

Food choice reflected in brain activation: age matters.

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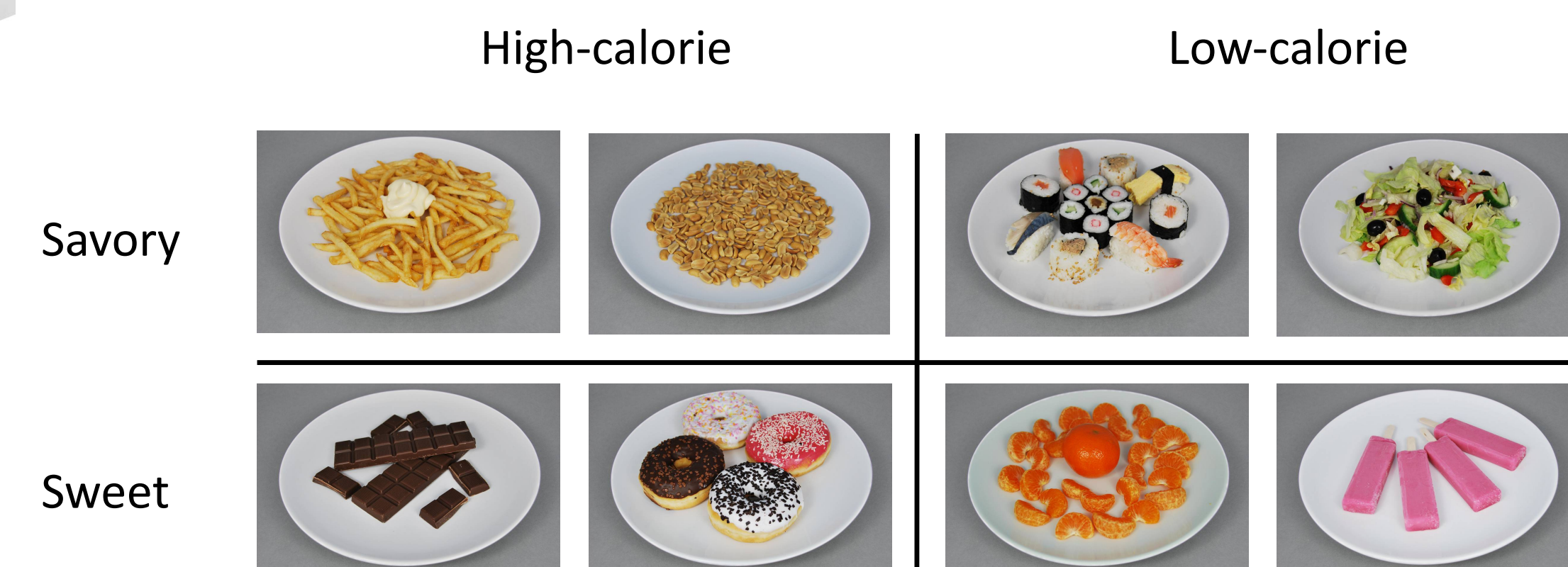
Introduction

Food choice and dietary intake changes with age. These food choices play an important role in total energy intake. Especially older adults are prone to create an insufficient diet pattern. The purpose of this study is to examine the role of the brain during food choice in older adults.

