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COMPOSITION AND ARRANGEMENT OF THE CONE MOSAIC IN THE LIVING HUMAN EYE ((C. M. Cicerone, P. D. Gowdy, and S. Otake))
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Purpose. We have sought to determine the relative numbers of L and M cones, the cone density, and the placement of L and M cones in the photoreceptor matrix of the human eye. **Methods.** Three different psychophysical methods were used; in each, measurements under conditions designed to favor L cones were compared to those designed to favor M cones to derive our estimates. First, we used detection of small colored spots on cone-isolating backgrounds to assess the relative densities of the L and M cones. Second, we used color naming of spots small enough to illuminate a single cone if used in eccentric locations of low cone density. Third, we measured foveal hyperacuity with colored tests on cone-isolating backgrounds. **Results.** The small spot detection method yielded a range of 1.3 to 2.5 L cones for each M cone in fovea centralis of 12 eyes and a constant L to M cone ratio from fovea to 28 deg eccentricity in nasal and temporal retina. Measures of hyperacuity used in fovea centralis and small spot color naming used at 17 deg eccentricity showed an irregular placement of L and M cones in these two regions of the retina. **Conclusions.** We estimate that the relative numbers of L and M cones in the human eye is near 2:1; that the ratio is stable with eccentricity for individual eyes; and that the placement of L and M cones in the receptor matrix is irregular. To our knowledge, the psychophysical methods described here are the only ones which have yielded such detailed information from a sizable sample of eyes on the L and M cone composition in primate retina.

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