

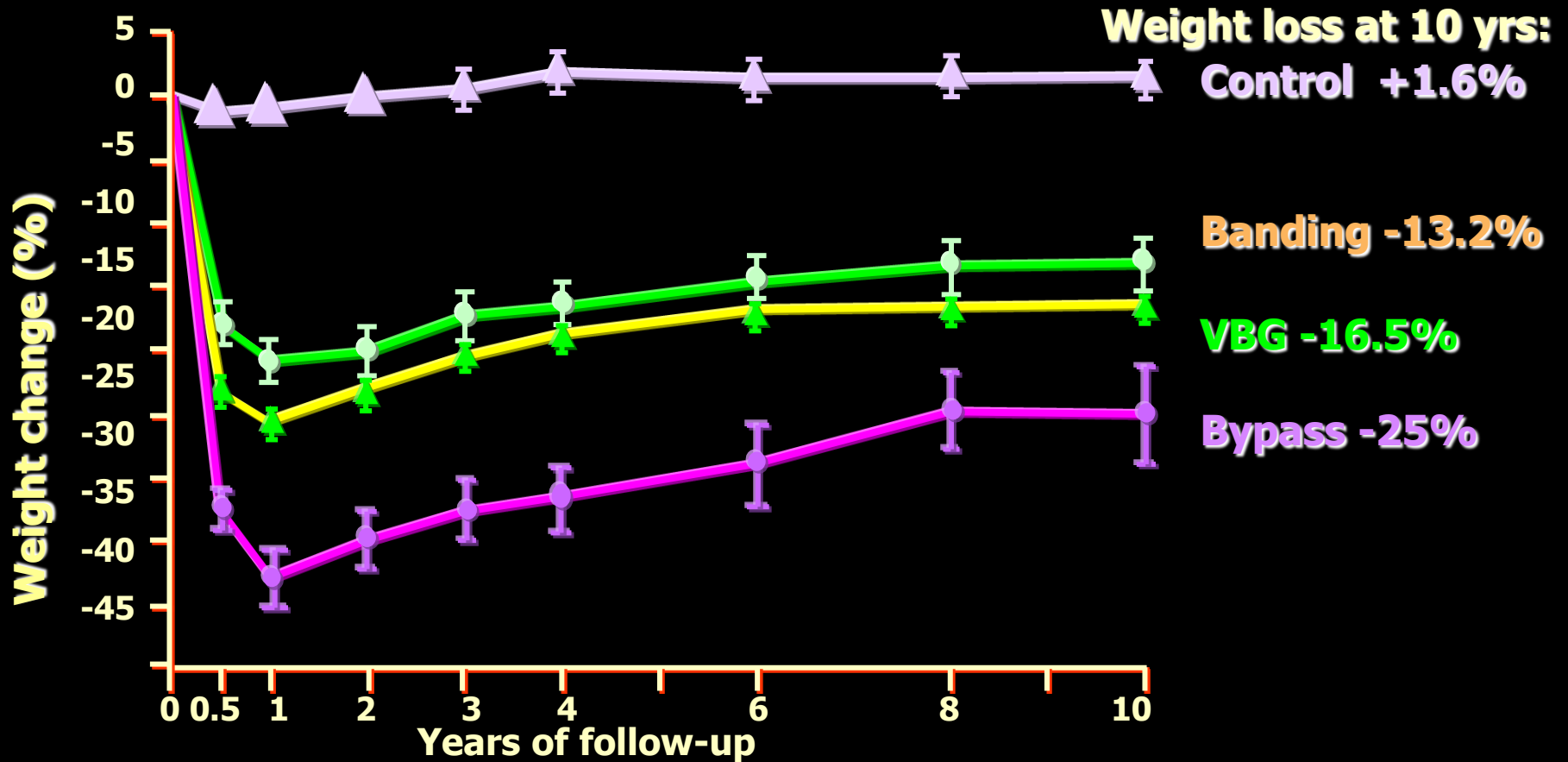
Surgical treatment options for diabetes: Prime time versus pitfalls

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Southmead Hospital
Bristol**

