Supplemental On-Line Material – Reviewed (SOM-R)

Table S1. Means (Standard Deviations) of Palatable Food (PF) Intake, Chow Intake, and Body Weight in Adulthood by Experiment (Experiment 1 N = 59 rats; Experiment 2 N = 40 rats; Experiment 3 N = 57 rats).

Variables	Experiment 1 M (SD)	Experiment 2 M (SD)	Experiment 3 M (SD)
Raw PF Intake (kcals)	22.11 (0.84)	37.97 (1.07)	23.70 (0.87)
Raw Chow Intake (kcals)	15.28 (0.22)	3.96 (0.29)	8.82 (0.23)
Body Weight (g)	152.76 (9.83)	149.07 (12.03)	147.72 (10.02)

Note. M = mean; SD = standard deviation. The PF used in each experiment was frosting in Experiment 1, high-fat pellets in Experiment 2, and high-fat/high sugar pellets in Experiment 3.

Table S2. Mean Differences in the Binge Proneness Proportion Variable in Pre-Pubertal Ovariectomy (P-OVX) versus Intact Groups in Adulthood.

	Binge Proneness Proportion Variable: Tertile Approach	
Experiment	**Raw PF**	**Weight-Standardized PF**
Combined Sample		
Intact	.19 (.04)	.30 (.04)
P-OVX	.48 (.04)	.35 (.04)
ANCOVA F (df)	32.60 (1,152)	0.90 (1,152)
p	<.001	.34
d	.92	0.15
Experiment 1		
Intact	0.24 (0.06)	0.32 (0.06)
P-OVX	0.45 (0.06)	0.34 (0.06)
t (df)	13.44 (57)	1.28 (57)
p	<.01	.21
d	3.5	0.33
Experiment 2		
Intact	0.09 (0.07)	0.20 (0.07)
P-OVX	0.56 (0.07)	0.45 (0.07)
t (df)	20.33 (38)	11.30 (38)
p	<.0001	<.001
d	6.57	3.57
Experiment 3		
Intact	0.21 (0.06)	0.36 (0.06)
P-OVX	0.46 (0.06)	0.30 (0.06)
t (df)	15.73 (55)	3.77 (55)
p	<.0001	<.001
d	4.16	1.00

Note. Intact = ovaries intact; PF = palatable food; Weight-Standardized PF = weight-standardized PF intake; d = Cohen's d. Sample sizes are: Combined Sample: *n* = 79 intact, *n* = 77 P-OVX; Experiment 1: *n* = 30 intact, *n* = 29 P-OVX; Experiment 2: *n* = 20 intact, *n* = 20 P-OVX; Experiment 3: *n* = 29 intact, *n* = 28 P-OVX. Values are means (standard deviations). Results were in the opposite direction of those hypothesized for weight-standardized variables in

Experiment 3. Reasons for this are unclear, particularly since the raw data in Experiment 3 showed the hypothesized effects, and data across raw and weight-standardized PF were consistent for Experiment 1 and Experiment 2.

Table S3. Mixed Linear Models Examining Differences in Average Palatable Food Intake, Chow Intake, and Body Weight in Adulthood by Pre-Pubertal Ovariectomy (P-OVX) and BER/BEP Status.

			F Tests		
Variables	**Intact M (SE)**	**P-OVX M (SE)**	**P-OVX F (df)**	**BER/BEP F (df)**	**P-OVX x BER/BEP F (df)**
		Raw Intake Values (kcals)			
Palatable Food					
BER	25.94 (0.76)	28.17 (0.96)	**34.55** (103)**	**419.60** (103)**	**11.48** (103)**
BEP	41.30 (1.10)	49.65 (0.79)			
Chow					
BER	8.10 (0.49)	11.63 (0.61)	**48.41** (96)**	3.10 (96)	0.71 (96)
BEP	6.60 (0.70)	11.10 (0.51)			
		Weight-Standardized Values (kcals)			
Palatable Food					
BER	0.82 (0.02)	0.79 (0.02)	0.96 (122)	**624.09** (122)**	**5.70* (122)**
BEP	1.27 (0.02)	1.34 (0.02)			
Chow					
BER	0.26 (0.01)	0.31 (0.02)	**20.49** (99)**	**4.84* (99)**	1.53 (99)
BEP	0.21 (0.02)	0.30 (0.01)			
		Body Weight (g)			
BER	186.86	231.16			

