globe and takes into account only its rotations around three axes. However, pulsatile variations of the IOP causes quasi-periodical deformations of the eye, and normal displacements of the corneal and the scleral surfaces. Such pulsation of the eye geometry can influence the retinal image and the process of vision.

We measured synchronously displacements of the corneal and the scleral surface by use of ultrasound transducers, and both ECG signal and pulsation of the blood in the ear. Spectral, time-frequency and coherent analysis was applied for all measured signals. Results show a very high coherence between all these signals, however these correlations varies for different harmonics of the heart activity and for different subjects.

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