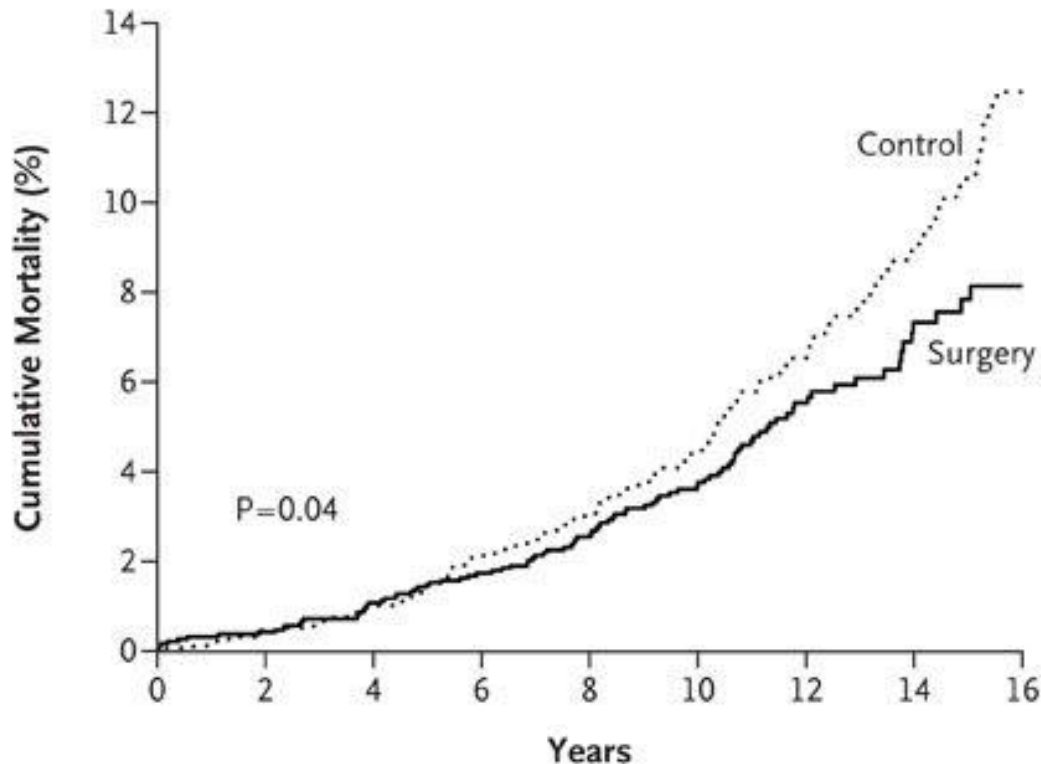


Body mass index



Cardiovascular disease

Diet/Drug induced weight loss NO mortality benefit



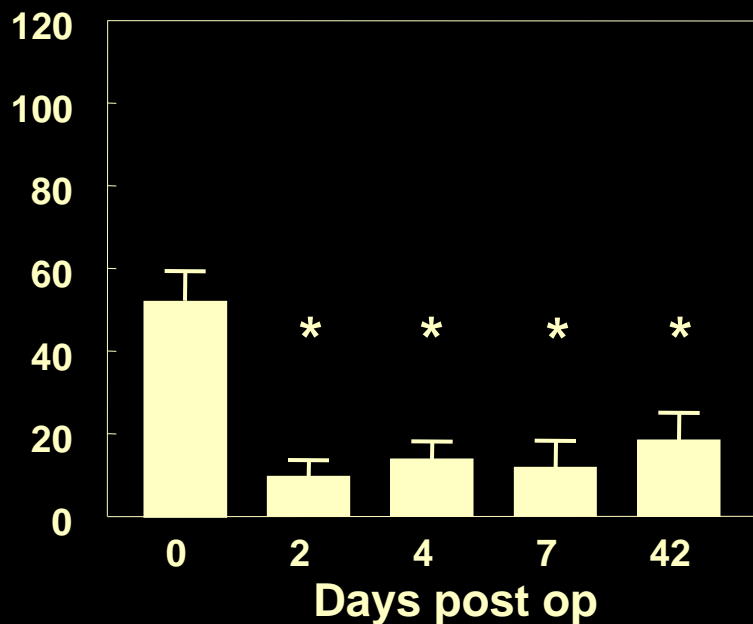
No. at Risk

Surgery	2010	2001	1987	1821	1590	1260	760	422	169
Control	2037	2027	2016	1842	1455	1174	749	422	156

