MULTIMODAL TREATMENT

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CHIRURGIA BARIATRICA E METABOLICA

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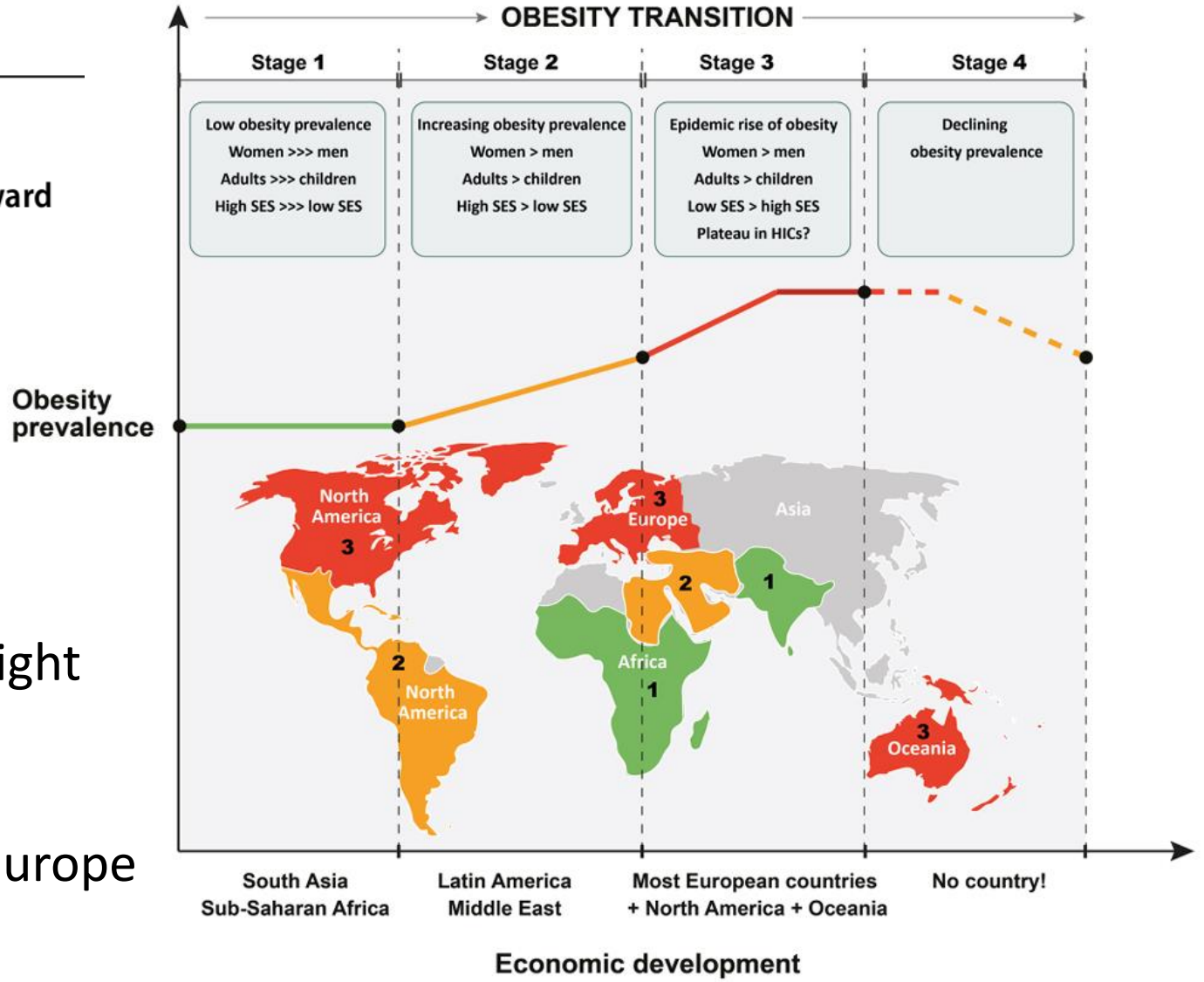
REVIEW

