Mindfulness Moderates Brain Networks Following Short-Term Eating Restraint in Older Adults

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Introduction

In the past twenty years, the US has seen a 2-fold increase in obesity with the highest incidence being among older adults. This highlights the growing need to understand the etiology eating behavior in older adults.

The Ultimate Goal of this study was to see how a brief period of food restraint influences network changes in selected brain areas and whether these effects are moderated by Mindful Attention Awareness Scale (MAAS) scores, a trait measure of mindfulness.
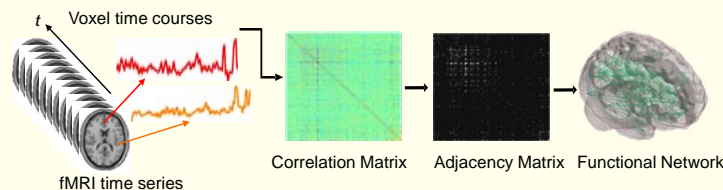
Hypothesis

Trait mindfulness will modulate an individual's ability to efficiently process physiological responses associated with food stimuli.

Methods: Study Design

Participants: 19 obese, older adults
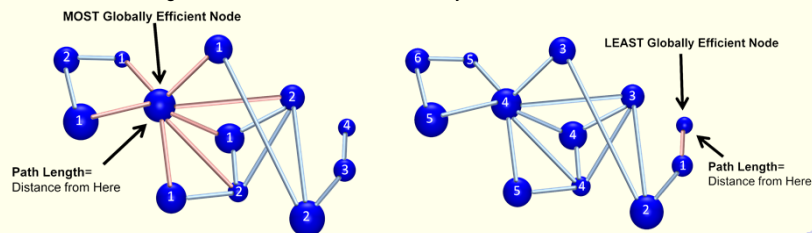**Groups:** Participants were divided into groups based upon the median MAAS score.
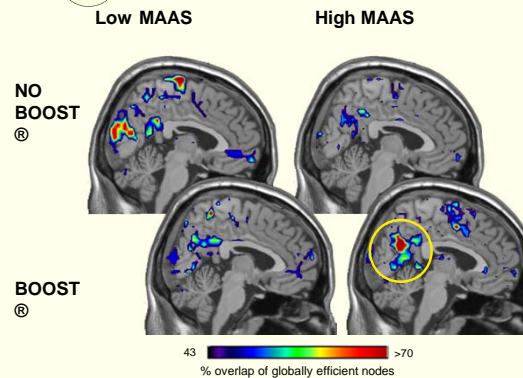**Data:** MRI Rest Session Data was used for network creation.
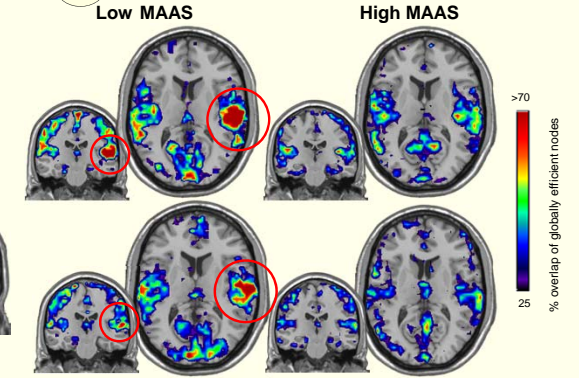

Results

1 Global Efficiency
- Global Efficiency= 1/ Mean Path Length
- Path Length= shortest distance between any two nodes

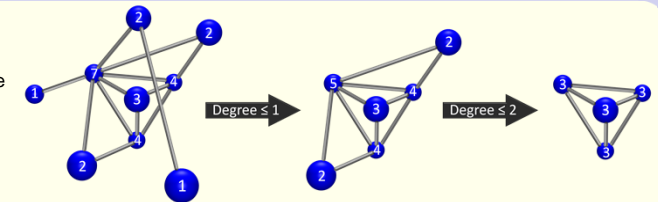### 1 a Global Efficiency: Precuenus

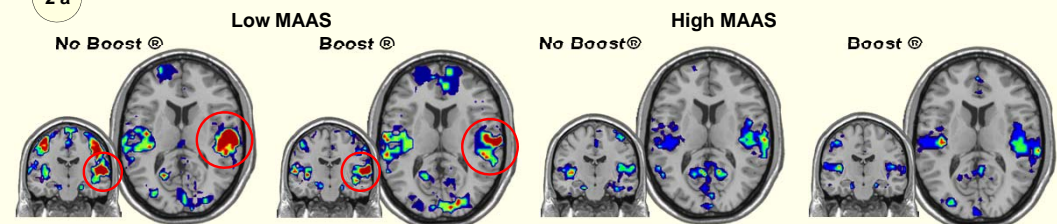### 1b Global Efficiency: Auditory Cortex/Insula

2 K-Core Decomposition
- Low degree nodes are sequentially removed until the network collapses.
- The nodes that exist before the network collapses represent the core of the network.

2 a Auditory Cortex/Insula K-Core Analysis

Overall Conclusions

1. **After being flooded with food cues, mindful older adults fed BOOST ® supplement drink, are able to return to their "default network" during the following rest period.**
   ❖ This is supported by the precuneus showing high global efficiency in the high MAAS scorers in the BOOST ® condition.
2. **Less mindfulness individuals do not return to a default network after the food cues, but instead have a neural network indicative of sensory processing.**
   ❖ This is supported by the greater global efficiency in the insula and auditory cortex. These areas are also the network core of the less mindful rest network . The insula is associated with processing of interoceptive cues, and its activation could indicates that low MAAS individuals are still overwhelmed by their physiological responses to the food cues.