Managing Obesity

Lifestyle +

DR PETER CARR-BOYD

NZWIM 2024

WHO AM I?

Husband

Father

Son

Brother

Surgeon

Climber

Hiker

Runner

51% of the Worlds population / 4 BILLION people will be Overweight or Obese by 2035

World Obesity Federation 2023

Obesity now greater risk to global health than hunger

Number of clinically obese people has passed one billion for first time, Lancet study reveals

Michael Searles, HEALTH CORRESPONDENT

1 March 2024 • 12:01am

Related Topics
Obesity, Malnutrition, NHS (National Health Service), Ultra processed foods

Obesity is now a greater threat to global health than hunger, a new Lancet study has found...

Obesity is a chronic complex disease defined by excessive fat deposits that can impair health.

World Health Organization (WHO)

What it’s not

Lack of Willpower...

Body Mass Index >30kg/m2

Waist cirumfernce

> 94cm male

>80cm female

WHAT CAUSES IT?

01	Psyhological state
02	Genetic/Epigenetics
03	Lack of physical acitivty
04	Life experiences
05	Hormones
06	Environment
07	Disrupted Sleep
08	Maternal factors
09	Lack of optimal nutrition
10	Medications

.....

What’s the issue with living with excess weight?

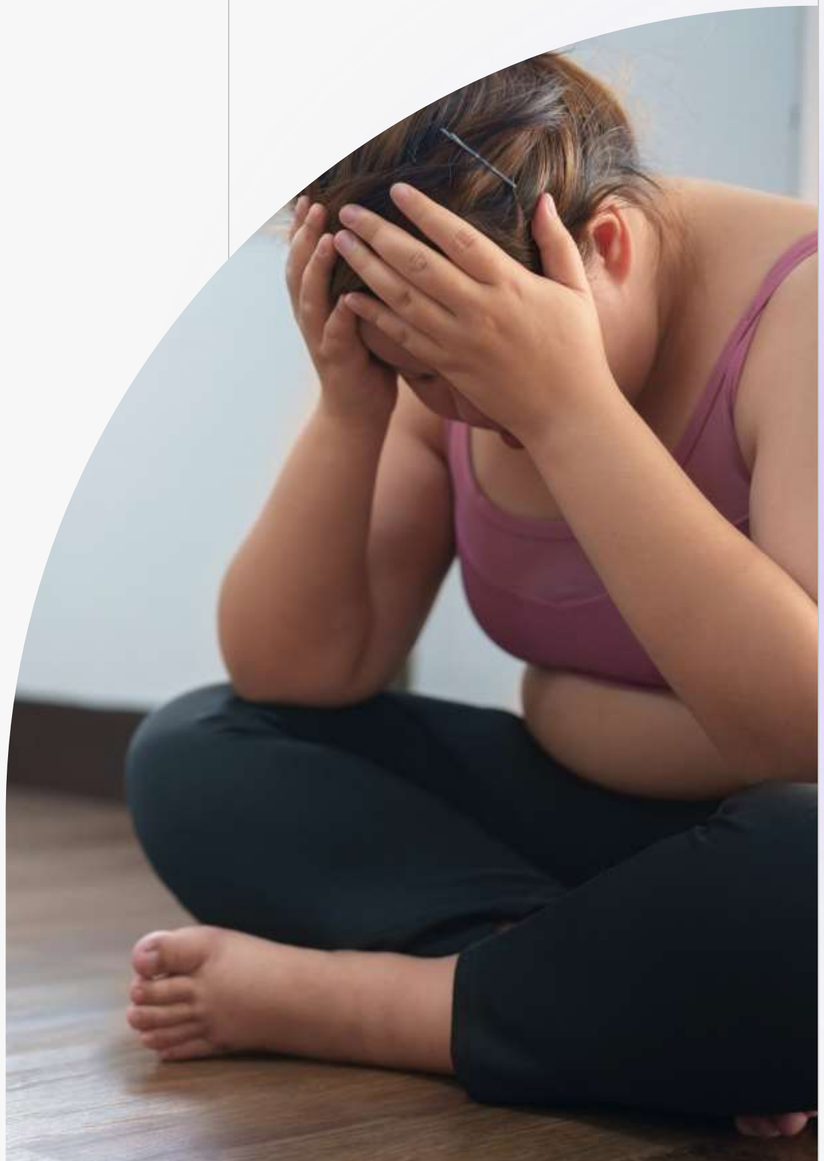
UNTREATED OBESITY LEADS TO....

01	DIABETES
02	HYPERTENSION AND HEART DISEASE
03	DYSLIPIDAEMIA
04	FATTY LIVER DISEASE
05	OBSTRUCTIVE SLEEP APNOEA
06	OSTEOARHTIRITS
07	PRE-MATURE MORTALITY
08	CANCER
09	LOW BACK PAIN
10	REFLUX

Women with obesity have higher rates of :

OMA, 2023

- Early puberty
- Heavy and/or irregular menstrual bleeding
- Infertility
- Pregnancy complications
- Early menopause
- Stronger menopausal symptoms
- Pelvic floor disorders



ALSO LEADS TO....

Psychosocial Impact On Patient

Negative Self or External Perceptions

Weight Bias

Heath Care Bias

Body weight “set-point”

Body wants to defends it

Can creep up in time

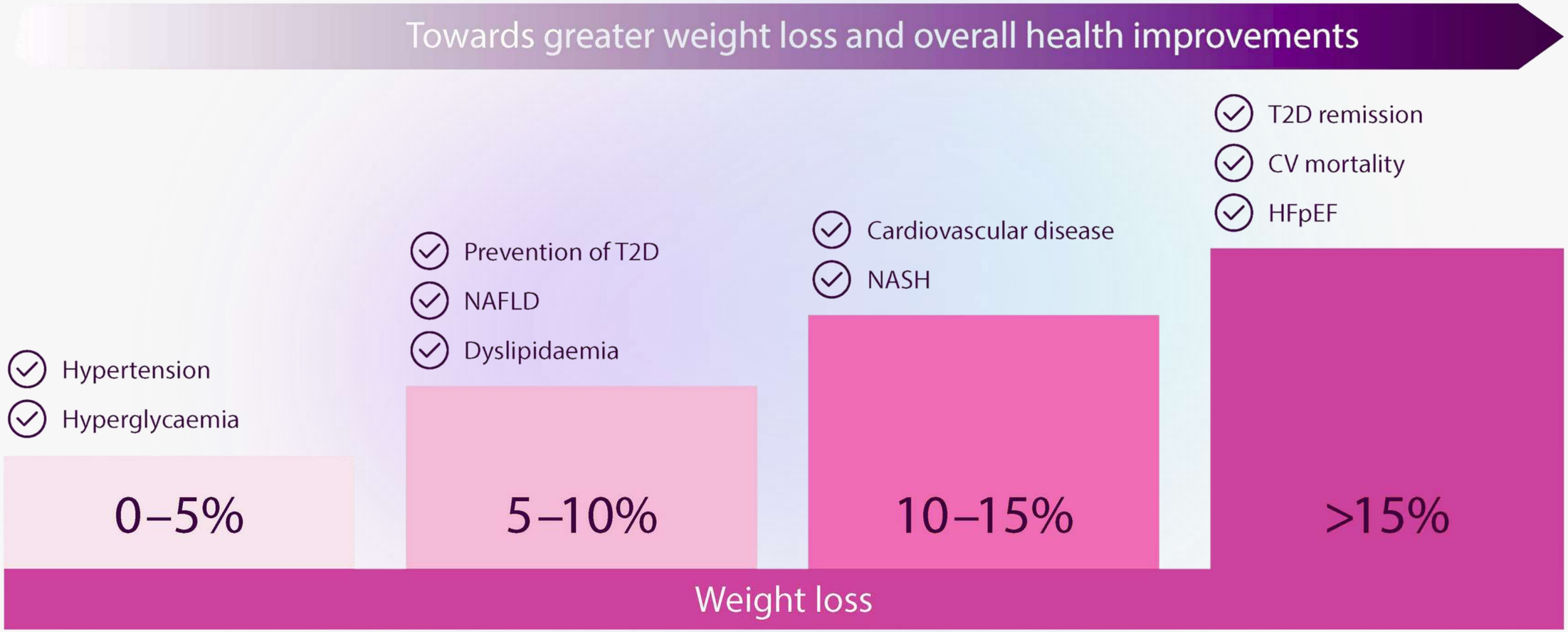
Add in the “Reward System”

What it’s not

Lack of Willpower…

MANAGEMENT

Benefits of Weight loss



Tackling obesity positively impacts different cardiovascular disease risk factors thereby improving overall cardiovascular health.[3,8–11]

CV, cardiovascular; HFpEF, heart failure with preserved ejection fraction; NAFLD, non-alcoholic fatty liver disease; NASH, non-alcoholic steatohepatitis; T2D, type 2 diabetes.

