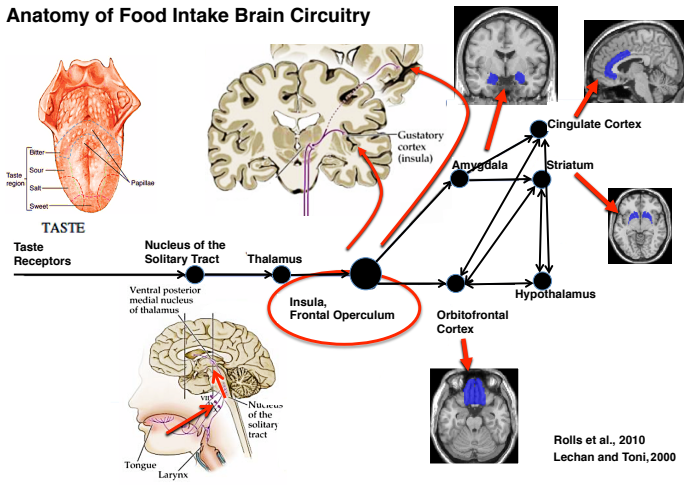


## Supplemental Material



**Supplemental Figure 1.** Anatomical connections between taste and food reward circuitry based on Rolls et al. 2010 and Lechan and Toni 2000.

Rolls ET. The affective and cognitive processing of touch, oral texture, and temperature in the brain. *Neurosci Biobehav Rev.* 2010;34(2):237-45. Epub 2008/05/13. doi: S0149-7634(08)00046-8 [pii] 10.1016/j.neubiorev.2008.03.010. PubMed PMID: 18468687.

Lechan RM, Toni R. Functional Anatomy of the Hypothalamus and Pituitary. In: De Groot LJ, Beck-Peccoz P, Chrousos G, Dungan K, Grossman A, Hershman JM, et al., editors. *Endotext*. South Dartmouth (MA)2000.

### Movement Parameters:

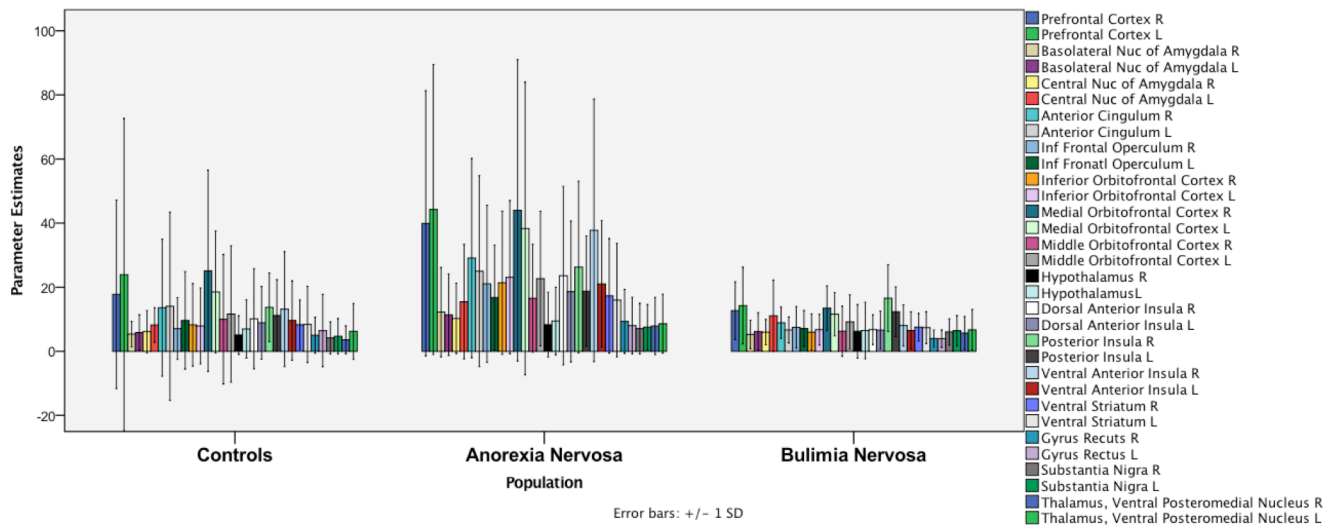
All subjects' movements of the head during fMRI were within the 1-voxel threshold and no subject was removed. Movement parameters were included in the preprocessing analysis. There were no statistical differences between movement parameters between groups (Supplemental Table 1) and no subject exceeded movement of one voxel (3mm).

