

SUPPLEMENTAL MATERIAL

Table S1. Comparison of RYGB patients that had a matched control versus RYGB patients without a matched control.

		RYGB with match (n=1724)	RYGB without match (n=696)	p-value
USED IN MATCHING CRITERIA				
Age	Years, mean (SD)	45.0 (10.6)	43.1 (10.6)	0.0001*
Sex	Female, % (n)	87% (n=1493)	72% (n=501)	<0.0001†
	Male, % (n)	13% (n=231)	28% (n=195)	
BMI	Kg/m ² , mean (SD)	46.5 (6.0)	57.2 (9.7)	<0.0001*
Diabetes	% (n)	28% (n=486)	44% (n=306)	<0.0001†
10-year CVD risk (FRS)	%, mean (SD)	9.40 (8.11)	10.4 (8.7)	0.013*
Smoking history	Ever, % (n)	42% (n=724)	48% (n=332)	0.0104 †
	Never, % (n)	58% (n=1000)	52% (n=364)	
Anti-HTN med use	% (n)	64% (n=1097)	62% (n=432)	0.471 †
OTHER ITEMS WITHIN FRS				
Systolic BP	mmHg, median (IQR)	128 (120, 140)	130 (120, 144)	0.0003, ‡
Cholesterol	mg/dL, median (IQR)	183 (161, 210)	177 (154, 205)	0.0005, ‡
HDL	mg/dL, median (IQR)	46 (39, 54)	44 (38, 51)	0.0002, ‡
OTHER PATIENT CHARACTERISTICS				
Race	White, % (n)	96% (n=1656)	96% (n=667)	0.527 †
	Black, % (n)	2% (n=35)	2% (n=17)	
	Hispanic, % (n)	2% (n=28)	1% (n=8)	
	Other, % (n)	<1% (n=5)	1% (n=4)	
Diastolic BP	mmHg, median (IQR)	78 (70, 82)	78 (70, 82)	0.628, ‡
Statin use	% (n)	31% (n=534)	30% (n=212)	0.804 †

SD=standard deviation, IQR=Interquartile range

*Two-sample t-test, †Chi-square test, ‡Wilcoxon Rank Sum test

- Anti-HTN medications included ACE inhibitors, beta blockers, diuretics, thiazides, calcium channel blockers, and angiotensin II receptor antagonists.

Supplemental information on changes in CVD risk, lipids, blood pressure, diabetes status, and BMI

Changes in CVD risk, cholesterol, HDL, and systolic blood pressure: This secondary analysis was limited to the subset of matched cases/controls with sufficient data to calculate at least one post-surgery Framingham risk score in the respective case and control. This resulted in the inclusion of 894 per group. For this sub-cohort, the Framingham Risk score was calculated for each year post surgery using a window of +/- 6 months from each time point (12-months post, 24-months post, 36-months post, 48-months post, and 60-months post). For the 894 RYGB cases, there were a total of 1904 measures (year1 n=512, year 2 n=355, year 3 n=352, year 4 n=330, year 5 n=355). For the 894 controls, there were 2836 measures (year1 n=639, year 2 n=610, year 3 n=564, year 4 n=536, year 5 n=487). The characteristics of this cohort can be found in Table S2.

Table S2. Comparison of RYGB patients with a follow-up FRS versus control patients with a follow-up FRS.

		RYGB (n=894)	Control (n=894)	p-value
USED IN MATCHING CRITERIA				
Age	Years, mean (SD)	47.1 (9.7)	47.1 (9.7)	0.971*
Sex	Female, % (n)	86% (n=768)	86% (n=768)	NA
	Male, % (n)	14% (n=126)	14% (n=126)	
BMI	Kg/m ² , mean (SD)	46.1 (5.9)	46.2 (6.0)	0.801*
Diabetes	% (n)	33% (n=293)	33% (n=293)	NA
10-year CVD risk (FRS)	%, mean (SD)	10.6 (8.2)	10.6 (8.1)	0.876*
Smoking history	Ever, % (n)	42% (n=372)	42% (n=372)	NA
	Never, % (n)	58% (n=522)	58% (n=522)	
Anti-HTN med use	% (n)	71% (n=638)	71% (n=638)	NA
OTHER ITEMS WITHIN FRS				
Systolic BP	mmHg, median (IQR)	130 (120, 140)	128 (122, 135)	0.036 ‡
Cholesterol	mg/dL, median (IQR)	184 (160, 210)	187 (166, 210)	0.193 ‡
HDL	mg/dL, median (IQR)	46 (39, 54)	46 (40, 53)	0.196 ‡
OTHER PATIENT CHARACTERISTICS				
Race	White, % (n)	97% (n=864)	97% (n=867)	0.278†
	Black, % (n)	2% (n=18)	1% (n=13)	
	Hispanic, % (n)	1% (n=12)	1% (n=11)	
	Other, % (n)	0% (n=0)	<1% (n=3)	
Diastolic BP	mmHg, median (IQR)	78 (70, 82)	78 (74, 82)	0.0070 ‡
Statin use	% (n)	39% (n=347)	36% (n=320)	0.187†