	(4.14)	(5.22)	**82.22** (50)**	1.77 (50)	0.00 (50)
BEP	193.06 (5.98)	238.02 (4.27)			

Note. BER = binge eating resistant; BEP = binge eating prone; Intact = ovaries intact. Sample sizes: Intact BER N = 19, Intact BEP N = 9, P-OVX BER N = 12, P-OVX BEP N = 18. Values are estimated marginal means and standard errors (SE) across all days in adulthood. Experiment was included as a covariate in all models (all *p*'s < .01). Significant effects are bolded.

**p* < .05, ***p* < .01.

Table S4. Mean (Standard Error) for Palatable Food (PF) Intake, Chow Intake, and Body Weight by Experiment (Experiment 1 N = 59 rats; Experiment 2 N = 40 rats; Experiment 3 N = 57 rats), Pre-Pubertal Ovariectomy (P-OVX) Status, and BER/BEP Group **in Adulthood**.

	Experiment 1		**Experiment 2**		**Experiment 3**	
	Intact	**P-OVX**	**Intact**	**P-OVX**	**Intact**	**P-OVX**
			Raw Intake Values (kcals)			
PF Intake:						
BER	20.50	23.58	36.13	37.10	21.80	23.10
	(0.92)	(1.06)	(1.77)	(2.50)	(1.22)	(1.58)
BEP	35.74	44.90	48.59	63.14	38.30	39.18
	(1.30)	(0.99)	(3.06)	(1.63)	(1.58)	(1.38)
Chow Intake:						
BER	11.99	16.01	4.41	5.79	8.71	13.67
	(0.66)	(0.76)	(0.78)	(1.10)	(0.83)	(1.07)
BEP	11.46	17.98	3.02	5.56	5.90	7.87
	(0.93)	(0.70)	(1.34)	(0.73)	(1.07)	(0.94)
			Weight-Standardized Values (kcals)			
PF Intake:						
BER	0.65	0.63	1.11	1.09	0.70	0.64
	(0.02)	(0.03)	(0.04)	(0.06)	(0.03)	(0.04)
BEP	1.09	1.18	1.50	1.67	1.18	1.13
	(0.02)	(0.02)	(0.07)	(0.04)	(0.04)	(0.03)
Chow Intake:						
BER	0.38	0.43	0.14	0.17	0.28	0.38
	(0.02)	(0.02	(0.02)	(0.03)	(0.02)	(0.03)
BEP	0.35	0.48	0.09	0.15	0.18	0.23
	(0.03)	(0.02)	(0.04)	(0.02)	(0.03)	(0.3)
			Body Weight (g):			
BER	188.33	244.50	193.71	208.25	181.72	231.87
	(6.45)	(7.45)	(5.94)	(8.40)	(8.52)	(11.00)
BEP	195.96	247.43	192.43	246.99	191.09	211.87
	(9.13)	(6.90)	(10.29)	(5.50)	(11.00	(9.53)

Note. Intact = ovaries intact; BER = binge eating resistant; BEP = binge eating prone. Values are estimated marginal means and standard errors (SE). Sample sizes for each subgroup are as

follows: Experiment 1: BER/Intact N = 8, BER/P-OVX N = 6, BEP/Intact N = 4, BEP/OVX N = 7; Experiment 2: BER/Intact N = 6, BER/P-OVX N = 3, BEP/Intact N = 2, BEP/OVX N = 7; Experiment 3: BER/Intact N = 5, BER/P-OVX N = 3, BEP/Intact N = 3, BEP/OVX N = 4.