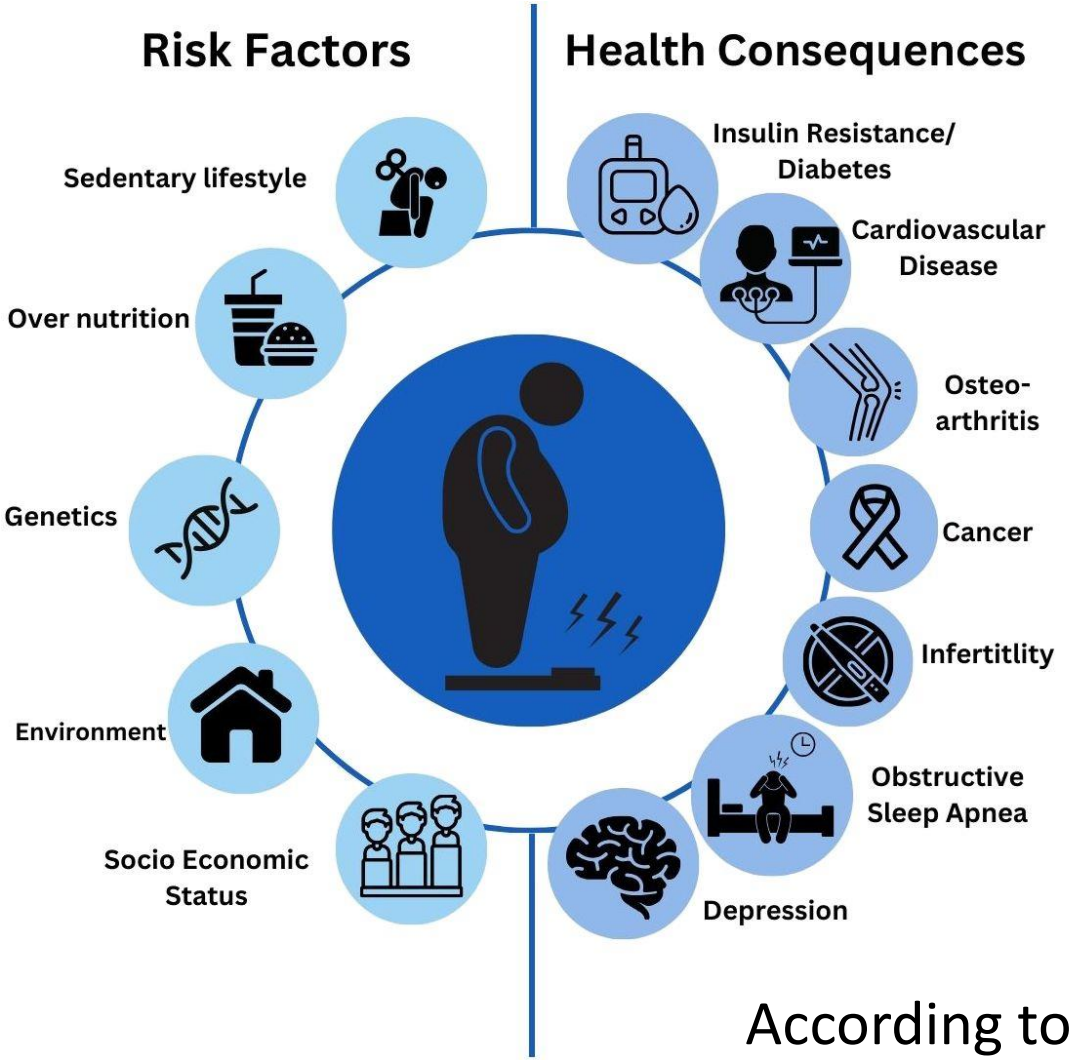
Update on the Obesity Epidemic: After the Sudden Rise, Is the Upward Trajectory Beginning to Flatten?

Chrysi Koliaki[1] · Maria Dalamaga[2] · Stavros Liatis[1]

Obesity is global health priority, rising prevalence:

- tripled since 1975
- > 2/3 of the US population are over-weight
- 23% of adults in the Europe
- Overweight + obesity → 60% adults in Europe





Pathogenesis of obesity :

- genetic,
- epigenetic,
- developmental and environmental factors,
- increased energy consumption,
- reduced physical activity (not only)

Bariatric surgery is still the most effective treatment option reduce body weight,

- decrease CVD mortality by 30%
- increase the overall life expectancy by 3 years

According to the nine guidelines a **MULTIDISCIPLINARY TEAM** should be used to manage overweight and obesity as a long-term, chronic disease

LIFESTYLE INTERVENTIONS

Intensive lifestyle and behavioural interventions →

7–10% mean weight loss over 52 weeks in clinical trials

- **INCREASED PHYSICAL ACTIVITY:**

should be individualized to patients' capabilities and preferences
The **American College of Sports Medicine (ACSM)** recommended that individuals need to exercise :

- 150–250 min/week, prevent weight gain
- 150–250 min/week, achieve weight loss
- 200–300 min/week, maintain weight loss,

- **BEHAVIOURAL INTERVENTIONS** :

- motivational interviewing
- stimulus control
- cognitive restructuring
- selfmonitoring **essential part**

LIFESTYLE INTERVENTIONS

- **LOW-CALORIE BALANCED DIET:**

dietary interventions should be individualized and based on personal and cultural preferences

The recommended therapeutic goal →

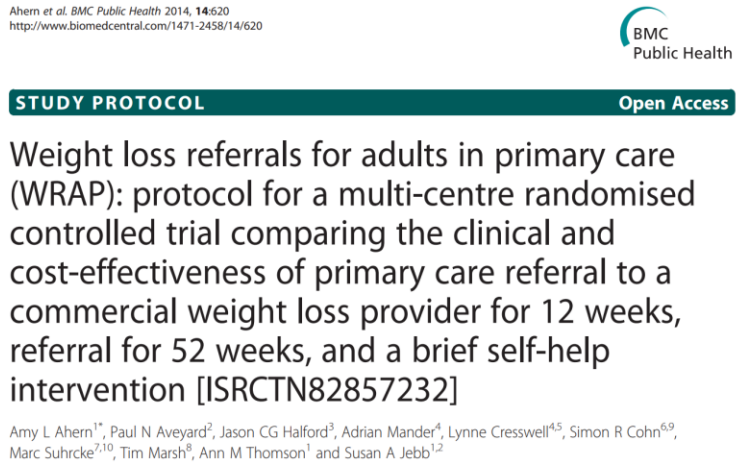
weight loss of 0.2 -1.0 kg per week and a 5-10% reduction in body weight

- **Weight-loss programme referrals for adults in primary care (WRAP)**

- **The Diabetes Remission Clinical Trial (DiRECT)**

strict weight management program for 12 month→ 825–853 kcal/day formula diet for 3–5 months,

- weight loss of **15 kg** or more in 24%
- diabetes remission in 46%
- in the control group no patient achieved a weight loss of>15 kg, (only 4% of patients achieved diabetes remission)



PHARMACOLOGICAL TREATMENT

The use of **anti-obesity medications** in conjunction with **lifestyle interventions** is indicated for