SD=standard deviation, IQR=Interquartile range

*Two-sample t-test, †Chi-square test, ‡Wilcoxon Rank Sum test

- Anti-HTN medications included ACE inhibitors, beta blockers, diuretics, thiazides, calcium channel blockers, and angiotensin II receptor antagonists.

Remission of diabetes: Remission of diabetes was evaluated using partial remission criteria (defined as hemoglobin A1c < 6.5 without hypoglycemic therapy for one year). All diabetics for each group were used in the analysis (n=486 per group). The characteristics of this cohort can be found in Table S3.

Table S3. Comparison of RYGB patients with diabetes versus control patients with diabetes.

		RYGB (n=486)	Control (n=486)	p-value
USED IN MATCHING CRITERIA				
Age	Years, mean (SD)	50.1 (9.0)	50.1 (9.1)	0.949*
Sex	Female, % (n)	79% (n=385)	79% (n=385)	NA
	Male, % (n)	21% (n=101)	21% (n=101)	
BMI	Kg/m ² , mean (SD)	46.3 (6.4)	46.4 (6.5)	0.855*
Diabetes	% (n)	100% (n=486)	100% (n=486)	NA
10-year CVD risk (FRS)	%, mean (SD)	16.8 (8.5)	16.8 (8.4)	0.949*
Smoking history	Ever, % (n)	44% (n=215)	44% (n=215)	NA
	Never, % (n)	56% (n=271)	56% (n=271)	
Anti-HTN med use	% (n)	91% (n=441)	91% (n=441)	NA
OTHER ITEMS WITHIN FRS				
Systolic BP	mmHg, median (IQR)	130 (120, 142)	128 (122, 137)	0.074, †
Cholesterol	mg/dL, median (IQR)	171 (149, 200)	177 (156, 202)	0.0090, †
HDL	mg/dL, median (IQR)	44 (38, 51)	44 (38, 51)	0.815, †
OTHER PATIENT CHARACTERISTICS				
Race	White, % (n)	96% (n=466)	96% (n=468)	0.973, †
	Black, % (n)	2% (n=10)	2% (n=8)	
	Hispanic, % (n)	2% (n=8)	2% (n=8)	
	Other, % (n)	<1% (n=2)	<1% (n=2)	
Diastolic BP	mmHg, median (IQR)	76 (70, 80)	77 (72, 80)	0.020, †
Statin use	% (n)	56% (n=271)	66% (n=322)	0.0008, †

SD=standard deviation, IQR=Interquartile range

*Two-sample t-test, †Chi-square test, ‡Wilcoxon Rank Sum test

- Anti-HTN medications included ACE inhibitors, beta blockers, diuretics, thiazides, calcium channel blockers, and angiotensin II receptor antagonists.

Change in BMI: Follow-up weight data were recorded monthly (when available) out to 6 years after surgery and converted to BMI using the baseline height. The unadjusted mean BMIs were included in figure 4f. Repeated measures nonlinear regression was used to compare between RYGB and control groups. At least one follow-up weight measure was available for n=1715 (>99%) in the RYGB group and n=1723 (>99%) in the control group. In the RYGB group, there were a total of 34,075 weight measures with 93% of patients recording a weight at >1 year and 63% of patients recording a weight at >4 years. In the control group, there were a total of 38,679 weight measures with 99% of patients recording a weight at >1 year and 82% of patients recording a weight at >4 years.