

# Transfer of Peripheral Fixation Training Across Retinal Eccentricities

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## Introduction

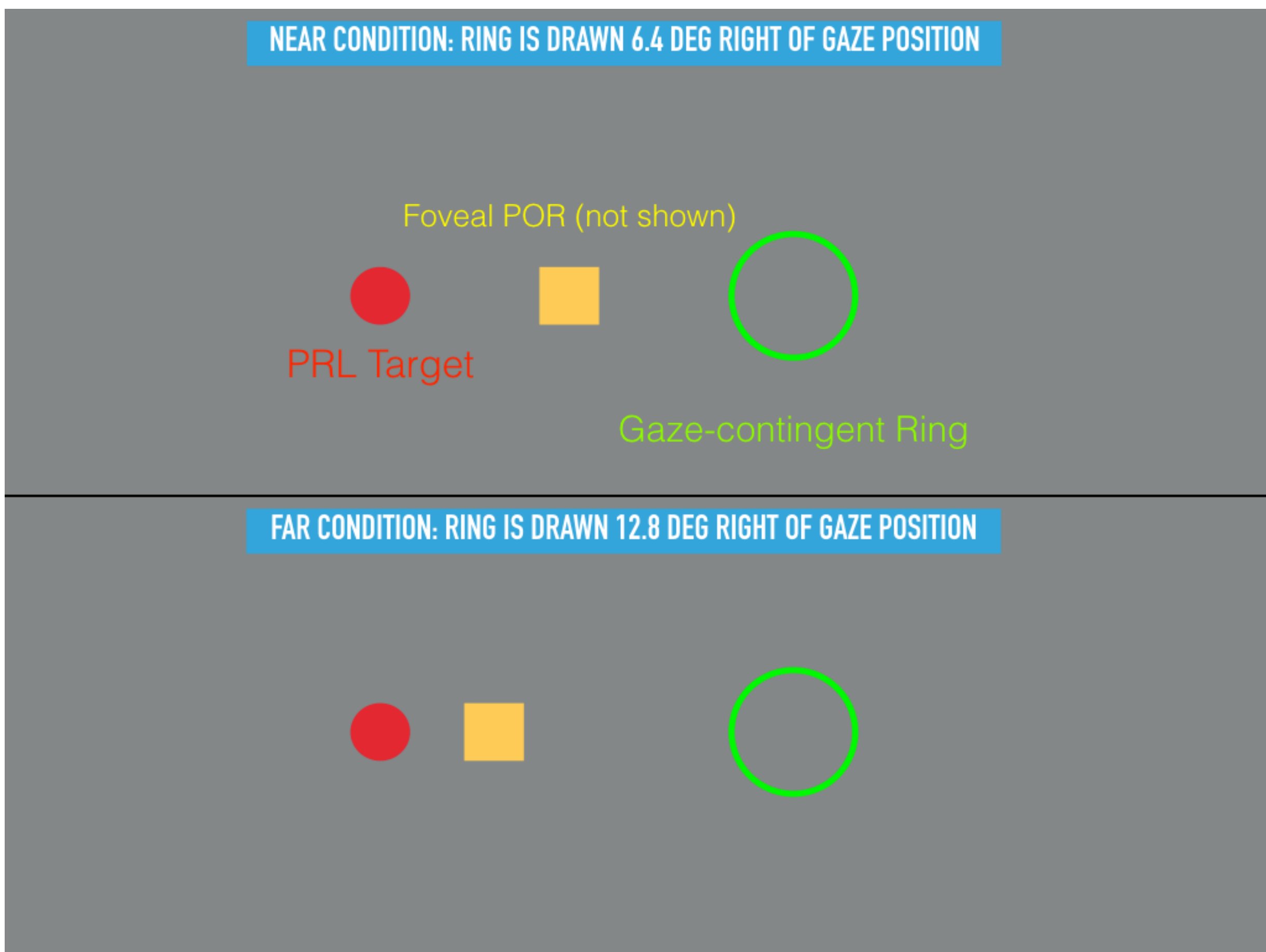
In a previous work [1], we demonstrated that explicit training could be used to reduce the variability and magnitude of fixational errors made at peripheral locations (effectively “pseudo-PRLs”) in the retina. As a follow up, in two experiments, we tested whether:

- pseudo-PRL eccentricity relative to the fovea affects performance on the same metrics.
- there is an independent effect of visual feedback on performance during this task.