- **PEOPLE WITH OBESITY (BMI ≥30 KG/M²)**
- **OVERWEIGHT (BMI ≥27 KG/M²)** with at least **ONE WEIGHT-RELATED HEALTH CONDITION**

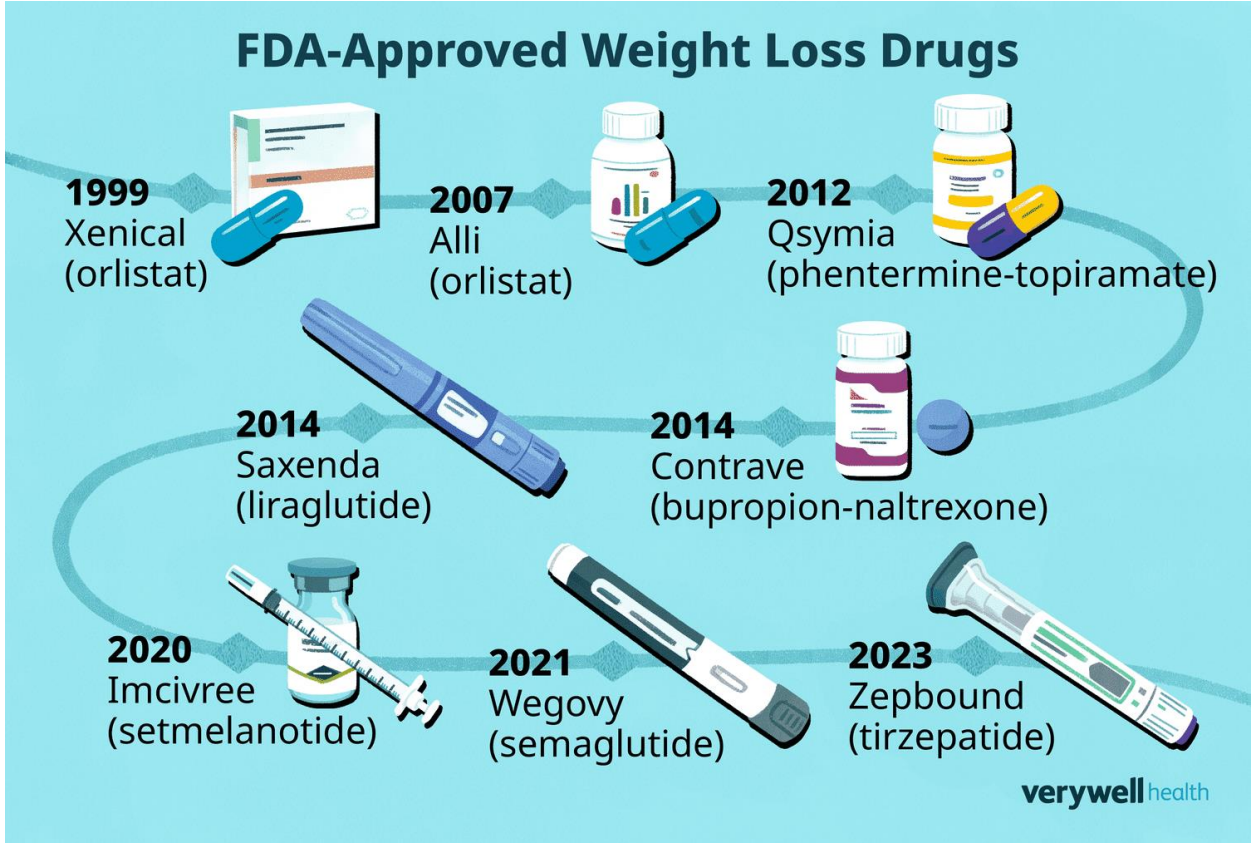
Anti-obesity medications approved for long-term weight management :

- **Orlistat*** → inactivates gastric and pancreatic lipase, leading to the excretion of up to 30–35% of ingested fat

- **Phentermine**
- **Naltrexone-bupropiont**
- **Liraglutide 3.0 mg**
- **Semaglutide 2.4 mg**
- **Tirzepatide**

- regulate food intake,
- to reduce hunger,
- promote satiation,
- reduce food reward

effects on diverse neurotransmitters in CNS pathways
(including the hypothalamic melanocortin system and mesolimbic reward system)



LIRAGLUTIDE AND SEMAGLUTIDE

GLP-1 analogue.
Initially prescribed for the management of type 2 diabetes, both central and peripheral action:

- **inhibition of glucagon secretion,**
- **increase in insulin secretion** → in a glucose- dependent manner → reducing the risk of associated hypoglycaemia
- **decreases the rate of gastric emptying**.
- **promote satiety**, acting on receptors within the arcuate nucleus in the hypothalamus and nucleus of the solitary tract

LIRAGLUTIDE

- similar to the native GLP-1 sequence → few **chemical modifications** to ***improve bioavailability*** and ***extend the half-life***, (replacing lysine at position 34 with arginine and adding a C16 fatty acid at the ε-amino group of lysine at position 26.9)
- The **once-daily 3.0 mg liraglutide** has been approved by the Food and Drug Administration (FDA) and European Medicines Agency (EMA) for the treatment of obesity.

SEMAGLUTIDE

- analogue of liraglutide with a substitution of alanine with an aminoisobutyric acid (Aib) at the 2nd position in the N-terminal. The C16 fatty acid is also exchanged for C18 fatty acid and linked by a synthetic spacer.
- The half-life of semaglutide extends to 160 h, supporting **once-weekly administration**.
- Semaglutide once-weekly 2.4 mg was approved by the FDA in June 2021 for the treatment of overweight/obese individuals.