Sjostrom L et al.
NEJM 2007

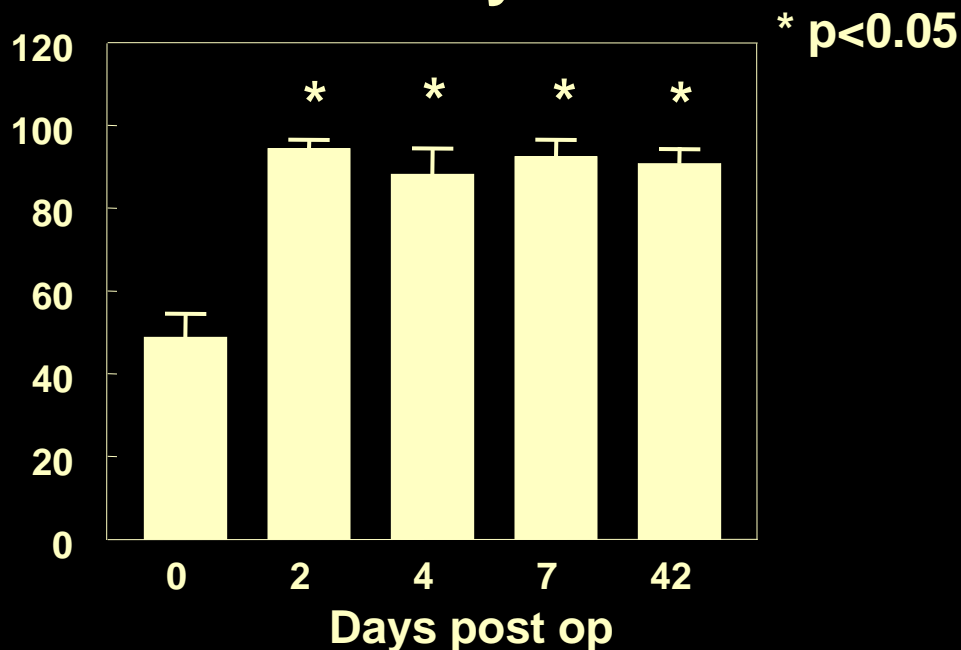
Visual Analogue Scales

Hunger



Hunger pre-meal

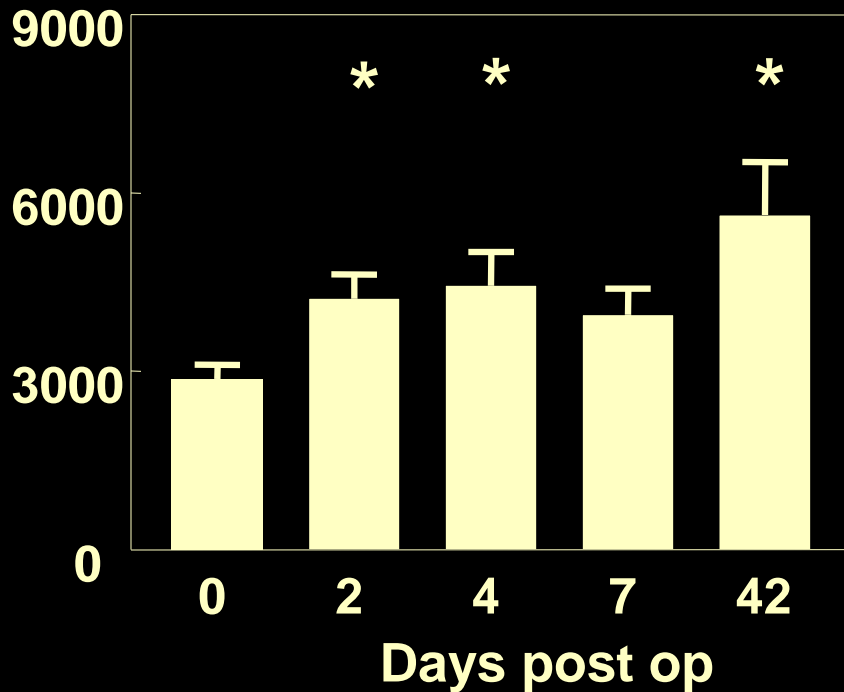
Satiety



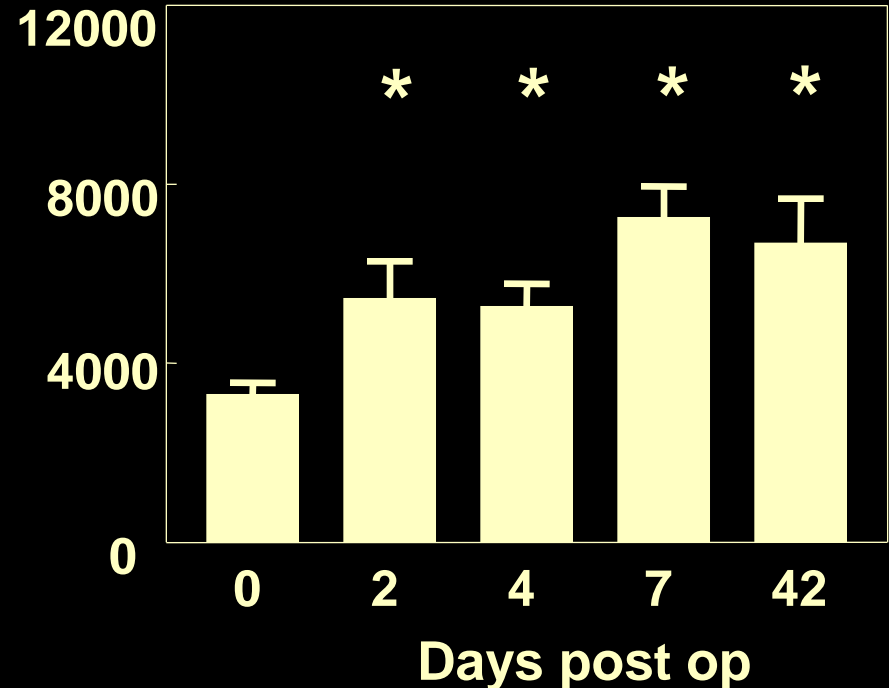
Satiety 60 minutes after meal

PYY & GLP-1 Responses

PYY pmol/L/min



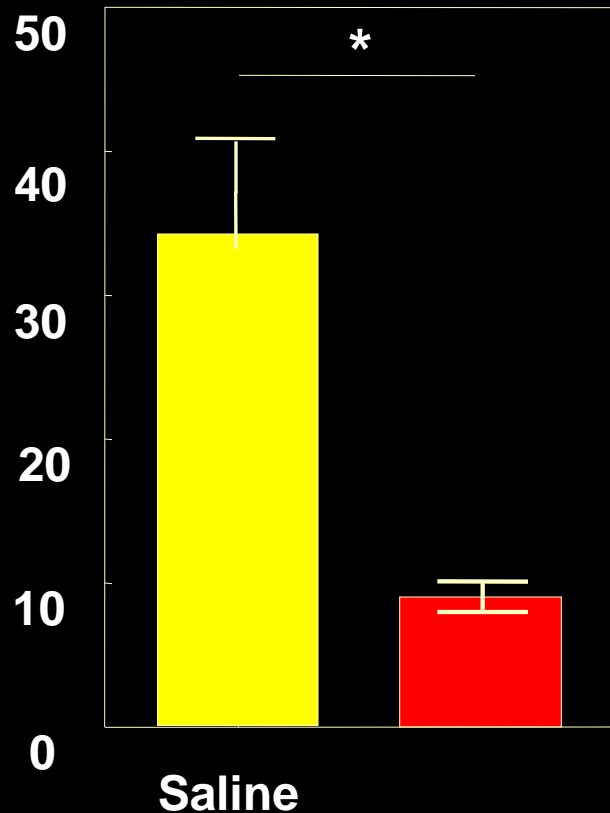
GLP-1 pmol/L/min



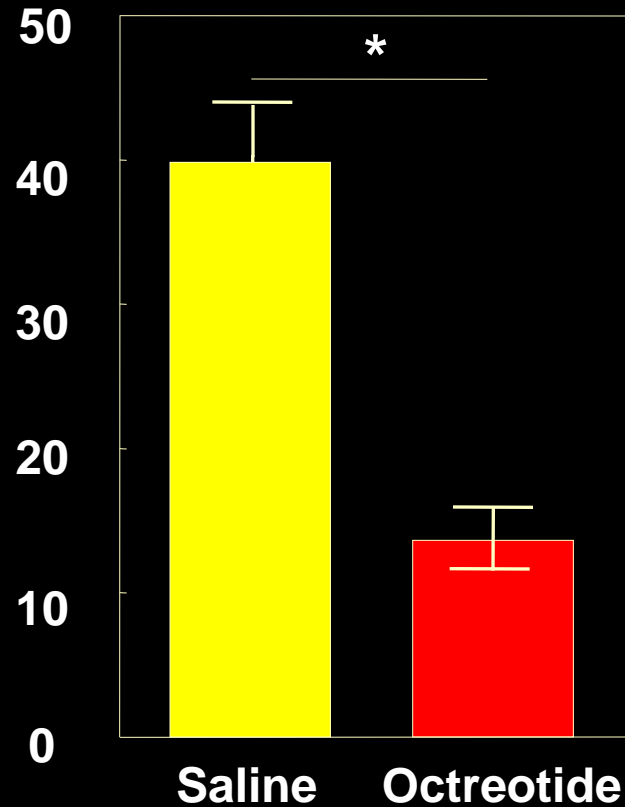
* $p < 0.01$ compared to pre-operative values (ANOVA)

Octreotide suppresses gut hormone responses

PYY response pmol/L

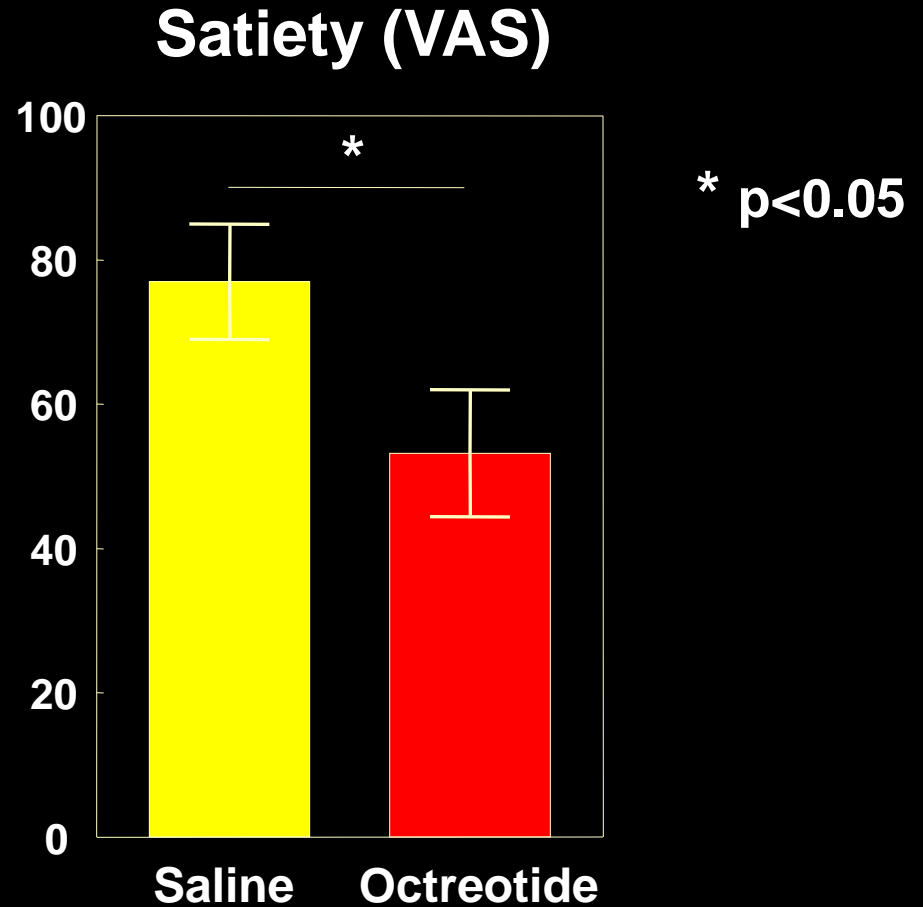
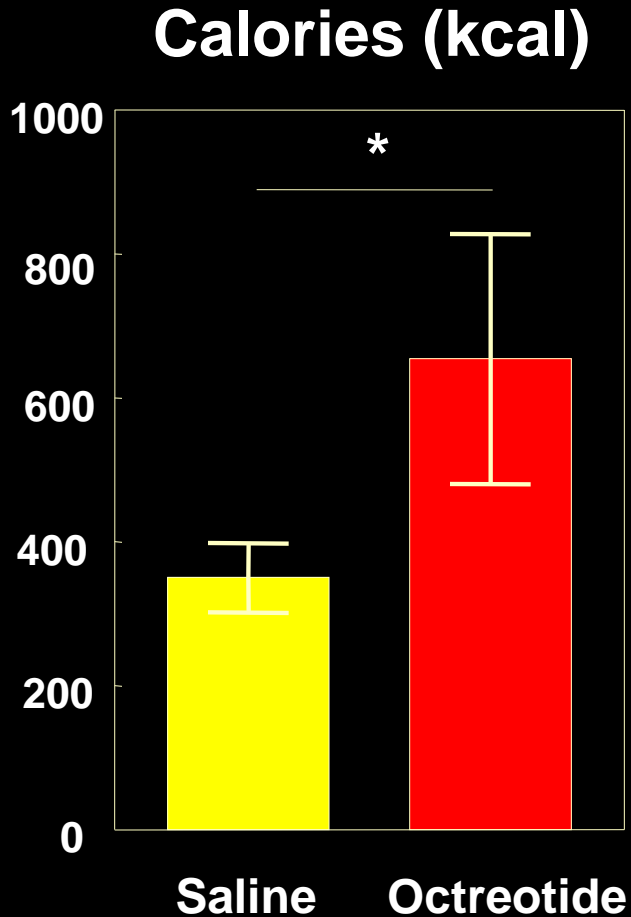


