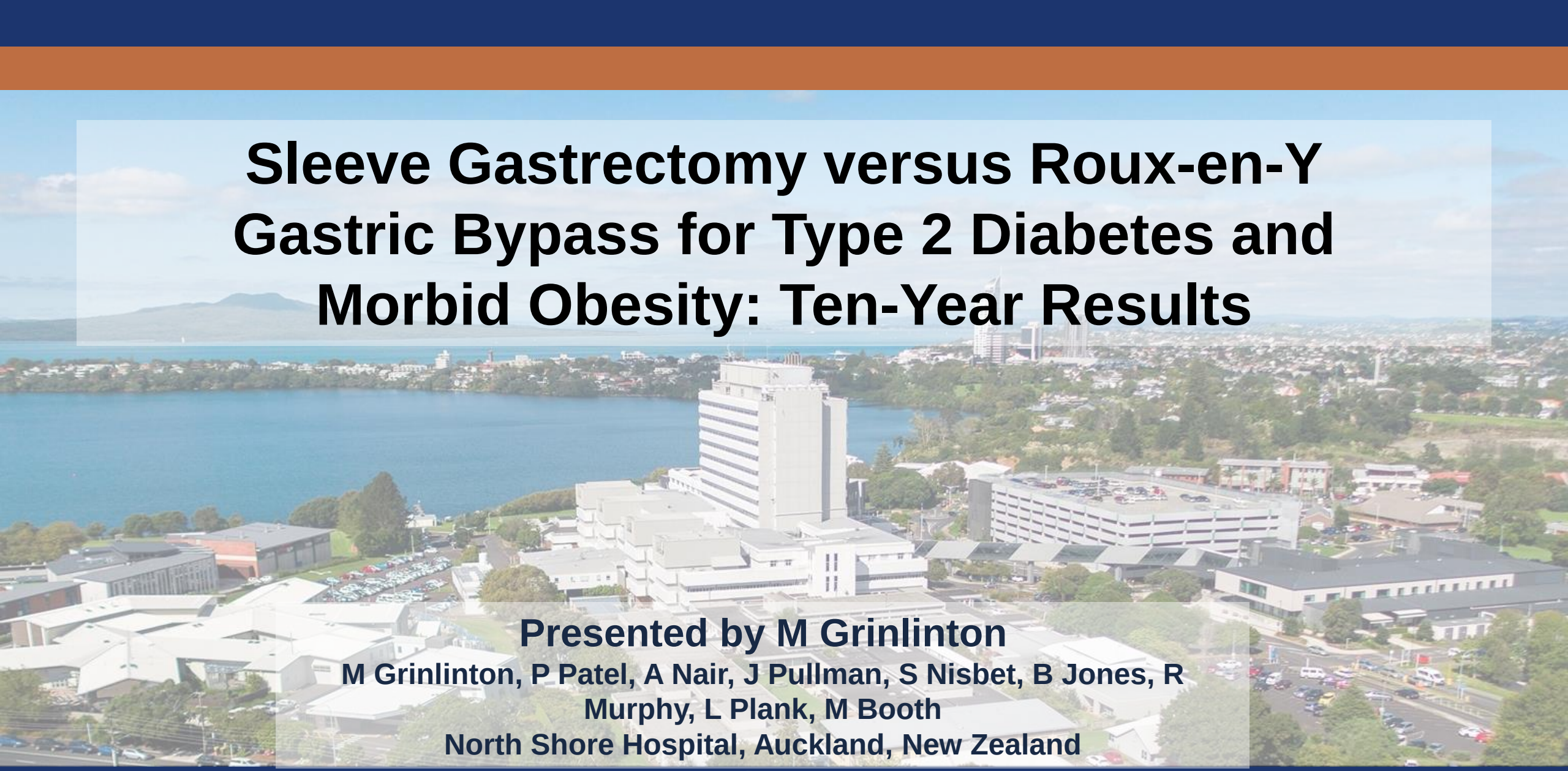
Sleeve Gastrectomy versus Roux-en-Y Gastric Bypass for Type 2 Diabetes and Morbid Obesity: Ten-Year Results



