



XXIX IFSO World Congress

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**5-Year Results From A Randomized Controlled Trial
Comparing Laparoscopic Sleeve Gastrectomy with
Duodenal-jejunal bypass and Roux-en-Y Gastric
Bypass in Patients Affected by Obesity with
Suboptimally Controlled Diabetes**

TORONTO2026

**The Future of Obesity Management:
From Weight Loss to Health Gain**



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Disclosure

☐	No, nothing to disclose
☒	Yes, please specify:

Company Name	Honoraria/ Expenses	Consulting/ Advisory Board	Funded Research	Royalties/ Patent	Stock Options	Ownership / Equity Position	Employee	Other (please specify)
Tongee Medical Global Limited			X					



Rationale: Metabolic efficacy of SG-DJB versus RYGB

Clinical context

Roux-en-Y gastric bypass (RYGB) is an established metabolic operation for obesity with type 2 diabetes.

Sleeve gastrectomy with duodenojejunal bypass (SG-DJB) is increasingly performed in Asia, especially areas with high incidence of gastric cancer. It preserves pyloric continuity and endoscopic access to the stomach, with a single duodenojejunal anastomosis.

Evidence gap and study question

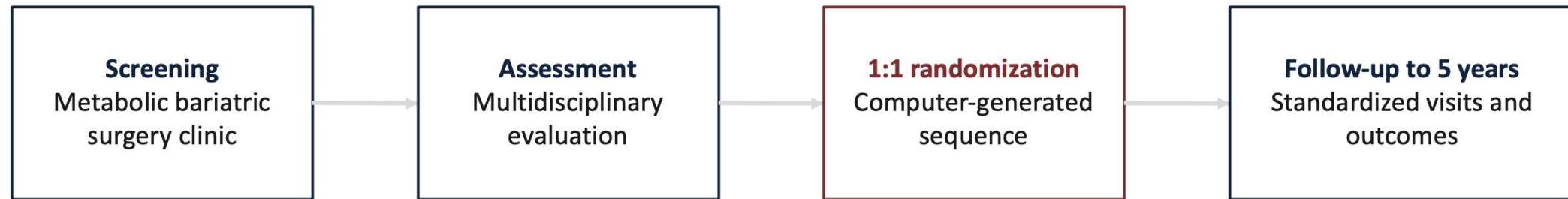
Randomized comparative data with medium-term follow-up in patients with obesity and suboptimally controlled T2DM have been limited.

Question: Do SG-DJB and RYGB differ in glycaemic, weight, safety and functional outcomes through five years?



Study Design

Single-centre, prospective, double-blinded randomized trial NCT03125369



Eligibility

- Age 20–65 years;
- T2DM duration more than 2 years;
- BMI 28–45 kg/m²; AND
- Insulin use more than 6 months **or** HbA1c 7–12% despite more than 2 glucose-lowering medications.

Masking and registration

Participants, clinicians and outcome assessors were blinded to procedure until 1 year; operating surgeons were unblinded.



Standardized Surgical Techniques

SG-DJB

Sleeve: calibrated with a 38-Fr bougie.

Duodenal division: 1–2 cm distal to the pylorus, preserving the right gastroepiploic vessels.

Reconstruction: one loop end-to-side duodenojejunal anastomosis.

Biliopancreatic limb: 200 cm.

RYGB

Gastric pouch: 30 cc.

Gastrojejunostomy: 2.5 cm, circular or linear stapled.

Biliopancreatic limb: 100 cm.

Alimentary limb: 100 cm.

Mesenteric and Petersen defects: closed.

All procedures were performed laparoscopically in a standardized manner by experienced bariatric surgeons.



Outcomes and Definitions

Prespecified endpoint framework

Primary endpoint • 12 months

Complete T2DM remission

Longitudinal outcomes through 5 years

- Glycaemic control
- Diabetes medication requirements
- Body weight
- Body composition
- Obesity-related comorbidities
- Complications
- Nutrition (macro- & micro- nutrients)
- Gastrointestinal symptoms and quality of life.

Key definitions

Complete remission: HbA1c <6.0% without medication.

Partial remission: HbA1c <6.5% without medication.

Adequate control: HbA1c <7.0%, with or without medication.