Movement	HC		AN		BN		F	p
	M	SD	M	SD	M	SD		
X translation	-0.17776	0.67373	-0.03708	0.43703	0.08163	0.63373	1.185	0.312
Y translation	0.31773	0.39516	0.49457	0.31240	0.47708	0.29853	2.086	0.132
Z translation	0.10157	1.12886	-0.43239	1.15919	-0.20124	1.17117	1.378	0.259
Roll rotation	0.00374	0.02032	0.01046	0.02221	0.00381	0.01762	0.905	0.409
Pitch rotation	-0.00397	0.01644	0.00109	0.01226	-0.00196	0.01176	0.875	0.421
Yaw rotation	-0.00002	0.00641	0.00030	0.00613	0.00091	0.00867	0.108	0.898

Supplemental Table 1. Movement parameters across groups.

## fMRI Main Effects and Comparison Between Groups

fMRI contrast main effect data for the contrast Receiving Sucrose vs. Receiving No Solution per ROI were also extracted and compared across groups. The data were non-normally distributed, therefore rank transformed and analyzed by group including the same cofactors as in the analysis of connectivity strength. The multivariate Wilks' Lambda for group effect was 0.390,  $p < 0.986$ ; individual group effects by region were non significant.



**Supplemental Figure 2.** Graphical representation of main effect parameter estimates by group and region of interest for the contrast receiving sucrose vs. receiving no solution.