Presented by M Grinlinton

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Disclosures

Johnson and Johnson
Medtronic
Obex
Auckland Medical Research Council

Methods

Design
Single centre, double blinded, RCT

Eligibility

Inclusion
Age 20-55 years
T2D for >6 months
BMI 35-65 >5 years

Exclusion
C-peptide <350pmol/L
Pregnancy
T1/secondary diabetes
Chronic pancreatitis
Steroids
Smokers
Unfit for GA

Primary Outcome
Diabetes remission* at 5 years

*Remission of diabetes: **HbA1c<6% (<42U) without diabetes medication.**

Secondary Outcomes

Partial DM remission
Weight loss
Comorbidity resolution

Complications
Revision
Mortality

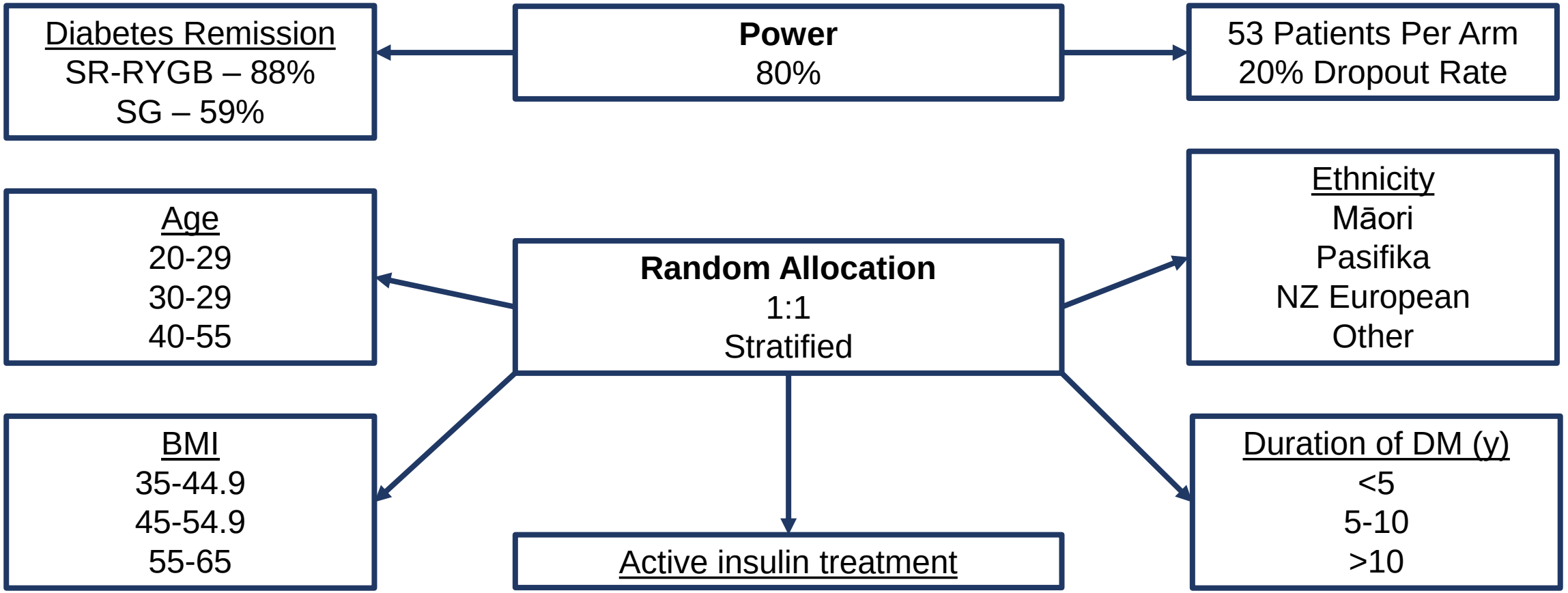
Quality of life
Psychological parameters