Statistical analysis

Per-protocol analysis

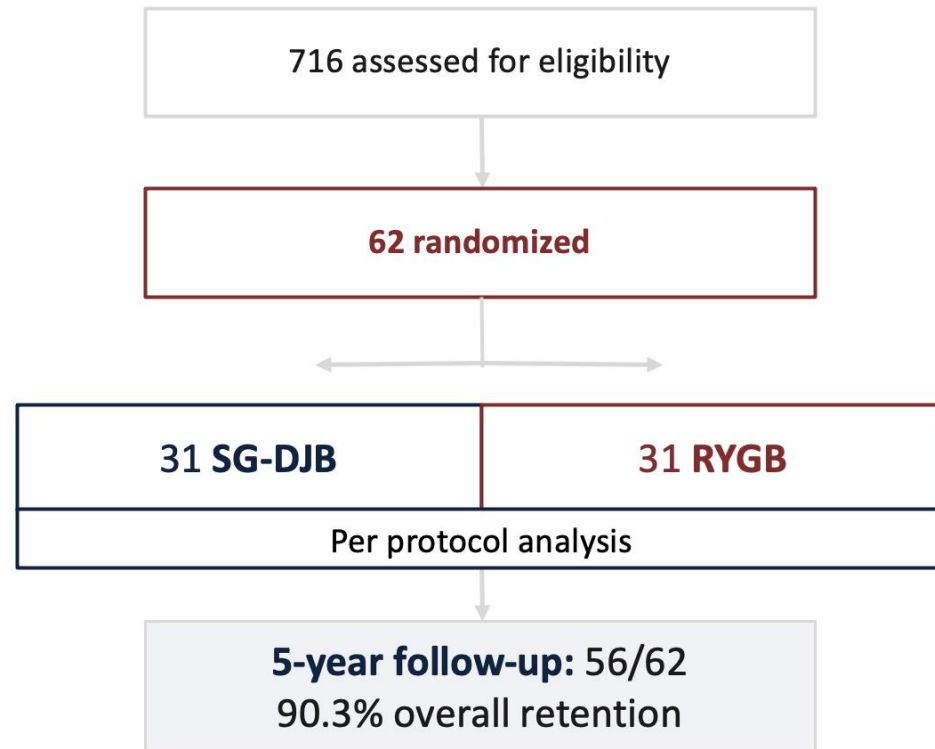
Two-tailed, $p < 0.05$ as statistical significance.

Mean focus of this study : **medium term (5-years)** results of SG-DJB compared to RYGB



