**Establishing standardized regions of interest for gustatory processing of palatable foods**

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Objective. An overarching objective of functional neuroimaging research is to use brain imaging data to identify the cognitive processes when individuals are engaged when a task. Use of parcellations for network-based and connectivity analyses are on the forefront of fMRI analyses, yet the selection of regions of interest (i.e., regions of interest; ROI/nodes) are highly variable across studies. Here, we used encoding/decoding approaches to determine are reliable series of regions of interests that are specific to processing of palatable tastes with an existing whole-brain functional parcellation.

Methods. fMRI-based response to receipt highly-palatable milkshake and a calorie-free tasteless solution in a sample of young adults was used (n=83; BMI=22.2±1.6). Analyses of Variance F-test for feature section and nested cross-validation were implemented to tune decoders’ in this two-class problem. The resulting statistical map was overlaid the ‘bigbrain300’ parcellation, where decoding response and BigBrain ROIs overlapped were consider gustatory ROIs.

Results. Decoding between response to milkshake versus tasteless solution receipt nested cross-validation showed accuracy above chance, resulting in a statistical map specific to palatable taste. Using this map overlaid the Bigbrain300, we observed ROIs in the bilateral insula, oral somatosensory cortex, anterior- and posterior-cingulate cortex, ventromedial prefrontal cortex and the lingual gyrus.

Conclusion. Here we’ve established a statistical map specific to palatable taste and a series of gustatory ROIs within a larger network. These can be used as a standardized series of ROIs in connectivity and graph theory-base analyses. Reliability of and connectivity within the ROIs set and expanding to food images are needed for widespread adaption.

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