RAND-36

HADS

Murphy et al 2016 BMJ Open

Methods



Murphy et al 2016 BMJ Open

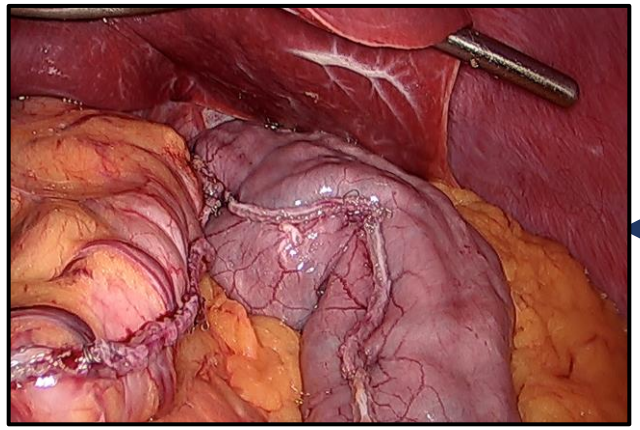
Participant Journey

Assessed for Eligibility
221

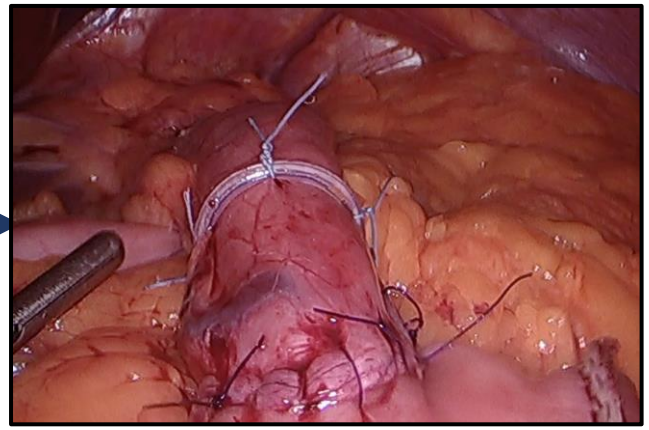
Enrolment

Excluded - 107
Ineligible - 90
Refused Consent - 9

n = 114



Allocation



5 Years
98

7 Years
89

Follow Up

10 Years
83

Murphy et al 2018 Obesity Surgery, Murton et al 2023 Obesity Surgery

Baseline Information

	LSG	SR-LRYGB
Characteristic	n=58	n=56
Age, year (SD)	45.5 ± 6.4	46.6 ± 6.7
Female sex – n (%)	26 (45)	33 (59)
Duration of diabetes – n (%)		
<10 years	41	39
≧10 years	15	17
Glycated haemoglobin – mmol/mol	61.9 ± 12.8	64.5 ± 18.1
Body weight - kg	126.7 ± 24.3	123.4 ± 21.3
Body mass index (kg/m^2) – n (%)		
35 – 44.9	41 (77)	43 (77)
45 – 54.9	15 (26)	9 (16)
55 – 65	2 (3)	4 (7)

Murphy et al 2018 Obesity Surgery

Publications

Open Access Protocol

BMJ Open

Sleeve gastrectomy versus Roux-en-Y gastric bypass for type 2 diabetes and morbid obesity: double-blind randomised clinical trial protocol

Rinki Murphy,[1] Nicholas J Evennett,[2] Michael G Clarke,[2] Steven J Robinson,[2] Lee Humphreys,[2] Bronwen Jones,[2] David D Kim,[3] Richard Cutfield,[3] Lindsay D Plank,[4] Hisham Hammodat,[2] Michael W C Booth[2]

OBES SURG (2018) 28:293–302
DOI 10.1007/s11695-017-2872-6

IFSO CrossMark

ORIGINAL CONTRIBUTIONS

Laparoscopic Sleeve Gastrectomy Versus Banded Roux-en-Y Gastric Bypass for Diabetes and Obesity: a Prospective Randomised Double-Blind Trial

Rinki Murphy[1] · Michael G. Clarke[2] · Nicholas J. Evennett[2] · S. John Robinson[2] · M. Lee Humphreys[2] · Hisham Hammodat[2] · Bronwen Jones[2] · David D. Kim[3] · Richard Cutfield[3] · Malcolm H. Johnson[4] · Lindsay D. Plank[5] · Michael W. C. Booth[2]

Effect of Banded Roux-en-Y Gastric Bypass Versus Sleeve Gastrectomy on Diabetes Remission at 5 Years Among Patients With Obesity and Type 2 Diabetes: A Blinded Randomized Clinical Trial