	With Co Factors						No Cofactors				Nonparametric Test	
	CW (n=26)		AN (n=26)		BN (n= 25)		MANOVA		MANOVA		Kruskal-Wallis Test	
	Mean	SD	Mean	SD	Mean	SD	F	p	F	p	Test Statistic	Sig (2-sided test)
BLA - ACC, L	0.00	0.00	9.69	49.39	0.00	0.00	1.787	0.175	0.980	0.380	1.962	0.375
BLA - Hypothalamus, L	18.44	86.62	2.17	9.94	0.00	0.00	0.548	0.580	1.019	0.366	8.135	0.017
BLA - SN, L	13.56	62.13	0.72	2.28	0.66	3.29	0.434	0.650	1.089	0.342	3.938	0.140
BLA - Ventral Striatum, L	0.39	1.48	27.90	142.27	0.00	0.00	1.798	0.173	0.966	0.385	9.021	0.011
BLA - ACC, R	0.01	0.02	0.01	0.03	0.00	0.01	3.516	0.035	1.430	0.246	2.828	0.243
BLA - Hypothalamus, R	0.42	1.57	1.82	5.16	0.15	0.73	2.427	0.096	2.066	0.134	1.180	0.554
BLA - SN, R	0.40	1.14	0.94	2.89	0.28	0.97	1.839	0.166	0.891	0.414	0.273	0.872
BLA - Ventral Striatum, R	0.38	0.50	0.56	1.41	0.05	0.14	4.880	0.010	2.221	0.116	10.075	0.006
CNA - ACC, L	0.09	0.24	0.04	0.12	0.01	0.03	0.773	0.465	1.820	0.169	4.428	0.109
CNA - Hypothalamus, L	254.84	1238.30	4.64	14.33	3.38	16.07	0.388	0.680	1.045	0.357	14.058	0.001
CNA - SN, L	320.62	724.54	115.72	468.01	45.97	183.56	1.373	0.161	1.995	0.143	18.701	<0.001
CNA - Ventral Striatum, L	28.78	116.12	3.96	12.66	0.02	0.09	0.620	0.541	1.358	0.263	28.430	<0.001
CNA - ACC, R	0.07	0.26	0.02	0.07	0.02	0.09	0.799	0.454	0.746	0.478	4.081	0.130
CNA - Hypothalamus, R	3.28	3.68	1.43	3.33	0.30	1.03	5.505	0.006	6.697	0.002	16.158	<0.001
CNA - SN, R	1.92	3.52	2.60	5.48	0.71	2.91	2.090	0.131	1.364	0.262	4.139	0.126
CNA - Ventral Striatum, R	1.28	1.44	2.77	9.52	0.16	0.35	3.614	0.032	1.403	0.252	16.284	<0.001
Inferior OFC - BA10, L	13.84	2.49	14.95	1.22	15.18	0.06	1.357	0.264	5.064	0.009	23.293	<0.001
Inferior OFC - Hypothalamus, L	70.29	137.57	66.70	156.65	40.84	72.12	0.187	0.830	0.399	0.672	3.085	0.214
Inferior OFC - Ventral Striatum, L	81.06	32.01	104.04	27.50	111.90	16.50	3.972	0.023	9.560	<0.001	18.815	<0.001
Inferior OFC - BA10, R	11.00	3.74	12.87	3.68	13.41	3.13	0.863	0.426	3.292	0.043	6.637	0.036
Inferior OFC - Hypothalamus, R	26.63	46.84	74.37	178.42	35.90	94.48	1.717	0.187	1.154	0.321	0.425	0.809
Inferior OFC - Ventral Striatum, R	58.96	41.67	89.66	38.45	96.14	44.57	2.266	0.111	5.865	0.004	10.602	0.005
Dorsal Anterior Insula - BA10, L	12.47	10.41	27.03	6.30	24.71	8.77	7.653	0.001	21.140	<0.001	22.775	<0.001
Dorsal Anterior Insula - BLA, L	0.06	0.17	0.02	0.07	0.00	0.00	1.565	0.216	2.361	0.101	5.777	0.056
Dorsal Anterior Insula - CNA, L	1.69	3.57	0.32	1.01	0.04	0.12	2.156	0.123	4.267	0.018	24.974	<0.001
Dorsal Anterior Insula - Inferior OFC, L	32.26	0.00	32.26	0.00	30.96	6.45	1.152	0.322	1.045	0.357	4.304	0.116
Dorsal Anterior Insula - Medial OFC, L	1.23	4.23	1.35	5.13	2.03	9.07	0.081	0.922	0.113	0.893	6.930	0.031
Dorsal Anterior Insula - Middle OFC, L	15.46	18.14	42.12	20.25	37.04	20.14	9.982	<0.001	13.621	<0.001	16.878	<0.001
Dorsal Anterior Insula - Rectus, L	0.59	1.54	0.60	1.31	0.84	2.56	0.239	0.788	0.147	0.863	1.686	0.430
Dorsal Anterior Insula - Ventral Striatum, L	122.73	77.23	195.63	56.54	199.77	55.61	5.026	0.009	11.823	<0.001	15.617	<0.001
Dorsal Anterior Insula - BA10, R	17.36	5.90	20.95	7.16	21.15	6.11	3.701	0.030	2.861	0.064	10.187	0.006
Dorsal Anterior Insula - BLA, R	0.14	0.24	0.03	0.07	0.01	0.02	3.541	0.034	6.568	0.002	13.647	0.001
Dorsal Anterior Insula - CNA, R	1.60	4.27	0.07	0.11	0.01	0.03	1.315	0.275	3.410	0.038	34.686	<0.001
Dorsal Anterior Insula - Inferior OFC, R	26.80	0.00	26.80	0.00	26.80	0.00	100% of connectivity probability between regions and across groups					
Dorsal Anterior Insula - Medial OFC, R	7.09	15.15	16.79	19.28	10.51	16.98	1.775	0.177	2.119	0.127	9.682	0.008
Dorsal Anterior Insula - Middle OFC, R	30.01	15.82	37.01	17.49	41.57	13.69	3.042	0.054	3.487	0.036	9.894	0.007
Dorsal Anterior Insula - Rectus, R	2.81	8.44	10.53	14.34	6.73	10.16	4.199	0.019	3.044	0.054	18.035	<0.001
Dorsal Anterior Insula - Ventral Striatum, R	152.36	55.20	158.56	57.83	160.17	60.72	4.021	0.979	0.130	0.878	0.656	0.721
Posterior Insula - BA10, L	1.76	3.90	6.96	5.94	7.59	7.30	4.700	0.012	7.677	0.001	23.827	<0.001
Posterior Insula - BLA, L	0.10	0.34	0.01	0.02	0.00	0.01	0.878	0.420	2.170	0.121	2.997	0.223
Posterior Insula - CNA, L	4.58	17.51	6.39	22.22	0.02	0.06	1.727	0.185	1.011	0.369	23.513	<0.001