GLP-1 response pmol/L



* p<0.05

Calorie intake and satiety



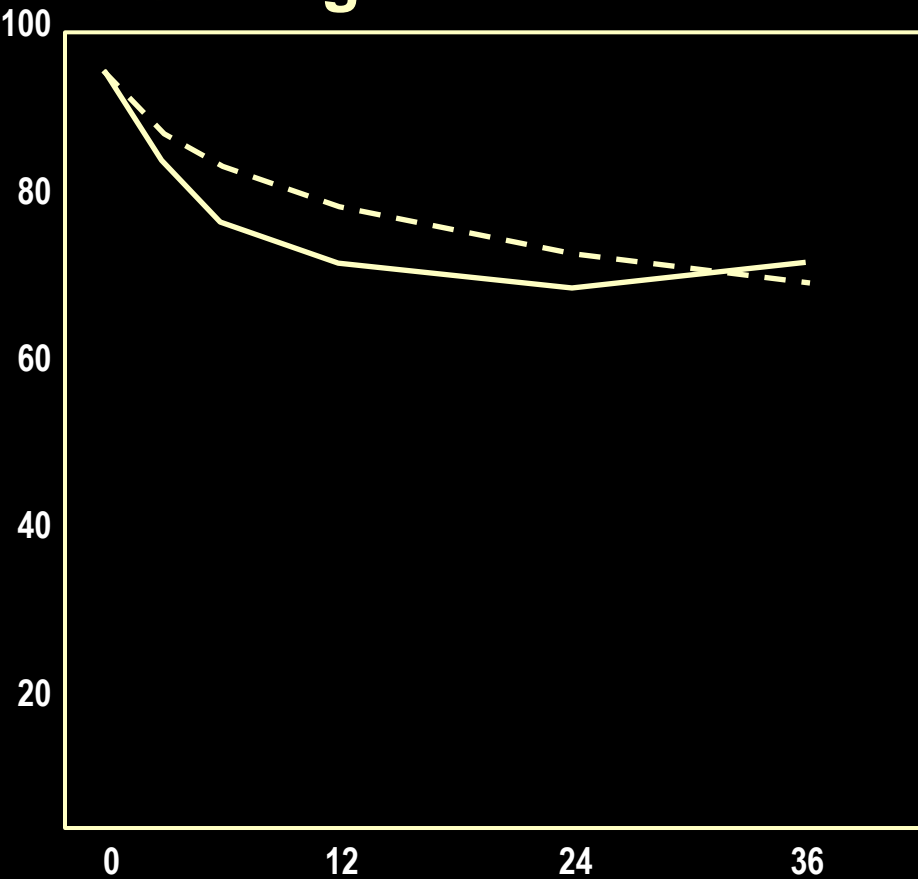
+ a few more thoughts

- Energy expenditure
- Food preference (I don't like burgers any more syndrome)
- Taste

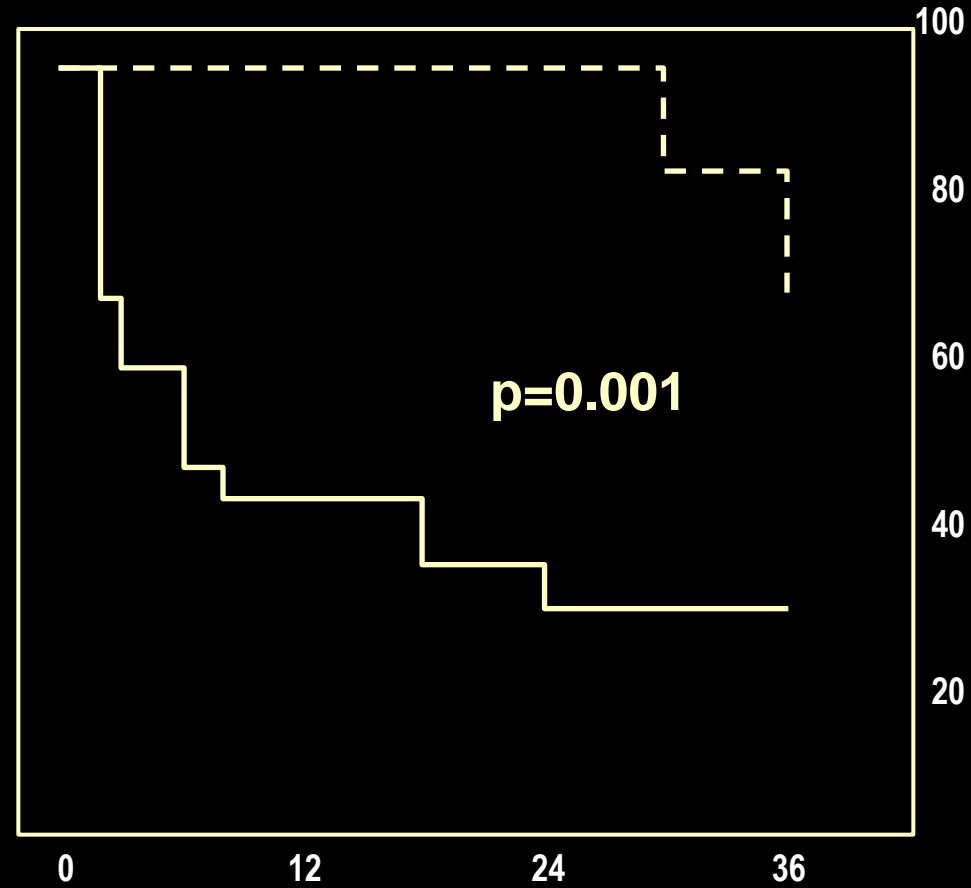
Weight loss

Diabetes remission

% weight loss



% with diabetes



p=0.001

Time (months)

