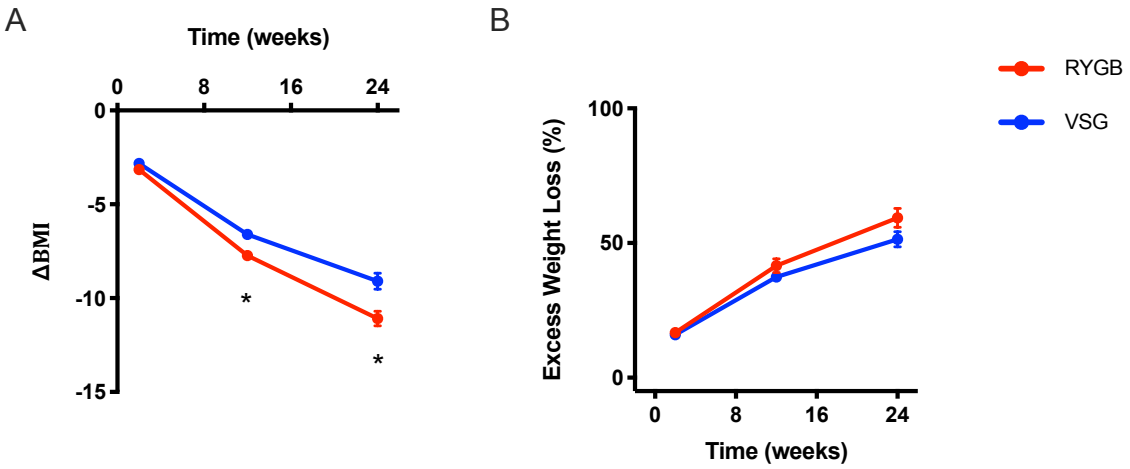


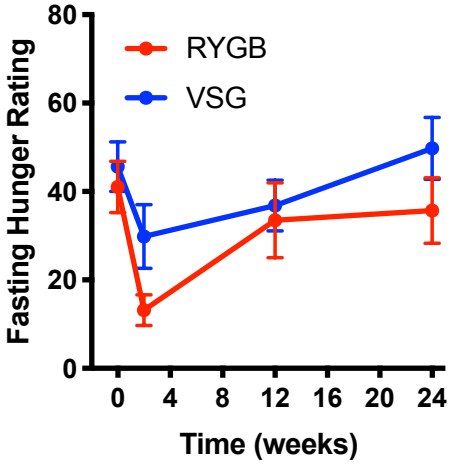
Supplementary Figure 1. %EWL and ΔBMI following RYGB and VSG

A) ΔBMI at baseline (0 weeks) and 2, 12, and 24 weeks following surgery in patients who received RYGB (red; N=23) or VSG (blue; N=25).

B) %EWL from baseline (0 weeks) at 2, 12, and 24 weeks post-surgery in patients who received RYGB (red; N=23) or VSG (blue; N=25).

A repeated measures ANOVA revealed a main effect of time ($F_{(1.4,64.9)}$=543.798, p<0.001), group ($F_{(1,46)}$=11.343, p=0.002), and time x group interaction ($F_{(1.4,64.9)}$=7.462, p=0.004) for ΔBMI. A time effect ($F_{(1.2,56.9)}$=357.930, p<0.001) was observed for %EWL, but no group effect or time x group interaction (p≥0.083).

