

The Layered Look: Effects of Clothing on Body Schema

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Introduction

Is clothing integrated into the wearer's body schema?

Does clothing influence the wearer's perceived action capabilities?

The *body schema*, the mental representation of one's physical body, adapts to changes in physical dimensions

- Example: the body schema likely changes as we grow and our physical dimensions change
- Tools may be integrated into body schema (Iriki et al., 1996)
 - A rake attached to the hand of macaque monkeys was represented by neurons the same way the hand had been initially
- Clothing may also be incorporated into the body schema

Affordance judgments, or judgments of one's ability to act (Gibson, 1977), present a way of assessing changes to the body schema

- Example: to determine if a step is climb-able, one must perceive the size of the step and one's own leg length and range of movement
- Changes to body's energetic potential influence affordances judgments (Proffitt et al, 2003)
 - Participants wearing heavy backpacks judged distances to be farther than they actually were

We suggest that clothing is incorporated into the body schema and that this is reflected by affordance judgments

Hypothesis: wearing bulky clothing will influence the wearer's perception of their ability to reach overhead

Method

Each participant will complete three tasks

Baseline Reach Task

- Participants blindfolded, asked to reach as high as possible with heels on ground
- Scale placed on wall, centered on highest reached point
- Marks (lettered from A – 0) in 2" increments with half marks every 1"

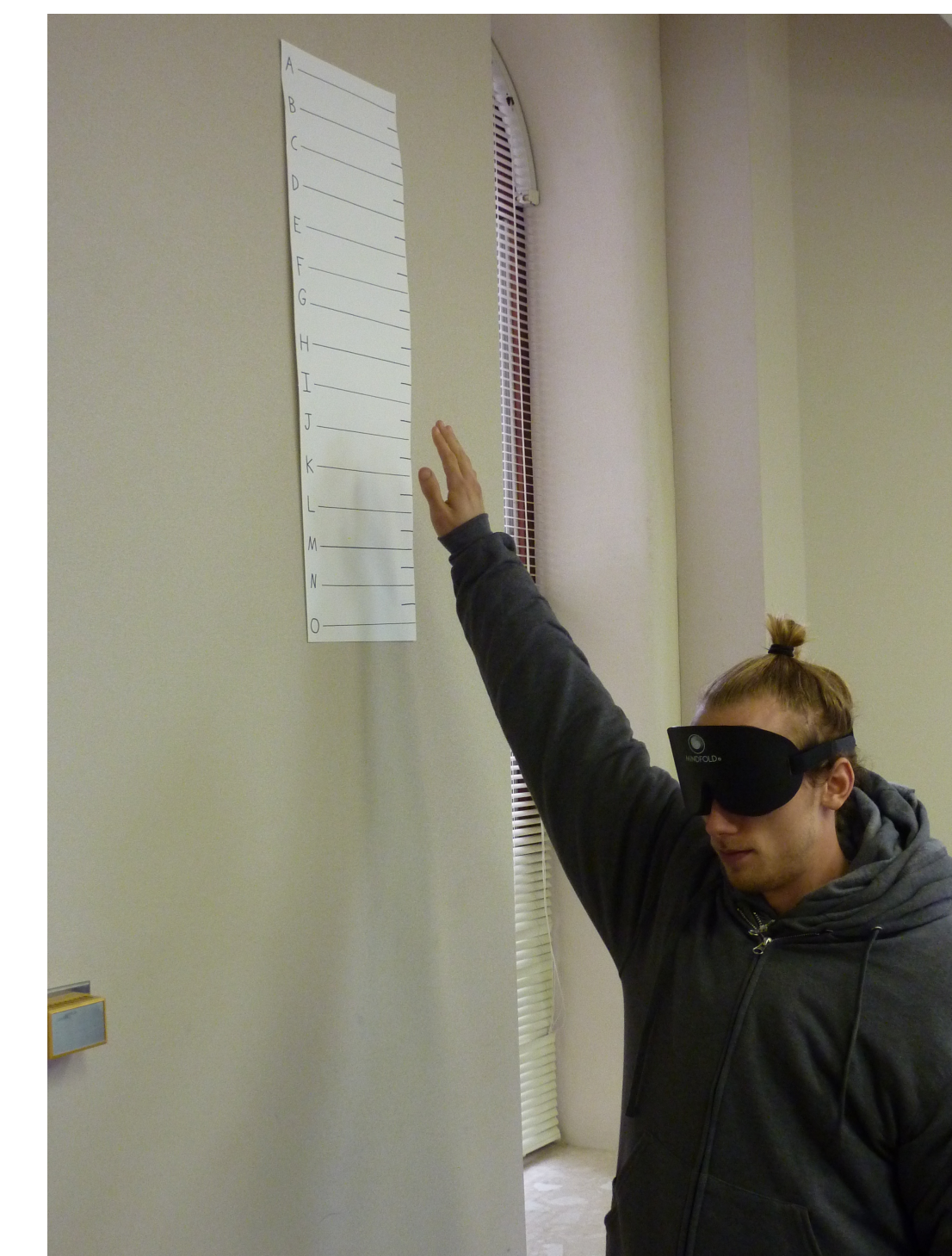


Affordance Judgment Task

- For each trial, participants put on 1,2,3,4, or 5 sweatshirts (randomized)
- Once outfitted, participants make a reach-height affordance judgment
- Call out the letter to which they believe they can reach *without actually reaching*

Physical Reach Task

- For each layer of clothing (1 to 5 sweatshirts):
 - Participants blindfolded, asked to reach as high as possible with heels on ground
 - Actual reachable height recorded



Predicted Results

For each layer of clothing (from 1 to 5 layers) we will measure:

- Actual reachable height
 - The affordance judgment of reachability (e.g. the perceived reachable height)
- Repeated-measures ANOVA will assess:
- Whether layers of clothing influence affordance judgments of reachability
 - We predict that additional layers of clothing will lead to smaller perceived maximum reach height
 - Whether affordance judgments differ from actual reachability
 - We predict that affordance judgments will decrease with additional layers but actual reach height will not

Discussion and Future Directions

This pilot experiment will contribute to an understanding of the adaptability of the body schema and how the body schema influences perceptual judgments and the perceived potential for action

- Planned follow-up studies:
 - Evaluating the influence of clothing on affordance judgments using the *method of limits*
 - Evaluating the influence of clothing on other affordance judgments such as the perceived passability through an opening/aperture

References

- Gibson, J. J. (1977). The theory of affordances. *Hilldale, USA*.
- Iriki, A., Tanaka, M., & Iwamura, Y. (1996). Coding of modified body schema during tool use by macaque postcentral neurones. *Neuroreport*, 7(14), 2325-2330.
- Proffitt, D. R., Stefanucci, J., Banton, T., & Epstein, W. (2003). The role of effort in perceiving distance. *Psychological Science*, 14(2), 106-112.