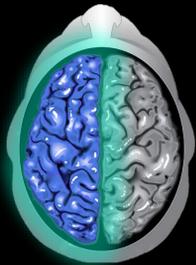


Blind Touching: A Study in Hemispheric Asymmetries in the Control of Haptically-Guided Grasping

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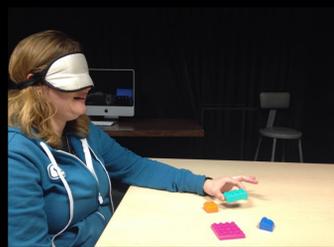
Introduction

Previous studies have shown a right hand preference for visually-guided reach-to-grasp actions. Conversely, studies have also shown a left hand advantage for haptic processing.



Right-hand/Left-Hemisphere preference for visually-guided grasping

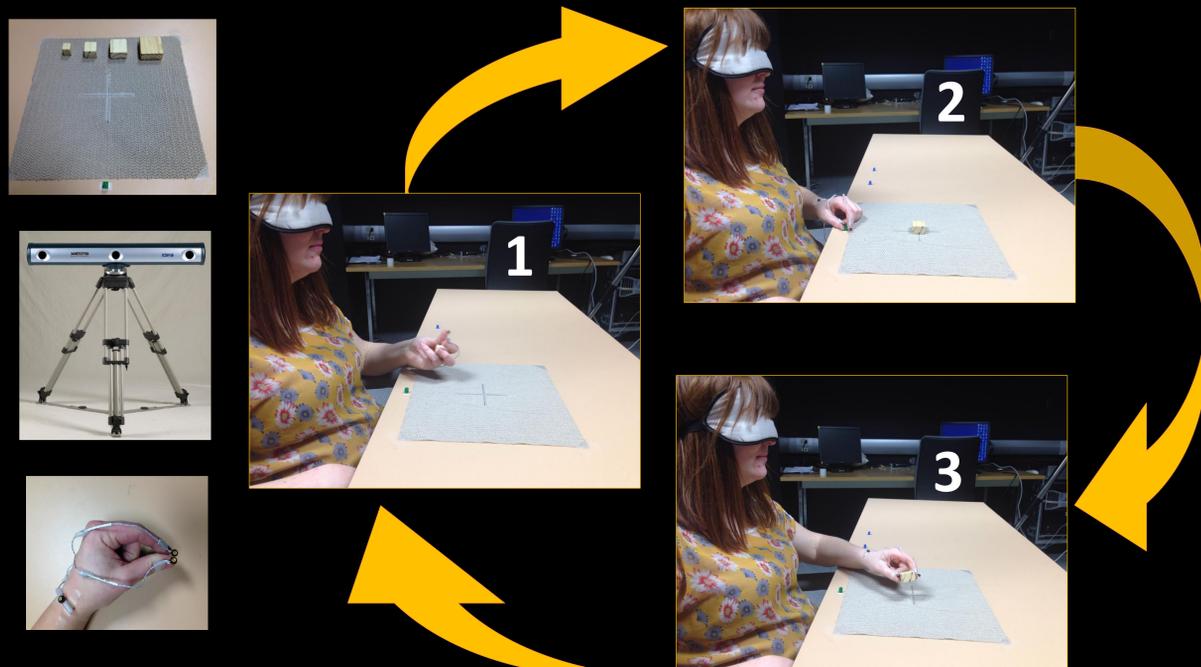
Left-hand/Right-Hemisphere advantage for haptics