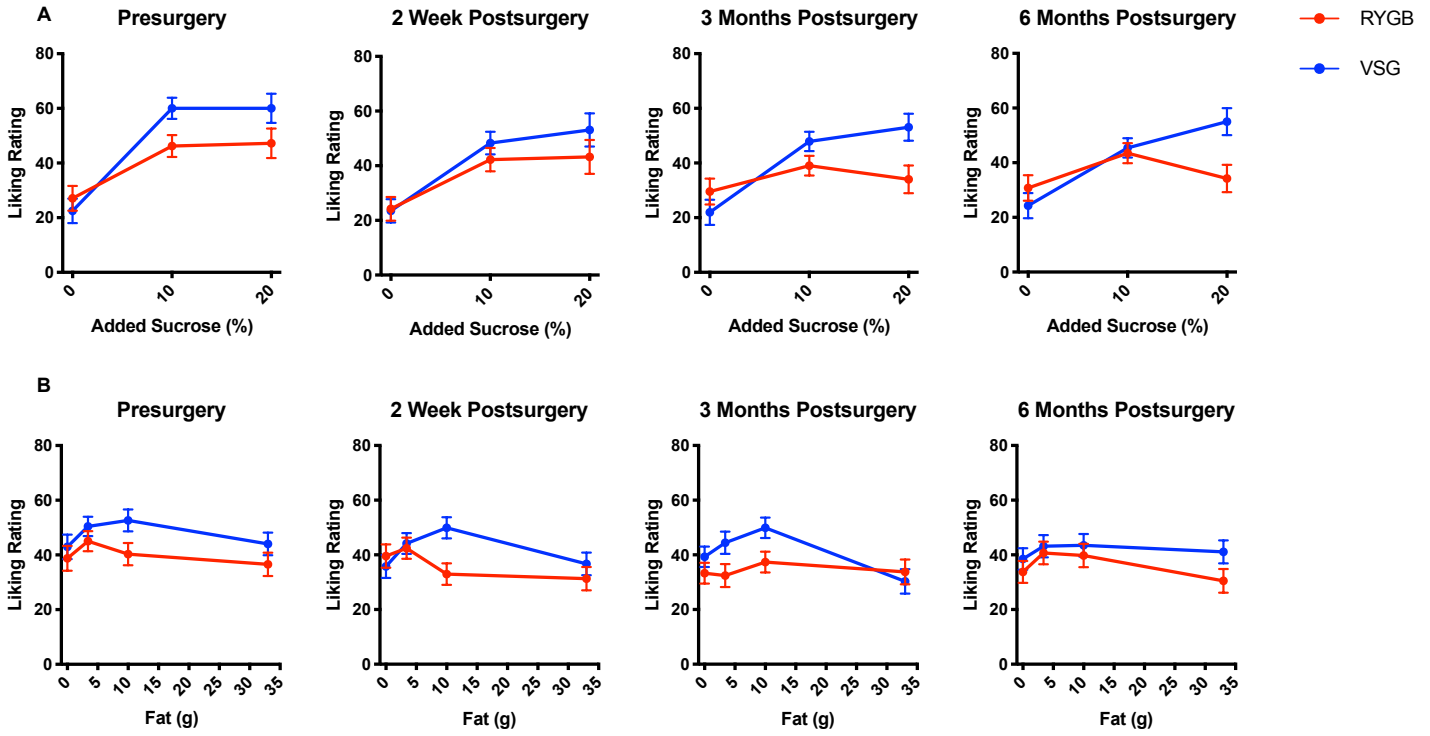
ΔBMI = change in body mass index, %EWL= percent excess weight loss, RYGB = Roux-en Y gastric bypass, VSG = vertical sleeve gastrectomy, ANOVA = analysis of variance



Supplementary Figure 2. Fasting Hunger Ratings following RYGB and VSG

Mean ± SEM fasting hunger ratings on VAS from patients prior to surgery (0 weeks) and 2, 12, and 24 weeks following RYGB (red; N=20) or VSG (blue; N=20). A repeated measures ANOVA revealed a main effect of time ($F_{(2.3,88.9)}$=6.108, p=0.002). No time x group interaction or group effect was observed (p≥0.104).

SEM=standard error, VAS=visual analog scale, RYGB = Roux-en Y gastric bypass, VSG=vertical sleeve gastrectomy, ANOVA=analysis of variance



