Can misperceptions be controlled?
Experimental findings from an auditory signal detection task (ASDT) using novel task feedback and sound familiarisation.

Ruth Medcalf-Bell | Dr Emma Barkus | Dr Peter Moseley

**Methodology**

An online, experimental, quantitative study with an opportunity sample of 217 participants from the UK general population (aged 18 - 67 years, mean age = 34.84 and SD = 12.11). Followed a 3 x 2 repeated measures design, utilising a pre-existing configuration of an ASDT [8]:

- Between subjects factor of experimental condition; i) ASDT with visual feedback; ii) ASDT with sound familiarisation; and, iii) a standard ASDT (see Figure 2)
- Within subjects factor of block: Block 1 - experimental condition; Block 2 - standard ASDT (control condition)

Additionally, all participants completed a number of psychometric scales including the Launay Slade Hallucinations Scale (LSHS-E) [9] as a measure of hallucinatory predisposition and a hearing check task to ensure a similar auditory experience.

**Results - Effect of response feedback and sound familiarisation on ASDT performance**

Results showed no significant relationship between hallucinatory predisposition and response bias (beta) during ASDT trials in contrast to previous findings [2].

Perceptual Sensitivity (d') - results showed no main effect of condition or block and no interaction effect.

Response Bias (beta) - results show a significant main effect of condition (F(2,214)=7.29, p<.001). People who had feedback or familiarisation responded more liberally than those without. There was also a significant main effect of block (F(1,214)=6.31, p<.05). People responded more conservatively in block 2 than in block 1. There was no significant interaction effect. Paired sample t-tests show no significant difference in response bias between blocks 1 and 2 for feedback or familiarisation, however there was a significant difference in response bias for people in the standard condition (t(70)=-2.03, p<.50).

**Discussion**

In line with previous research [10] this study shows people’s perceptual sensitivity remains stable despite differences in trial design. Results also show that someone’s response style can be influenced by feedback and familiarisation. Furthermore, results show that this influence carries over into subsequent standard trials.

Implications:
Understanding how someone responds to perceptual tasks informs our understanding of why misperceptions occur. This study shows that you can make people more liberal in their response bias by providing feedback or familiarisation. Further research is needed to explore the limits of this effect. Understanding that response bias is amenable to change provides novel insight into the potential for development of interventions which focus on perceptual training.