Methods

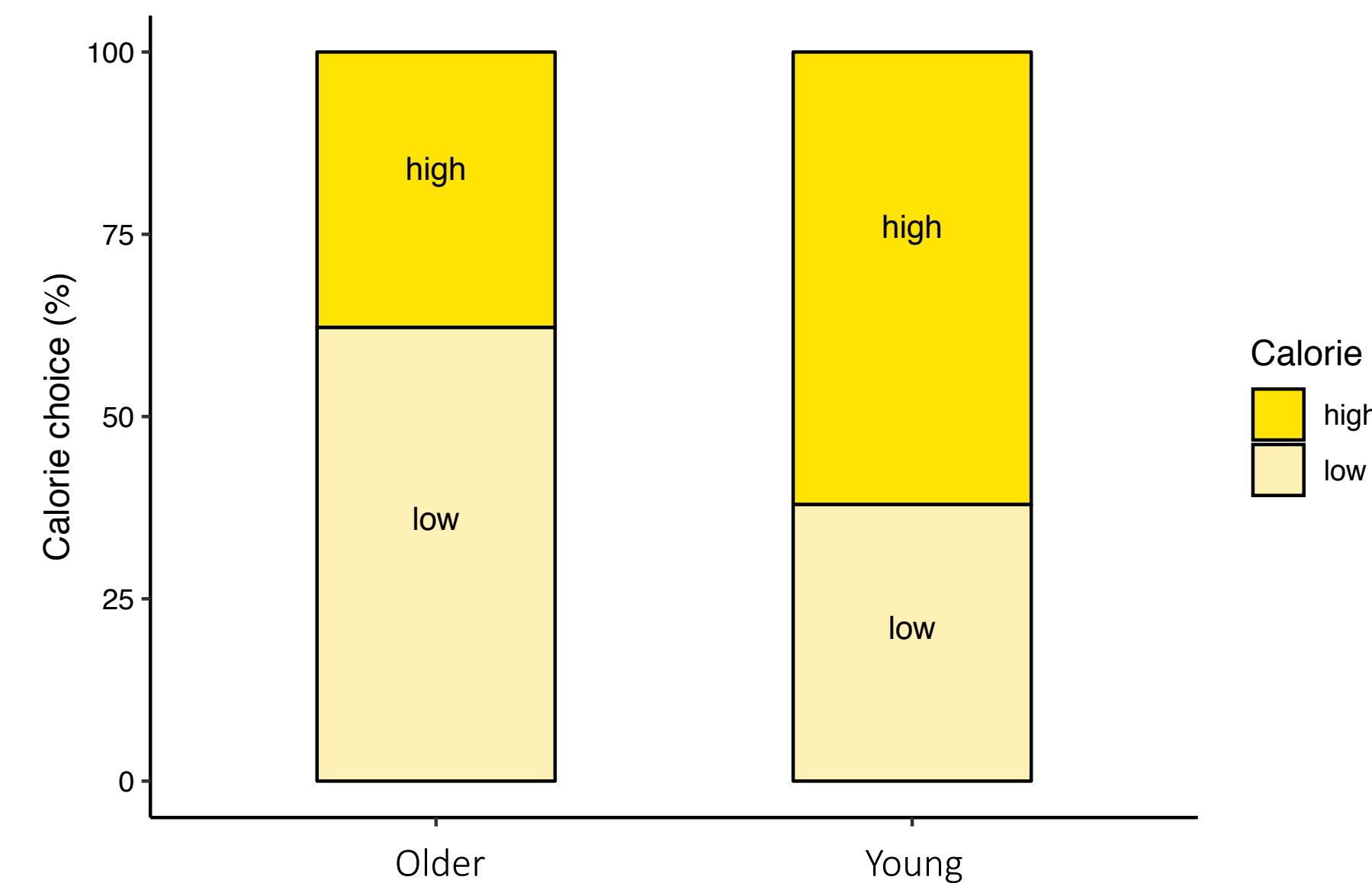
18 healthy older adults (age range 60 - 75 years) and 20 healthy younger adults (age range 18 - 30 years) performed a forced food choice task while we registered the brain response using functional magnetic resonance imaging. Participants had to select the food they “would most like to eat now” between two food pictures.

What would you most like to eat now?