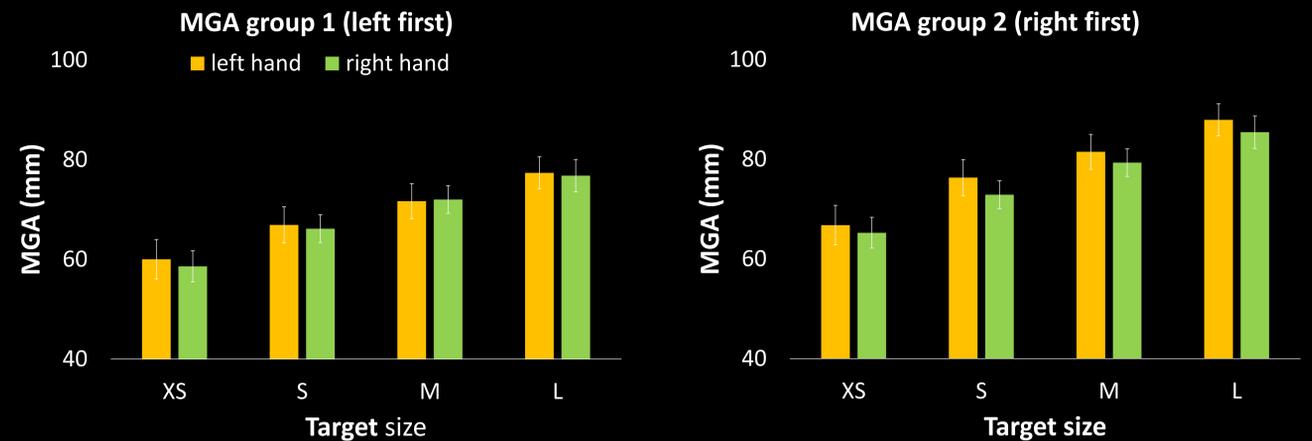
We investigated the role of haptic information in reach-to-grasp movements. Specifically, how the left-hand/right-hemisphere specialization for haptic processing performs in reach-to-grasp actions. We predicted that participants would be better at making haptic reach-to-grasp movements with their left hand. That is to say, if the right hemisphere is specialized for haptic processing of reach-to-grasp movement, then the left hand should show a better scaling to the size of the blocks than the right hand.

Method

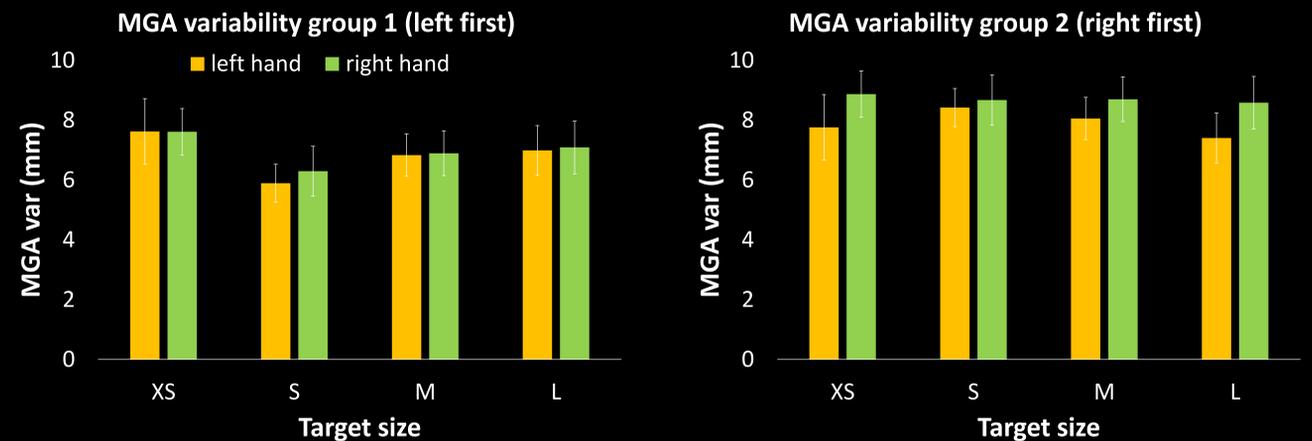
- 20 participants, 2 blocks (left hand start, right hand start).
- 4 incrementally sized objects, 8x each, for each hand.
- Participants were blindfolded (no visual feedback).
- Participants actions were measured using an Optotrak motion capture camera.



Results



- The scaling to the size of objects was significant for both groups, in both hands, and for all objects.
- There was almost a significant difference between groups (starting hands), $p = .05$.



- The variability of the MGA was comparable in all conditions.

Discussion

The difference in MGA for the left first group and the right first group approached significance, $p = 0.05$, suggesting that participants who started with their left hand (group 1) scaled better (smaller MGAs) in both blocks compared to those starting with their right hand (group 2). This is consistent with previous research that has shown a haptic advantage when starting with the left hand.

Future Direction

Our next study will use more complex haptic tasks with different textures and unusual shapes to see whether a difference between the hands emerges with a more complex task.