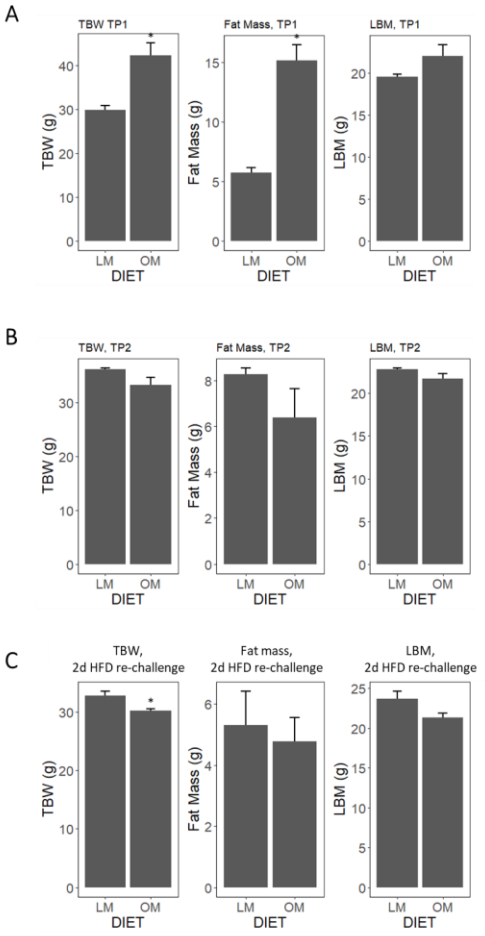
Supplemental Materials

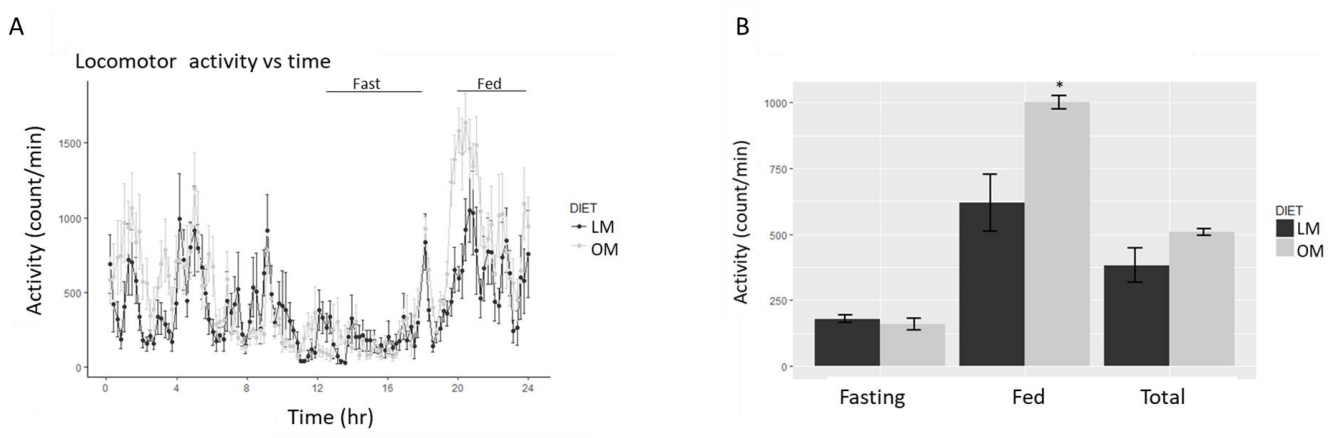
Supplemental Figure 1



QMR measurements. Measurements of total body weight, fat mass and lean body mass were taken at time point 1 (A), time point 2 (B), and 2 days of HFD re-challenge (C). Difference between OM and LM groups were analyzed using student's t-test (n=3-4). TBW, total body weight; LBM, lean body mass

Data presented as means ± SE. *p-value< 0.05.

Supplemental Figure 2

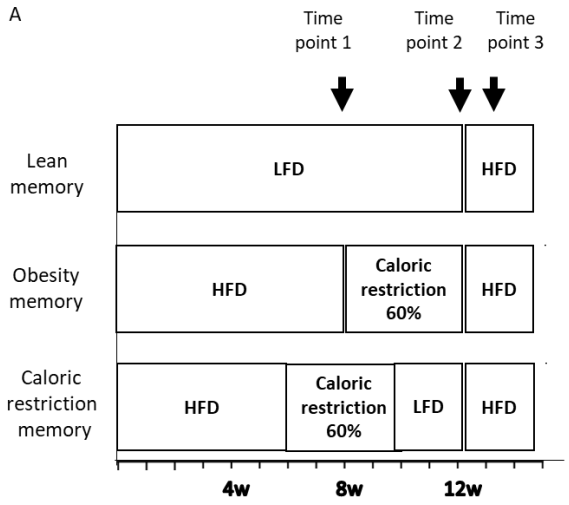


Locomotor activity in lean mice with and without OM after re-challenge with HFD at TP3. Vertical and horizontal movements were recorded among mice with and without obesity memory (OM and LM, respectively), while being on HFD re-feeding. Measurements were taken for 3 consecutive days. Mice had ad lib access to food overnight. A) Locomotor activity vs time. B) Average locomotor activity while at steady state during fasting, feeding and over 24 hours. Differences during steady state at fasting and feeding were assessed by two-way ANOVA with post hoc Tukey correction for multiple comparisons. Data is presented as means ± SE. (n=3)