50% are motivated to lose weight

(Diabetes Obes Metab, 2019)

We're not having the conversation

ONLY 36% are DIAGNOSED

14,502 PEOPLE WITH OBESITY, 3200 HCP

DIABETES OBES METAB. 2019

MANAGED, NOT CURED

Lifestyle medicine

+/-

Medication

+/- **Surgery**

IT'S A TEAM SPORT

THE PATIENT +

DOCTORS

NURSE PRACTITIONERS

DIETITIANS

PSYCHOLOGISTS

EXERCISE PHYSIOLOGISTS

PSYCHIATRISTS

HEALTH COACHES

MASSAGE THERAPISTS

FAMILY/FRIENDS

Pillars of Lifestyle medicine

Nutritional Therapy

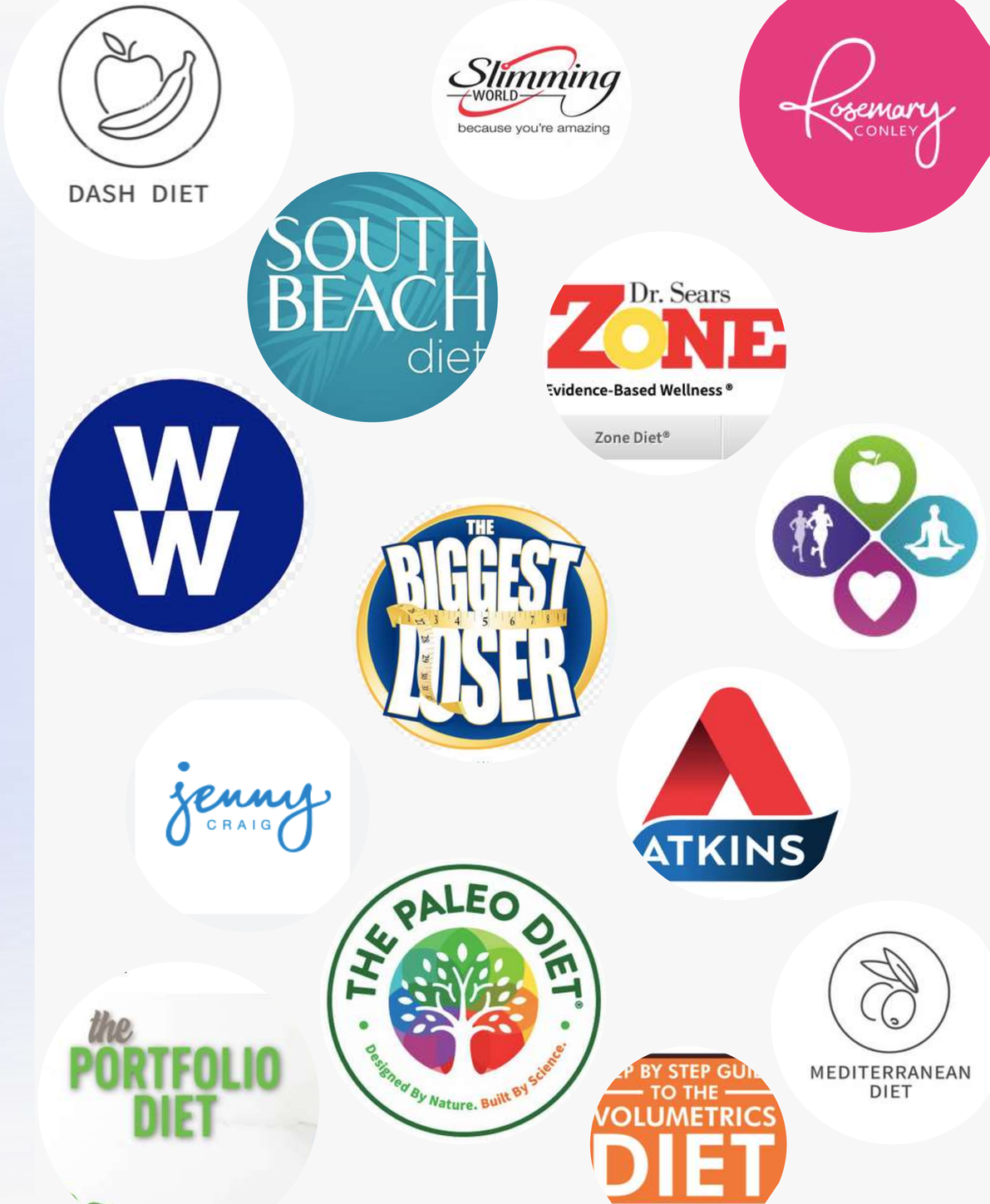
Increase Physical Activity

Behavioural Therapy

Stress and Sleep management

Avoid harmful substances

Evidence for diets?

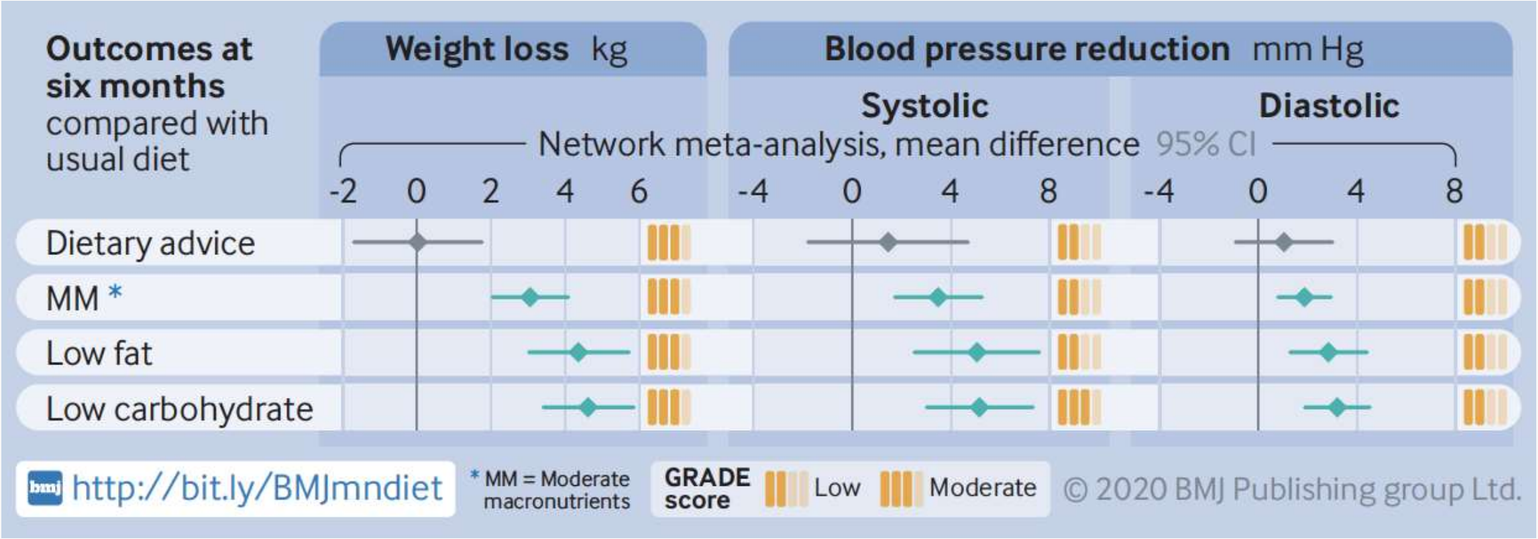


SR and Meta-analysis of 121 RCTs BMJ 2020

At 6 months 5% (4.7kg) weight loss

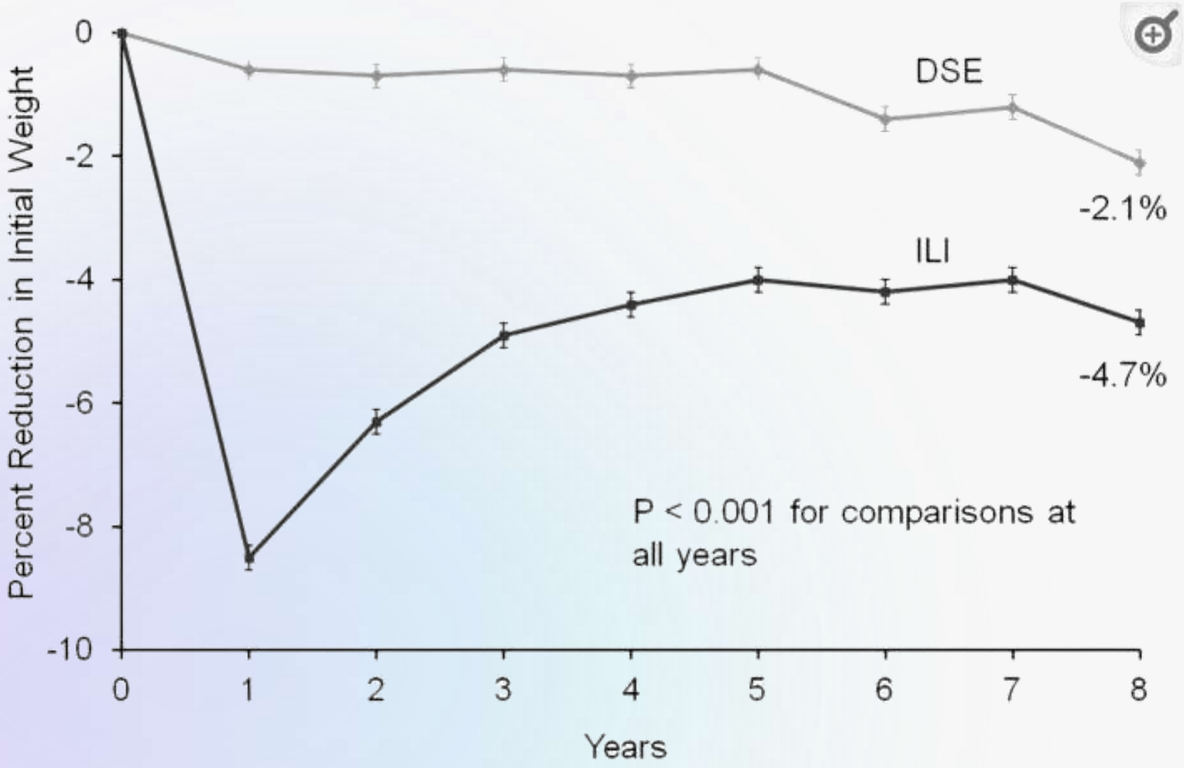
At 12 months, average weight loss of all dietary patterns was 1 to 2 kg less and the CVD benefits essentially disappeared.

121 RCTs, 21942 pts



Diet + exercise?