Posterior Insula - Inferior OFC, L	5.47	6.53	10.24	7.49	9.06	7.71	1.120	0.332	3.048	0.053	6.943	0.031
Posterior Insula - Medial OFC, L	0.10	0.21	0.47	1.27	0.11	0.45	1.617	0.206	1.806	0.171	8.664	0.013
Posterior Insula - Middle OFC, L	3.65	9.47	13.20	12.61	11.58	12.83	5.045	0.009	4.924	0.010	24.632	<0.001
Posterior Insula - Rectus, L	0.07	0.10	0.95	2.71	0.07	0.12	2.323	0.105	2.691	0.074	7.601	0.022
Posterior Insula - Ventral Striatum, L	57.61	61.99	142.66	46.59	130.56	44.42	13.418	<0.001	20.525	<0.001	24.583	<0.001
Posterior Insula - BA10, R	9.07	6.29	11.73	6.63	11.63	7.13	1.147	0.324	1.311	0.276	2.789	0.248
Posterior Insula - BLA, R	0.39	1.19	0.08	0.21	0.02	0.06	0.580	0.562	2.050	0.136	9.846	0.007
Posterior Insula - CNA, R	2.15	4.69	0.85	1.82	0.08	0.18	0.769	0.467	3.264	0.044	9.161	0.010
Posterior Insula - Inferior OFC, R	16.59	5.49	15.90	6.51	15.37	6.65	0.241	0.786	0.248	0.781	0.233	0.890
Posterior Insula - Medial OFC, R	5.63	11.48	10.12	14.10	8.05	12.62	0.724	0.488	0.803	0.452	5.269	0.072
Posterior Insula - Middle OFC, R	21.59	12.12	21.77	15.47	27.64	14.84	1.268	0.288	1.486	0.233	4.410	0.110
Posterior Insula - Rectus, R	5.23	9.97	8.86	12.96	8.77	10.67	0.396	0.674	0.869	0.424	4.612	0.100
Posterior Insula - Ventral Striatum, R	70.31	62.17	139.26	53.36	164.21	31.12	4.604	0.013	23.512	<0.001	29.665	<0.001
Ventral Anterior Insula - BA10, L	20.68	18.38	44.78	26.14	42.91	26.42	1.322	0.273	8.137	0.001	13.768	0.001
Ventral Anterior Insula - BLA, L	0.07	0.11	0.05	0.16	0.00	0.00	2.976	0.057	2.695	0.074	9.078	0.011
Ventral Anterior Insula - CNA, L	0.96	1.50	0.41	1.00	0.05	0.14	3.500	0.036	4.912	0.010	16.444	<0.001
Ventral Anterior Insula - Inferior OFC, L	0.05	0.08	0.02	0.05	0.00	0.01	3.500	0.036	4.912	0.010	16.444	<0.001
Ventral Anterior Insula - Medial OFC, L	15.20	31.31	2.24	2.89	8.10	25.74	1.469	0.237	1.995	0.143	12.427	0.002
Ventral Anterior Insula - Middle OFC, L	56.48	40.17	116.23	32.83	103.38	38.27	14.425	<0.001	18.533	0.000	24.251	<0.001
Ventral Anterior Insula - Rectus, L	28.71	38.37	16.97	26.53	43.63	55.17	2.671	0.076	2.638	0.078	3.653	0.161
Ventral Anterior Insula - Ventral Striatum, L	314.12	206.49	520.62	116.55	556.27	24.97	9.506	<0.001	22.923	<0.001	24.322	<0.001
Ventral Anterior Insula - BA10, R	48.71	19.72	41.32	26.13	31.26	26.92	2.369	0.101	3.269	0.044	5.893	0.053
Ventral Anterior Insula - BLA, R	0.40	0.73	0.07	0.17	0.01	0.05	3.121	0.050	6.052	0.004	14.178	0.001
Ventral Anterior Insula - CNA, R	3.30	8.17	0.30	1.07	0.02	0.07	1.766	0.179	3.711	0.029	23.781	<0.001
Ventral Anterior Insula - Inferior OFC, R	78.97	0.00	78.97	0.00	78.97	0.00	100% of connectivity probability between regions and across groups					
Ventral Anterior Insula - Medial OFC, R	37.33	53.04	48.78	60.10	42.10	65.32	0.272	0.763	0.242	0.786	1.037	0.596
Ventral Anterior Insula - Middle OFC, R	117.45	35.65	112.36	45.03	116.33	45.41	0.243	0.785	0.104	0.902	1.060	0.589
Ventral Anterior Insula - Rectus, R	62.43	49.62	71.47	51.55	86.01	54.05	0.976	0.382	1.344	0.267	3.016	0.221
Ventral Anterior Insula - Ventral Striatum, R	571.32	83.02	592.98	51.51	606.57	49.91	0.678	0.511	2.005	0.142	0.391	0.142
Medial OFC - BA10, L	30.29	0.00	30.29	0.00	30.29	0.00	100% of connectivity probability between regions and across groups					
Medial OFC - Hypothalamus, L	75.87	108.04	8.41	39.22	13.69	59.97	3.373	0.040	6.470	0.003	29.385	<0.001
Medial OFC - Ventral Striatum, L	112.75	70.07	93.65	85.30	120.38	61.76	0.890	0.415	0.908	0.408	1.607	0.448
Medial OFC - BA10, R	36.75	0.00	36.75	0.00	36.75	0.00	100% of connectivity probability between regions and across groups					
Medial OFC - Hypothalamus, R	16.88	21.33	3.82	10.83	81.89	322.12	1.032	0.362	1.309	0.276	9.335	0.009
Medial OFC - Ventral Striatum, R	87.45	95.24	149.96	108.23	159.66	92.04	3.549	0.034	4.050	0.021	9.205	0.010
Middle OFC - BA10, L	25.55	0.00	25.55	0.00	25.55	0.00	100% of connectivity probability between regions and across groups					
Middle OFC - Hypothalamus, L	112.31	137.50	13.15	33.04	27.41	61.69	4.900	0.010	9.316	<0.001	24.450	<0.001
Middle OFC - Ventral Striatum, L	130.10	50.88	141.63	67.83	177.60	41.36	2.522	0.088	5.217	0.008	15.873	<0.001
Middle OFC - BA10, R	29.75	0.00	28.61	5.84	29.75	0.00	1.787	0.175	0.980	0.380	1.962	