A New Method for Measuring Visual Snow Symptoms

**Introduction**

**Visual Snow:** Flickering dots/static covering the entire visual field

**Other Visual Symptoms:** Afterimages, trails/streaks, blue field entoptic phenomena, photophobia, poor night vision

**Prevalence:** 1.4 to 3.3% (Kondziella et al., 2020)

**Importance:** VSS can be debilitating. Effective treatments are lacking and the underlying mechanisms are unknown.

**How is visual perception altered in Visual Snow Syndrome?**

**Methods**

**Snow Percept Matching Task:** Participants use buttons to change the parameters of simulated visual snow to match their symptoms, adjusting:

- Contrast
- Density
- Temporal Frequency
- Size

The task is repeated 10 times.

**Pilot Data**

- **Contrast**
  - Participant 1: 0.0039
  - Participant 2: 0.01
  - Participant 3: 0.05
  - Participant 4: 0.1
  - Participant 5: 0.5
  - Participant 6: 1

- **Density**
  - Participant 1: 9.97 x 10^{-3}
  - Participant 2: 0.5
  - Participant 3: 1
  - Participant 4: 5
  - Participant 5: 10
  - Participant 6: 50

- **Temporal Frequency**
  - Participant 1: 21.6
  - Participant 2: 3.25
  - Participant 3: 1.80
  - Participant 4: 3.18 x 10^{-3}
  - Participant 5: 1

**Matching task reliably measures properties of Visual Snow:**

- Contrast was low
- Temporal frequency was high
- Size was very small (≤ 1 pixel at a typical viewing distance)

**Future Directions**

**Testing the hyperexcitability hypothesis:**

- We will quantify levels of glutamate and GABA in V1 of people with VSS using 7T magnetic resonance spectroscopy.

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