Open Access Full Text Article

REVIEW

Efficacy and Safety of Liraglutide and Semaglutide on Weight Loss in People with Obesity or Overweight: A Systematic Review

Zeyu Xie, Sensen Yang, Weishang Deng, Jinjian Li, Jisheng Chen

Weight Loss

- semaglutide 2.4mg (MD=**−12.47kg**, 95% CI [−13.25, −11.69]), ***best weight loss effect***
- liraglutide 3.0mg (MD=**−5.24kg**, 95% CI [−5.82, −4.67]),
- semaglutide 1.0mg (MD=−3.74kg, 95% CI [−4.87, −2.61]),
- liraglutide 1.8mg (MD=−3.29kg, 95%CI [−4.04, −2.53]).

Decreased HbA1c (%)

- semaglutide 2.4mg (MD= **−1.48%**, 95% CI [−1.93, −1.04]), ***best-decreased HbA1c (%)***
- semaglutide 1.0mg (MD=−1.36%, 95% CI [−1.72, −1.01]),
- liraglutide 1.8mg (MD= −1.23%, 95%CI [−1.66, −0.80]),

There is no significant difference in the comparison between semaglutide 2.4mg and semaglutide 1.0mg and liraglutide 1.8mg

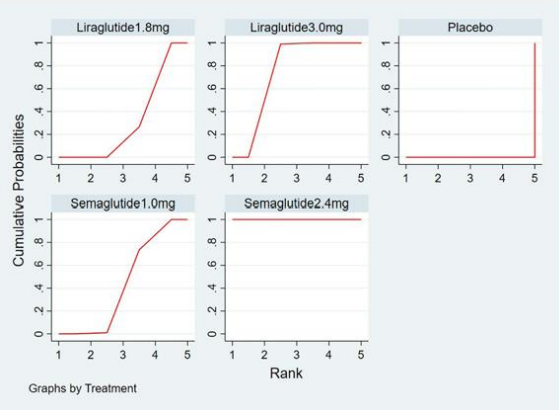
Total Adverse Events

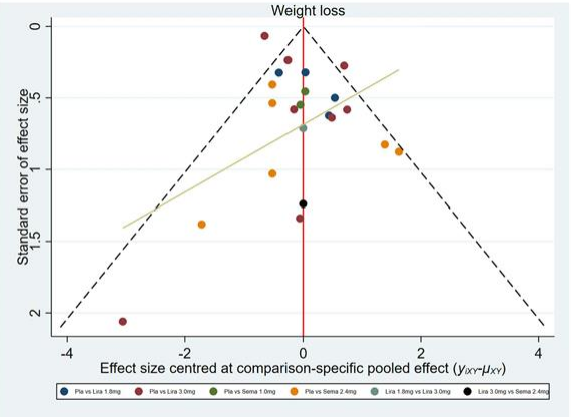
- semaglutide 2.4 mg (OR = 2.36, 95%CI [1.84, 3.03], P < 0.05),
- Liraglutide 3.0 mg (OR = 2.35, 95%CI [1.82, 3.02], P < 0.05),

semaglutide 1.0 mg had the lowest incidence of total adverse events,
semaglutide 2.4mg had the highest incidence of total adverse events

Serious Adverse Events

liraglutide 3.0mg (OR = 1.47, 95%CI [1.07, 2.02], P < 0.05).
Liraglutide 1.8mg (OR = 1.67, 95%CI [0.68,4.09], P > 0.05),
semaglutide 2.4mg (OR = 1.29, 95%CI [0.97,1.71], P > 0.05)
semaglutide 1.0mg (OR = 0.87, 95%CI [0.54,1.39], P > 0.05)
NO significant difference





Effect of semaglutide and liraglutide in individuals with obesity or overweight without diabetes: a systematic review

You Deng, Andrew Park, Lin Zhu, Wen Xie and Calvin Q. Pan

All populations treated with liraglutide or semaglutide were associated with **effective, sustained,clinically relevant weight loss** regardless of the study design and duration

the **liraglutide 3.0 mg** daily treated group,

- > 5% weight loss → 48.2% to 76.1% vs 1.8% to 44.0% in CG.
- ⩾ 10% → 20% to 46% vs 1.8% to 26%
- **⩾ 15%** → 8.4% to **28%** vs 1.8% to 12%

In **semaglutide** treated groups,

- > 5% → 86.4% to 88.7% vs 31.5% to 47.6%,
- >10% → 69.1% to 79.0% vs 12.0% to 27.0%,
- **> 15%** → 50.5% to **63.7%** vs 4.9% to 13.2%