Rinki Murphy,[1] Lindsay D. Plank,[2] Michael G. Clarke,[3] Nicholas J. Evennett,[3] James Tan,[3] David D.W. Kim,[4] Richard Cutfield,[4] and Michael W.C. Booth[3]

Diabetes Care 2022;45:1503–1511 | https://doi.org/10.2337/dc21-2498

Obesity Surgery
https://doi.org/10.1007/s11695-023-06635-x

IFSO

ORIGINAL CONTRIBUTIONS

Seven-Year Results of a Randomized Trial Comparing Banded Roux-en-Y Gastric Bypass to Sleeve Gastrectomy for Type 2 Diabetes and Weight Loss

Jack S. Pullman[1] · Lindsay D. Plank[2] · Sherry Nisbet[1] · Rinki Murphy[3] · Michael W. C. Booth[1]

Results at 1, 5, 7 Years

	Remission of Type 2 Diabetes			Mean ± SD % total weight loss		
	LSG (%)	SR-LRYGB (%)	P value	LSG	SR-LRYGB	P value
1 year	38	43	0.56	27.1 ± 7.5	32.2 ± 7.7	< 0.001
5 Year	33	47	0.009	16.3	26.9	< 0.001
7 Year	30.8	46	0.013	13.4	26.2	< 0.001

Murphy et al. Obes Surg. 2018 Feb;28(2):293-302.[2]
Murphy at al. Diabetes Care. 2022 Jul 7;45(7):1503-1511.[3]
Pullman at al. Obes Surg. 2023 Jul;33(7):1989-1996.[4]

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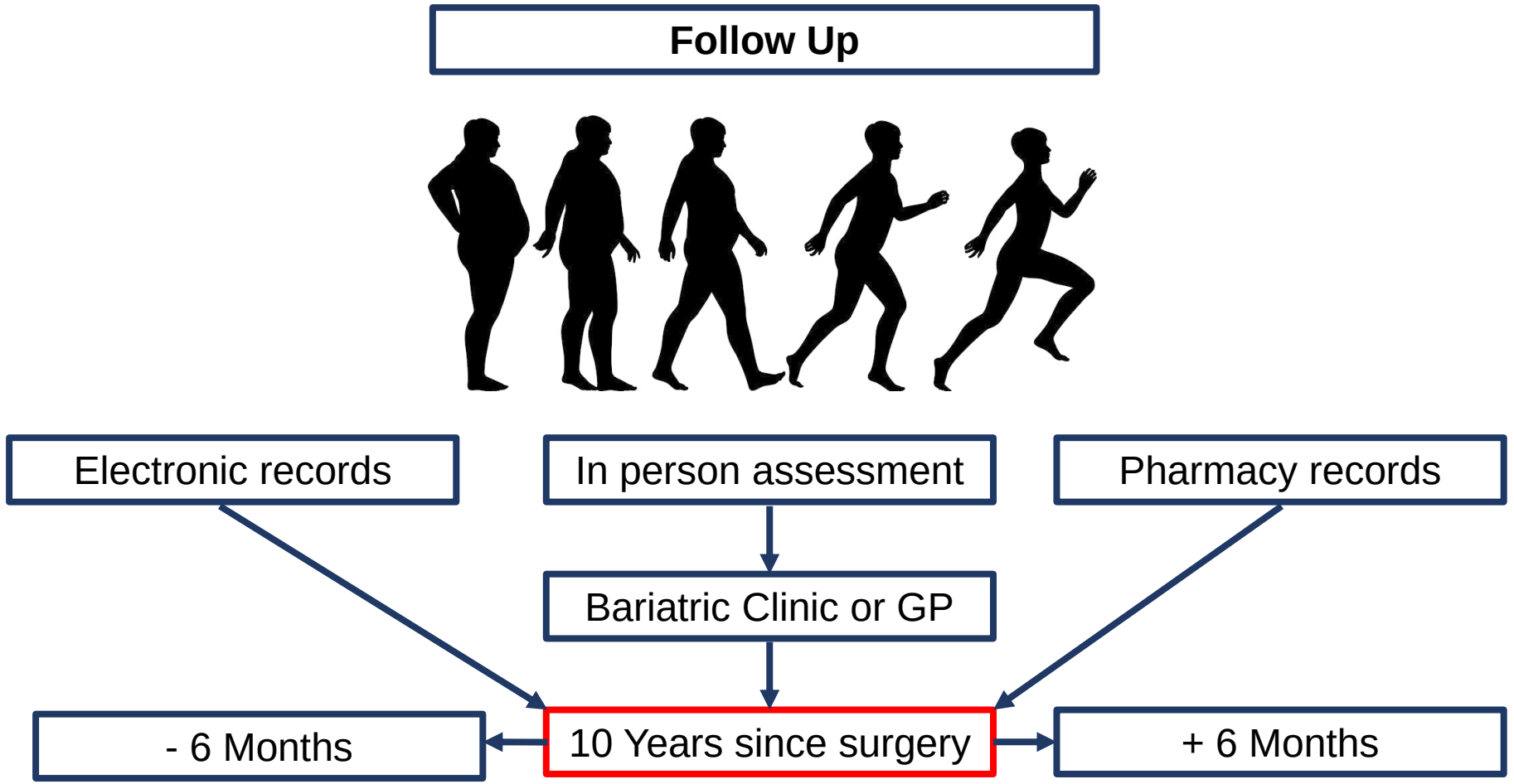