## Methods

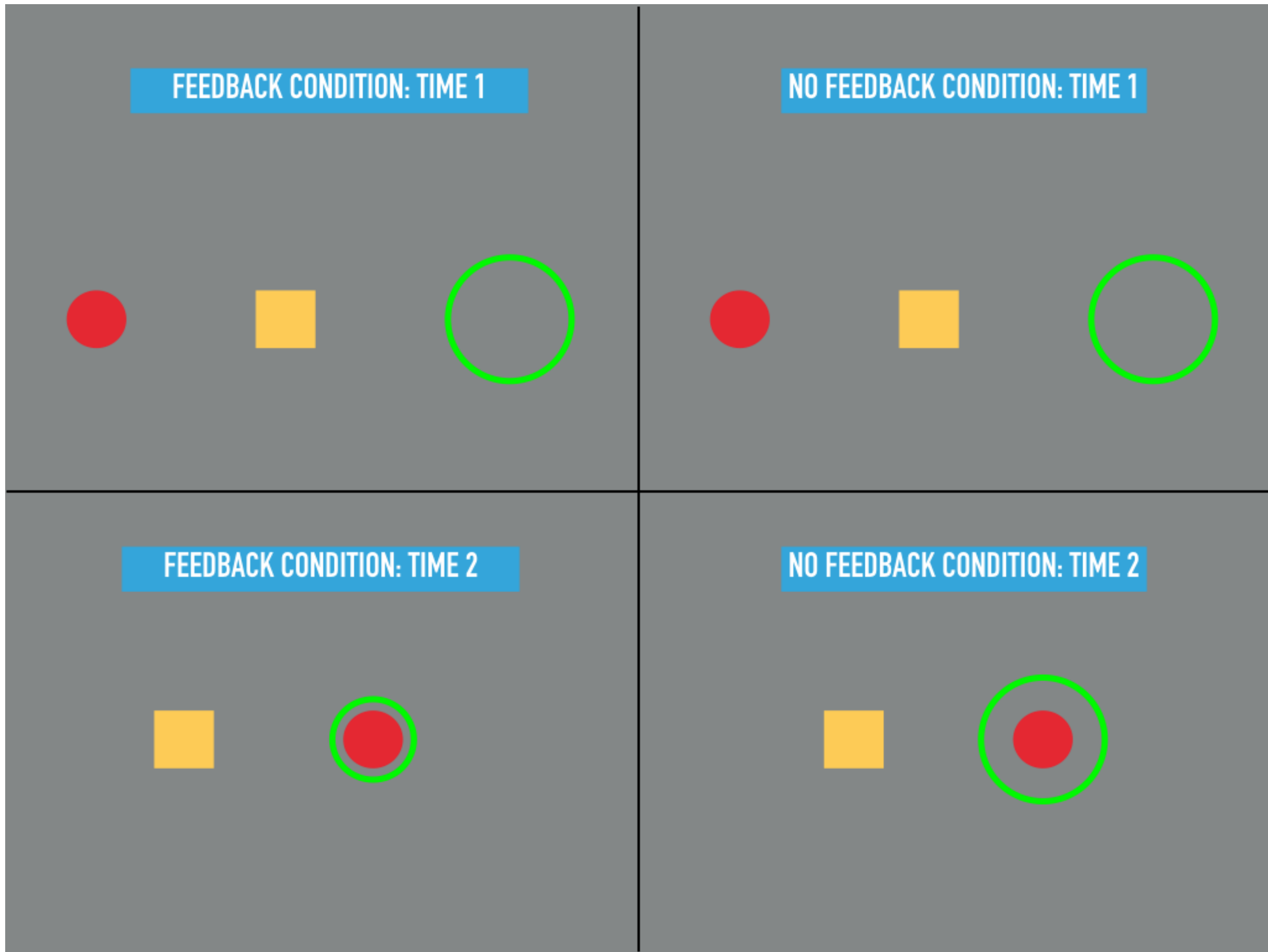
### Experiment 1: Effect of Eccentricity

