

R1 R2 R3 PG0 PG1 Estagiário Tecnólogo
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Service (sector) ElectrophysiologyN° CEP

Physiological loss of retinal central function assessed by multifocal electroretinogram J. M. Pereira, S. R. Salomão, P.Y. Sacai, A. Berezovsky. Clinical Electrophysiology of Vision Lab, Dept. of Ophthalmology, Federal Univ of São Paulo, São Paulo, Brazil.

Purpose. The multifocal electroretinogram (mfERG) is a recent visual electrophysiological method for evaluation of localized regions of central retina. The exam is indicated for retinal function evaluation in macular diseases, retinitis pigmentosa with good visual acuity, retinal toxicity (chloroquine, tamoxifen) among others. The purpose of this study is twofold: to investigate physiological loss of central retinal function in normal volunteers and to determine age norms for mfERG.

Methods. mfERGs were obtained from 4 different age groups: **Group I** - 24 subjects (16-24 years, mean 21.8 ± 1.9). **Group II** - 16 subjects (25-34 years, mean 29.1 ± 3.0). **Group III** - 11 subjects (35-44 years, mean 38.3 ± 2.5). **Group IV** - 13 subjects (45-55 years, mean 49.8 ± 3.8). The inclusion criteria were: best corrected visual acuity for distance = 0.0 logMAR (20/20), absence of visual complaints, negative family history for ocular disease, absence of previous ocular surgery and informed consent. The mfERG was obtained in one eye from a fully dilated pupil using a bipolar contact lens electrode. Topical anesthetic drops were administered before the electrode insertion. A total of 103 responses were obtained with white hexagonal stimulus (280 cd/m^2) and black (0.45 cd/m^2) enclosing 25° of retinal area, into six rings with eccentricities of 0° , 5° , 10° , 15° , 20° and 25° . Parameters of latency (ms) of the first negative deflection (N1) and of the first positive deflection (P1) and amplitude peak-to-peak (nV/gra^2) N1-P1 had been calculated for each register statistically analyzed (one-way ANOVA) using data from the first order kernel.

Results: Mean amplitude values and their respective standard deviations are shown in the following table for the six different rings mfERG responses: 0° , 5° , 10° , 15° , 20° and 25° .

	0°	5°	10°	15°	20°	25°
Group I	71.7±22.3	43.8±12.6	31.1±8.2	25.5±7.3	21.0±6.2	21.3±6.0
Group II	74.4±18.1	46.3±10.8	34.6±9.2	28.9±8.0	23.8±6.9	23.9±7.3
Group III	68.0±8.9	39.3±6.6	29.9±7.3	25.0±6.5	21.4±4.7	22.0±5.0
Group IV	53.2±14.4	34.9±5.3	25.3±4.7	20.7±3.8	18.4±3.9	19.3±4.6

Mean peak-to-peak amplitudes (nV/degree²) N1-P1 for mfERGs were statistically reduced in the older group when compared to Groups I and II (P<0.05). Latency values were comparable for the 5 groups (P>0.05).

Conclusions: The results obtained in this study are comparable to those previously reported in the literature. This study showed the effect of age and the physiological loss of retinal function with aging reflected by lower amplitudes.