



Standardization notice: EOG standard reapproved

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Standards of methodology and reporting in clinical electrophysiology are important so that clinical measures of visual function can be obtained accurately, and compared accurately, anywhere in the world. In 1989 the International Society for Clinical Electrophysiology of Vision (ISCEV) developed an International Standard for the Electroretinogram (ERG) (revised in 1994) [1] and over the ensuing decade, standards or guidelines were published for the electro-oculogram (EOG) [2], pattern electroretinogram (PERG) [3], visual evoked cortical potential (VECP) [4] and the calibration of electrophysiologic equipment [5]. These standards and guidelines show how to perform the core basic procedures for each type of electrophysiologic investigation, in a manner that will give reproducible and recognizable results anywhere. However, individual laboratories may choose to supplement the Standard responses with additional specialized procedures, or to modify a protocol to meet special needs of a particular patient.

The EOG is a widely used test which measures the light response of the retinal pigment epithelium (RPE), a slow change in the voltage of the basal RPE membrane. This signal requires light reception by the retina, and is mediated by a chemical messenger that probably comes from the photoreceptors. The EOG requires integrity of the RPE membranes, but is not a pure test of RPE function since retinal photoreception is required and since the light response is not known to be correlated with any specific RPE or retinal function (including RPE water transport, visual pigment regeneration and vision). The EOG is most specific as a marker for Best's vitelliform dystrophy, a dominantly inherited macular dystrophy in which a severely depressed light response is found more consistently with the genetic abnormality than lesions in the fundus. The measured value of the EOG (the ratio of light peak amplitude to either the dark trough or dark baseline amplitude) can vary with conditions of light- and dark-adaptation, and the EOG Standard defines a range of stimulus conditions that will make results as consistent as possible. Because the essential features of an EOG response can be elicited in several

ways, the Standard allows use of either dilated or undilated pupils, and the measurement of either dark trough or dark baseline. Each laboratory should choose one of these methodologies and establish a set of normal values under their own recording conditions.

The ISCEV standards for electrophysiologic tests have been highly successful in improving the quality and comparability of data reporting in the clinical literature and the EOG is no exception. However, all of these standards are subject to quadrennial review to insure that they are up-to-date and relevant clinically. A careful review of the EOG Standard was undertaken by ISCEV in 1996-7, but no changes were recommended, and the Standard was reapproved at the Asilomar, California meeting of ISCEV, on July 24, 1997.

Thus, the ISCEV EOG Standard for Clinical Electro-oculography [2] remains active as written for another four years.

References

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Reprints of the EOG Standard can be obtained from Dr. Colin Barber, Secretary-General, ISCEV, Medical Physics Dept., Queen's Medical Centre, Nottingham NG7 2UH, UK