—

Gastric bypass

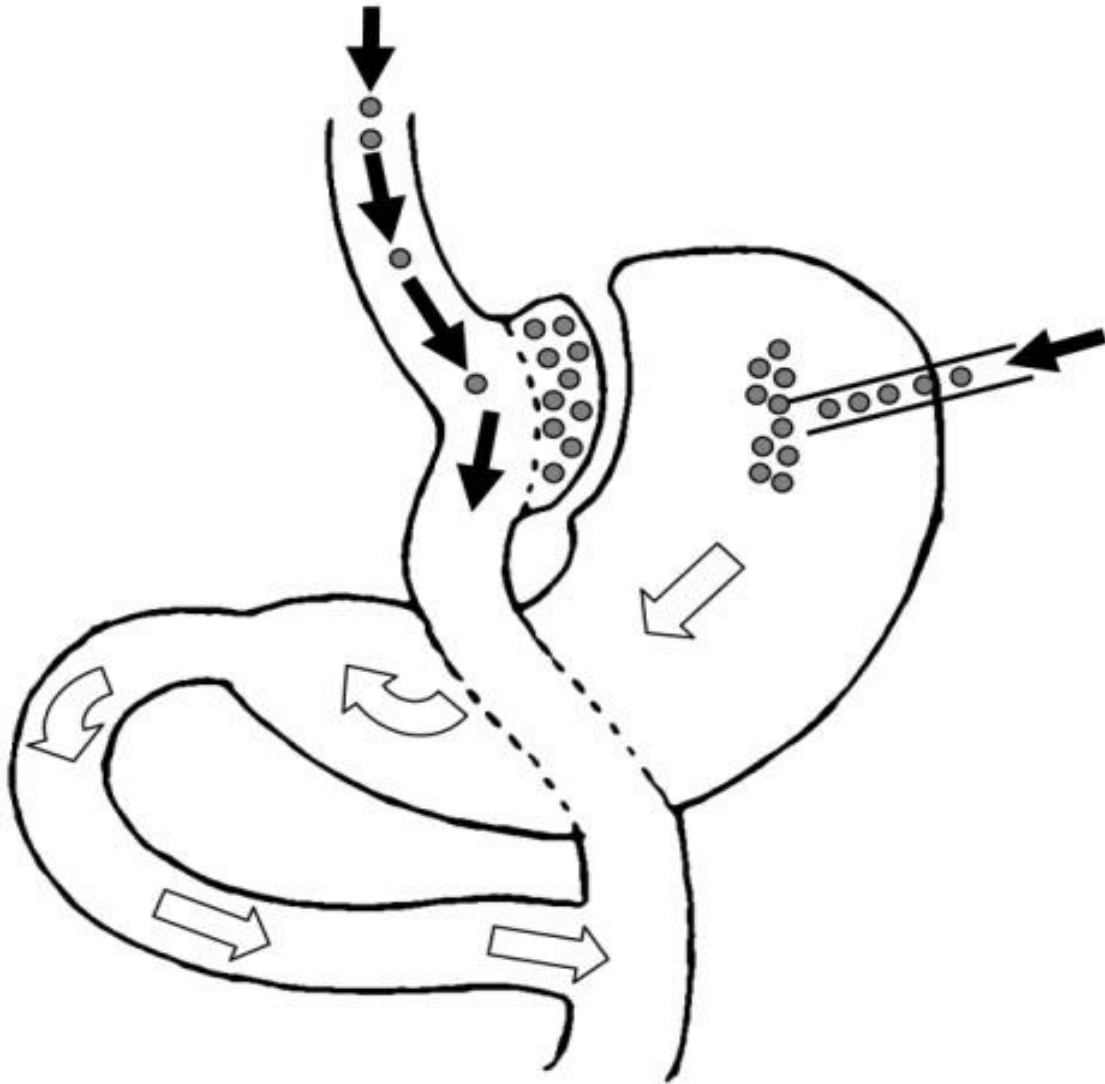
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Gastric band

Time (months)

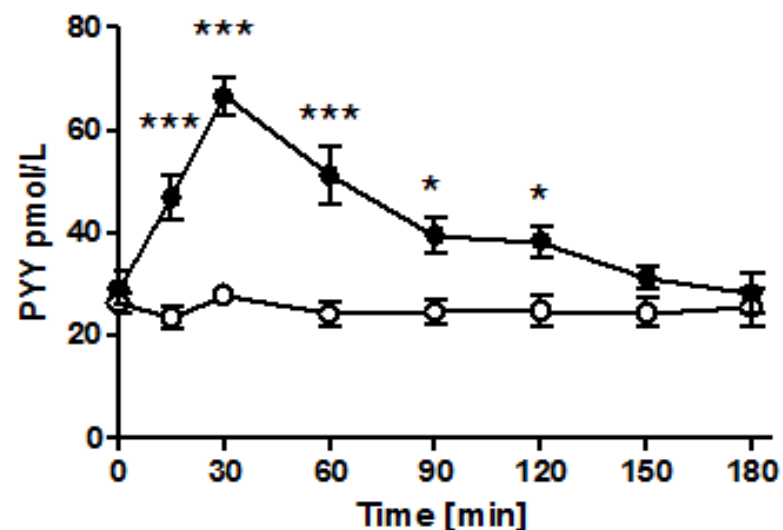
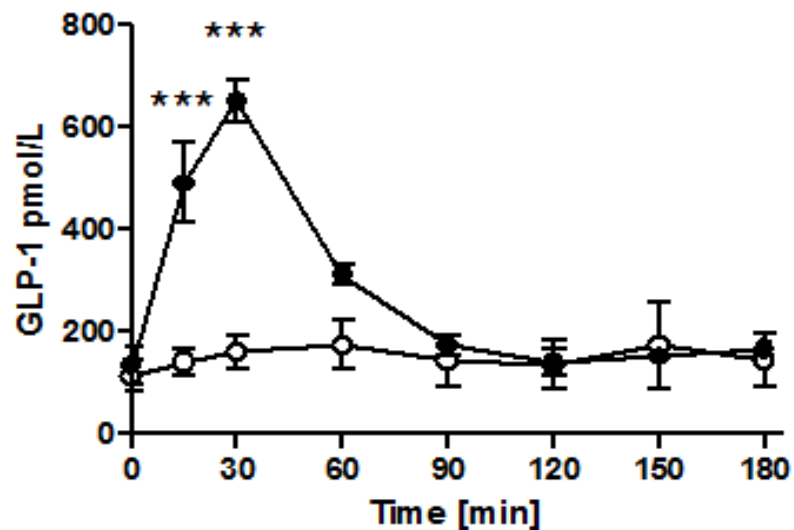
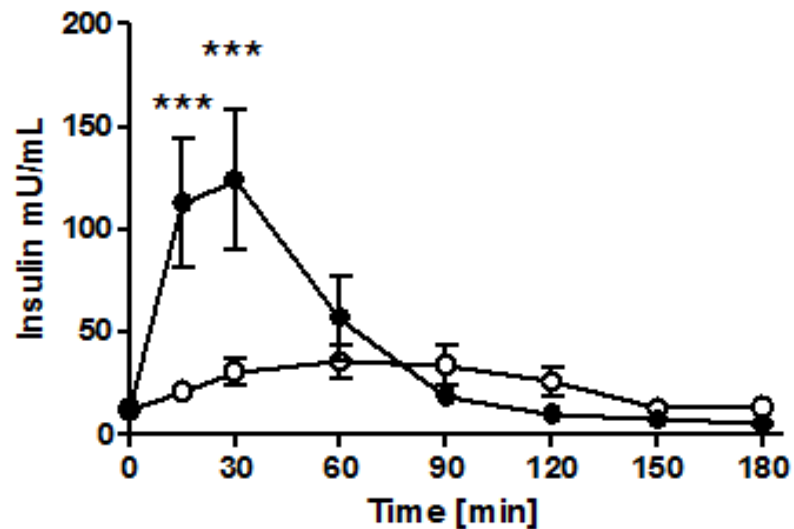
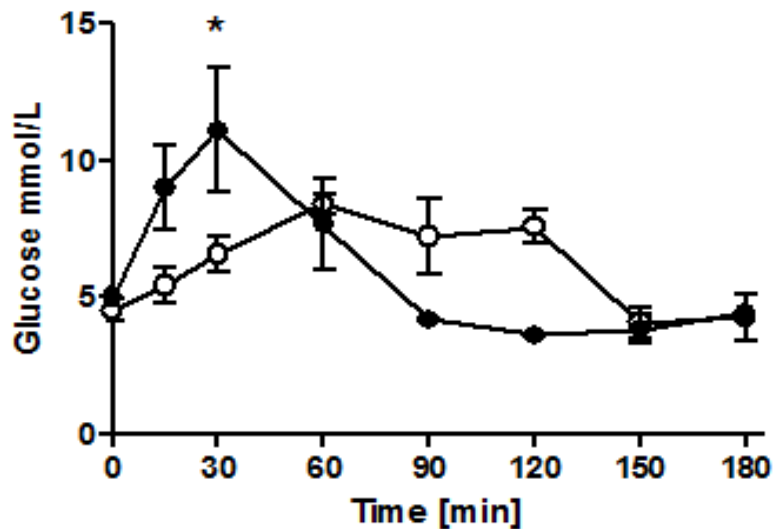
Pournaras DJ, le Roux CW et al.
Ann Surg 2010;252:966-71.

