Figure Legends

Figure 1. Physical effect of RYGB and calorie restriction. Three groups of mice received either sham operation (SO), Roux-en-Y gastric bypass surgery (RYGB), or sham operation with subsequent caloric restriction (WM-SO). Effect on (a) body weight and (b) adipose mass following the surgeries. Comparison of (c) total food intake and (d) food intake per gram of body weight in SO and RYGB groups in the post-surgical period. (g) Respiratory Exchange Ratio (RER) in SO, RYGB, and WM-SO mice measured in metabolic cages. (f) Fasting serum leptin at the time of sacrifice. Data are presented as mean ± SEM with statistical significance set at P-value < 0.05. * denotes statistical significance between SO and RYGB or WM-SO groups. # denotes statistical significance between RYGB and WM-SO groups.

Figure 2. RYGB effect on estradiol and hypothalamic gene expression. (a) Concentration of 17beta–estradiol versus phase of estrous cycle in SO, RYGB, and WM-SO female mice . Relative expression levels of (b) Eralpha (c) Kisspeptin (d) Kisspeptin receptor, (c) Pomc, (f) Agrp and Npy mRNA in SO, RYGB, and WM-SO groups. Data are presented as mean ± SEM with statistical significance set at P-value < 0.05. * denotes statistical significance between SO and RYGB or WM-SO groups. # denotes statistical significance between RYGB and WM-SO groups.

Supplementary Figure 1. (a) Feeding efficiency (average daily change in body weight divided by average daily food intake) in SO and RYGB groups. Relative expression levels of (b) Erbeta mRNA in the hypothalamus SO, RYGB, and WM-SO groups. Data are presented as mean ± SEM with statistical significance set at P-value < 0.05. * denotes statistical significance between

SO and RYGB or WM-SO groups. # denotes statistical significance between RYGB and WM-SO groups.