- **Participants:** eight with normal or corrected to normal vision. Naive to task.
- **Task:** use peripheral vision to center gaze-contingent ring over PRL target.
- **Trials:** Two training sessions, roughly a week apart. 100 trials per session, broken into two sub-blocks of 50; break between sub-blocks.

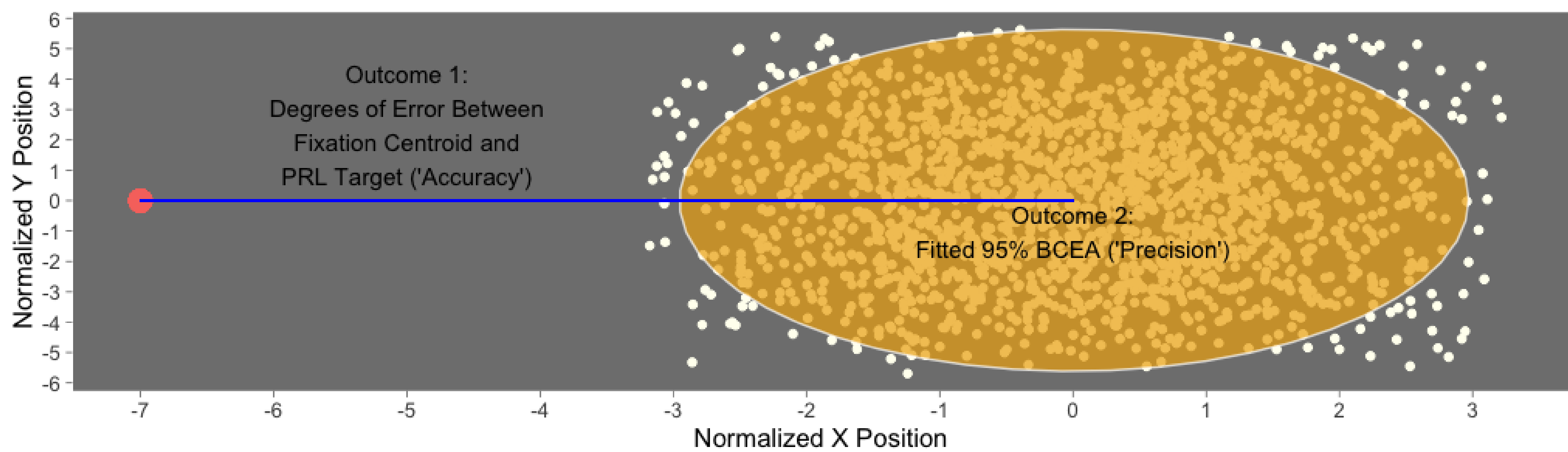


### Experiment 2: Effect of Feedback

- **Participants:** four with normal or corrected to normal vision. Naive to task.
- **Task:** identical to Experiment 1.
- **Trials:** one training session with fifty trials.