Table S5. Average Palatable Food (PF) Intake, Chow Intake, and Body Weight across Puberty by Experiment (Experiment 1 N = 59 rats; Experiment 2 N = 40 rats; Experiment 3 N = 57 rats), Pre-Pubertal Ovariectomy (P-OVX) Status, and BER/BEP Group **in Adolescence**.

	Pre-Puberty		**Puberty**	
Variables	**Intact M (SD)**	**P-OVX M (SD)**	**Intact M (SD)**	**P-OVX M (SD)**
		Experiment 1		
Raw Intake Values (kcals)				
PF Intake				
BER	16.73 (2.21)	17.59 (2.47)	15.29 (1.53)	14.74 (1.79)
BEP	20.35 (3.12)	21.95 (2.30)	20.61 (2.15)	28.66 (1.66)
Chow Intake				
BER	6.78 (1.53)	10.93 (1.59)	14.37 (0.66)	18.31 (0.79)
BEP	6.87 (2.17)	8.34 (1.49)	15.26 (0.91)	21. 50 (0.72)
Weight-Standardized Values (kcals)				
PF Intake				
BER	0.71 (0.08)	0.70 (0.08)	0.62 (0.05)	0.55 (0.05)
BEP	0.78 (0.11)	0.77 (0.08)	0.81 (0.06)	0.99 (0.05)
Chow Intake				
BER	0.27 (0.06)	0.49 (0.07)	0.60 (0.03)	0.68 (0.03)
BEP	0.28 (0.09)	0.35 (0.06)	0.63 (0.04)	0.79 (0.03)
Body Weight (g)				
BER	127.24 (3.69)	140.53 (4.23)	126.77 (3.45)	148.35 (3.99)
BEP	127.46 (5.21)	142.37 (3.92)	128.35 (4.86)	151.15 (3.69)
		Experiment 2		
Raw Intake Values (kcals)				
PF Intake				
BER	31.87 (2.78)	31.89 (3.85)	33.91 (1.66)	33.43 (2.33)
BEP	34.39 (4.69)	37.01 (2.59)	40.91 (2.86)	48.41 (1.54)
Chow Intake				
BER	2.55 (0.74)	2.92 (1.01)	2.85 (0.35)	3.57 (0.49)
BEP	2.36 (1.22)	2.24 (0.71)	2.82 (0.60)	4.22 (0.33)
Weight-Standardized Values (kcals)				
PF Intake				
BER	1.24 (0.10)	1.22 (0.14)	1.39 (0.05)	1.34 (0.07)

BEP	1.31 (0.17)	1.32 (0.10)	1.66 (0.09)	1.78 (0.05)
Chow Intake				
BER	0.10 (0.03)	0.12 (0.04)	0.11 (0.01)	0.14 (0.02)
BEP	0.10 (0.04)	0.08 (0.03)	0.12 (0.02)	0.16 (0.01)
Body Weight (g)				
BER	129.87 (4.85)	133.35 (6.80)	130.35 (3.69)	135.50 (5.22)
BEP	127.66 (8.30)	139.73 (4.50)	128.43 (6.38)	147.35 (3.42)
		Experiment 3		
Raw Intake Values (kcals)				
PF Intake				
BER	19.21 (1.85)	17.71 (2.39)	16.07 (1.00)	13.48 (1.28)
BEP	22.93 (2.31)	23.27 (2.09)	22.38 (1.29)	25.16 (1.11)
Chow Intake				
BER	5.89 (1.27)	6.03 (1.64)	7.53 (0.60)	9.70 (0.75)
BEP	6.22 (1.56)	4.98 (1.44)	6.93 (0.77)	8.95 (0.65)
Weight-Standardized Values (kcals)				
PF Intake				
BER	0.79 (0.08)	0.68 (0.10)	0.68 (0.04)	0.50 (0.05)
BEP	0.96 (0.09)	0.97 (0.09)	0.89 (0.05)	0.98 (0.05)
Chow Intake				
BER	0.27 (0.05)	0.27 (0.06)	0.31 (0.02)	0.38 (0.03)
BEP	0.29 (0.06)	0.22 (0.06)	0.30 (0.03)	0.37 (0.03)
Body Weight (g)				
BER	115.12 (5.77)	133.84 (7.45)	117.47 (5.74)	137.18 (7.41)
BEP	118.90 (7.45)	126.27 (6.45)	122.54 (7.41)	127.42 (6.42)

