Auditory vention stimulus: Participants were listening to individualized binaural recordings of what it sounded like for that particular participant to turn in place at 60°/s, like for that particular participant to turn in place at 60°/s, with two stationary sound sources spaced 90° apart.

Biomechanical vention stimulus: Blindsightfolded participants were seated stationary above a platform rotating at 60°/s and stepped along) and auditory vention (binaural recordings of two sound sources rotating at 60°/s) both in isolation and together.

Experimental conditions: 3 stimulus combinations x 2 directions (L/R) x 2 repetitions = 12 trials, N=19.

### Results

Biomechanical vention was significantly stronger than auditory vention

The auditory stimulus alone was not very effective at inducing vention, which was reported in only some of the trials of only 10 of the 19 participants.

The biomechanical vention stimulus was effective at inducing vention - participants reported vention in >90% of the trials. Vention onset latencies averaged 24s, similar to the 22s observed for biomechanical vention in standing observers (Bruggemann et al., in press).

Despite the low vention-inducing potential of the auditory stimulus, adding rotating sounds significantly enhanced biomechanical vention in most dependent measures (see Table below): Vention intensity was increased by 40%, participants had a stronger sensation of really rotating in the actual lab (28% increase), and perceived self-rotation speed was increased by 67%.

In fact, participants were able to update their orientation in the lab in all but the pure auditory condition, suggesting that their mental representation was directly affected by the biomechanical and auditory cues – although perceived self-rotation velocities were typically below the stimulus velocities.

### Discussion & Conclusions

Auditory cues can facilitate biomechanical & visual cues for vention

Despite weak at inducing vention by themselves, auditory cues can support other modalities

Auditory information is a highly effective and cost-effective means of increasing circular vention

Auditory stimulation is affordable yet effective and can have higher fidelity than visual simulation

### References


### Introduction & Motivation


While both biomechanical and moving auditory cues have been shown to elicit self-motion illusions (“circular vention”), their combined influence and respective weightings have not been investigated.

Here, we tested the influence of biomechanical vention (blindsightfolded participants were seated stationary above a platform rotating at 60°/s and stepped along) and auditory vention (binaural recordings of two sound sources rotating at 60°/s) both in isolation and together.