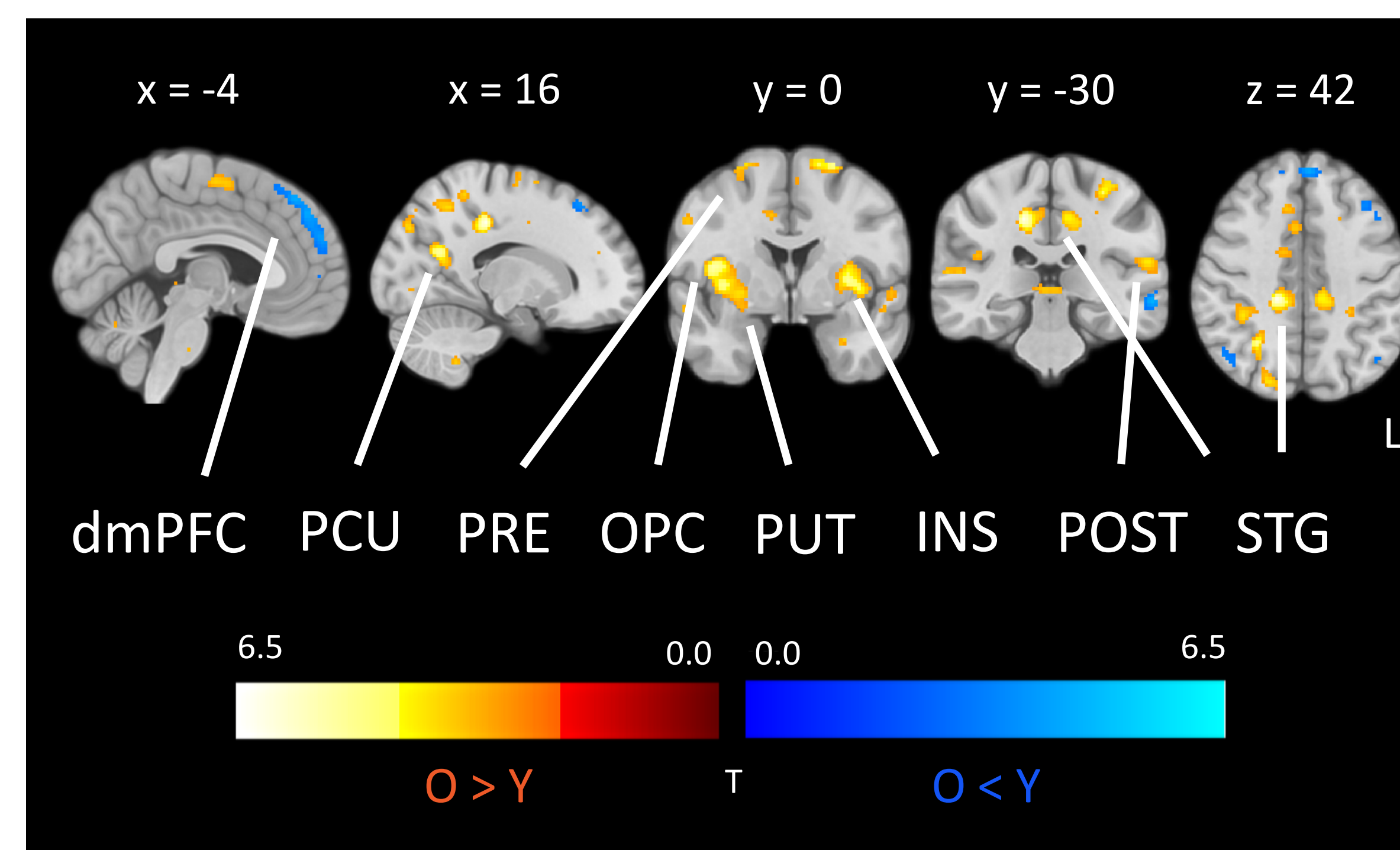
Result 1

- Older participants choose more often low-calorie foods compared to younger participants.



Result 2

- Older participants show increased activation in the pre- and post-central gyri (PRE, POST), precuneus (PCU), superior temporal gyrus (STG), central opercular cortex (OPC), insula (INS) and putamen (PUT), compared to younger participants during food choice.
- Older participants show decreased activation in the dorsomedial prefrontal cortex (dmPFC), compared to younger participants during food choice.