Results

Randomized cohort:
62 participants; 90.3% retained at five years

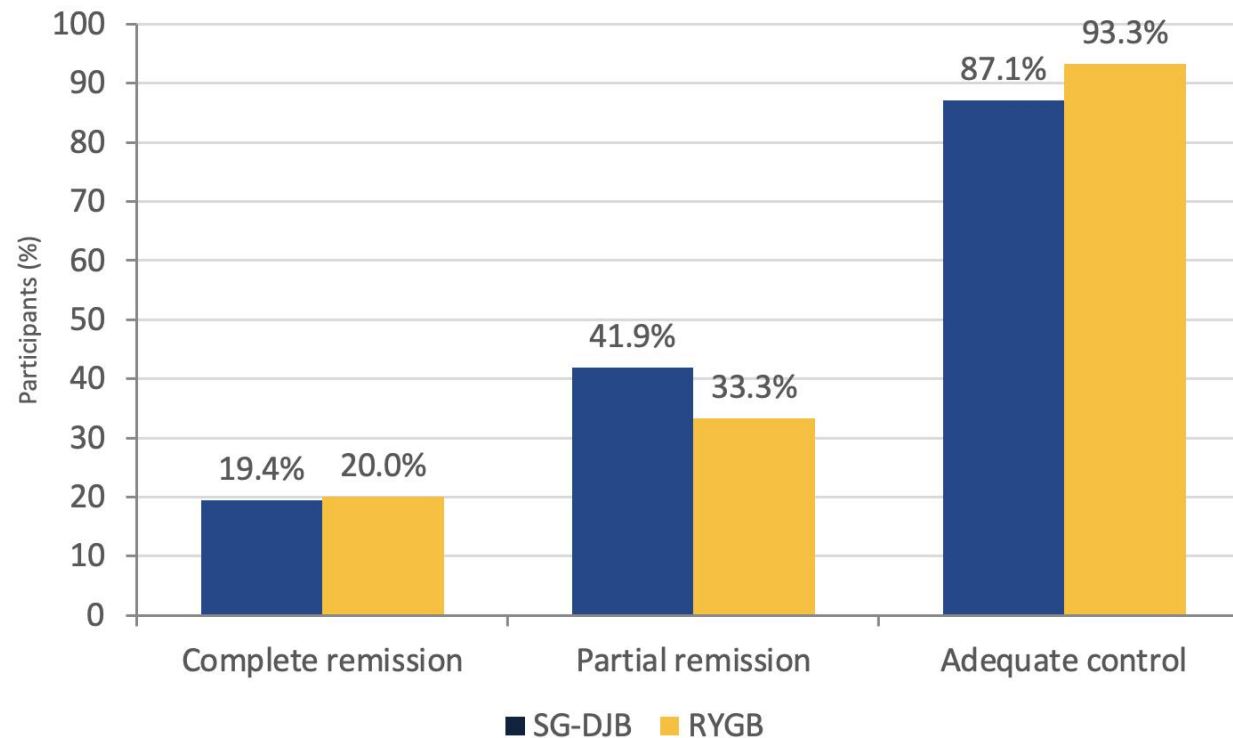


Baseline Profile	SG-DJB (n=31)	RYGB (n=31)	P-value
Age	47.81 (5.87)	49.06 (7.21)	0.44
Sex Ratio (M:F)	21:10	20:11	0.79
Baseline BW (kg)	101.42 (16.56)	103.88 (13.83)	0.53
Baseline BMI (kg/m ²)	35.67 (3.75)	36.82 (3.71)	0.23
Baseline Percentage body fat (%)	31.36 (6.75)	33.04 (6.14)	0.62
Baseline Characteristics of T2DM			
Duration of T2DM (years)	10.31 (5.79)	12.4 (6.37)	0.20
Baseline HbA1c (%)	8.38 (1.03)	8.01 (1.02)	0.10
Baseline Fasting Glucose	8.58 (2.26)	8.18 (2.47)	0.40
Baseline Serum Insulin	24.63 (23.99)	24.16 (18.04)	0.93
Number of DM Medications			
1	3	3	0.66
2	9	12	
3	14	13	
4	4	1	
5	1	1	
6	0	1	
Insulin Use	19/31 (61%)	17/31 (55%)	0.80
Baseline Comorbid Conditions			
Hypertension	26/31 (83%)	28/31 (90%)	0.45
Obstructive sleep apnea (OSA)	25/31 (80%)	27/31 (87%)	0.49
Hyperlipidaemia	26/31 (83%)	27/31 (87%)	0.72
Joint Pain	2/31 (6%)	4/31 (13%)	0.39
Gastroesophageal reflux disease (GERD)	5/31 (16%)	4/31 (13%)	0.72

Results

At 12 months, complete remission was similar between procedures

Proportion of participants, %



Primary endpoint

19.4% SG-DJB vs **20.0%** RYGB
p=0.95

Mean HbA1c

6.29 ±0.82% vs **6.06 ±0.62%**
p=0.22

Proportion with Insulin discontinued

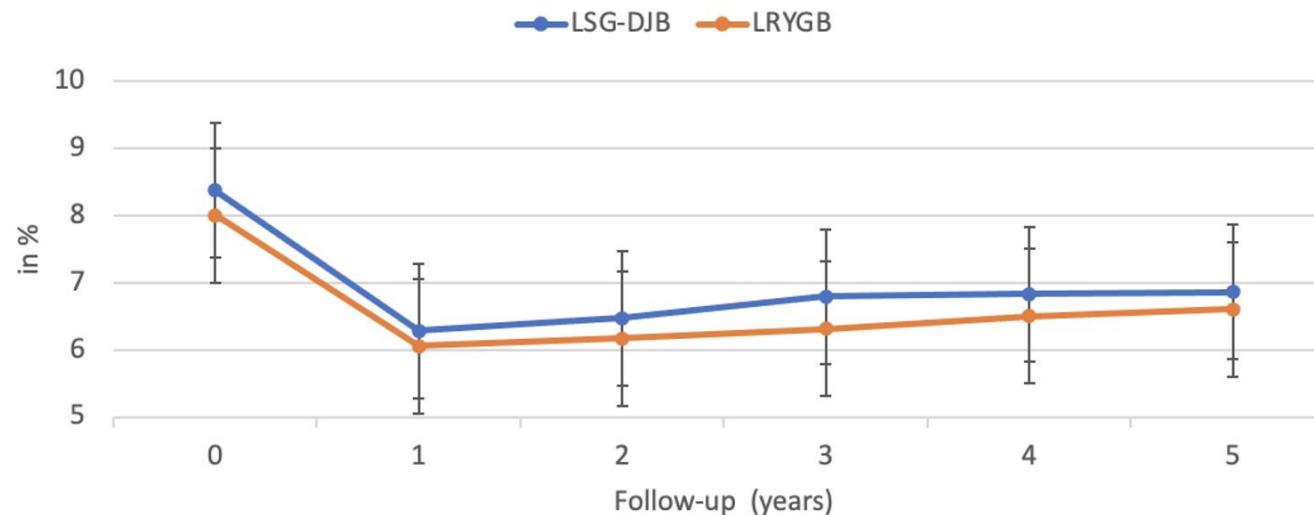
84.2% (16/19) vs **82.4%** (14/17)
p=0.88