Oral



Gastrostomy

Pournaras DJ et al.
Surg Obes Relat Dis
2012;8:371-4.



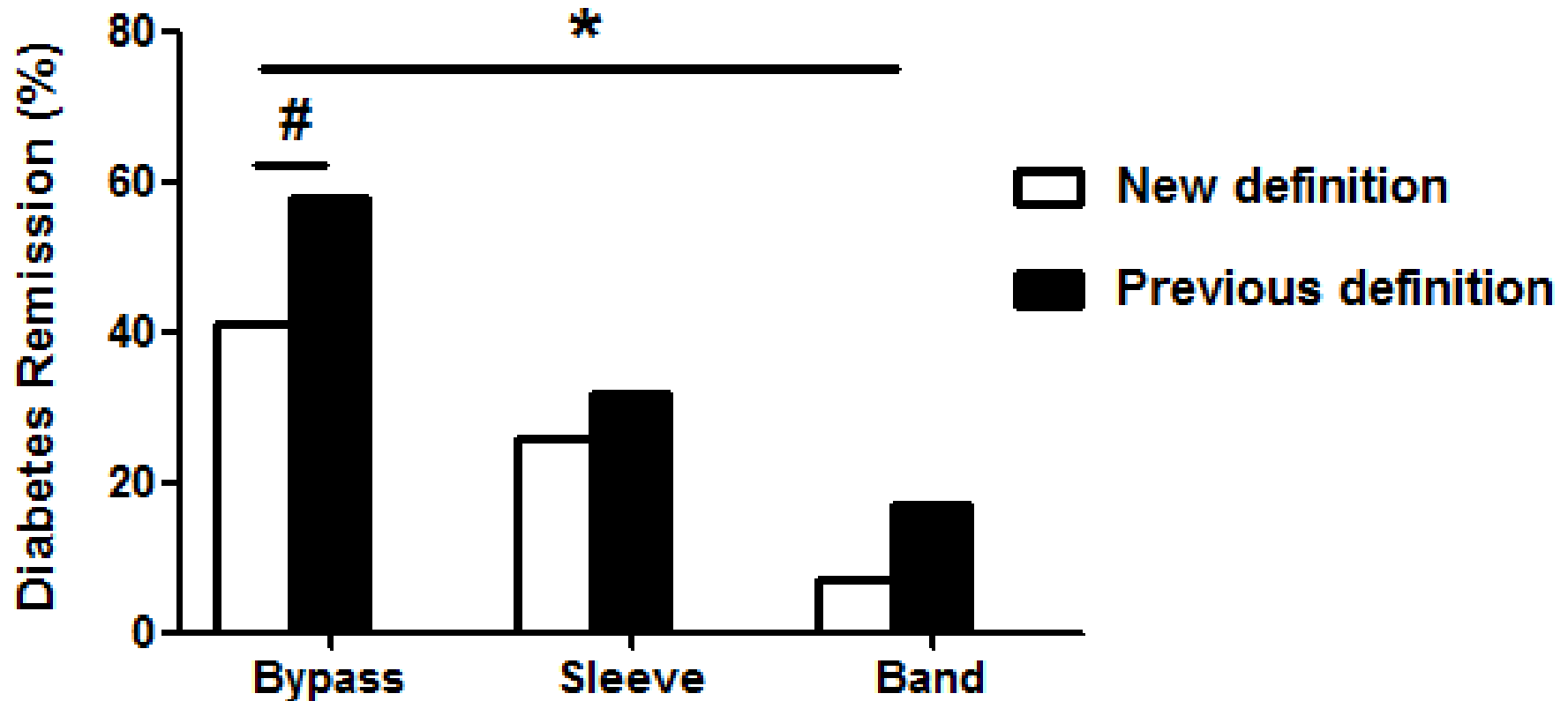
2009 criteria for diabetes remission

Complete remission of diabetes is defined as:

- HbA1c < 6%
- Fasting glucose < 5.6 mmol/l
- For at least 1 year after surgery
- No active hypoglycaemic pharmacologic therapy or ongoing procedures

**Buse JB, Caprio S, Cefalu WT et al.
How do we define cure of diabetes?
Diabetes Care 2009;32:2133-5.**

Diabetes remission is lower than previously thought



* $p < 0.001$ between groups

$p < 0.01$ compared to previous definition

Pournaras DJ et al.
BJS 2012;99:100-3.