- **>5,000 overweight or obese people with T2DM**
- **Intensive lifestyle intervention vs enhanced usual care (diabetes support and education and medication)**

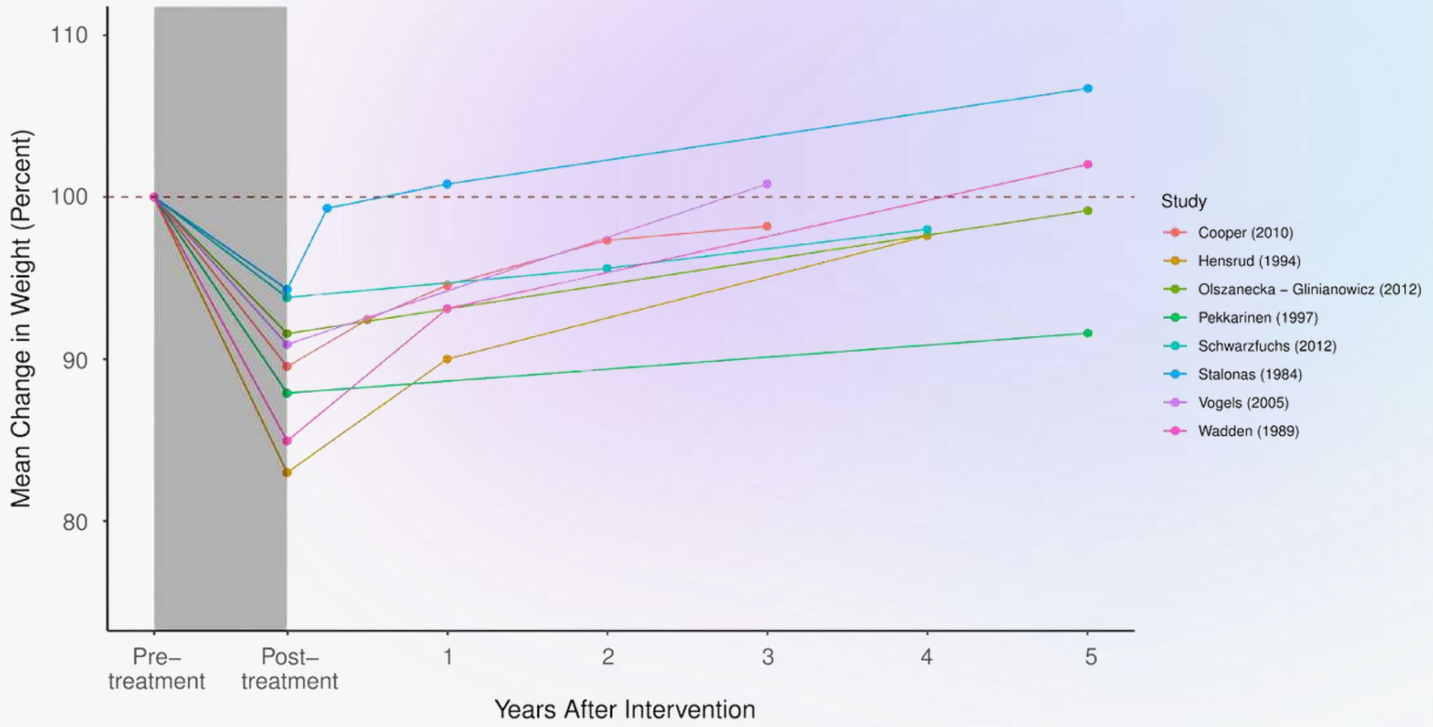


- **8.5% weight loss at 1 year**
- **4.7% at 8 years**
- **No difference in CVD morbidity/mortality**
- **Improvement in QOL and depression**

Look AHEAD Research Group. Eight-year weight loss with an intensive lifestyle intervention: the look AHEAD study. Obesity. 2014 Jan;22(1):5-13

Diet and Exercise - Is substantial, stable, long-term weight loss a viable goal?

SR of long-term follow up studies



- CBT/BT
- Provided meals
- Diet + exercise
- VLCD/BT
- Diet
- Diet + exercise
- VLCD
- VLCD/BT

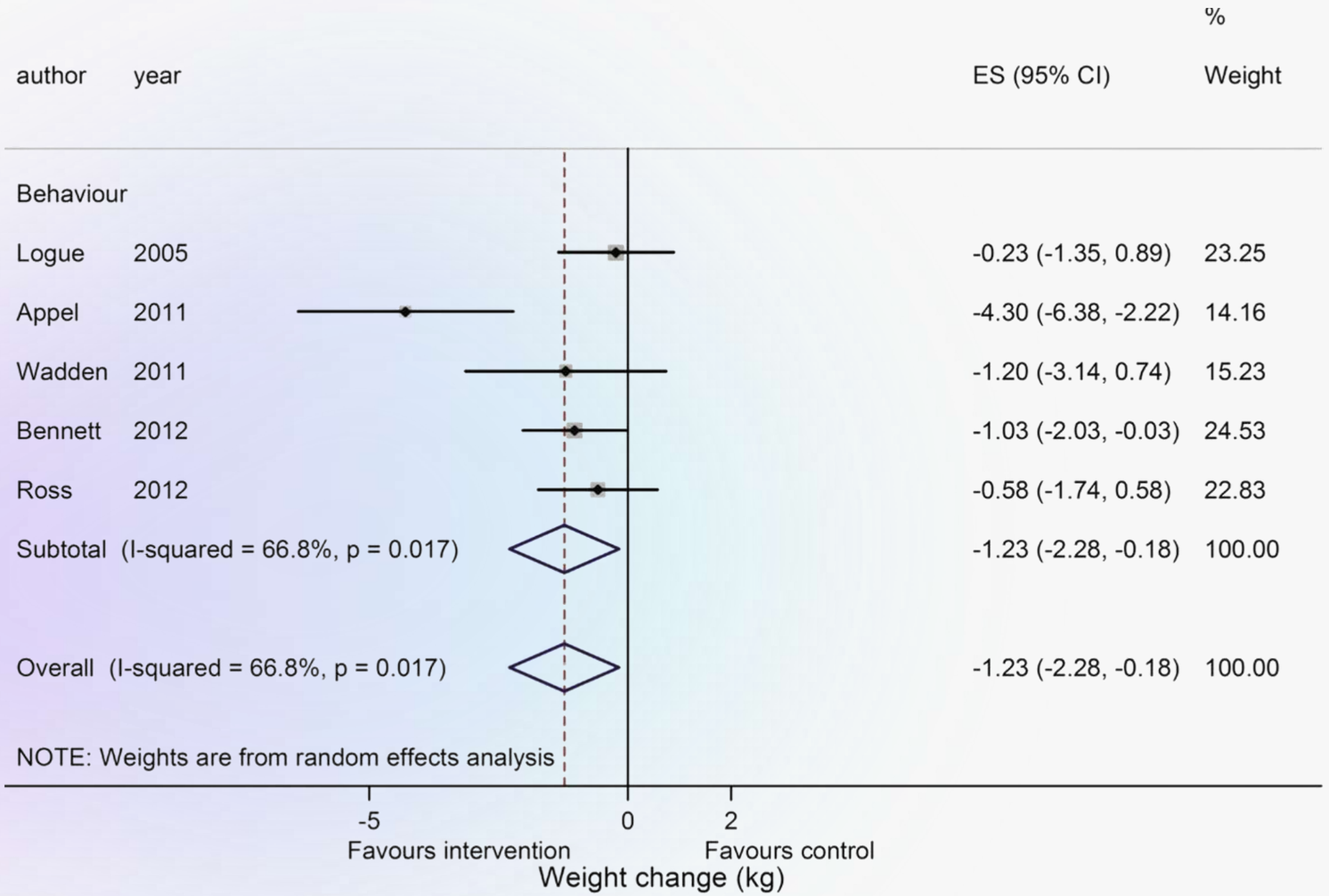
Obesity Management, 2019

Percent weight changes over time. Treatment length varied from study to study, not illustrated here

If there is no evidence for different diets, then healthy sustainable eating should be a goal.

Meta-analysis – behavioural

Behavioural weight loss interventions in primary care yield very small reductions in body weight, which are unlikely to be clinically significant.



@24 months

Family Practice 2014

Meta-analysis – behavioural

The mean difference in weight at 12 months was –2.3 kg (95% confidence interval –3.0 to –1.6 kg, P<0.001), favouring the intervention group

Study (level of support)	Intervention: Mean weight change (kg)	Intervention: SD of change	Intervention: No of participants	Comparator: Mean weight change (kg)	Comparator: SD of change	Comparator: No of participants	Mean difference (95% CI)	Weight (%)	Mean difference (95% CI)
Appel 2011 (in person)	-5.4	7.7	123	-1.1	5.2	54		3.10	-4.30 (-6.24 to -2.36)
Appel 2011 (remote)	-5.7	7.8	124	-1.1	5.2	54		3.10	-4.60 (-6.55 to -2.65)
Baer 2020	-3.1	5.3	298	-1.2	8.3	326		3.60	-1.90 (-2.98 to -0.82)
Beeken 2017	-2.4	5.5	143	-2.3	5.0	149		3.60	-0.10 (-1.31 to 1.11)
Bennett 2018	-4.0	5.9	170	-0.1	5.9	167		3.50	-3.90 (-5.16 to -2.64)
Carrington 2021	-0.9	4.3	126	-0.4	4.6	122		3.60	-0.50 (-1.61 to 0.61)
Christian 2008	-0.2	10.9	141	1.4	10.6	132		2.60	-1.60 (-4.15 to 0.95)
Christian 2011	-1.5	5.3	133	0.1	4.0	130		3.60	-1.60 (-2.73 to -0.47)
Conroy 2014	-1.4	6.8	46	-1.4	3.8	36		2.80	0.00 (-2.32 to 2.32)
Delahanty 2020	-4.6	6.3	70	-2.1	4.7	32		2.90	-2.50 (-4.70 to -0.30)
Delahanty 2020 (in person)	-4.5	5.5	69	-2.1	4.7	32		3.00	-2.40 (-4.48 to -0.32)
Huseinovic 2018	-9.3	4.8	44	-5.6	7.3	45		2.60	-3.70 (-6.26 to -1.14)
Jolly 2011	0.83	5.2	70	1.1	4.9	100		3.40	-0.25 (-1.80 to 1.30)
Katzmarzyk 2020	-7.2	11.9	452	-1.0	10.4	351		3.40	-6.20 (-7.75 to -4.65)
Kumanyika 2012	-1.6	5.1	89	-0.6	4.1	98		3.50	-1.00 (-2.33 to 0.33)
Lean 2018	-10.0	8.0	137	-1.0	3.7	148		3.40	-9.00 (-10.47 to -7.53)
Little 2017	-3.8	7.4	221	-2.6	9.2	227		3.40	-1.20 (-2.74 to 0.34)
Logue 2005	-1.4	3.2	329	-0.9	3.4	336		3.90	-0.50 (-1.00 to 0.00)
Martin 2008	-1.4	3.7	68	-0.2	3.6	69		3.60	-1.2 (-2.42 to 0.02)
Nanchahal 2012	-2.4	5.5	103	-1.3	5.0	114		3.40	-1.10 (-2.50 to 0.30)
Phelan 2017	-3.2	5.7	174	-0.9	5.7	193		3.60	-2.30 (-3.47 to -1.13)
Rodriguez-Cristobal 2017	-1.8	6.7	283	-1.3	1.7	302		3.80	-0.50 (-1.30 to 0.30)
Ross 2012	-2.4	5.4	249	-0.9	5.6	241		3.70	-1.50 (-2.47 to -0.53)
Taheri 2020	-12.0	9.5	70	-4.0	5.3	77		2.70	-8.00 (-10.52 to -5.48)
Tarraga Marcos 2018 (intensive)	-5.6	2.2	60	-1.7	3.1	28		3.50	-3.90 (-5.18 to -2.62)
Tarraga Marcoss 2018 (less intensive)	-4.3	1.9	61	-1.7	3.1	27		3.50	-2.60 (-3.86 to -1.34)
Tsai 2009	-2.3	4.2	22	-1.1	4.0	25		2.80	-1.20 (-3.55 to 1.15)
Wadden 2011	-3.4	6.9	131	-2.3	6.8	130		3.30	-1.10 (-2.76 to 0.56)
Welzel 2021	-2.9	8.3	52	-2.9	11.5	63		2.00	0.00 (-3.63 to 3.63)
Yardley 2014 (basic)	-4.3	6.2	44	-2.0	4.5	22		2.60	-2.30 (-4.93 to 0.33)
Yardley 2014 (regular)	-2.5	6.5	47	-2.0	4.5	21		2.60	-0.50 (-3.18 to 2.18)
Total (95% CI)			4149			3851		100.00	-2.29 (-3.00 to -1.57)