Results

Five-year glycaemic benefit was sustained and comparable

Mean HbA1c (%) from baseline to 5 years



	Baseline	1 Year	2 Years	3 Years	4 Years	5 Years
SG-DJB group	8.38% (1.03) n=31	6.29% (0.82) n=31	6.48% (1.04) n=31	6.80% (1.26) n=27	6.84% (1.20) n=27	6.87% (1.33) n=27
RYGB group	8.01% (1.02) n=31	6.06% (0.62) n=30	6.18% (0.13) n=30	6.32% (0.73) n=29	6.51% (0.72) n=29	6.61% (0.74) n=29
P-value	0.10	0.22	0.22	0.08	0.21	0.36

At 5 years

Adequate glycaemic control (HbA1c <7%)

48% (13/27) SG-DJB vs **38%** (11/29) RYGB
p=0.44

Proportion without diabetic medication

30% (8/27) vs **28%** (8/29)
p=0.87

Proportion with Insulin discontinued

75% (12/16) vs **86%** (13/15)
p=0.41

Changes in HOMA-IR

-7.16 vs **-7.53**
p=0.92



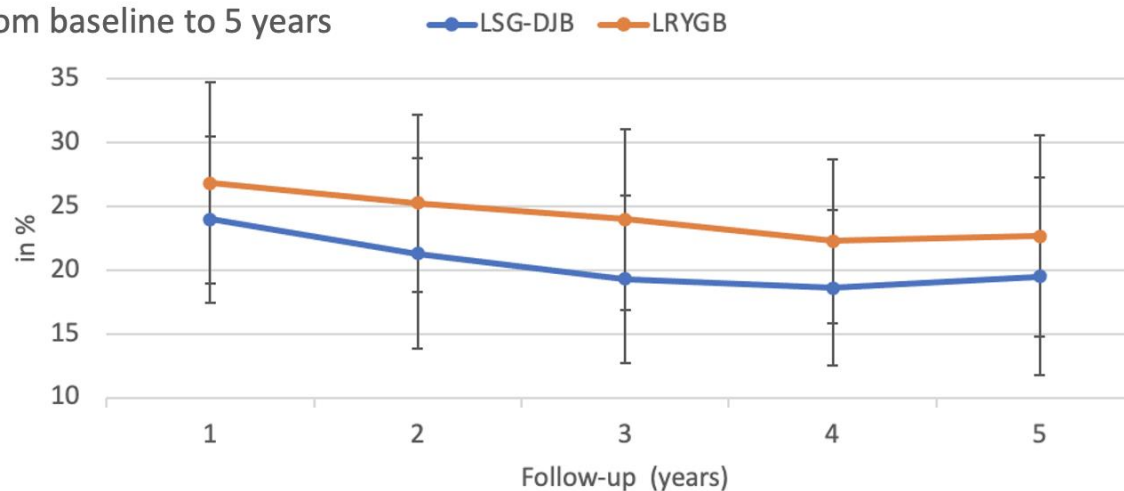
Results

Both procedures resulted in sustained weight loss & comorbidity improvements

Total weight loss at 5 years: **19.5%** in SG-DJB vs **22.7%** in RYGB

** No patient was taking GLP-1RA during the 5-year period

TWL (%) from baseline to 5 years



	1 Year	2 Years	3 Years	4 Years	5 Years
SG-DJB group	24.01% (7.88)	21.31% (6.94)	19.32% (7.06)	18.65% (6.41)	19.53% (7.87)
RYGB group	26.86% (6.54)	25.29% (7.47)	24.00% (6.58)	22.29% (6.08)	22.69% (7.75)
P-value	0.13	0.03	0.01	0.03	0.14