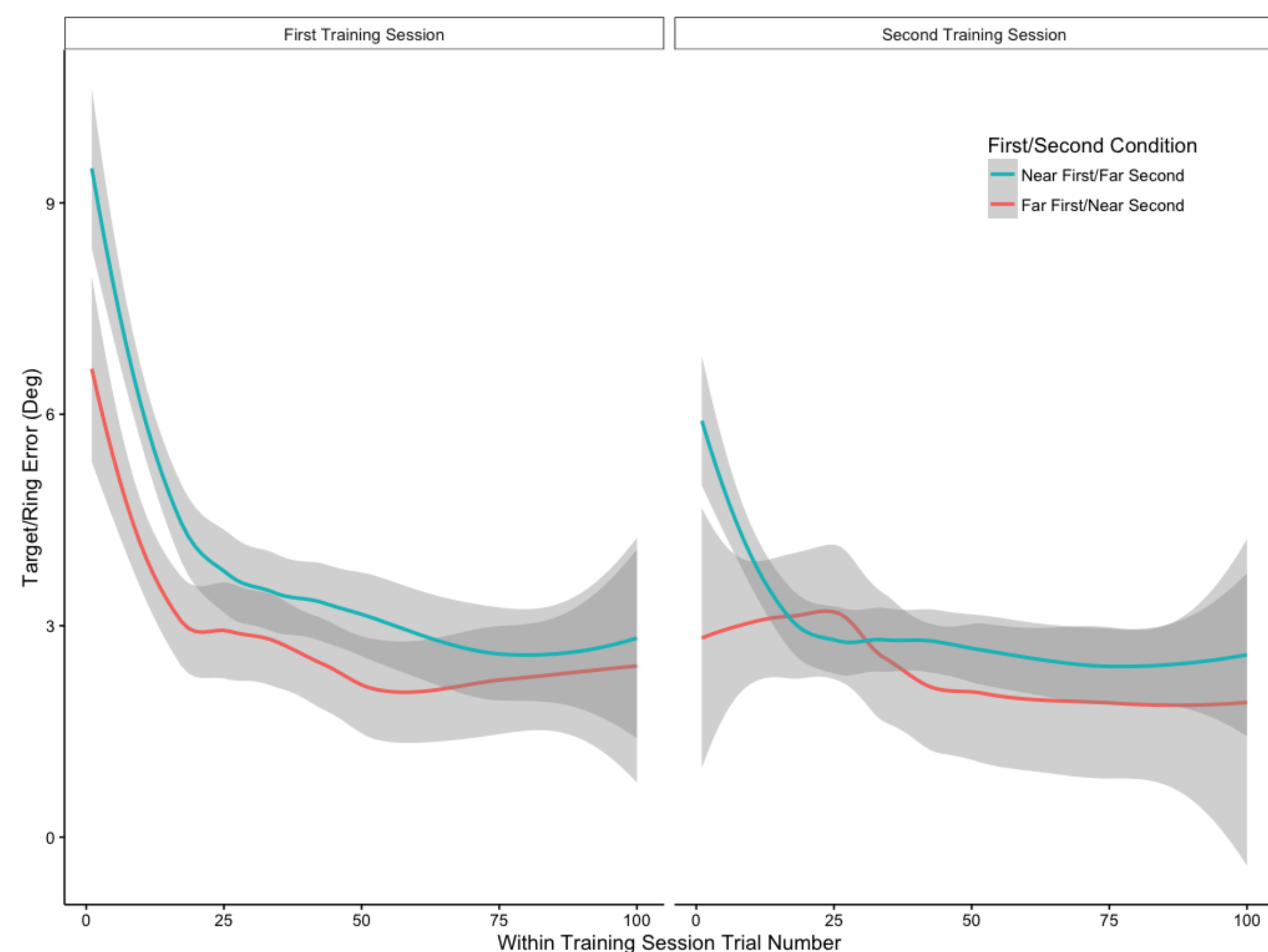
## Outcomes



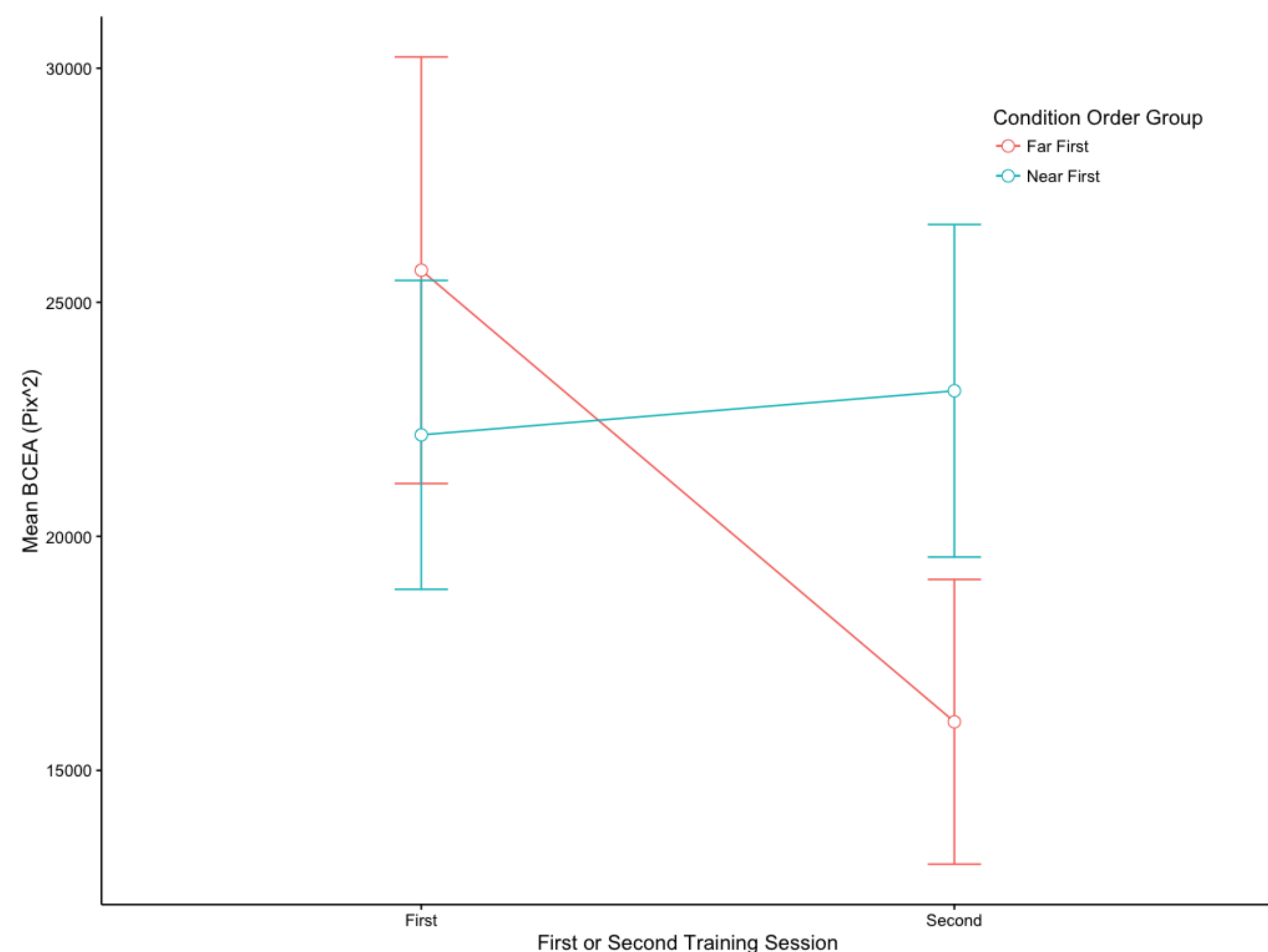
## Results

### Experiment 1: Effect of Eccentricity

#### No effect of eccentricity condition on accuracy

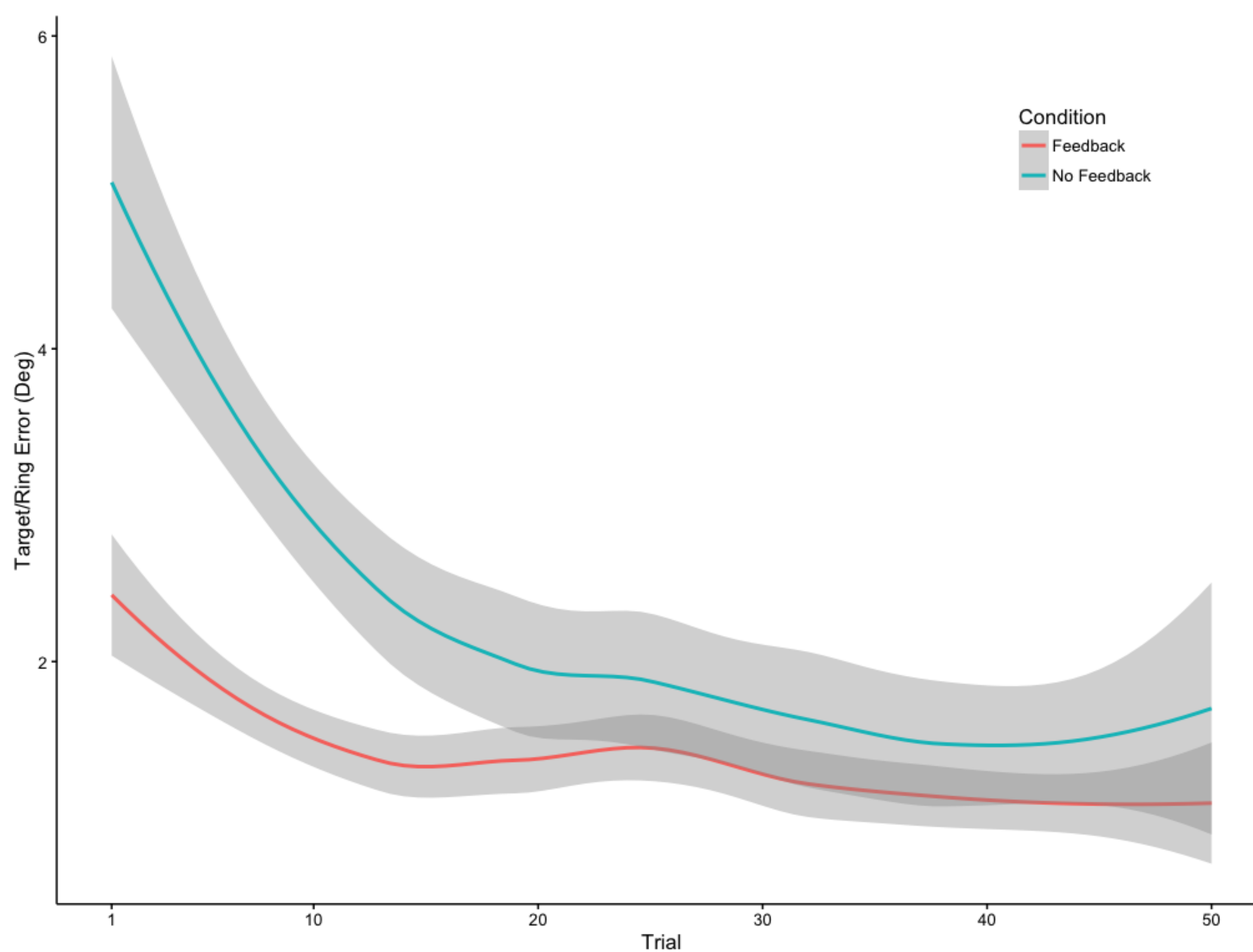