Test for heterogeneity: τ^2=3.38; χ^2=249.29, df=30, P<0.001; I^2=88%

Test for overall effect: Z=6.23, P<0.001

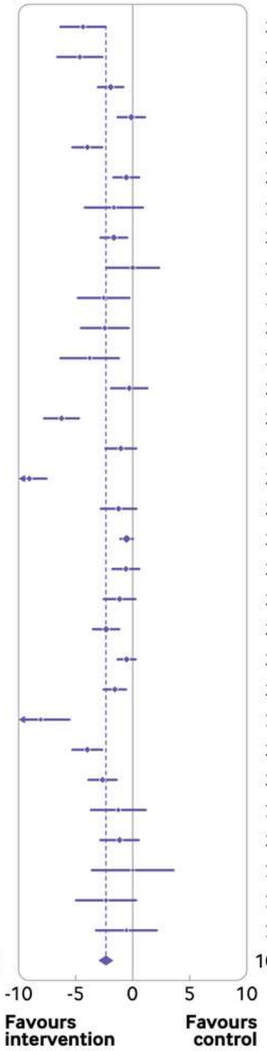


Fig 2 | Mean difference in weight at 12 months by weight management programme in primary care (intervention) or no treatment, different content, or minimal intervention (control). SD=standard deviation

BMJ 2022

“Once living iwth obesity, <1% chance of achieving healthy weight with diet and exercise alone”

(Journal of Public Health, 2015)

WHY DO SO MANY “YO-YO”??

1. Brains are wired to defend a “Set-point” and it’s work very hard to defend it

2. Obesogenic environment often doesn’t change

3. Who’s supporting internal motivation for change

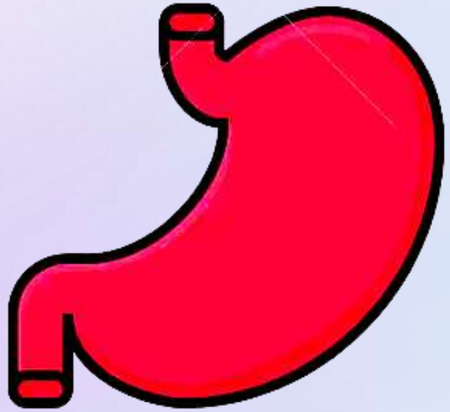
4. Who’s setting the vision and creating the strategy

“Eat less and exercise more” is not a treatment plan for obesity that works for almost anyone; let’s stop pretending it does.

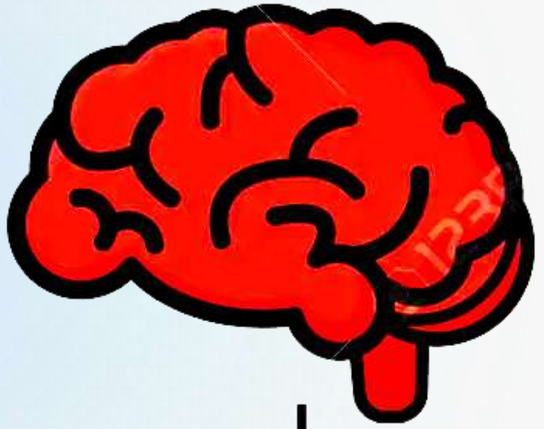
Medication

GLP-1

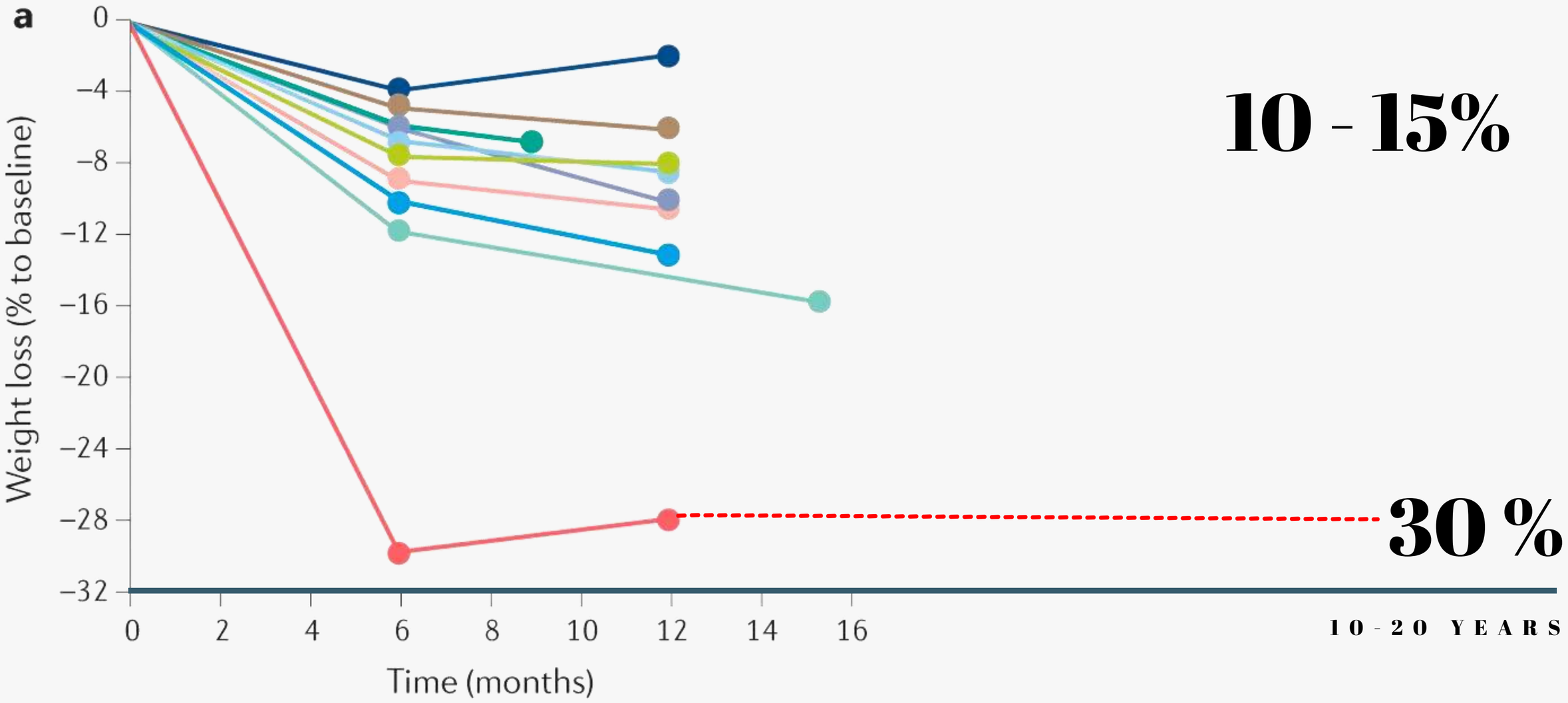
↑↑ Insulin
↓↓ Glucogon



↓↓ Gastric emptying
↓↓ GI motility



↓↓ Food intake
↓↓ Water intake


a
0
−4
−8
−12
−16
−20
−24
−28
−32
Weight loss (% to baseline)
0
2
4
6
8
10
12
14
16
Time (months)
10 - 15%
30 %
10 - 20 YEARS
Diet and exercise
Natroxone/bupropion
Phentermine/topiramate
Orlistat
Liraglutide 3 mg
Semaglutide 1 mg
Semaglutide 2.4 mg
Tirzepatide 5 mg
Tirzepatide 15 mg
Bariatric surgery