At 5 years

Improvement/remission in hypertension

62% (16/25) SG-DJB vs **64%** (18/28) RYGB

p=0.83

Improvement/remission in dyslipidaemia

31% (8/26) vs **37%** (10/27)

p=0.78

Improvement/remission in OSA

76% (19/25) vs **78%** (20/26)

p=0.94



Results

Late complications

Outcome	SG-DJB	RYGB	p-value
Late complications, 30 days to 5 years	2/31 (6.5%)	6/31 (22.6%)	0.13
Stricture	1	1	
Intractable acid reflux	1	0	
Anastomotic/marginal ulcer	0	4	
Gastric remnant bleeding		1	
Chronic acid reflux symptoms	14/27 (51.9%)	6/29 (20.7%)	0.03
Long term PPI use	11/27 (40.7%)	7/29 (24.1%)	0.01

Nutritional outcomes are comparable

Laboratory outcome	SG-DJB	RYGB	p-value
Serum albumin, g/L	38.88 ± 3.71	39.62 ± 2.76	0.40
Haemoglobin, g/dL	13.86 ± 3.71	13.01 ± 2.35	0.13

No clinically significant protein or micronutrient deficiencies (including ferritin, Cal, PO₄, PTH, vit B12, vit D3, Zinc folate, Mg) were observed.

No patients required hospitalization, conversional surgery for malnutrition, or artificial nutrition



Results

Health-related Quality of Life

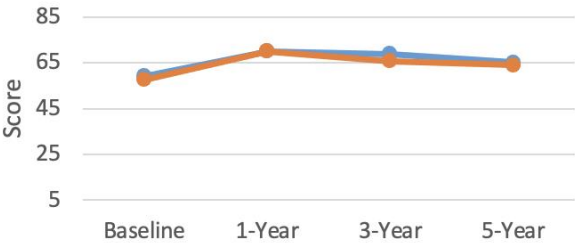
Sustained improvement in physical health after SG-DJB or RYGB

SF-36 Questionnaire

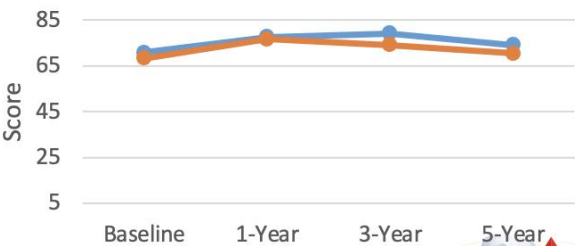
Category	Pre-operative	After 5 Years	p value
Physical Health Summary	58.1 ± 14.9	64.5 ± 12.1	0.016
Physical functioning	66.7 ± 11.4	61.7 ± 11.1	0.001
Role-physical	57.4 ± 40.6	78.2 ± 33.0	0.002
Bodily pain	70.6 ± 22.9	66.3 ± 24.5	NS
General health	38.7 ± 17.3	51.7 ± 21.3	<0.001
Mental Health Summary	69.9 ± 18.2	72.3 ± 16.5	NS
Vitality	54.6 ± 16.0	58.7 ± 15.9	NS (0.07)
Social functioning	78.9 ± 20.1	79.1 ± 18.7	NS
Role-emotional	74.9 ± 39.7	83.3 ± 30.9	NS
Mental health	70.2 ± 14.3	67.8 ± 17.4	NS

Comparable HRQoL in SG-DJB and RYGB

Overall Physical Health



Overall Mental Health



Conclusions

- 1 Both SG-DJB and RYGB produced sustained and comparable glycaemic improvement through five years

- 2 More favourable weight loss was observed from two to five years in the RYGB. Obesity-related comorbidity outcomes were comparable.

- 3 At five years, no clinically significant protein or micronutrient deficiency was observed in either trial arm.

- 4 Chronic acid reflux and long-term PPI use were higher after SG-DJB (51.9% and 40.7%). 20.7% developed anastomotic or marginal ulcers after RYGB. Patient reported quality of life was comparable.

Conclusion: *SG-DJB is an effective and safe metabolic surgical procedure for patients with diabetic obesity.*



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