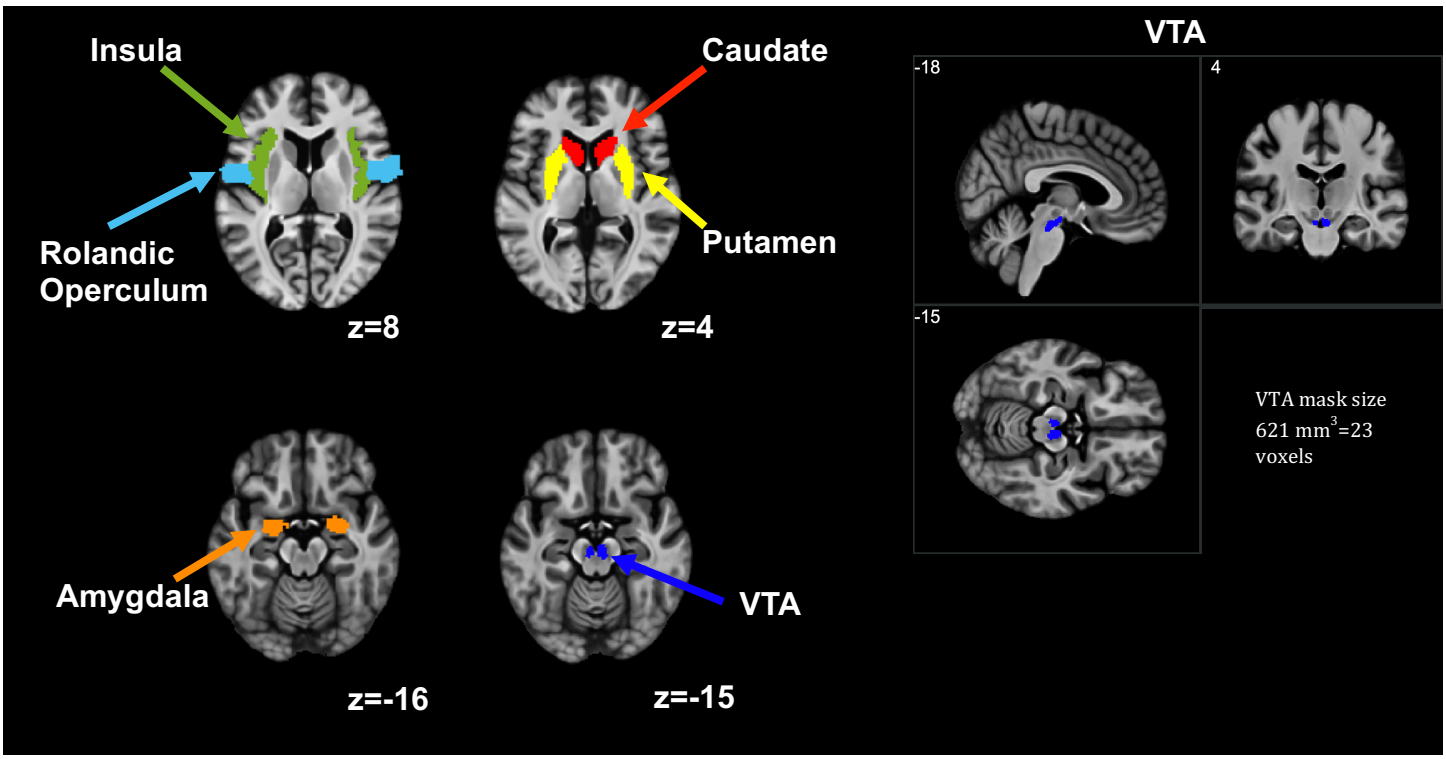
Supplementary Figure 3. Changes in Concentration-Dependent Liking for Sucrose and Fat following Bariatric Surgery

(A,B) Mean ± SEM liking ratings from bariatric patients using the VAS for the 12 mixtures varying in A) sucrose and B) fat content in the taste preference test at baseline (presurgery) and 2 weeks, 3 months, and 6 months following RYGB (red; N=21) or VSG (blue; N=22).

(A) Repeated measures ANOVAs revealed a main effect of sucrose concentration only at baseline ($F_{(1.3,53.3)}$=30.566, p<0.001) and 2 weeks after surgery ($F_{(1.2,49.4)}$=17.069, p<0.001). By 3 months and out to 6 months post-surgery a significant group x sucrose concentration interaction was identified (3M: $F_{(1.5,59.7)}$=5.753, p=0.011; 6M: $F_{(1.4,58.7)}$=5.899, p=0.010) along with a main effect of sucrose concentration (3M: $F_{(1.5,59.7)}$=13.259, p<0.001; 6M: $F_{(1.4,58.7)}$=11.648, p<0.001).

(B) No main effects or significant interactions for fat concentration were identified by repeated measures ANOVAs at baseline (p≥0.053). A main effect of fat concentration ($F_{(3,123)}$=4.600, p=0.004) and a significant group x fat concentration interaction was identified at 2 weeks ($F_{(3,123)}$=5.211, p=0.002), whereas only a main effect of concentration persisted at 3 month post-surgery ($F_{(2.3,96.1)}$=4.809, p=0.007). All main effects of fat concentration and significant interactions were no longer present by 6 months following bariatric surgery (p≥0.115).

SEM=standard error, VAS=visual analog scale, RYGB = Roux-en Y gastric bypass, VSG=vertical sleeve gastrectomy, ANOVA=analysis of variance, M=months



Supplementary Figure 4. Masks for *a priori* ROI Analyses
Masks for the bilateral amygdala, insular cortex and Rolandic operculum (combined), caudate, and putamen were defined using the Automated Anatomical Labeling from the WFU PickAtlas 3.0.5b. Mask for bilateral VTA was adapted from the high-resolution in vivo probabilistic atlas from Pauli et al (47).
ROI=region of interest, VTA=Ventral Tegmental Area

Supplementary Table 1. Mean ± SEM for Changes in Body Weight Measures After VSG and RYGB