Tirzepatide dual GIP/GLP-1 receptor agonist

72 weeks

+

regular lifestyle counseling

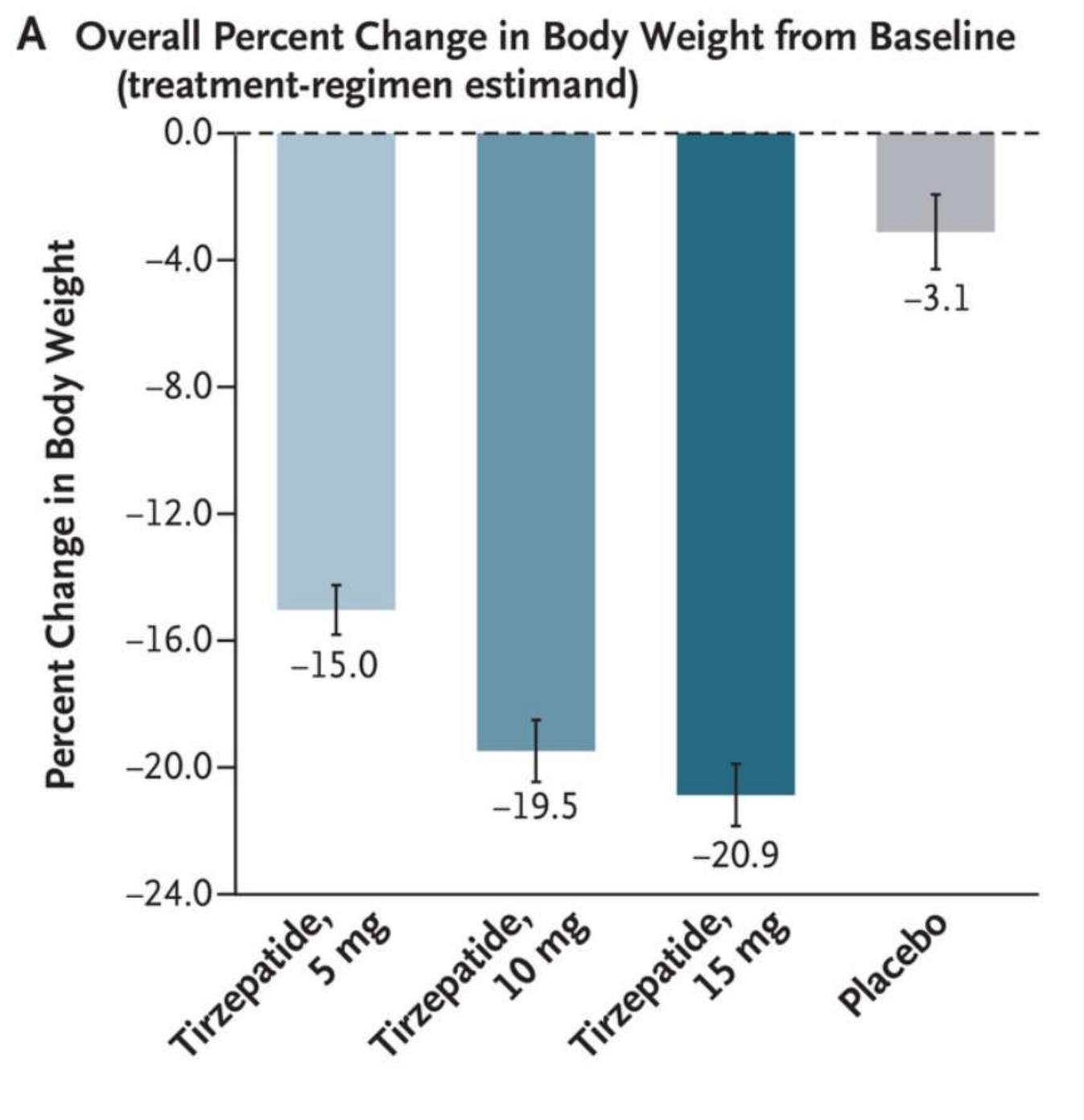
+

dietitian & deficit of 500 calories per day

+

least 150 minutes of physical activity per week.

NEJM 2022



So what's the catch?

Cost $500-$600/MO

Trials are 12-18 months

GI side effects (>90% mild to mod)

Ozempic breath

?Need lifelong

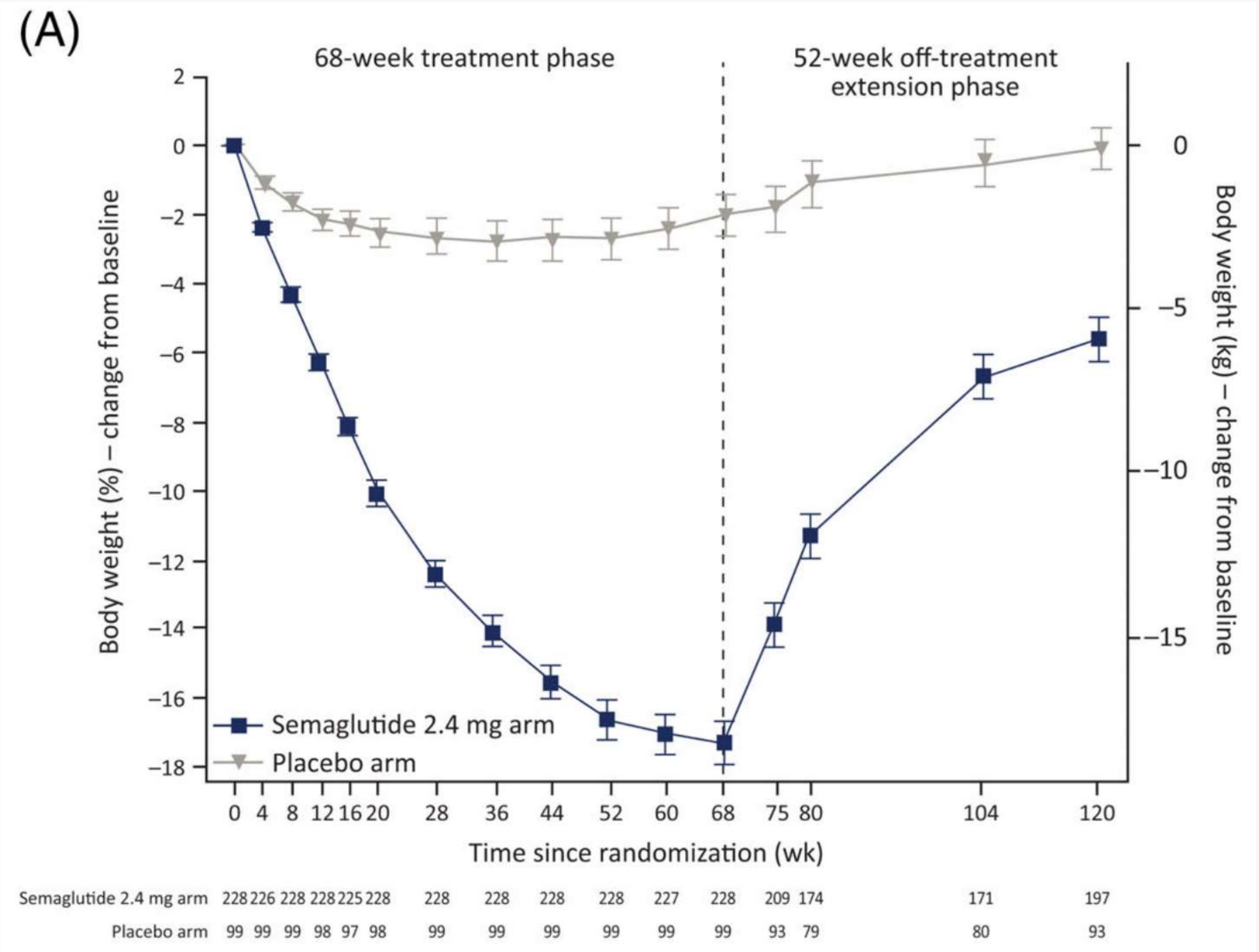
10-15% TBW for Saxenda in NZ

S/C Daily

Stop the meds

Regain at least 2/3 of what they lost

Back to 6% WL (similar to lifestyle)