Note. Intact = ovaries intact; BER = binge eating resistant; BEP = binge eating prone. Values are estimated marginal means and standard errors (SE). Sample sizes for each subgroup are as follows: Experiment 1: BER/Intact N = 8, BER/P-OVX N = 6, BEP/Intact N = 4, BEP/OVX N = 7; Experiment 2: BER/Intact N = 6, BER/P-OVX N = 3, BEP/Intact N = 2, BEP/OVX N = 7; Experiment 3: BER/Intact N = 5, BER/P-OVX N = 3, BEP/Intact N = 3, BEP/OVX N = 4.

Table S6. Mixed Linear Models (MLMs) examining the Effects of Pre-Pubertal Ovariectomy (P-OVX), Pubertal Status, and the Binge Proneness Proportion Variable on Palatable Food Intake, Chow Intake, and Body Weight (N = 156 rats).

Variables	b	t (df)	*p*
Raw Intake (kcals)			
Palatable Food:			
Intercept for Experiment 1	24.45	-	-
Intercept for Experiment 2	48.45	-	-
Intercept for Experiment 3	27.72	-	-
Study Day for Experiment 1	.56	15.05 (742)	**<.001**
Study Day for Experiment 2	.97	20.26 (727)	**<.001**
Study Day for Experiment 3	.69	18.69 (706)	**<.001**
P-OVX	.85	3.35 (595)	**.001**
Puberty	.46	1.77 (2042)	.077
BEP proportion	7.24	9.06 (598)	**<.001**
P-OVX x Puberty	.67	3.17 (1635)	**.002**
P-OVX x BEP proportion	.56	.69 (592)	.493
Puberty x BEP proportion	3.62	5.39 (1637)	**<.001**
P-OVX x Puberty x BEP proportion	2.01	2.97 (1646)	**.003**
Chow:			
Intercept for Experiment 1	13.42	-	-
Intercept for Experiment 2	1.14	-	-
Intercept for Experiment 3	6.64	-	-
Study Day for Experiment 1	-.07	-2.70 (901)	**.007**
Study Day for Experiment 2	-.07	-2.11 (894)	**.035**
Study Day for Experiment 3	-.03	-1.33 (856)	.185
P-OVX	1.24	7.63 (905)	**<.001**
Puberty	2.67	13.07 (1542)	**<.001**
BEP proportion	-.55	-1.06 (911)	.289
P-OVX x Puberty	.70	4.45 (1294)	**<.001**
P-OVX x BEP proportion	-.87	-1.66 (905)	.097
Puberty x BEP proportion	.55	1.11 (1295)	.268
P-OVX x Puberty x BEP proportion	-.01	-.02 (1297)	.982
Weight-Standardized Intake (kcals)			
Palatable Food:			
Intercept for Experiment 1	.792	-	-
Intercept for Experiment 2	1.56	-	-
Intercept for Experiment 3	.92	-	-