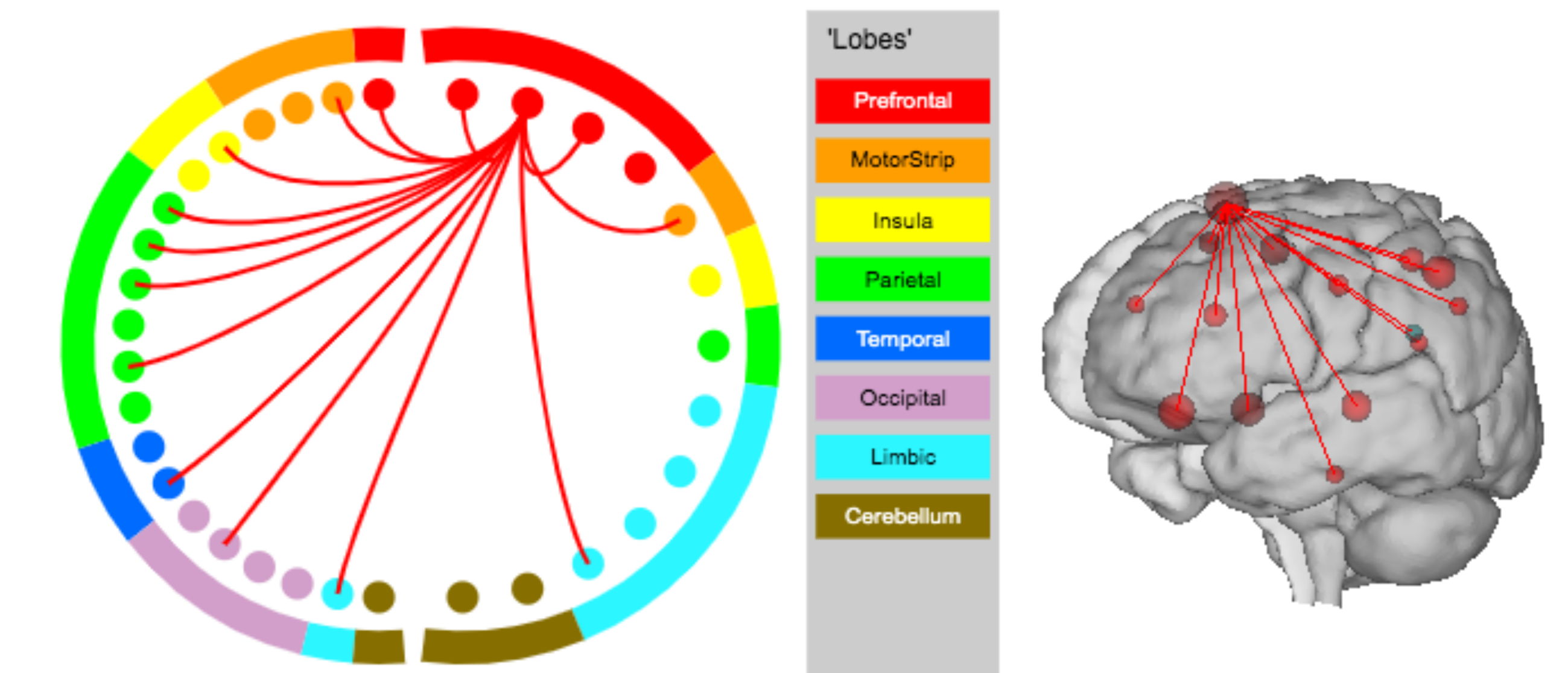


Acknowledgements

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Result 3

- The left dorsolateral prefrontal cortex is an important hub integrating information in older participants during food choice.



Conclusion

Older adults prefer low-calorie foods compared to younger adults.

Older and younger adults have a different brain response and functional connectivity pattern during food choice.

The insula and the dorsolateral prefrontal cortex play an important role during food choice in older adults.

The insula and putamen are involved in hedonic evaluation, possibly reflecting the reward sensitivity or saliency of food to older adults.

The dorsolateral prefrontal cortex has been associated with appetitive control, food craving and impulsivity. Older adults might be more controlled in their food choice, although they understand the rewarding value.