Wilding et al, Diabetes Obes Metab, 2022

It’s a chronic disease

- Lifestyle medicine
- Long-term medication use
- Other strategies……? Surgery

METABOLIC SURGERY

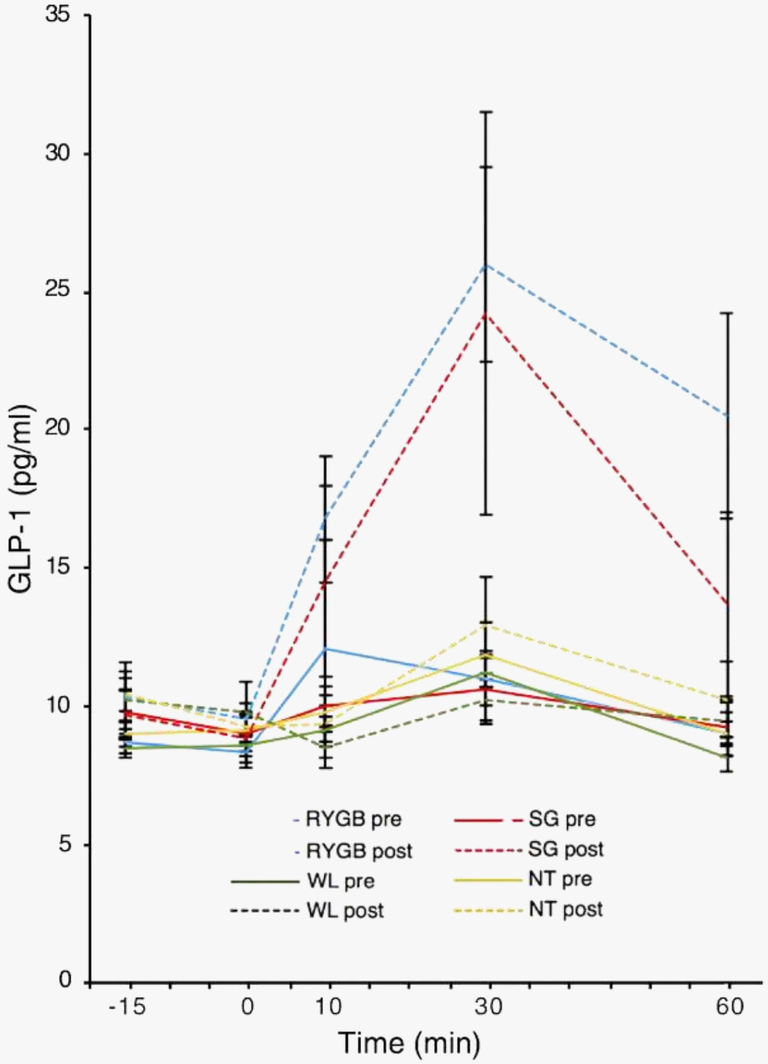
ASMBS/IFSO Nov 2022

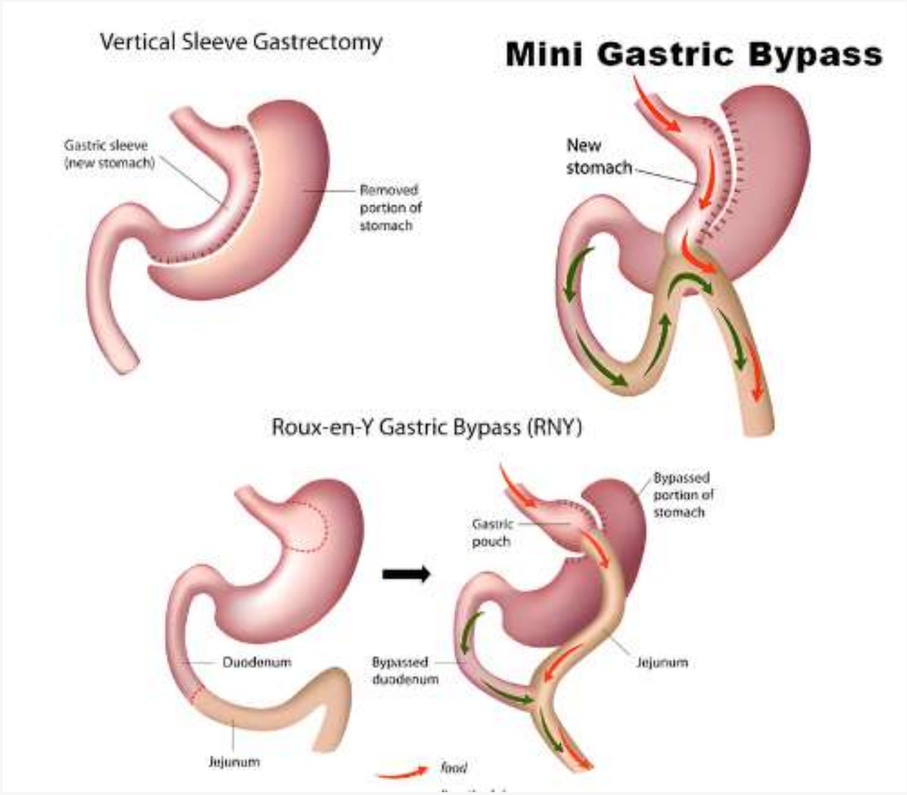
- BMI > 35kg/m2
- BMI 30 - 34.9kg/m2 + metabolic comorbidites

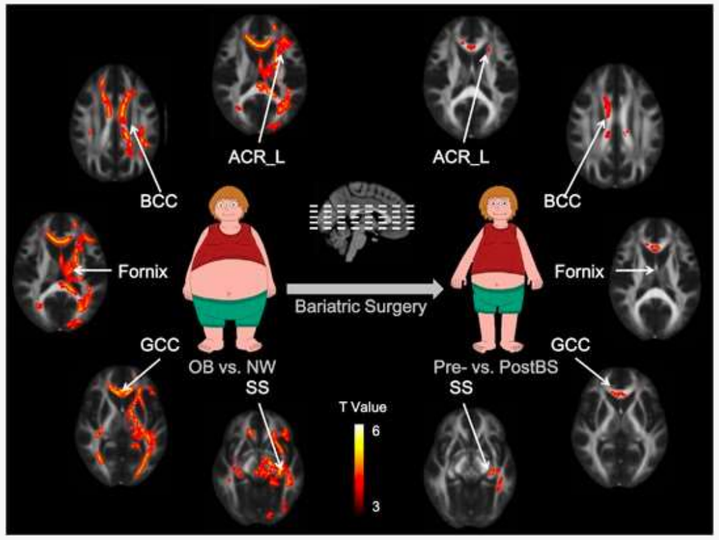
In Asian population:

- recommended for BMI > 27.5kg/m2

HOW DOES IT WORK?







Lowers the body's "Set-point"

Average % total weight loss by type of primary surgery

of Australian bariatric patient data with 1, 2 and 3 year outcomes

Average % total weight loss **after a sleeve gastrectomy**

YEAR 1: 31%

YEAR 2: 31%

YEAR 3: 30%

Average % total weight loss **after a one anastomosis gastric bypass**

YEAR 1: 34%

YEAR 2: 36%

YEAR 3: 35%

Average % total weight loss **after a Roux-en-Y gastric bypass**

YEAR 1: 32%

YEAR 2: 34%

YEAR 3: 33%

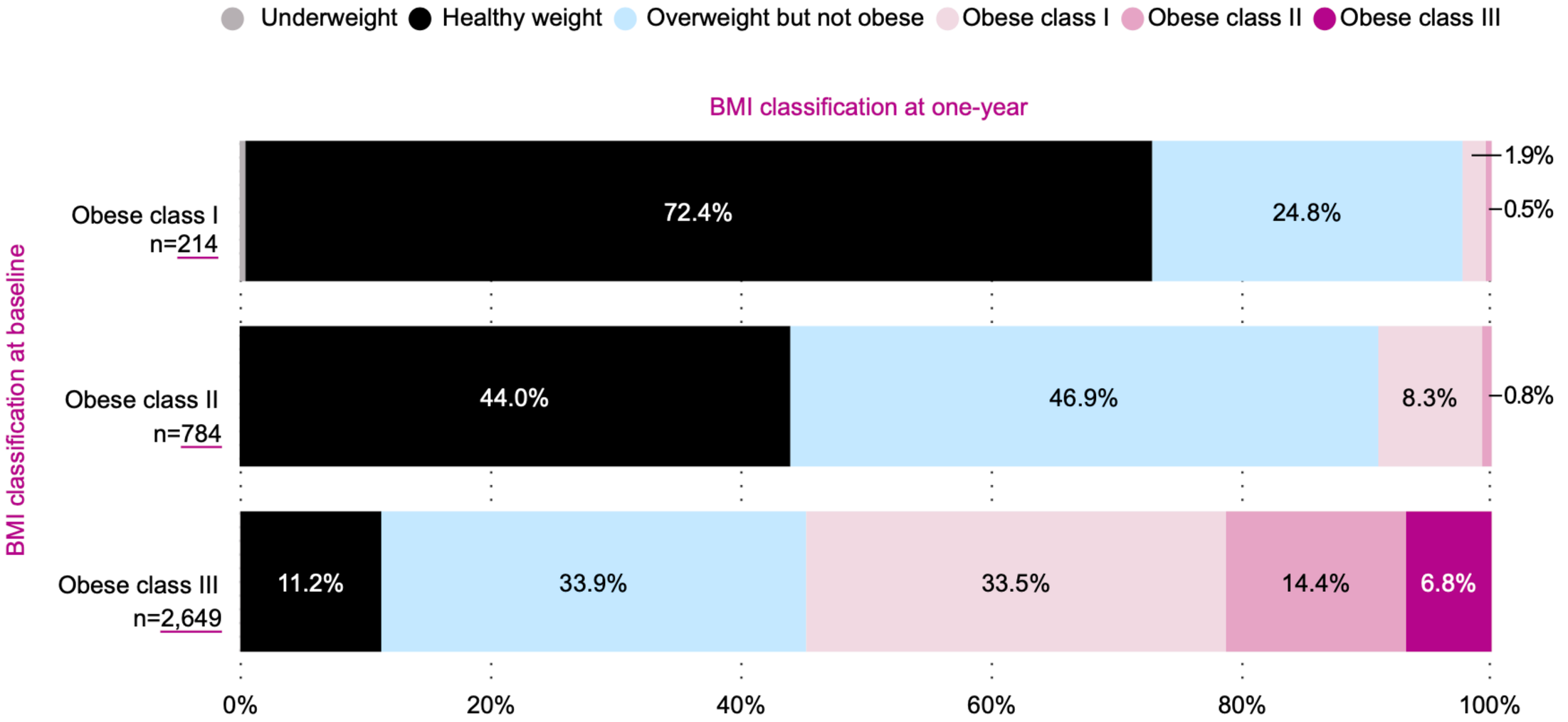


Figure 38 - Initial BMI range and one-year BMI for adult primary participants in Aotearoa New Zealand, n= 3,647

Complications reported in the 90 days after primary surgery

of operations from 1 July 2021- 30 June 2022 where the outcome was reported

For the 90 days after surgery, the Registry records whenever a patient has to return to theatre for another procedure, has an unplanned admission to ICU, and/or needs to be readmitted to hospital after they were discharged.

Sleeve Gastrectomy

1.3%

of the 11,907 operations had a reported complication

One Anastomosis Gastric Bypass

3.7%

of the 1,537 operations had a reported complication

Roux-en-Y Gastric Bypass

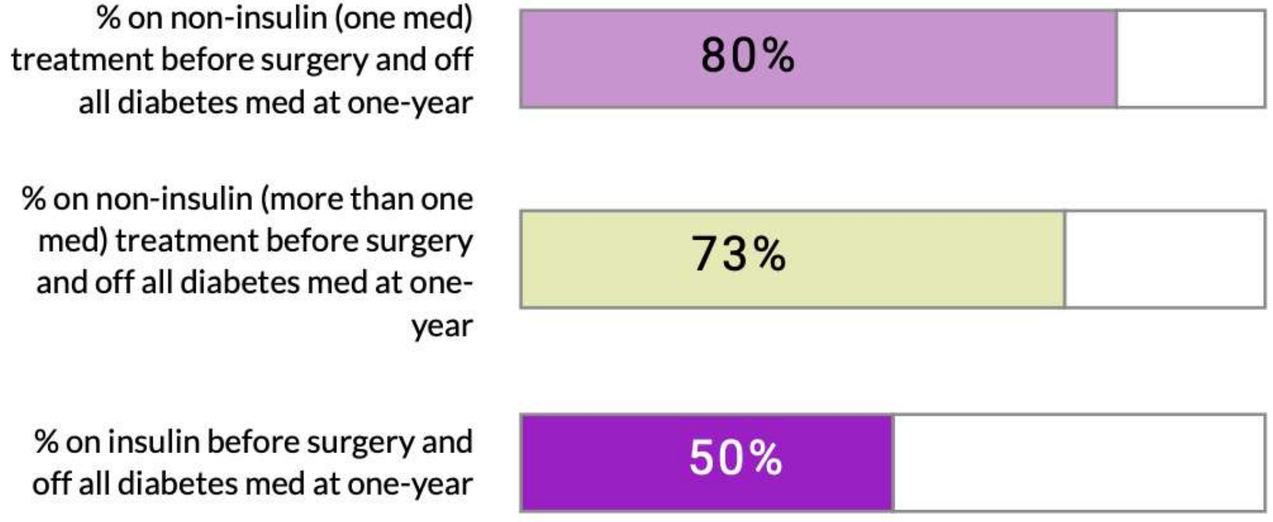
5.3%

of the 1,440 operations had a reported complication

Effect of bariatric surgery on diabetes

of Australian bariatric patient data with one-year outcomes

Percent of the primary patients who reported taking diabetes medication at time of surgery and came off all diabetes medication (med) within one-year after surgery



