

Supplementary Table 1. Participant clinical characteristics.

	Healthy Controls (<i>n</i> = 21)	Anorexia Nervosa (<i>n</i> = 21)			
	Mean ± SD	Mean ± SD	<i>t</i>	<i>df</i>	<i>P</i>
Age (years)	22.7±3.1	26.1±6.5	-2.1	40	0.04
BMI (kg/m ²)	21.5±1.9	15.7±2.0	9.5	40	<0.0001
Subtype					
Restricting / Binge-purge		<i>n</i> = 10 / 11			
Duration of illness (years)	–	11.4±6.7			
Education (years)	15.7±2.3	14.4±2.5	1.7	40	0.10
EDE-Q, Global Score	0.11±0.11	4.0±1.6	-10.7	20 [†]	<0.0001
TFEQ-R	5.2±2.8	16.3±4.0	-10.3	40	<0.0001
STAI-S	26.4±4.6	64.1±11.5	-13.6	26 [†]	<0.0001
POMS depression	0.8±1.4	39.3±13.9	-12.6	20 [†]	<0.0001
Multi-Item Meal					
Intake (kcal)	831±278	312±254	5.9	36	<0.0001
Fat intake (% kcal)	37.2±6.5	16.5±10.2	7.3	26 [†]	<0.0001

BMI = Body Mass Index, WTAR = Weschler Test of Adult Reading, EDE-Q = Eating Disorder Examination Questionnaire, TFEQ-R = Three Factor Eating Questionnaire, Restraint Scale, STAI-S = Spielberger Anxiety Index, State version; POMS = Profile of Mood States

†Levene's test indicated unequal variances, so degrees of freedom were adjusted accordingly.

Supplementary Table 2. Food task stimuli.

	Low fat foods	High fat foods
1	1% milk	American cheese
2	air-popped popcorn	avocado
3	apple slices	baby cheese
4	baked potato	bagel and cream cheese
5	banana	baguette with olive oil
6	broccoli and cauliflower	brownie
7	celery and carrot sticks	burger
8	cherries	cheese nachos
9	cherry tomatoes	chicken nuggets
10	corn on the cob	cookies
11	cucumber slices	cupcakes
12	Froot loops (with milk)	doughnuts
13	grapes	eggs
14	green beans	french fries
15	grilled chicken strips	fried eggs
16	kiwis	granola (with milk)
17	lollipops	grilled cheese sandwich
18	mushrooms	Hershey Kisses
19	orange slices	hotdog with mustard
20	peaches	ice cream sundae
21	pickles	M&Ms
22	plain bagel	mac and cheese
23	pretzels	mashed potato
24	raisin bran with milk	mini muffins
25	raisins	mozzarella sticks
26	rice cakes	peanut butter
27	rigatoni	pizza
28	rigatoni and sauce	Reese's pieces
29	Saltines	Ritz crackers
30	seaweed	salad with chicken
31	skim milk	steak
32	vegetable soup	string cheese
33	Sour patch candies	tacos
34	soy chips	trail mix
35	strawberries	humus and pita
36	sushi rolls	whole milk
37	turkey sandwich	popcorn
38	yogurt	yogurt covered pretzels

Supplementary Table 3 (see also **Fig. 2**). Results from the whole-brain parametric analysis of choice ratings ($P < 0.05$, corrected, $n = 42$).