Follow Up
Electronic records
In person assessment
Pharmacy records
Bariatric Clinic or GP
- 6 Months
10 Years since surgery
+ 6 Months

Results

Outcomes	LSG N (%)	RYGB N (%)	P value
Remission of T2D	16.7 (6/36)	29.8 (14/47)	0.080
Total weight loss	19.5 (n = 34)	27.2 (n = 33)	0.003
Late minor complications	19	26.8	0.319
Late major complications	25.9	25.0	0.916
Deaths	8 (13.8)	4 (7.1)	0.362

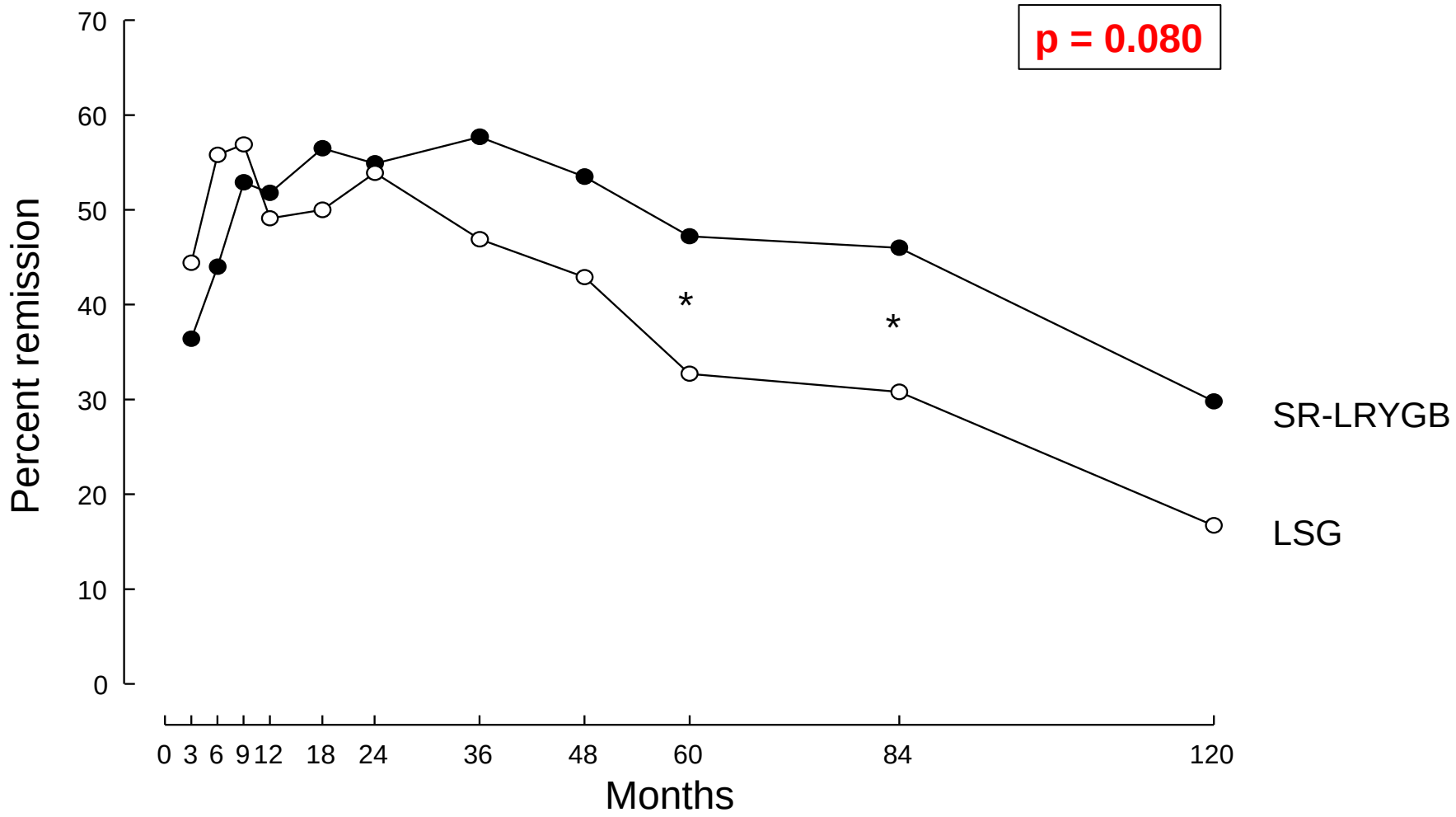
Outcomes	LSG Mean (SD)	RYGB Mean (SD)	P value
Cholesterol	4.44 (0.96)	4.67 (1.02)	0.322
HDL	1.34 (0.31)	1.46 (0.41)	0.177
LDL	2.37 (0.84)	2.60 (0.86)	0.245