*excludes those whose treatment was not reported

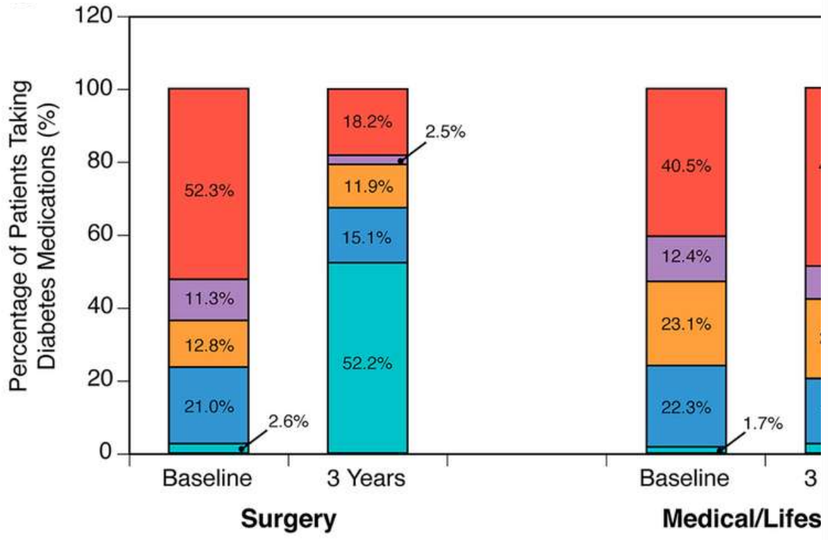
70%*

No longer need insulin for diabetes one year after surgery

*of those on insulin before surgery

Diabetes Remission in the Alliance of Randomized Trials of Medicine Versus Metabolic Surgery in Type 2 Diabetes (ARMMS-T2D)

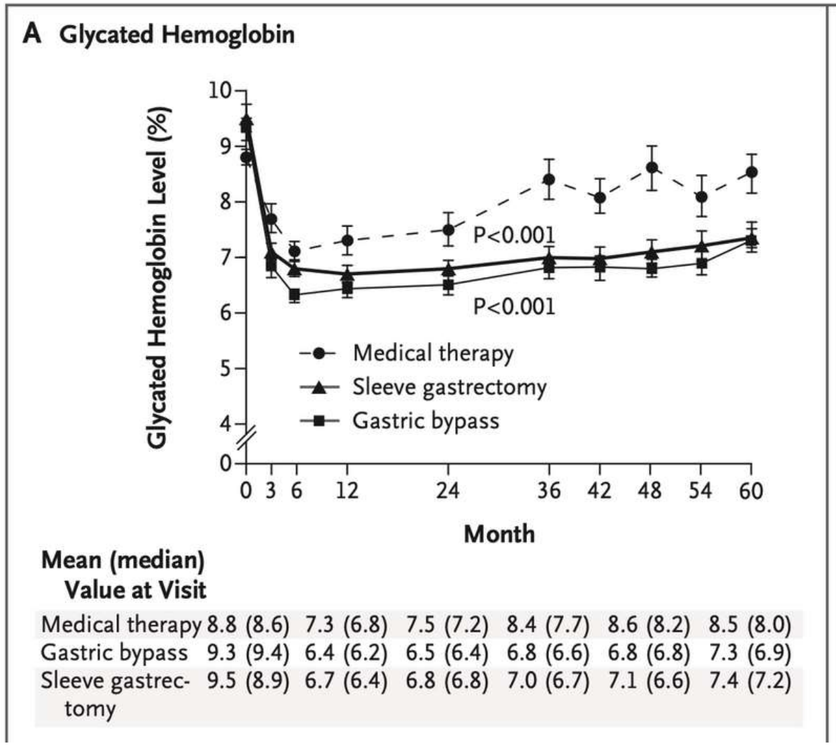
Diabetes Care 2022;45:1574–1583 | https://doi.org/10.2337/dc21-2



The NEW ENGLAND JOURNAL of MEDICINE

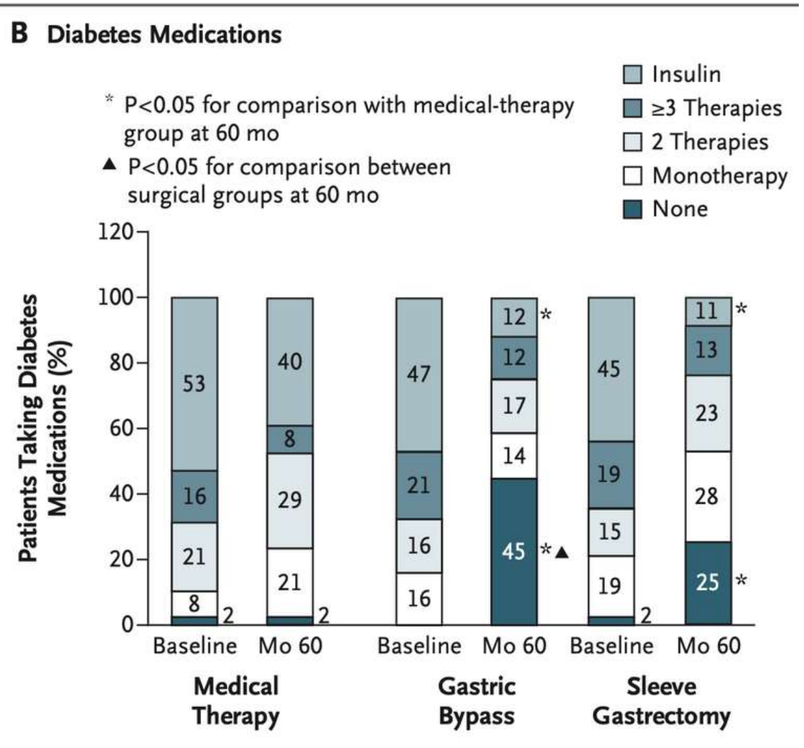
ORIGINAL ARTICLE

Bariatric Surgery versus Intensive Medical Therapy for Diabetes — 5-Year Outcomes



Mean (median) Value at Visit

Medical therapy	8.8 (8.6)	7.3 (6.8)	7.5 (7.2)	8.4 (7.7)	8.6 (8.2)	8.5 (8.0)
Gastric bypass	9.3 (9.4)	6.4 (6.2)	6.5 (6.4)	6.8 (6.6)	6.8 (6.8)	7.3 (6.9)
Sleeve gastrectomy	9.5 (8.9)	6.7 (6.4)	6.8 (6.8)	7.0 (6.7)	7.1 (6.6)	7.4 (7.2)



Bariatric–metabolic surgery versus lifestyle intervention plus best medical care in non-alcoholic steatohepatitis (BRAVES): a multicentre, open-label, randomised trial

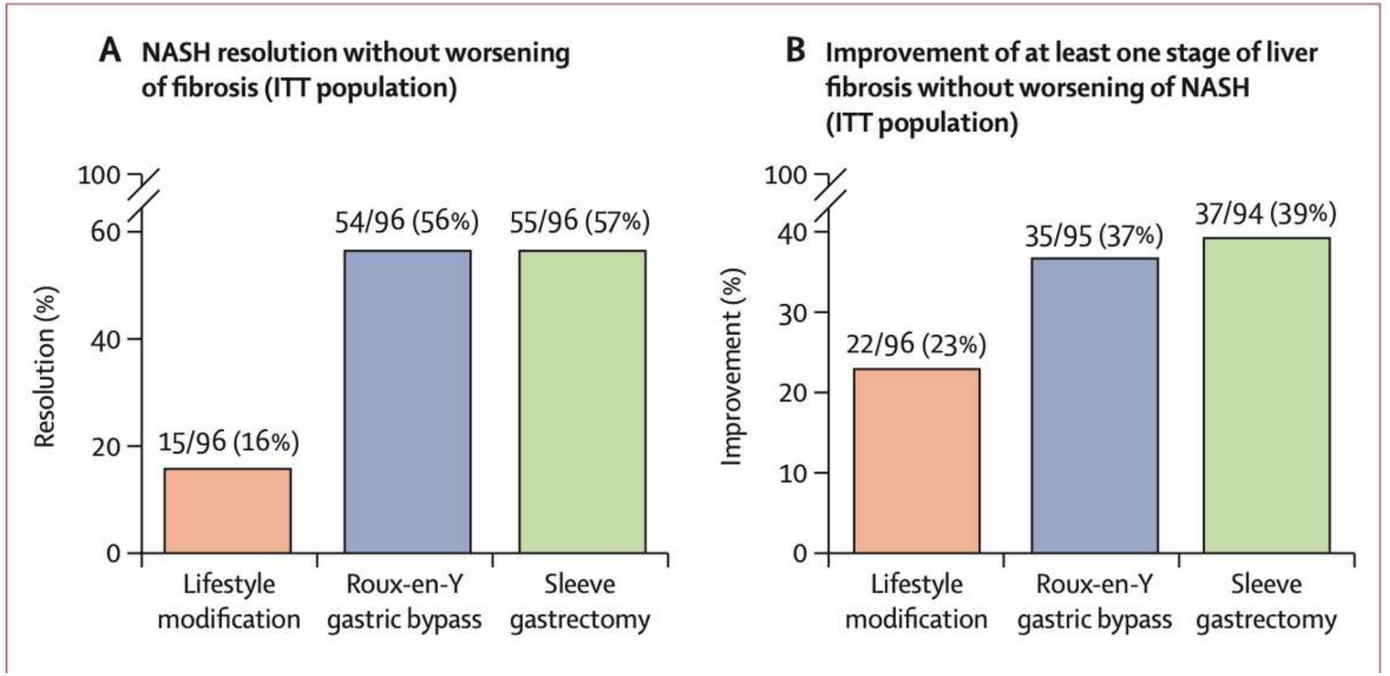
www.thelancet.com Vol 401 May 27, 2023

Ornella Verrastro, Simona Panunzi*, Lidia Castagneto-Gissey, Andrea De Gaetano, Erminia Lembo, Esmeralda Capristo, Caterina Guidone, Giulia Angelini, Francesco Pennestrì, Luca Sessa, Fabio Maria Vecchio, Laura Riccardi, Maria Assunta Zocco, Ivo Boskoski, James R Casella-Mariolo, Pierluigi Marini, Maurizio Pompili, Giovanni Casella, Enrico Fiori, Francesco Rubino, Stefan R Bornstein, Marco Raffaelli, Geltrude Mingrone*

52-week RCT comparing:
i. lifestyle modification plus best medical care,
ii.Roux-en-Y gastric bypass,
iii. sleeve gastrectomy

for the treatment of histologically confirmed NASH in people with obesity (BMI30-55)

In the lifestyle modification group:
45 (56%) participants had weight loss of up to 5%,
13 (16%) had weight loss of 5–10%,
12(15%)hadweightlossof 11–15%
10(12%) had weight loss greater than 15%.