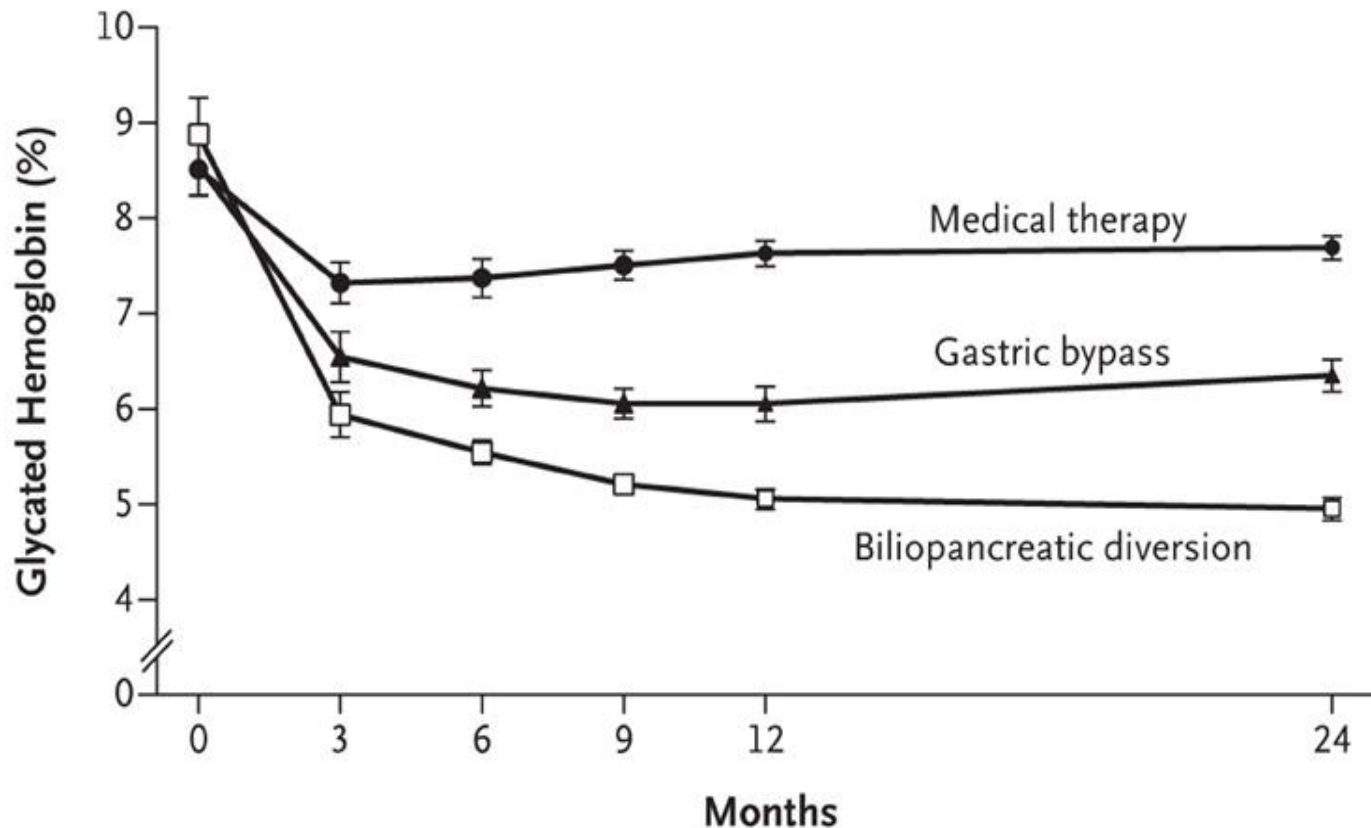
But glycaemic control is good

	Bypass	Sleeve	Band	p
Hb A1C (%) Pre op	8.1 ± 1.9	7.5 ± 1.5	7.7 ± 1.5	0.46
HbA1C (%) Post op	6.2 ± 1.2*	6.8 ± 1.7*	6.3 ± 0.7*	0.08

* p<0.001 compared to pre op

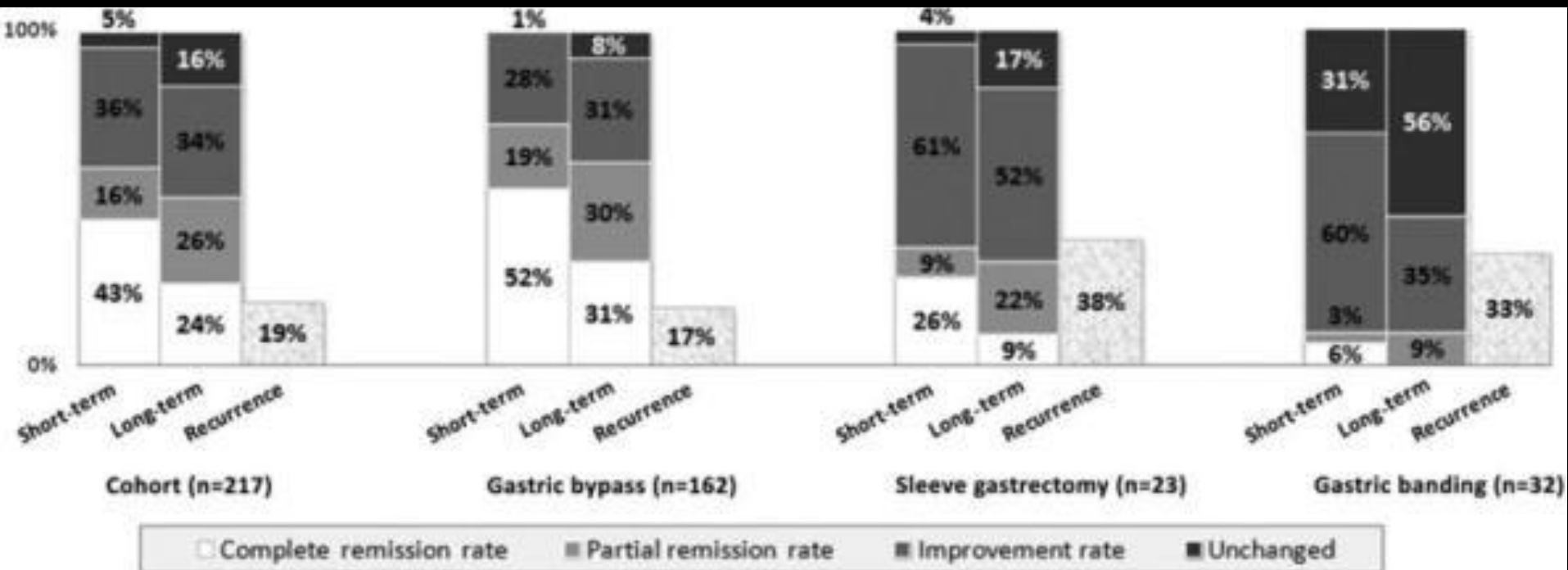
Pournaras DJ et al.
BJS 2012;99:100-3.

Bariatric Surgery versus Conventional Medical Therapy for Type 2 Diabetes



- RCT
- n=60
- BMI \geq 35

Type 2 diabetes recurrence



•1 in 4 patients in remission

•1 in 5 recurs.

Brethauer SA et al.
Annals of Surgery 2013;258:628-637.

