FF7. Pupillary Light Reflex in Rats with Hereditary Retinal Degeneration. LEONARD J. TREJO AND CAROL M. CICERONE, *Dept. of Psychology, University of California, San Diego, C-009 La Jolla, CA 92093.*—In rats (RCS) suffering from hereditary retinal degeneration and in an unaffected control albino strain, the spectral sensitivity of the visual mechanisms mediating the light reflex of the pupil was measured. In a ganzfeld, the eyes of awake unanesthetized rats were stimulated with 500 ms flashes of narrow-band light of peak wavelengths between 400 and 640 nm. The resulting pupillary constriction movements were recorded with a television pupillometer. Detailed measurements of the amplitude and time course of pupillary movements revealed age-related differences between the two strains of rats. The overall sensitivity of the RCS rat declined over 3 log units between 30 and 250 days of age while the sensitivity of the unaffected control rats remained unchanged. Under dark adapted conditions, the spectral sensitivity of control rats matched the rhodopsin nomogram curve at all ages, while it changed with age in RCS rats from rod to cone dominance. This was reflected as a change in peak sensitivity from 500 nm to approximately 520 nm. In addition, the time course of the pupillary constriction at suprathreshold levels occurred in two distinct phases in older RCS rats, unlike the monophasic light reflex in control rats and in other mammals. (13 min.)