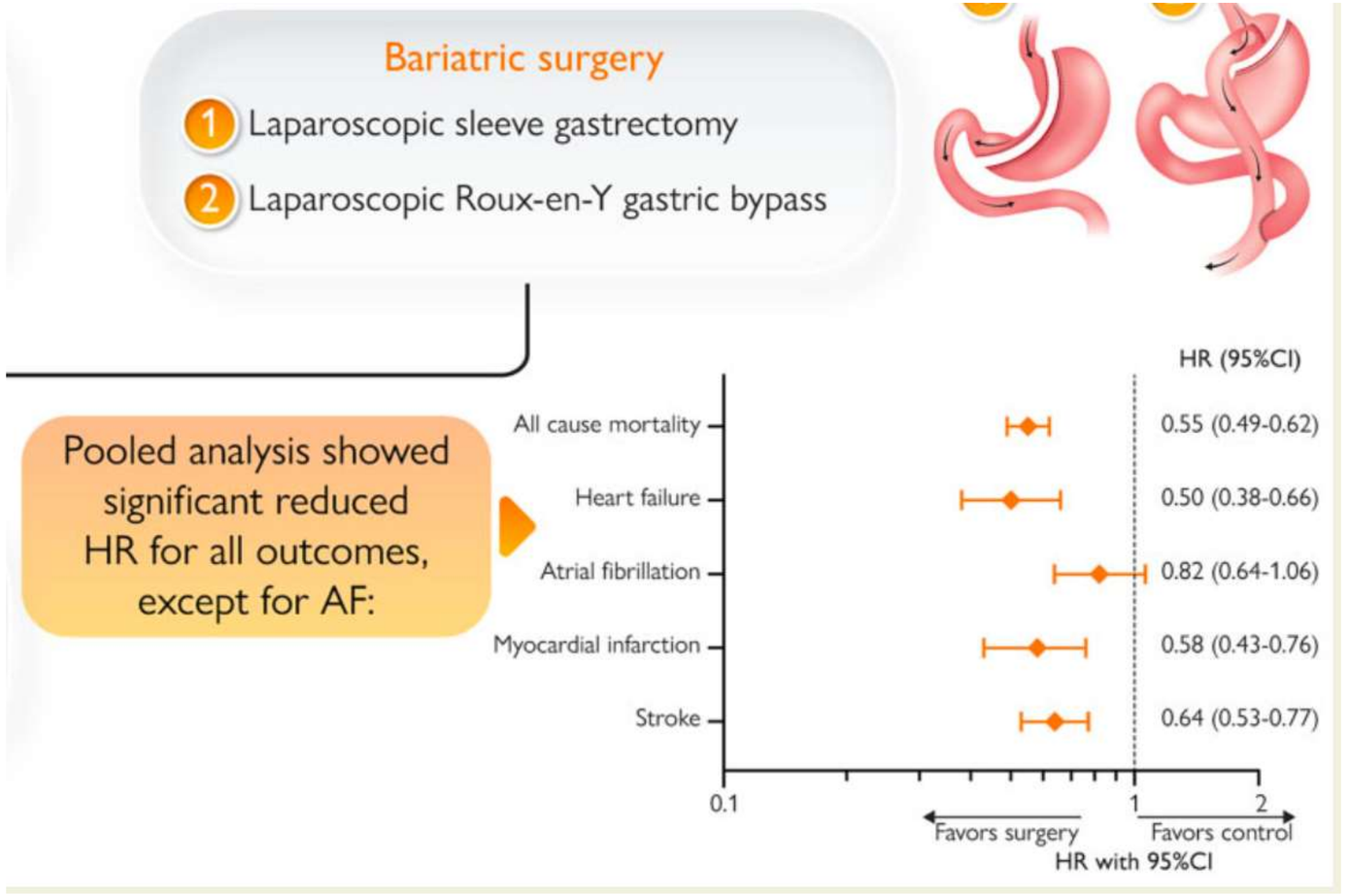


Percentage of patients with NASH resolution without worsening of fibrosis after lifestyle modification and best medical care, Roux-en-Y gastric bypass, and sleeve gastrectomy in the ITT population

ESC European Society of Cardiology
European Heart Journal (2022) **43**, 1955–1969
https://doi.org/10.1093/eurheartj/ehac071

META-ANALYSIS
Heart failure and cardiomyopathies

Bariatric surgery and cardiovascular disease: a systematic review and meta-analysis



Obese patients with diabetes live 9.3years more with SURGERY than without!

over 174,000 patients.
Lancet, 2021

And the bad stuff….

COST – $20-$25K

- Peri-op morality 0.1-1%
- Peri-op morbidity 2-20%
- Re-intervention
- Malnutrition
- Vit and mineral deficiencies
- Reflux
- Gallstones
- Internal hernias
- Weight Regain
- Decreased bone density /↑#s
- IBS like symptoms/dumping syndrome – 60+%
- Anastomotic ulceration
- Alcohol Abuse
- Suicide/self-harm

BJS 2023, BMJ 2023

International Journal of Obesity (2021) 45:2179–2190
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ARTICLE

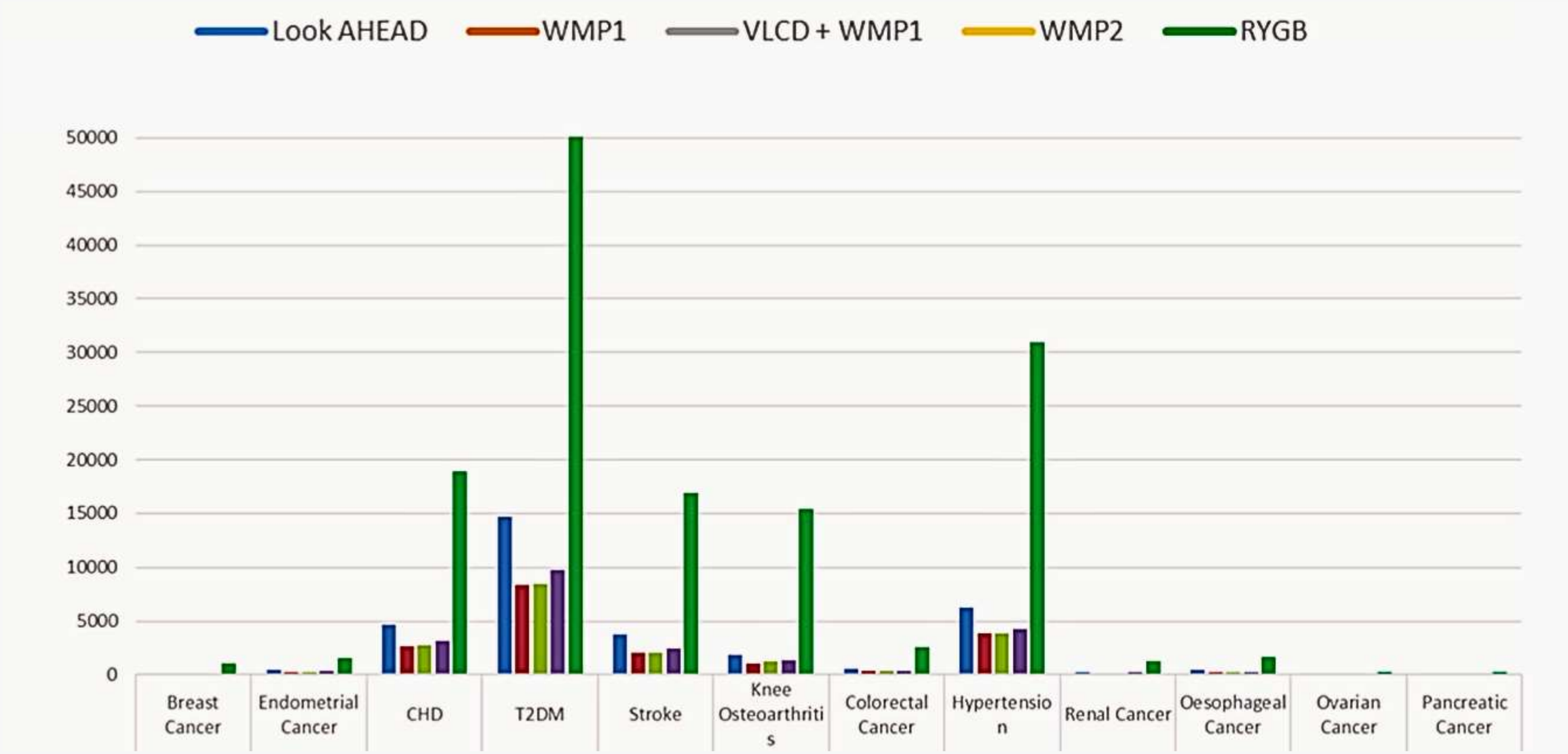
Health Economics

Cost-effectiveness of bariatric surgery and non-surgical weight management programmes for adults with severe obesity: a decision analysis model

"RYGB delivers substantial weight loss, generates large QALY gains and is the most cost-effective use of scarce NHS resources for the general population of adults with BMI ≥ 35 kg/m2 (assuming a willingness to pay of £20,000 per QALY)."

"However, surgery is expensive (£8253 per case) and widespread upfront delivery of RYGB to all people with severe obesity in the UK adult population (12% of 50.8 million adults) would place massive strain on fixed NHS resources (an estimated cost of £5 billion at 10% uptake), even if it represents a cost-effective use of resources longer term."

Cumulative incidence cases of obesity related disease AVOIDED per 100,000 population with BMI ≥ 35 compared to population trends.



Take-aways

Lifestyle medicine important for all

Lifestyle medicine to prevent obesity and associated conditions

Lifestyle medicine +? medication +? surgery likely needed to have significant impact

Obesity is a chronic disease and will require lifelong treatment

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Find a team that can have the conversation....