Remission vs Control on Diabetes

Mingrone et al Lancet 2015 and Pournaras et al Lancet 2015

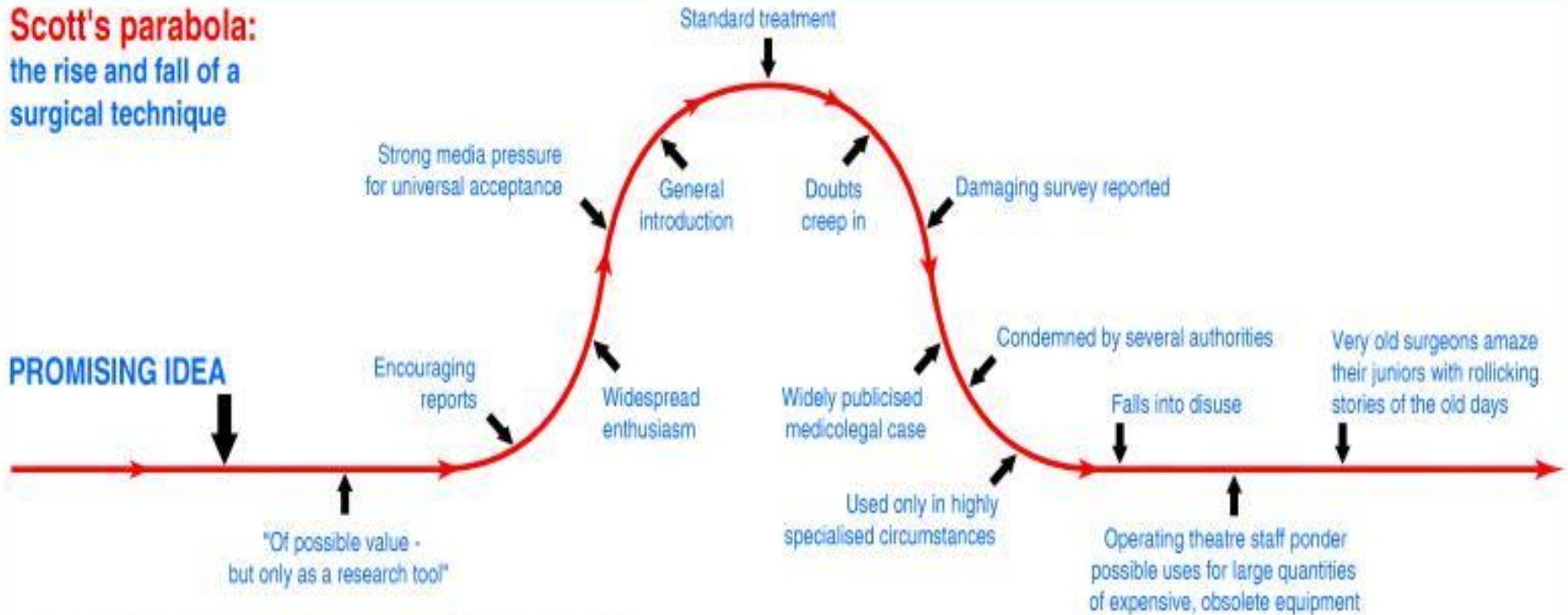
	Medical treatment group (n=15)	Roux-en-Y gastric bypass group (n=19)	Biliopancreatic diversion group (n=19)	p value*
ADA partial remission at 2 years	0	15 (75%)	19 (95%)	<0.0001
ADA partial remission at 5 years	0	7 (37%)	12 (63%)	0.0007
ADA complete remission at 5 years	0	0	0	..

Mingrone and colleagues' study lays the foundation to start the hard work of maintaining diabetes remission once surgery has levelled the playing field.

*Dimitri J Pournaras, *Carel W le Roux*

A look to the future...

Scott's parabola: the rise and fall of a surgical technique

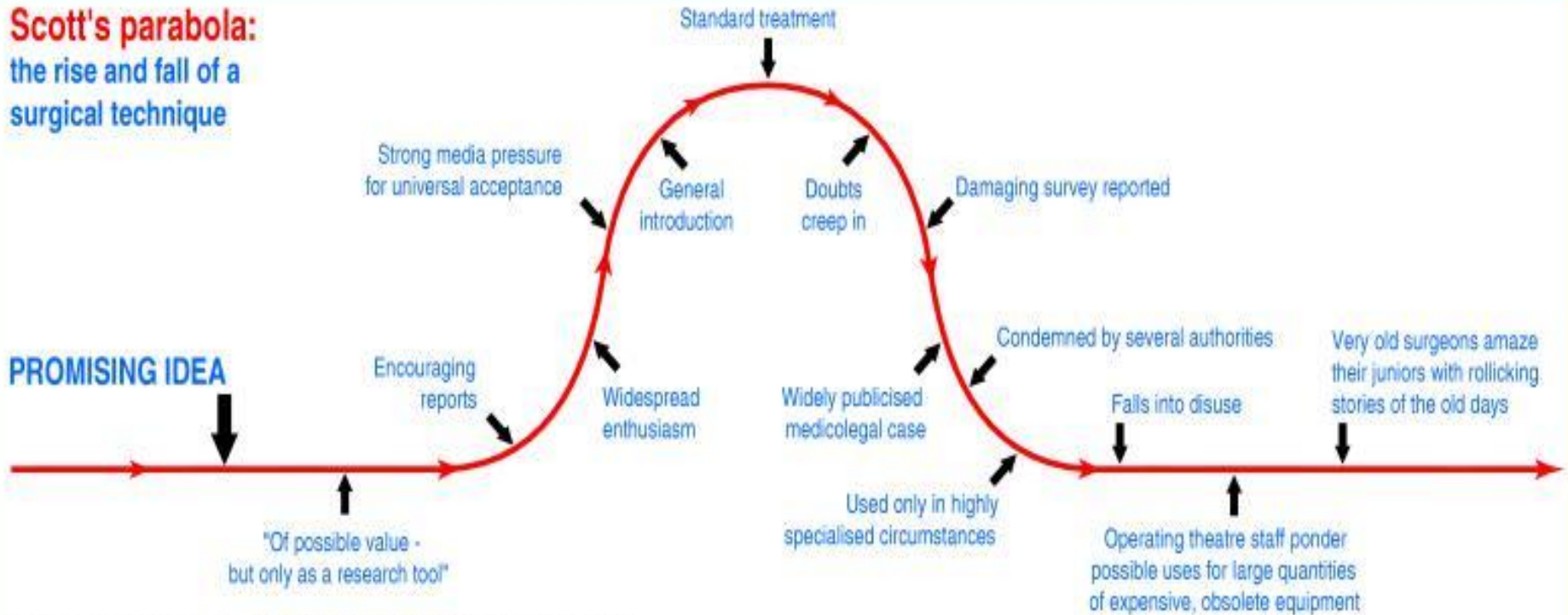


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Scott JW. BMJ VOLUME 323 22-29 DECEMBER 2001

A look to the future...

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Scott JW. BMJ VOLUME 323 22-29 DECEMBER 2001

It's hard to make predictions - especially about the future.
Robert Storm Petersen

Model of intermediate treatment

- **Disease prevention**
- **Risk reduction/disease modification**
- **Treatment of early disease**
- **Bridge treatment for high risk patients**
- **Palliation for end-stage disease**

Conclusions

- **Weight loss surgery is safe**
- **Remission of type 2 diabetes is possible**
- **Recurrence**
- **Combinational treatment**
- **Identification of who benefits the most and when**
- **Reduction in diabetes related complications**

Acknowledgements

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