Periodical Integration of Retinal Responses Following Repetitive Light Stimuli – A Method for the Demonstration of Minor Changes in Retinal Activity in Diabetic Retinopathy

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Periodical integration of selectively amplified flicker-ERG's is used in an attempt to demonstrate the presence of minute, though significant changes in retinal activity. The method described makes use of a 1-channel frequency-analyzer, acting as selective amplifier of the flickering response, and of an electronic integrator. This latter instrument integrates all activity of a given frequency recorded over each period of 10 seconds. The course of retinal activity may be plotted in a curve representing the length of integrator response (i.e. the sum of activity over the preceding 10

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seconds) versus time. The activity thus recorded may be either spontaneous activity (of retinal and/or extra-retinal origin: e.g. EEG activity) when no light is given, or a combination of the former with electric activity induced by the flickering light. Changes in voltage of the primary response (the flicker-ERG) of some 5–10 microvolts are thus clearly demonstrable. The method described is routinely in use in the judgment of changes in the metabolic condition of the retina following the administration of Durabolin and Deca-Durabolin.

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