Study Day for Experiment 1	.01	6.01 (758)	**<.001**
Study Day for Experiment 2	.01	5.11 (737)	**<.001**
Study Day for Experiment 3	.01	8.22 (719)	**<.001**
P-OVX	-.01	-.66 (650)	.511
Puberty	.01	.76 (1950)	.450
BEP prop	.24	8.58(653)	**<.001**
P-OVX x Puberty	.01	1.64 (1525)	.102
P-OVX x BEP proportion	.00	-.02 (647)	.987
Puberty x BEP proportion	.13	5.03(1527)	**<.001**
P-OVX x Puberty x BEP proportion	.08	3.09(1536)	**.002**
Chow:			
Intercept for Experiment 1	.41	-	-
Intercept for Experiment 2	.01	-	-
Intercept for Experiment 3	.20	-	-
Study Day for Experiment 1	-.01	-14.89 (935)	**<.001**
Study Day for Experiment 2	-.01	-4.38 (934)	**<.001**
Study Day for Experiment 3	-.01	-8.68 (893)	**<.001**
P-OVX	.04	5.94 (958)	**<.001**
Puberty	.10	12.58 (1457)	**<.001**
BEP proportion	-.02	-1.22 (965)	.371
P-OVX x Puberty	.01	2.19 (1263)	**.029**
P-OVX x BEP proportion	-.04	-2.01 (958)	**.045**
Puberty x BEP proportion	.03	1.53 (1265)	.126
P-OVX x Puberty x BEP proportion	.00	.22 (1266)	.830
Body Weight (g)			
Intercept for Experiment 1	178.74	-	-
Intercept for Experiment 2	183.38	-	-
Intercept for Experiment 3	173.66	-	-
Study Day for Experiment 1	4.01	52.43 (968)	**<.001**
Study Day for Experiment 2	4.28	44.31 (1055)	**<.001**
Study Day for Experiment 3	4.13	53.37 (962)	**<.001**
P-OVX	9.83	11.69 (158)	**<.001**
Puberty	1.77	6.40 (1888)	**<.001**
BEP proportion	.39	.15 (158)	.884
P-OVX x Puberty	1.13	4.36 (2059)	**<.001**
P-OVX x BEP proportion	-.71	-.26 (157)	.795
Puberty x BEP proportion	-.04	-.05 (2059)	.957
P-OVX x Puberty x BEP proportion	-.34	-.42 (2055)	.678

Note. BEP proportion = binge eating proneness proportion variable. “Experiment”, “study day”, and “experiment x study day” interactions were included as covariates in all models. Because there were experiment mean and slope differences across study days for the three experiments on

some variables, the intercepts and study day effects were included in each analysis and are listed individually for each experiment. Significant effects are bolded.

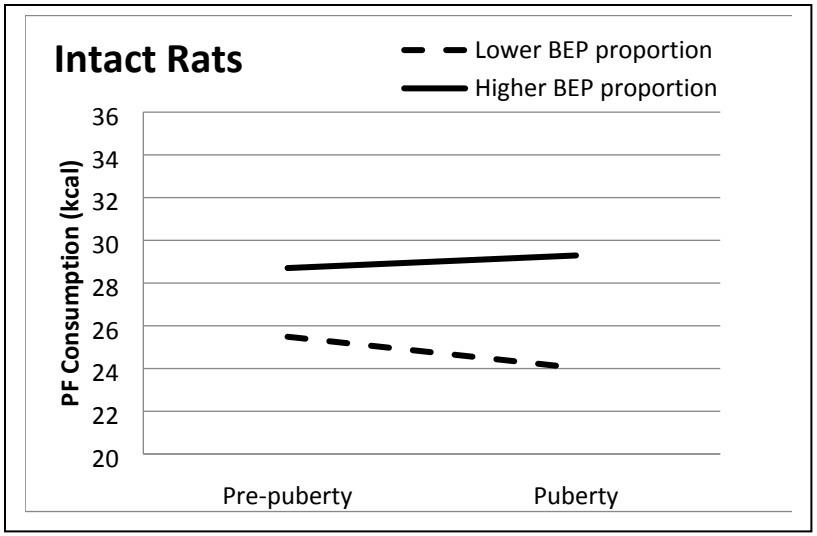
Table S7. Within-Rat Stability of Binge Eating Prone (BEP) and Binge Eating Resistant (BER) Phenotypes after Adult OVX in Rats from Klump et al. (2011).

