

**Addendum to:**

**Experiment Title:** Quantifying light perception via perceptual and physiologic measures in response to melanopsin and cone stimulation in migraineurs with interictal photophobia and in headache-free control subjects

**Research Project:** Photoreceptor directed light modulation: perception, pupillometry, EMG

**Purpose:** This addendum defines a procedure by which we will examine the data at an interim stage and consider an adjustment of targeted enrollment.

We pre-registered a target enrollment of 40 subjects per group. We find that data collection is substantially slower than anticipated, due to the pace of subject recruitment and intermittent equipment failures. As we pre-process the raw pupillometric videos, however, we also find that the quality of the current pupillometry data appears improved as compared the dataset used to perform our power calculations. This motivates us to consider the possibility that our primary hypotheses with regard to pupil response may be tested with a smaller cohort of subjects while maintaining an acceptable level of power.

The investigators who are involved in the analysis of the pupillometry data have remained masked as to the group assignment of any particular subject.

From the ~45 subjects from whom to date we have collected sufficient data (at least two sessions), we will compute the mean pupil response time course across all trials of 400% melanopsin contrast that meet our previously established inclusion criteria. We will perform an across-subjects bootstrap analysis on these data. We will compute the mean response across all subjects included in a given sample, fit our three-component temporal model to this mean response, and obtain the 'percent persistent' from the modeled parameters. We will examine the mean and variation of this 'percent persistent' across bootstrap iterations to see how these values vary as a function of number of subjects sampled. We will use this information to determine how many subjects to study in total, and declare this potentially revised targeted enrollment in a subsequent addendum to our pre-registration.