Subgroup Analysis

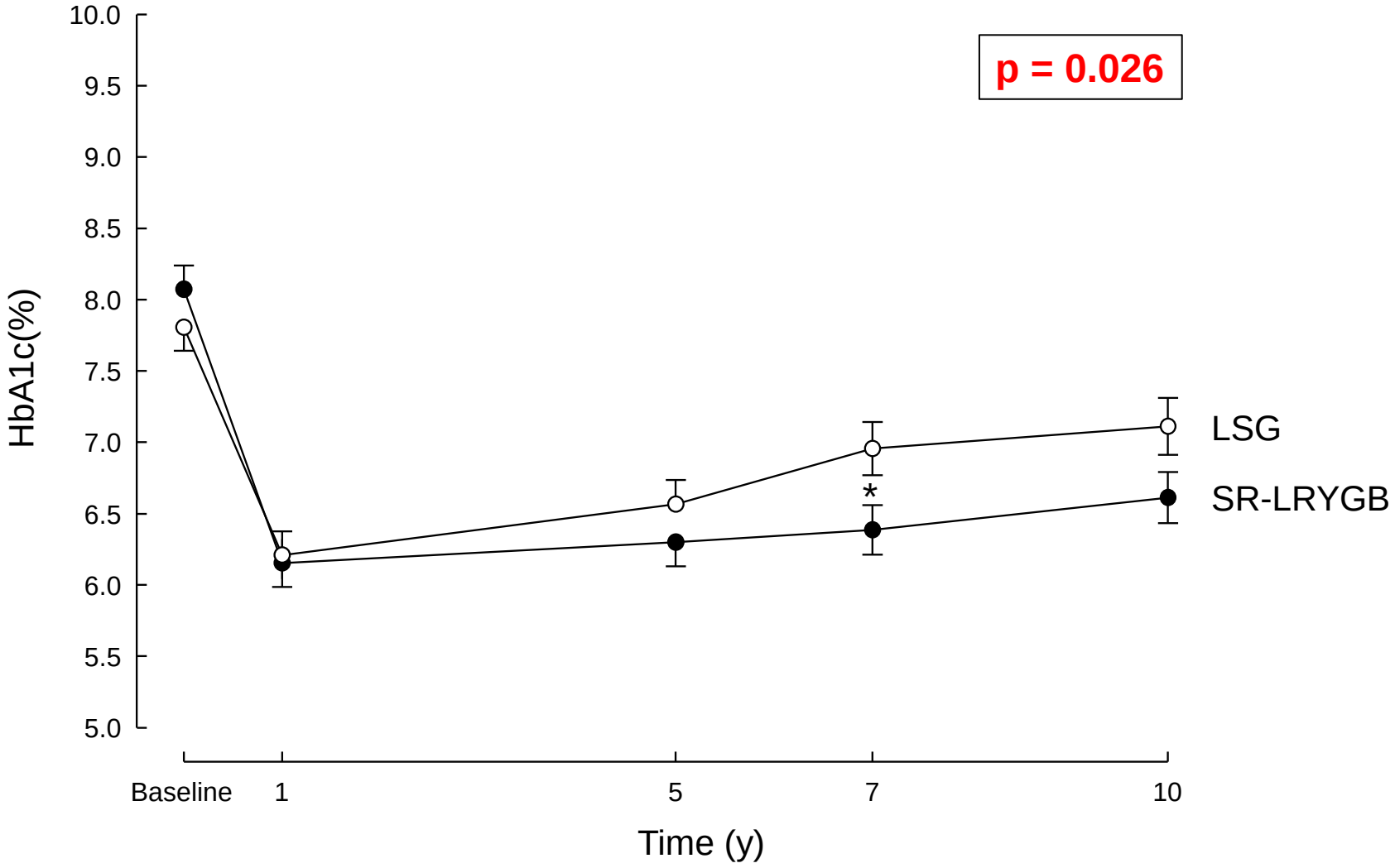
Preoperative characteristics	Māori/Pacific Peoples	European/Other	P value
LSG	13/58 (22.4%)	45/58	
SR-RYGB	17/56 (30.4%)	39/56	
Age	45.6	47.3	0.23
% patients in each group	26.3%	73.7%	
HBA1c	8.74±1.63	7.65±1.23	0.0002
Diabetes duration	8.0±5.1	6.8±5.4	0.27
% patients on insulin	9/30 (30%)	20/84 (23.8%)	0.63