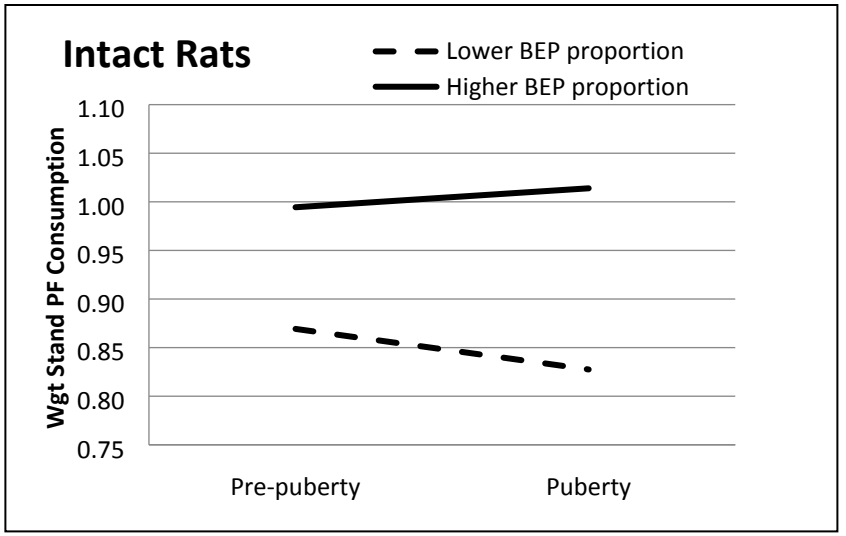
Groups	Percent (n/total sample N)
Binge Eating Prone Phenotypes (N = 18 BEP rats)	
Primary Tertile Definition	
Stayed BEP after OVX	83% (15/18)
Became Neutral after OVX	17% (3/18)
Became BER after OVX	0% (0/18)
Alternative Tertile Definition	
Stayed BEP after OVX	67% (12/18)
Became Neutral after OVX	27% (5/18)
Became BER after OVX	6% (1/18)
Binge Eating Resistant Phenotypes (N = 14 BEP rats)	
Primary Tertile Definition	
Stayed BER after OVX	79% (11/14)
Became Neutral after OVX	21% (3/14)
Became BEP after OVX	0% (0/14)
Alternative Tertile Definition	
Stayed BER after OVX	64% (9/14)
Became Neutral after OVX	29% (4/14)
Became BEP after OVX	7% (1/14)

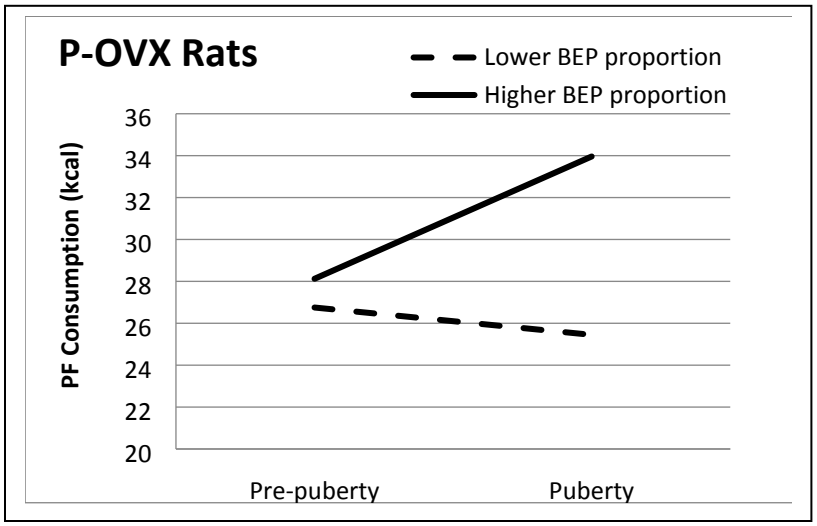
Note. Data were re-analyzed from Klump et al. (2011) that reported findings from two experiments. Because of the small number of BEP and BER rats in each experiment (Ns = 6-9 BEP/BER rats per experiment), data are presented for the combined sample only. A total of 18 BEP and 14 BER rats were identified across the two experiments using data from the 5 feeding tests conducted prior to OVX in adulthood.