Authors	⩾5% weight loss,%	⩾10% weight loss,%	⩾15% weight loss,%
Liraglutide, 3.0mg, QD			
Pi-Sunyer *et al.*[13]	63.2 (1131/1789) *vs* 27.1 (217/801)	33.1 (592/1789) *vs* 10.6 (85/801)	14.4 (258/1789) *vs* 3.5 (28/801)
Astrup *et al.*[16]	76.1 (62/82) *vs* 29.6 (23/79)	28.3 (23/82) *vs* 2.0 (2/79)	NR
Blackman *et al.*[22]	48.2 (68/142) *vs* 20.0 (27/134)	24.7 (35/142) *vs* 1.8 (2/134)	8.4 (12/142) *vs* 1.8 (2/134)
Wadden *et al.*[19]	70.0 (32/45) *vs* 44.0 (20/46)	46.0 (21/45) *vs* 26.0 (12/46)	28.0 (13/45) *vs* 12.0 (6/46)
Astrup *et al.*[20]	73.0 (55/75) *vs* 28.0 (21/74)	37.0 (28/75) *vs* 10.0 (16/74)	NR
Wadden *et al.*[21]	50.5 (80/159) *vs* 1.8 (3/146)	NR	NR
Ferrari *et al.*[27]	68.3 (49/72) *vs* NR	20.0 (14/72) *vs* NR	10.0 (7/72) *vs* NR
Gorgojo-Martínez *et al.*[29]	64.7 (65/100) *vs* 27.4 (110/400)	20.0 (20/100) *vs* 11.7 (47/400)	NR
O'Neil *et al.*[15]	66.0 (57/86) *vs* 23.0 (24/103)	34.0 (29/86) *vs* 10.0 (10/103)	15.0 (13/86) *vs* 5.0 (5/103)
Liraglutide 2.4, 1.8, 1.2, 0.6 mg, QD			
Astrup *et al.*[16]	60.8 (52/73), 53.3 (45/74), 52.1 (44/85), NR *vs* 29.6 (23/79)	22.8 (17/73), 18.9 (14/74), 7.4 (6/85), NR *vs* 2.0 (2/79)	NR
Astrup *et al.*[20]	53.0 (35/66), 51.0 (36/70), 43.0 (34/78), NR *vs* 28.0 (21/74)	27.0 (18/66), 26.0 (18/70), 17.0 (13/78), NR *vs* 10.0 (7/74)	NR
Chou and Chuang[28]	NR, NR, 44.4 (8/18), 32.1 (9/28) *vs* NR	NR, NR, 22.2 (4/18), 14.8 (4/28) *vs* NR	NR
Semaglutide, 2.4mg, QW			
Wilding *et al.*[14]	86.4 (1047/1212) *vs* 31.5 (182/577)	69.1 (838/1212) *vs* 12.0 (69/577)	50.5 (612/1212) *vs* 4.9 (28/577)
Wadden *et al.*[17]	86.6 (294/339) *vs* 47.6 (79/166)	75.3 (255/339) *vs* 27.0 (45/166)	55.8 (189/339) *vs* 13.2 (22/166)
Rubino *et al.*[18]	88.7 (447/504) *vs* 47.6 (113/237)	79.0 (398/504) *vs* 20.4 (48/237)	63.7 (321/504) *vs* 9.2 (22/237)

ORIGINAL ARTICLE

Healthy Weight Loss Maintenance with Exercise, Liraglutide, or Both Combined

Authors: Julie R. Lundgren, M.D., Ph.D., Charlotte Janus, Ph.D., Simon B.K. Jensen, M.Sc., Christian R. Juhl, M.D., Lisa M. Olsen, M.Sc., Rasmus M. Christensen, B.Sc.Med., Maria S. Svane, M.D., Ph.D., +7, and Signe S. Torekov, Ph.D. Author Info & Affiliations

Published May 5, 2021 | N Engl J Med 2021;384:1719-1730 | DOI: 10.1056/NEJMoa2028198 | VOL. 384 NO. 18

Randomized clinical trial

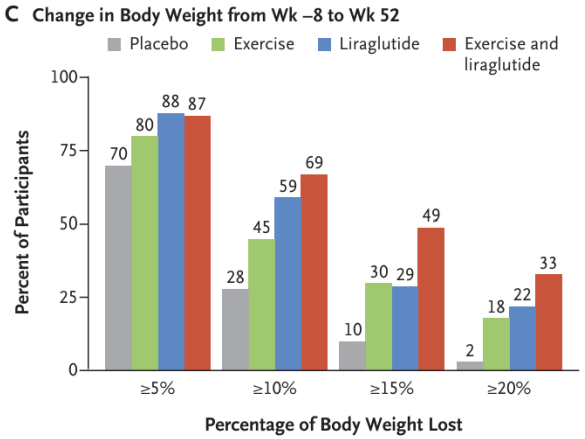
exercise combined with liraglutide →

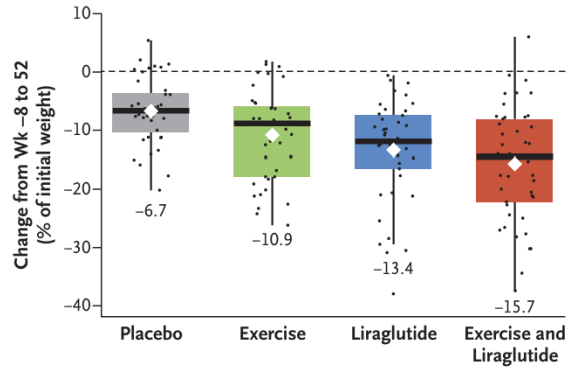
twice as much as either treatment alone in

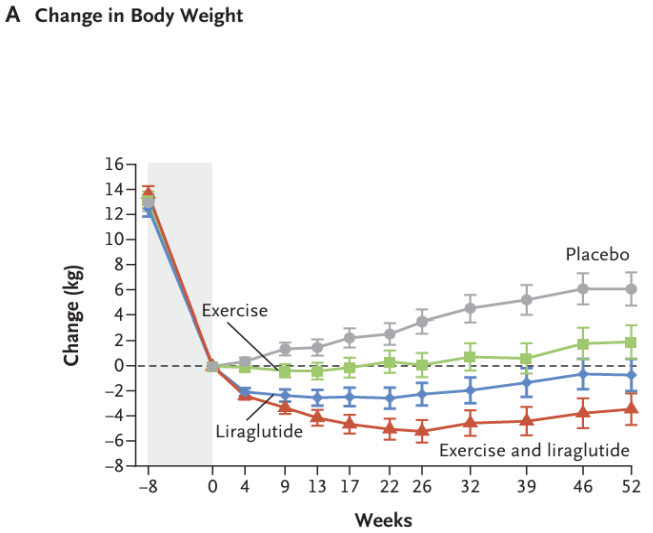
reducing the body weight and body-fat percentage.

