STATISTICAL ANALYSIS

Statistical significance for comparison between groups will be tested using analysis of variance (ANOVA) for continuous variables and chi-square tests for categorical variables. Statistical significance will be set at $P<.05$ (two-sided) for all analyses.

fMRI Analysis. We will estimate several general linear models (GLMs). All of the models allow for first-order auto regression and included six motion parameters, constants, and linear time trends for each run as regressors-of-non-interest. A two-stage mixed-effects analysis will be performed in which the regression coefficients for each condition of interest will be tested across participants via t-tests. Two-tailed tests are used for all statistical analyses. We will perform multiple comparison corrections at the cluster level using Monte Carlo simulations with the AlphaSim program.

EMA-Food Craving Analysis. A regression model will test whether mean EMA ratings of anticipation (craving) and reward (pleasantness rating, ate more than intended, ate beyond satiety) are correlated with postprandial glucose surge and area under the curve for glucose following the standardized lab meal.

We will use a hierarchical mixed model to examine the nested association between EMA-measured craving, food pleasantness, and overeating *within* eating episodes in free-living conditions. Pre-meal craving and within-meal pleasantness ratings will be used as predictors in models with overconsumption rating post-meal. Food photos will be used to distinguish HF from non-HF (fat/carb: 25%+/25%+; sweet/fat: 15-35%/30%+; salt-fat: 0.5-2.5%/10-35%) using the detailed NDSR nutrition data output we will receive from the app.

We will conduct a series of Pearson correlations to test whether craving and reward symptoms measured in the standardized meal and free-living conditions are significantly correlated.

We will use a linear regression model to test the degree to which anticipation (craving) and reward (food enjoyment, eating despite satiety) as measured using photo-EMA, and intensity of glucose surge during the standardized lab meal will be associated with % fat mass and visceral adipose tissue as measured using DXA.