Weight Loss Measurement	VSG (N=25)	RYGB (N=23)
Postoperative Weight		
2 weeks postoperative weight	251.73±5.90	251.06±7.09
12 weeks postoperative weight	228.29±5.69	223.27±7.31
24 weeks postoperative weight	212.66±5.41	202.98±7.36
Postoperative BMI		
2 weeks postoperative BMI	40.58±0.96	41.41±1.04
12 weeks postoperative BMI	36.81±0.94	36.82±1.11
24 weeks postoperative BMI	34.31±0.94	33.46±1.11
Postoperative ΔBMI		
2 weeks postoperative ΔBMI	2.83±0.18	3.15±0.15
12 weeks postoperative ΔBMI	6.60±0.29	7.73±0.24
24 weeks postoperative ΔBMI	9.10±0.43	11.09±0.39
% Total Weight Loss		
2 weeks postoperative %TWL	6.53±0.40	7.12±0.36
12 weeks postoperative %TWL	15.27±0.62	17.58±0.73
24 weeks postoperative %TWL	21.02±0.92	25.15±1.04
% Excess Weight Loss		
2 weeks postoperative %EWL	15.93±1.09	16.71±1.07
12 weeks postoperative %EWL	37.43±1.98	41.60±2.59
24 weeks postoperative %EWL	51.41±2.84	59.32±3.52

Supplementary Table 2. Intraclass Correlations (ICC) Assessing the Consistency of Preoperative Ratings Between Classes of Mixtures.

Mixture	ICC
0% added sucrose	0.818
10% added sucrose	0.560
20% added sucrose	0.784
10% + 20% added sucrose	0.821
Cream	0.380
Half-and-half	0.186
Whole Milk	0.080
Skim Milk	0.402
Fat (Cream, Half-and-half, Whole Milk)	0.598

Supplementary Table 3. Peak Coordinates in the VTA where Preoperative Activation to Taste Mixtures Correlated with 6-Month Weight Loss Outcomes following RYGB.

Weight Loss Outcome	Mixture	Coordinates*			z-value	k
		x	y	z		
%TWL	Cream, 0% Added Sucrose	0	-25	-19	3.80	13
	Skim milk, 20% Added Sucrose	3	-22	-16	3.06	7
		-3	-22	-16	2.84	4
	Preoperative Preferred Mixture	0	-25	-19	3.74	13
%EWL	Cream, 0% Added Sucrose	0	-25	-19	3.65	12
	Skim milk, 20% Added Sucrose	-3	-22	-16	3.12	12
	Preoperative Preferred Mixture	0	-25	-19	3.63	12
ΔBMI	Cream, 0% Added Sucrose	3	-25	-22	3.15	8
	Preoperative Preferred Mixture	3	-25	-22	3.13	4

*peak-level threshold $p_{FWE}<0.05$.
degrees of freedom: RYGB [1,17]; VSG [1,18] (no significant correlations identified)

Supplementary Table 4. Peak Coordinates in the VTA where Change in Activation from Baseline to 2 Weeks in Response to Taste Mixtures Correlated with 6-Month Weight Loss Outcomes following RYGB.

Weight Loss Outcome	Mixture	Coordinates*			z-value	k
		x	y	z		
%TWL	Cream, 0% Added Sucrose	-3	-25	-19	2.83	8
	Skim milk, 20% Added Sucrose	6	-25	-16	2.88	3
%EWL	Cream, 0% Added Sucrose	-3	-25	-22	2.87	4
	Skim milk, 20% Added Sucrose	3	-25	-19	2.96	4
ΔBMI	Cream, 0% Added Sucrose	3	-22	-16	2.69*	1

*peak-level threshold $p_{FWE}<0.05$.

$^{\star}p_{FWE}=0.067$

degrees of freedom: RYGB [1,13]; VSG [1,15] (no significant correlations identified)

STROBE Statement—Checklist of items that should be included in reports of ***cohort studies***

	Item No	Recommendation
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found
Introduction		
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported
Objectives	3	State specific objectives, including any prespecified hypotheses
Methods		
Study design	4	Present key elements of study design early in the paper
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up
		(*b*) For matched studies, give matching criteria and number of exposed and unexposed
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group
Bias	9	Describe any efforts to address potential sources of bias
Study size	10	Explain how the study size was arrived at
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding
		(*b*) Describe any methods used to examine subgroups and interactions
		(*c*) Explain how missing data were addressed
		(*d*) If applicable, explain how loss to follow-up was addressed
		(*e*) Describe any sensitivity analyses
Results		
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed
		(b) Give reasons for non-participation at each stage
		(c) Consider use of a flow diagram
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders
		(b) Indicate number of participants with missing data for each variable of interest
		(c) Summarise follow-up time (eg, average and total amount)
Outcome data	15*	Report numbers of outcome events or summary measures over time
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included
		(*b*) Report category boundaries when continuous variables were categorized
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period

Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses
Discussion		
Key results	18	Summarise key results with reference to study objectives
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence
Generalisability	21	Discuss the generalisability (external validity) of the study results
Other information		
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at http://www.strobe-statement.org.