In the current analysis, we re-phenotyped these rats after OVX using the 4 feeding tests that followed the OVX surgeries. A BER/BEP criterion of 50% (2/4 feeding tests) was used, given the small number of post-OVX feeding tests.

There was no intact group in these experiments (i.e., all rats were exposed to adult OVX). Thus, we calculated tertiles two ways. In the "Primary" approach, we used PF intake from the pre- and post-OVX feeding tests to calculate tertiles for the post-OVX phenotyping. For example, we averaged PF intake on the first pre-OVX feeding test day with the first post-OVX feeding test day; we then did the same averaging for the second pre-OVX and second post-OVX feeding test until we had average data to use for the four post-OVX feeding tests. This was our primary approach to phenotyping since it approximates PF intake in the full rat population and full range of circulating hormones (i.e., those with and without hormone exposure). Second, in the "Alternative" approach, we focused on PF intake data from the post-OVX feeding tests only and calculated tertiles for raw PF values on each of the four post-OVX feeding tests to ensure that results were consistent/replicable.


Intact Rats
Lower BEP proportion
Higher BEP proportion
PF Consumption (kcal)
36
34
32
30
28
26
24
22
20
Pre-puberty
Puberty


Intact Rats
Lower BEP proportion
Higher BEP proportion
Wgt Stand PF Consumption
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
Pre-puberty
Puberty


P-OVX Rats
Lower BEP proportion
Higher BEP proportion
PF Consumption (kcal)
36
34
32
30
28
26
24
22
20
Pre-puberty
Puberty

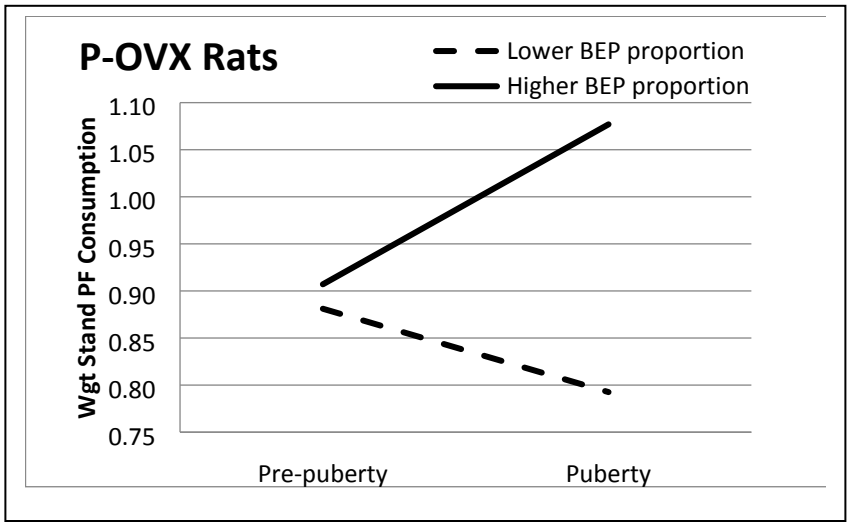

P-OVX Rats
Lower BEP proportion
Higher BEP proportion
Wgt Stand PF Consumption
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
Pre-puberty
Puberty

Figure S1. Mean Palatable Food (PF) Intake as a Function of the Binge Eating Proneness (BEP) Proportion Variable in Intact and Pre-Pubertal Ovariectomized (P-OVX) Rats Before and After Puberty. Intact = ovaries intact; Lower and Higher BEP proportion = ± 1 SD from the mean.

Sample sizes: Intact BER N = 19, Intact BEP N = 9, OVX BER N = 12, OVX BEP N = 18. Data for raw PF values appear in the left panels; data for weight-standardized PF values are in the right panels.