#### Significant BCEA size reduction in far condition

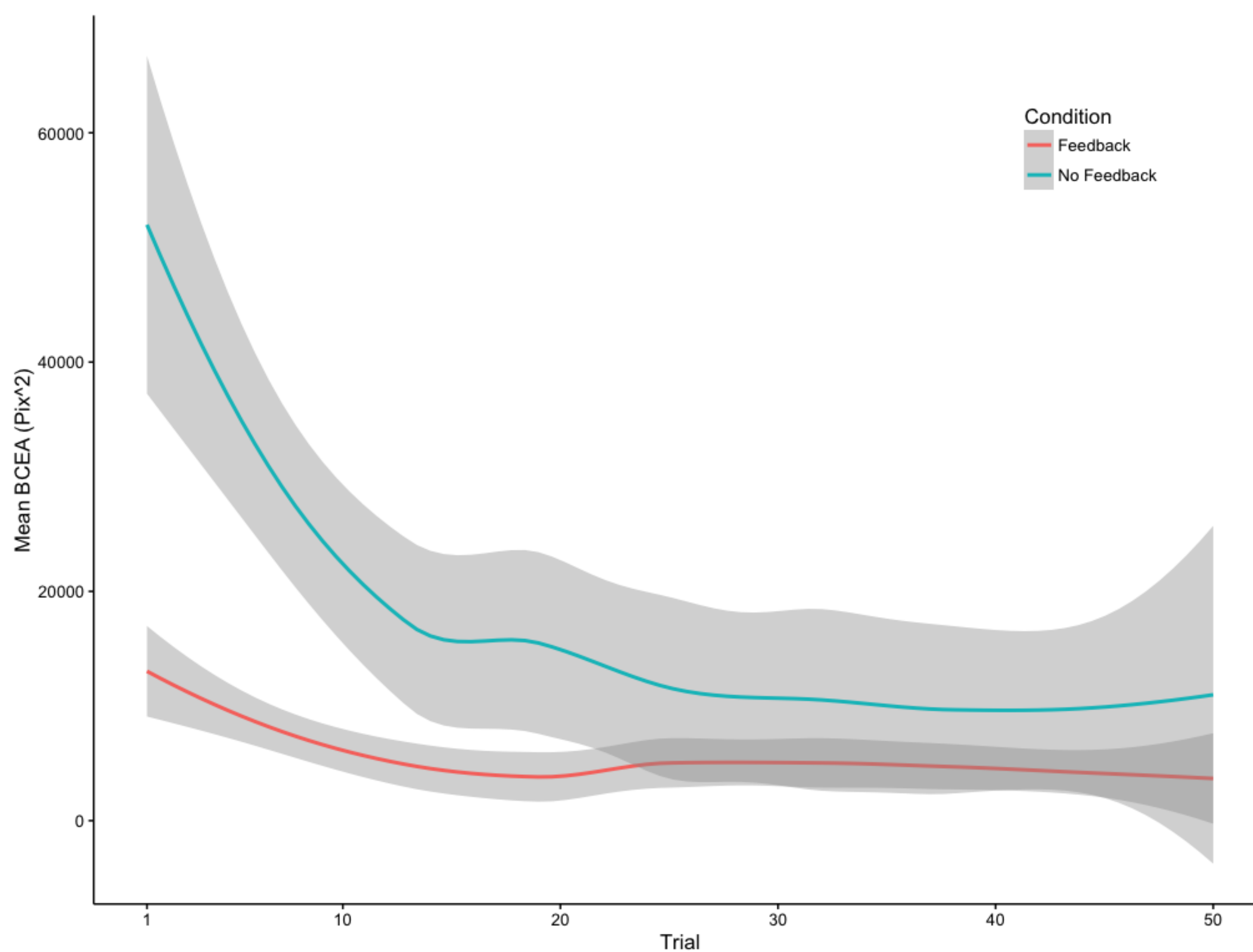


### Experiment 2: Effect of Feedback

#### Feedback significantly enhances accuracy



#### Feedback significantly reduces BCEA size at baseline



## Conclusions & Next Steps

- No significant main effect of eccentricity or interaction between eccentricity condition & order
- Feedback significantly enhances (at least early) performance
- Investigate impact of explicit feedback on functional effects of training (c.f. [2])

## References

- [1] Dylan Rose and Peter Bex. Peripheral Oculomotor Control Training in Healthy Individuals: Effects of Training and Training Transfer. *Journal of Vision*, 15(12):1278–1278, 2015.
- [2] Rong Liu and MiYoung Kwon. Integrating oculomotor and perceptual training to induce a pseudofovea: A model system for studying central vision loss. *Journal of Vision*, 16(6):10–10, 2016.