	Cluster	Region	Cluster size	x	y	z	Peak Z
HC	1	R Cerebellum	17704	18	-50	-20	5.78
		R Cerebellum		26	-50	-22	5.58
		R Occipital fusiform gyrus		34	-74	-10	5.33
		R Temporal occipital fusiform gyrus		24	-50	-16	5.3
		R Occipital fusiform gyrus		26	-70	-18	4.79
		R Lingual gyrus		12	-78	-14	4.75
	2	L Postcentral gyrus	6607	-50	-20	58	6.34
		L Precentral gyrus		-34	-20	62	5.92
		L Precentral gyrus		-32	-24	56	5.83
		L Precentral gyrus		-40	-22	68	5.76
		L Postcentral gyrus		-40	-26	68	5.66
		L Precentral gyrus		-40	-20	54	5.66
	3	L Frontal medial cortex	3203	-10	52	-6	4.96
		L Frontal pole		-6	60	0	4.88
		L Frontal pole		-6	60	10	4.64
		R Anterior cingulate gyrus		2	36	14	4.49
		R Paracingulate gyrus		10	48	-8	4.19
		L Anterior cingulate gyrus		-2	40	6	4.11
	4	L Superior frontal gyrus	548	-18	26	48	3.72
		L Superior frontal gyrus		-22	34	36	3.52
		L Superior frontal gyrus		-18	36	46	3.3
L Superior frontal gyrus		-20		30	44	3.2	
L Superior frontal gyrus		-20		26	40	3.14	
L Superior frontal gyrus		-20		26	34	3.13	
AN	1	L Precentral gyrus	7933	-36	-24	48	6.39
		L Precentral gyrus		-40	-20	56	6.3
		L Precentral gyrus		-42	-14	64	6.13
		L Precentral gyrus		-34	-20	70	6
		L Postcentral gyrus		-46	-18	60	5.86
		L Postcentral gyrus		-50	-24	62	5.46
	2	L Frontal medial cortex	4551	-6	50	-6	4.75
		L Frontal pole		-2	60	0	4.54
		R Frontal medial cortex		4	50	-14	4.38
		L Frontal orbital cortex		-20	28	-20	4.05
		R Paracingulate gyrus		10	46	-4	4.04
		R Caudate		12	26	-6	4.04
	3	R Cerebellum	2962	14	-52	-14	5.71
		R Cerebellum		20	-54	-22	5.51

		R Lingual / Occipital fusiform gyrus	20	-66	-14	5.4	
		R Cerebellum	26	-48	-30	4.92	
		R Lingual gyrus	12	-66	-6	4.47	
		R Lingual gyrus	12	-72	-10	4.28	
4		L Precuneus	1020	-8	-58	8	3.68
		L Precuneus		-2	-58	22	3.49
		L Posterior cingulate gyrus		-2	-50	16	3.44
		Posterior cingulate gyrus		0	-38	4	3.24
		L Precuneus		-4	-64	20	3.18
		L Precuneus		-8	-76	38	3.09
5		L Supplementary motor cortex	762	-2	-12	48	3.73
		L Superior frontal gyrus		-28	24	56	3.41
		Superior frontal gyrus		0	20	50	3.3
		L Superior frontal gyrus		-20	26	58	3.24
		L Middle frontal gyrus		-32	14	58	3.16
		L Anterior cingulate gyrus		-8	0	44	3.06
6		R Cerebellum	644	14	-66	-48	4.87
		R Cerebellum		18	-64	-48	4.83
		R Cerebellum		26	-60	-52	4.51
		R Cerebellum		26	-56	-46	4.38
		R Cerebellum		30	-50	-50	3.7
		R Cerebellum		4	-70	-34	3.4
HC>AN	1	R Occipital fusiform gyrus	5792	34	-74	-8	4.92
		L Temporal occipital fusiform gyrus		-30	-50	-8	4.48
		R Lingual gyrus		2	-88	-14	4.43
		L Occipital pole		-12	-104	12	4.42
		R Lingual gyrus		12	-86	-18	4.38
		R Occipital pole		22	-88	30	4.29

AN>HC

No significant clusters

For each cluster, the peak and 5 local maxima within the cluster are listed along with x-y-z locations in MNI space.

Supplementary Table 4 (see also **Fig. 3**). Results from the PPI analysis of connectivity for high versus low-fat foods between caudate and PFC including age as a covariate ($P < 0.05$, TFCE corrected, $n = 42$).

	Cluster	Region	Cluster size	x	y	z	Peak P
HC>AN	1	L Paracingulate gyrus	617	-4	48	22	0.019
	2	L Paracingulate gyrus	146	-2	22	44	0.022
	3	R Frontal pole / Middle frontal gyrus	134	42	48	0	0.009
	4	R Frontal pole / Middle frontal gyrus	27	24	40	24	0.032
	5	R Frontal pole / Middle frontal gyrus	13	46	34	26	0.046
AN>HC	No significant clusters						

Clusters containing more than 10 voxels are shown.

Whole-brain analyses revealed no clusters outside the PFC (FWE-corrected $P < 0.05$, cluster-forming threshold $Z > 2.3$).