

SUPPLEMENTARY DATA

**Supplementary Table 1. Diet Composition**

	Diet	
	Control D12450B	HFD D12451
<b>Carbohydrate(%energy)</b>	70	35
<b>Fat (%energy)</b>	10	45
<b>Protein (%energy)</b>	20	20
<b>Energy/g (kcal)</b>	3.85	4.73
<b>Fat content (g)</b>		
<b>Lard</b>	20.0	177.5
<b>Soya bean</b>	25.0	25.0

Macronutrient composition and fat content of control and high-fat diet (HFD) obtained from Research diets inc. (NJ, USA).

**Supplementary Table 2. Assay characteristics**

Assay	Sensitivity	Intra-assay variation (%)	Inter-assay variation (%)
Leptin ELISA	0.05 ng/ml	4.5	6.0
Acyl-ghrelin RIA	1.8 pmol/L	4.8	6.2
Total PYY RIA	4.0 pmol/L	3.4	5.8
Active GLP-1 ELISA	2 pmol/L	6.3	7.2

Sensitivities and assay variations of commercial RIAs and ELISAs used.

**Supplementary Table 3. Effect of dietary modification on fasted colonic expression of *Pyy* and *glucagon***

Diet group	Colonic <i>Pyy</i> expression (AU)	Colonic <i>glucagon</i> expression (AU)
<b>Control</b>	1.00 ± 0.08	0.76 ± 0.05
<b>DIO</b>	0.96 ± 0.05	0.81 ± 0.09
<b>DIO-Switch</b>	1.11 ± 0.11	0.91 ± 0.11
<b>Caloric-restricted</b>	0.83 ± 0.07	0.59 ± 0.06

Data are means ± SE

**Supplementary Figure 1. Schematic of gastrointestinal bypass (GIBP) procedure**

Following laparotomy, the pyloric sphincter was ligatured. An anastomosis was created between a distal loop of jejunum and the stomach resulting in bypass of the duodenum and proximal jejunum. Arrows signify direction of nutrient flow.

**Supplementary Figure 2. Correlation analyses of bodyweight with plasma acyl-ghrelin and stomach *Mboat4* expression**

Correlation analysis between bodyweight and plasma acyl-ghrelin for mice exposed to both control-diet and HFD for (A) 4 weeks, (B) 8 weeks, (C) 12 weeks and (D) 16 weeks. Correlation analysis between bodyweight and stomach *Mboat4* expression for mice exposed to both control-diet and HFD for (E) 4 weeks and (F) 8 weeks.

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### **Supplementary Figure 3. Correlation analyses of bodyweight with plasma PYY**

Correlation analysis between bodyweight and fasting plasma PYY for mice exposed to both control-diet and HFD for (A) 8 weeks (B) 12 weeks and (C) 16 weeks.

### **Supplementary Figure 4. Bodyweight curves and relationship between bodyweight and fasting plasma acyl-ghrelin levels in response to dietary modification**

Bodyweight curves and correlation analysis between bodyweight and fasting plasma acyl-ghrelin levels in control, DIO, DIO-switch and calorically restricted (CR) groups.

### **Supplementary Figure 5. Bodyweight curves and correlation analyses of bodyweight with fasting plasma total PYY and colonic *Pyy* expression in WT mice following GIBP surgery**

Bodyweight curves (A) and correlation analyses of bodyweight with (B) fasting plasma total PYY and (C) colonic *Pyy* expression in WT mice culled 10 days following GIBP surgery (WT.BP) or sham procedure (WT.S).