

Supplemental Figure 1. Insulin and C-peptide responses for a representative subject during intravenous glucose tolerance testing before and following gastric bypass surgery.

Plasma insulin and C-peptide concentrations during the first 20 minutes of the intravenous glucose tolerance testing are plotted for a representative subject who had type 2 diabetes mellitus at before surgery (baseline, solid squares) and at 1 (open circles), 6 (open triangles) and 24 months (cross-hatched squares) following surgery.

Supplement Table 1. Anthropometric and glycemic responses during 24 months following roux-en-y gastric bypass. Body mass index (BMI, kg/m²), body weight (kg), body fat mass (kg), waist circumference (cm), fasting plasma glucose (mmol/L), insulin (mU/L) and the homeostasis model assessment of insulin resistance (HOMA-IR) were determined in 15 subjects with normal glycemia (n=8) and hyperglycemia (n=7) who were measured during 24 months, following roux-en-y gastric bypass surgery. *, p < 0.05, †, p < 0.01, and ‡, depicts p < 0.005 compared to baseline.

		Baseline	1month	Δ1 month	6 month	Δ6 month	24 month	Δ24 month
BMI (kg/m ²)	Normal Glycemia	47.4±1.2	43.4±1.5*	-4.0±0.5	33.9±1.3‡	-13.5±0.5	28.9±2.3‡	-18.5±1.8
	Hyperglycemia	49.8±1.6	45.3±1.6*	-4.6±0.4	37.2±2.4‡	-12.6±1.3	33.5±2.6‡	-16.2±1.6
Body weight	Normal Glycemia	127.2±3.7	116.4±3.9*	-10.8±1.4	91.1±3.8‡	-36.1±1.4	77.9±6.4‡	-49.3±4.2
	Hyperglycemia	126.0±4.2	114.5±4.4*	-11.5±1.0	94.3±6.6‡	-31.8±3.0	85.1±7.2‡	-40.6±3.8
Body fat mass	Normal Glycemia	71.4±3.1	63.4±3.2*	-8.0±1.8	39.9±2.9‡	-31.6±1.5	29.8±4.7‡	-41.6±3.8
	Hyperglycemia	74.5±3.1	64.4±2.9†	-10.1±1.3	47.1±5.4‡	-27.4±3.5	40.6±6.5‡	-33.9±5.3
Waist	Normal	139.4±5.1	134.2±5.5	-5.2±1.7	114.6±5.1‡	-24.8±2.1	92.7±6.1‡	-46.7±2.9

Circumference (cm)	Glycemia							
	Hyperglycemia	137.7±6.5	132.1±5.7	-5.6±2.6	117.6±6.9‡	-20.1±3.1	103.9±6.6‡	-33.9±2.2
Glucose (mmol/L)	Normal	4.61±0.20a	3.94±0.15	-0.67±0.17	4.00±0.12	-0.61±0.17	4.18±0.15	-0.44±0.22
	Hyperglycemia	6.61±0.25b	4.91±0.51‡	-1.70±0.39	4.63±0.35‡	-1.98±0.33	4.27±0.48‡	-2.34±0.46
Hemoglobin A1c (%)	Normal	5.2±0.2	4.9±0.3	-0.1±0.2	4.9±0.2	-0.1±0.1	5.5±0.1	-0.2±0.0
	Hyperglycemia	8.5±1.4	7.1±0.6	1.6±1.0	5.9±0.3	2.5±1.7	5.7±0.4	2.7±1.5
Insulin (mU/L)	Normal	13.13±1.46	6.25±1.33‡	-6.88±1.59	3.81±0.73‡	-9.31±1.72	3.01±0.60‡	-10.12±1.31
	Hyperglycemia	13.71±1.41	8.29±1.29‡	-5.43±1.22	7.16±1.93‡	-6.55±1.55	5.81±1.86‡	-7.9±1.63
HOMA-IR	Normal	2.69±0.31	1.09±0.24‡	-1.60±0.32	0.70±0.15‡	-1.99±0.36	0.56±0.12‡	-2.12±0.29
	Hyperglycemia	4.10±0.54	1.96±0.54‡	-2.14±0.47	1.63±0.63‡	-2.47±0.56	1.34±0.67‡	-2.76±0.60

Supplemental Table 2. Indices of insulin secretion and insulin sensitivity at baseline and during 24 months weight loss following roux-en-y gastric bypass surgery.

The acute insulin response to glucose, AIRg, ($\text{uU}\cdot\text{ml}^{-1}\cdot\text{min}^{-1}$), beta-cell function, DI, and peripheral insulin sensitivity, Si, ($\text{min}^{-1}\cdot\mu\text{U}^{-1}\cdot\text{ml}^{-1}$) were measured as described in **Methods**. Changes over 24 months ($n = 15$) following surgical intervention were measured in patients who exhibited normal glycemia ($n = 8$) and those with glycemic disorders ($n=7$) at baseline; * $P < 0.05$ and ‡ $P < 0.01$ vs. baseline; values with different letters are significantly different compared to the normal glycemia group, $p < 0.05$.

	Baseline		1 month		6 month		24 month	
	Normal glycemia	Hyperglycemia	Normal glycemia	Hyperglycemia	Normal glycemia	Hyperglycemia	Normal glycemia	Hyperglycemia
AIRg	808±160a	36±11b	935±336a	158±66b	443±59	245±70	400±68	243±65
Si	1.65±0.19	2.01±0.33	1.51±0.42	2.18±0.52	2.49±0.26	2.86±0.56	5.26±0.89‡	4.21±0.71*
DI	1150±132a	63±21b	900±175	333±121	1150±190	555±101	1830±309*	985±242‡