10Y Results	Māori/Pacific Peoples	European/Other	P value
Remission of T2D	2/22	18/61	0.080
% patients in each group	26.5%	73.5%	

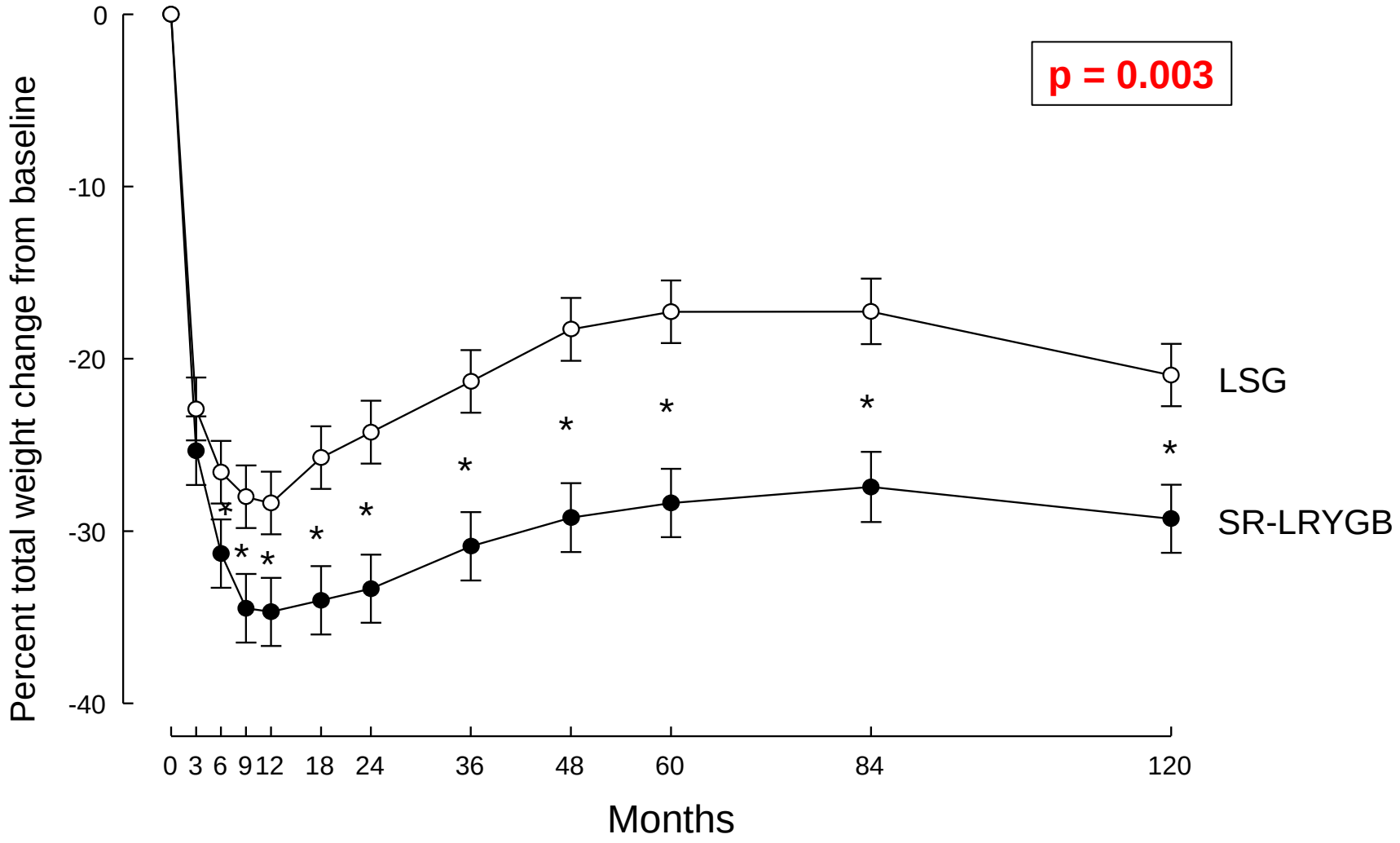
Remission of T2D in LSG versus SR-LRYGB



HBA1c levels in LSG versus SR-LRYGB



Percentage weight loss in LSG versus SR-LRYGB



Conclusions

At 10 years

SR-LRYGB was superior to LSG for % TBWL (p = 0.003)
SR-LRYGB may be superior to LSG for T2D remission (p = 0.080)

Māori/Pacific Peoples
Lower rate of T2D remission (p=0.080)
Baseline HBA1c higher (p = 0.0002)
Baseline T2D duration longer (NS)
Higher number on pre-operative insulin (NS)

References

- 1. Murphy R, Evennett NJ, Clarke MG, Robinson SJ, Humphreys L, Jones B, Kim DD, Cutfield R, Plank LD, Hammodat H, Booth MW. Sleeve gastrectomy versus Roux-en-Y gastric bypass for type 2 diabetes and morbid obesity: double-blind randomised clinical trial protocol. BMJ Open. 2016 Jul 4;6(7):e011416. doi: 10.1136/bmjopen-2016-011416. PMID: 27377635; PMCID: PMC4947793.
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- 3. Murphy R, Plank LD, Clarke MG, Evennett NJ, Tan J, Kim DDW, Cutfield R, Booth MWC. Effect of Banded Roux-en-Y Gastric Bypass Versus Sleeve Gastrectomy on Diabetes Remission at 5 Years Among Patients With Obesity and Type 2 Diabetes: A Blinded Randomized Clinical Trial. Diabetes Care. 2022 Jul 7;45(7):1503-1511. doi: 10.2337/dc21-2498. PMID: 35554515; PMCID: PMC9274222.
- 4. Pullman JS, Plank LD, Nisbet S, Murphy R, Booth MWC. Seven-Year Results of a Randomized Trial Comparing Banded Roux-en-Y Gastric Bypass to Sleeve Gastrectomy for Type 2 Diabetes and Weight Loss. Obes Surg. 2023 Jul;33(7):1989-1996. doi: 10.1007/s11695-023-06635-x. Epub 2023 May 27. PMID: 37243915; PMCID: PMC10224662.
- 5. Mahawar KK, Parikh C, Carr WR, et al. Primary banded Roux-en-Y gastric bypass: a systematic review. Obes Surg 2014;24:1771–92.