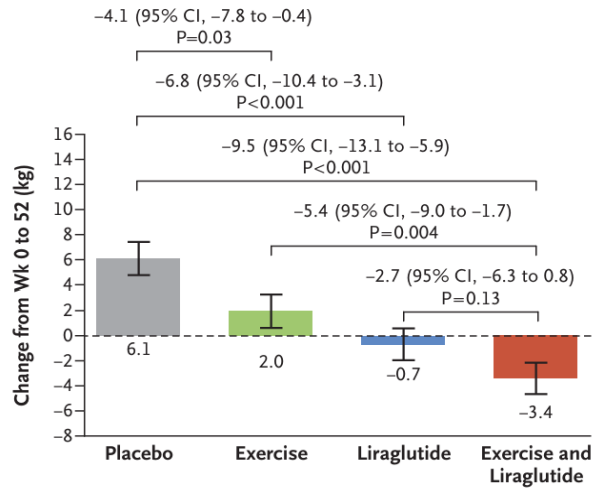
It was also associated with the improvements:

- insulin sensitivity,
- cardiorespiratory fitness,
- maintaining a good mood









No. of Participants	215	195	187	183	181	178	178	175	171	169	168	166

	Placebo	Exercise	Liraglutide	Exercise and liraglutide
No. Who Underwent Randomization	49	48	49	49
No. Who Completed Trial	40	40	41	45

TIRZEPATIDE

Diabetes Ther
https://doi.org/10.1007/s13300-020-00981-0

REVIEW

The Role of Tirzepatide, Dual GIP and GLP-1 Receptor Agonist, in the Management of Type 2 Diabetes: The SURPASS Clinical Trials

Thinzar Min · Stephen C. Bain

In May 2022, the hypoglycemic drug tirzepatide (trade name: Mounjaro) developed by Eli Lilly and Company was approved by the FDA for marketing. **First dual agonist of glucose dependent insulinotropic peptide (GIP) and GLP-1 receptor**, which is used as a subcutaneous injection once a week

GIP

- inhibits gastric secretion activity,
- stimulates insulin secretion, has insulin-like effects on adipose tissue,
- inhibits fat lysis,
- promotes fat generation

GLP-1

- stimulate insulin secretion
- inhibit the release of glucagon.
- slow down gastric emptying
- induce a feeling of fullness

Both GIP and GLP-1 belong to the insulin stimulating hormone → stimulating hormones may be caused by nutrients in the gut, microbial factors, and neuroendocrine stimulation.
GLP-1 inhibits glucagon while GIP increases, which may produce a **good balance for avoiding hypoglycemia**

GIP and GLP-1 lead to **increased insulin secretion** and **peripheral insulin sensitivity**, while **slowing the neuroregulation of gastric emptying** and gastrointestinal motility

Clinical Trial > Lancet. 2023 Aug 19;402(10402):613-626. doi: 10.1016/S0140-6736(23)01200-X.
Epub 2023 Jun 26.

Tirzepatide once weekly for the treatment of obesity in people with type 2 diabetes (SURMOUNT-2): a double-blind, randomised, multicentre, placebo-controlled, phase 3 trial

W Timothy Garvey [1], Juan P Frias [2], Ania M Jastreboff [3], Carel W le Roux [4], Naveed Sattar [5], Diego Aizenberg [6], Huzhang Mao [7], Shuyu Zhang [7], Nadia N Ahmad [7], Mathijs C Bunck [7], Imane Benabbad [7], Xiaotian M Zhang [7]; SURMOUNT-2 investigators

BMI 27 kg/m2 or higher and **type 2 diabetes** treated with tirzepatide for 72 weeks
938 participants → tirzepatide 10 mg (n=312), tirzepatide 15 mg (n=311), or placebo

Tirzepatide (or matching placebo) was initiated at 2·5 mg once weekly and increased by 2·5 mg every 4 weeks until the target dose was reached