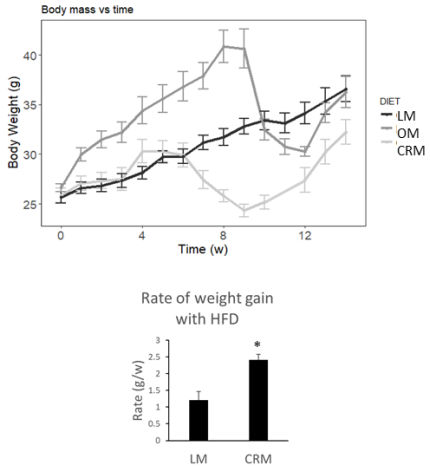
* *p-value* <0.05

Supplemental Figure 3

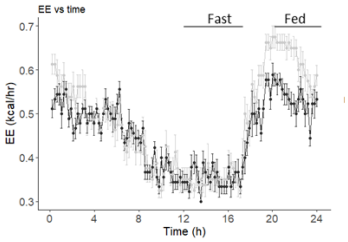
A



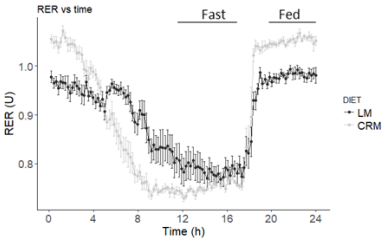
B



C



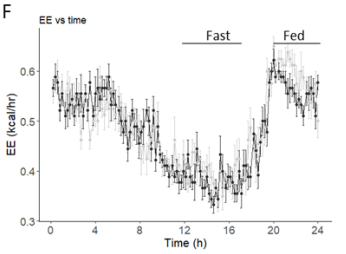
D



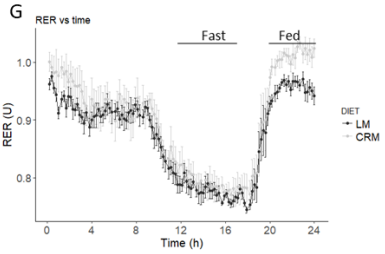
E

		LM	CRM	*p*-value
EE (kcal/hr)	FAST	0.35±0.01	0.36±0.03	0.99
	FED	0.53±0.01	0.63±0.03	0.08
	TOTAL	0.45±0.01	0.48±0.02	0.26
RER (U)	FAST	0.79±0.01	0.75±0.01	0.15
	FED	0.98±0.01	1.05±0.01	<0.01
	TOTAL	0.89±0.01	0.89±0.01	0.86

F



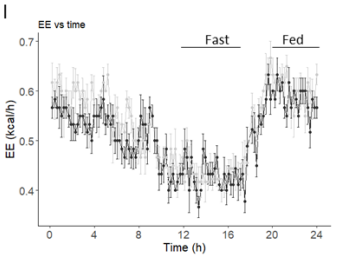
G



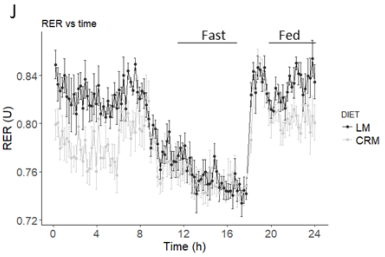
H

		LM	CM	*p*-value
EE (kcal/hr)	FAST	0.38±0.01	0.38±0.01	0.70
	FED	0.56±0.01	0.58±0.01	0.51
	TOTAL	0.48±0.01	0.49±0.01	0.56
RER (U)	FAST	0.77±0.01	0.79±0.02	0.87
	FED	0.96±0.01	1.00±0.02	0.27
	TOTAL	0.87±0.00	0.89±0.01	0.15

I



J



K

		LM	CRM	*p*-value
EE (kcal/hr)	FAST	0.43±0.01	0.43±0.03	0.99
	FEED	0.58±0.02	0.61±0.03	0.88
	TOTAL	0.50±0.01	0.52±0.03	0.50
RER (U)	FAST	0.75±0.01	0.75±0.01	0.99
	FEED	0.83±0.01	0.81±0.01	0.30
	TOTAL	0.80±0.01	0.78±0.01	0.13

Weight gain and calorimetric studies in mice with and without caloric restriction memory.

A) Dietary intervention plan: Mice were either fed 60% fat diet followed by caloric restriction (OM), subjected to caloric restriction alone(CRM), or 10% fat control diet (LM). During 4w of caloric restriction mice were given 60% of the daily caloric intake of their control group (LM) using 10% fat control diet. Arrow heads indicate time points when indirect calorimetry studies were conducted. B) Body weight measurements during dietary interventions and rate of weight gain with HFD feeding in week 13-14 (n=3-4). (C,D,E) Indirect calorimetry measurements for the CRM and LM mice, including energy expenditure (EE), and respiratory exchange ratio (RER) vs time, and a table indicating the average values while in steady state during fasting, feeding and over 24 hours at time point 1, (F,G,H) time point 2 and(I,J,K) time point 3 (n=3). Data is presented as average± standard error.

* *p-value* <0.05