

# Request #: 483 - KHS - Publication/Article

## Secondary Sensations Associated with Random-Waveform Electrical Vestibular Stimulation

Kelci Hannan [A02289069] - Doc Student (w/Chris Dakin)

September 02, 2020

### Background

The purpose of this investigation was to document the intensity of secondary sensations associated with random-waveform electrical vestibular stimulation (EVS) during one hour of walking and up to 24 hours after the cessation of stimulation. We documented self-reported sensations via verbally administered questionnaires at the start of all trials in the treatment and walking control groups. The sensation questionnaire was given a total of 12 times: pre-EVS baseline, pre standing trial, every 10 minutes during walking, post standing trial, post-EVS, 1 hour post-EVS, and 24 hours post-EVS. Participants were instructed to verbally rate their perceived level of 11 sensations on a 5-point numeric rating scale from 1 (no sensation) to 5 (intolerable sensation). Participants were prompted to report additional sensations felt if not included in the list of possible sensations.

### Sample

We have collected the subjective rating data at all 12 time points described above for 15 subjects that received the stimulus and 15 control subjects. There is no missing data for any of these subjects. We also have ratings at a few time points for other subjects who did not complete the study.

### Hypothesis

RQ: Does the intensity of the secondary sensations change during one hour of walking? H: We expected that there may be a decrease in the subjective ratings as time increased.

RQ: Do the secondary sensations resolve immediately after cessation of the stimulus? Are there after-effects felt by participants one hour and 24 hours after the cessation of the stimulus? H: We expected that secondary sensations would resolve rapidly after the stimulus was removed and that there would be minimal, if any, after-effects.

### Progress

I completed a preliminary statistical analysis on a portion of this data for a class last fall. I used a generalized linear mixed-effects models to assess the effect of time on intensity of twelve secondary sensations associated with EVS. This included only the six time points during the hour of walking, but we would also like to include the ratings before and after walking if at all possible.

### Request

Planning and choosing analysis. We would like assistance with altering and expanding upon the analysis I completed previously to include more of our data points.

### Timeline

We will be working on the analysis and writing the manuscript in September and October.