At week 72 bodyweight was

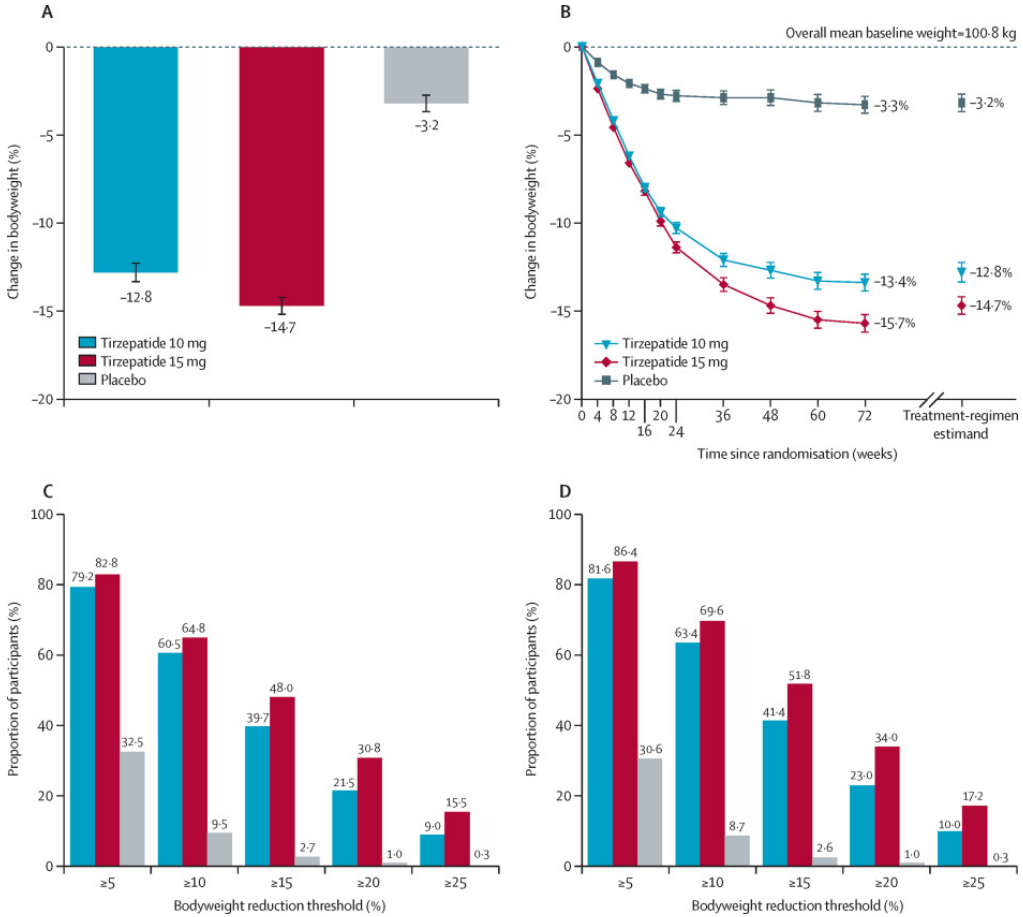
- **–12·8%** (SE 0·6) or –12·9 kg (–28·4 lbs) with **tirzepatide 10 mg**,
- **–14·7%** (SE 0·5) or –14·8 kg (–32·6 lbs) with **tirzepatide 15 mg**, →

> 79–83% reaching a weight reduction of 5% or more

- –3·2% (SE 0·5) or –3·2 kg (–7·0 lbs) with placebo

On tirzepatide 15 mg, bodyweight reductions at week 72

- **> 65%, → 10%**
- 48%,→ 15%
- 31% → 20%



Improvements in **fasting serum glucose**, **fasting insulin**, and **seven-point SMBG profiles** were also greater among participants treated with tirzepatide compared with placebo

gastrointestinal disorders (diarrhoea, nausea, and vomiting)

Tirzepatide as a novel effective and safe strategy for treating obesity: a systematic review and meta-analysis of randomized controlled trials

Wenting Cai [1 2], Ruobin Zhang [1 2], Yao Yao [2], Qiuhui Wu [2], Jinping Zhang [2]

Affiliations + expand

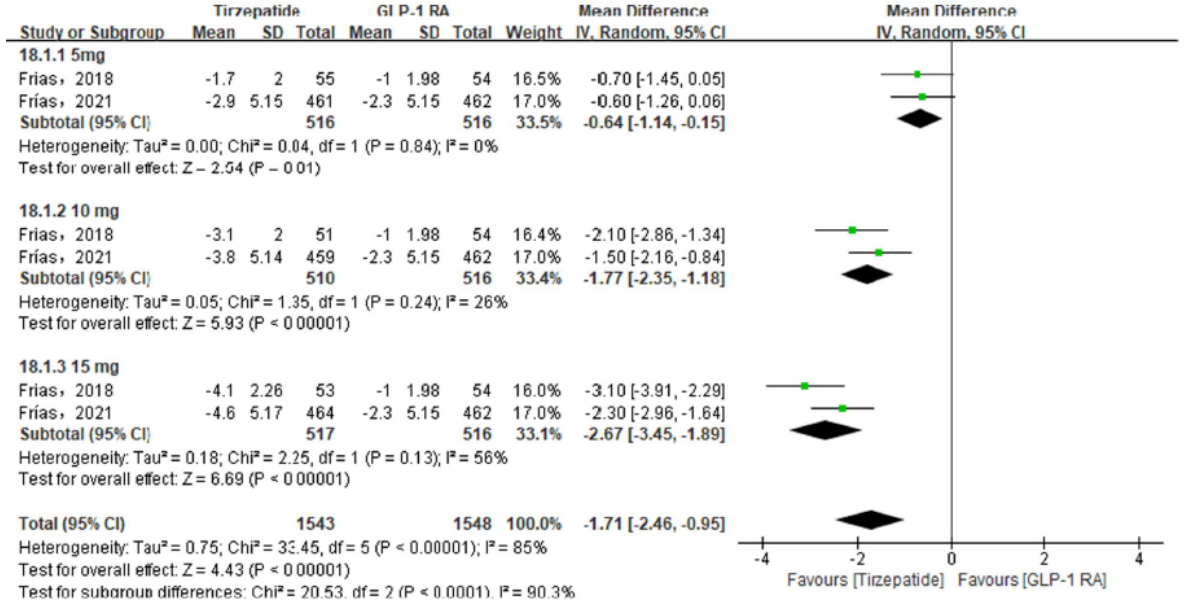
PMID: 38356942 PMCID: PMC10864442 DOI: 10.3389/fpubh.2024.1277113

Tirzepatide group had **lower BMI than the control group** [MD = −1.71, 95% CI (−2.46, −0.95), p < 0.00001].

The tirzepatide group has a more outstanding advantage in **weight loss ≥15%** compared to weight loss ≥5 and 10%.

Compared with placebo, the efficacy rate of tirzepatide in **weight loss≥20%, 25% was much higher than that of placebo** [RR = 30.43, 95% CI (19.56, 47.33), p < 0.00

The results showed that the waist circumference of the tirzepatide group was significantly lower



The main symptoms included nausea, diarrhea, vomiting, and decreased appetite

The effects of subcutaneous Tirzepatide on obesity and overweight: a systematic review and meta-regression analysis of randomized controlled trials

Pejman Rohani [1], Nasser Malekpour Alamdari [2], Seyedeh Elaheh Bagheri [3], Azita Hekmatdoost [4], Mohammad Hassan Sohouli [1 5]

Affiliations + expand

PMID: 37621649 PMCID: PMC10446893 DOI: 10.3389/fendo.2023.1230206

- body weight: **-11.34 kg**, 95% (CI): -12.79 to -9.88, P< 0.001,
- BMI WMD: **-3.11 kg/m2**, 95% CI: -4.36 to -1.86, P< 0.001,
- waist circumference WMD: -7.24 cm, 95% CI -10.12 to -4.36, P< 0.001)

were significantly reduced after subcutaneous Tirzepatide

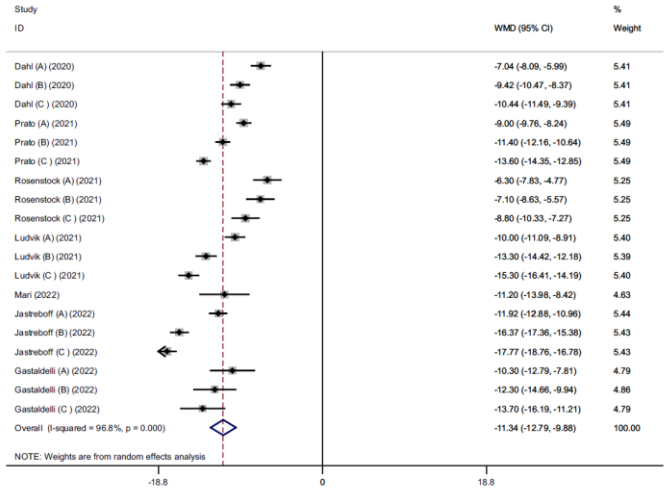


FIGURE 2
Forest plot of randomized controlled trials investigating the effects of Tirzepatide on weight (kg).

Changes in weight loss following subcutaneous Tirzepatide at a dose of:

- 15 mg (**WMD: -13.02** kg, 95% CI: -15.36 to -10.69, I2 = 96.1%) were higher compared to other doses
- 10 mg (WMD: -11.66 kg, 95% CI: -14.16 to -9.16, I2 = 96.5%),
- 5 mg (WMD: -9.08 kg, 95% CI: -10.75 to -7.42, I2 = 92.2%)).

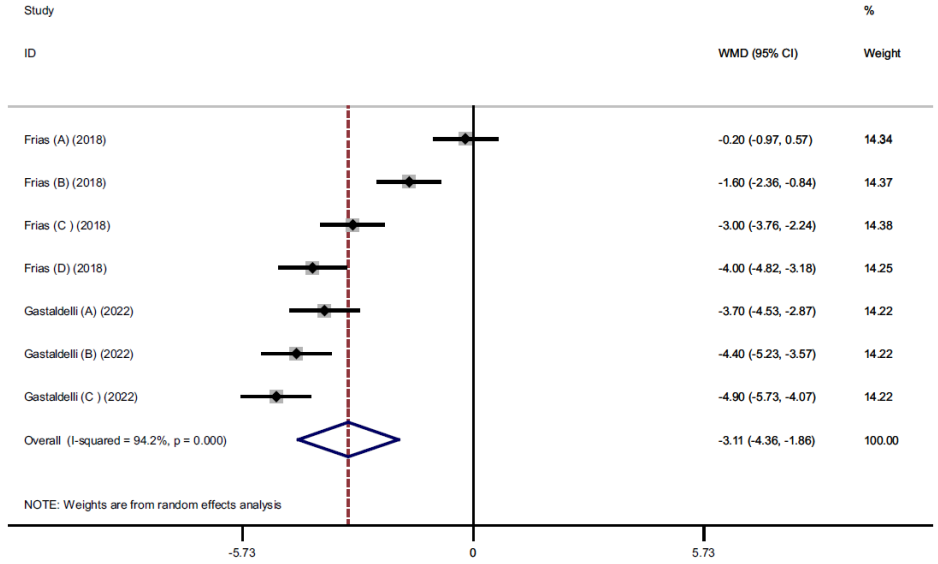


FIGURE 4
Forest plot of randomized controlled trials investigating the effects of Tirzepatide on body mass index (BMI) (kg/m^2).

Review Article

Efficacy and Safety of Glucagon-Like Peptide-1 Receptor Agonists on Body Weight and Cardiometabolic Parameters in Individuals With Obesity and Without Diabetes: A Systematic Review and Meta-Analysis

Huzaifa Ul Haq Ansari, MBBS [1,*], Shurjeel Uddin Qazi, MBBS [1], Faiza Sajid, PhD [2], Zahabia Altaf, MBBS [1], Shamas Ghazanfar, MBBS [1], Naveen Naveed, MBBS [3], Amna Shakil Ashfaq, MBBS [1], Abdul Hannan Siddiqui, MBBS [1], Hamza Iqbal, MBBS [1], Sana Qazi, MBBS [1]

Weight Loss

among obese individuals **without diabetes**.

Tirzepatide

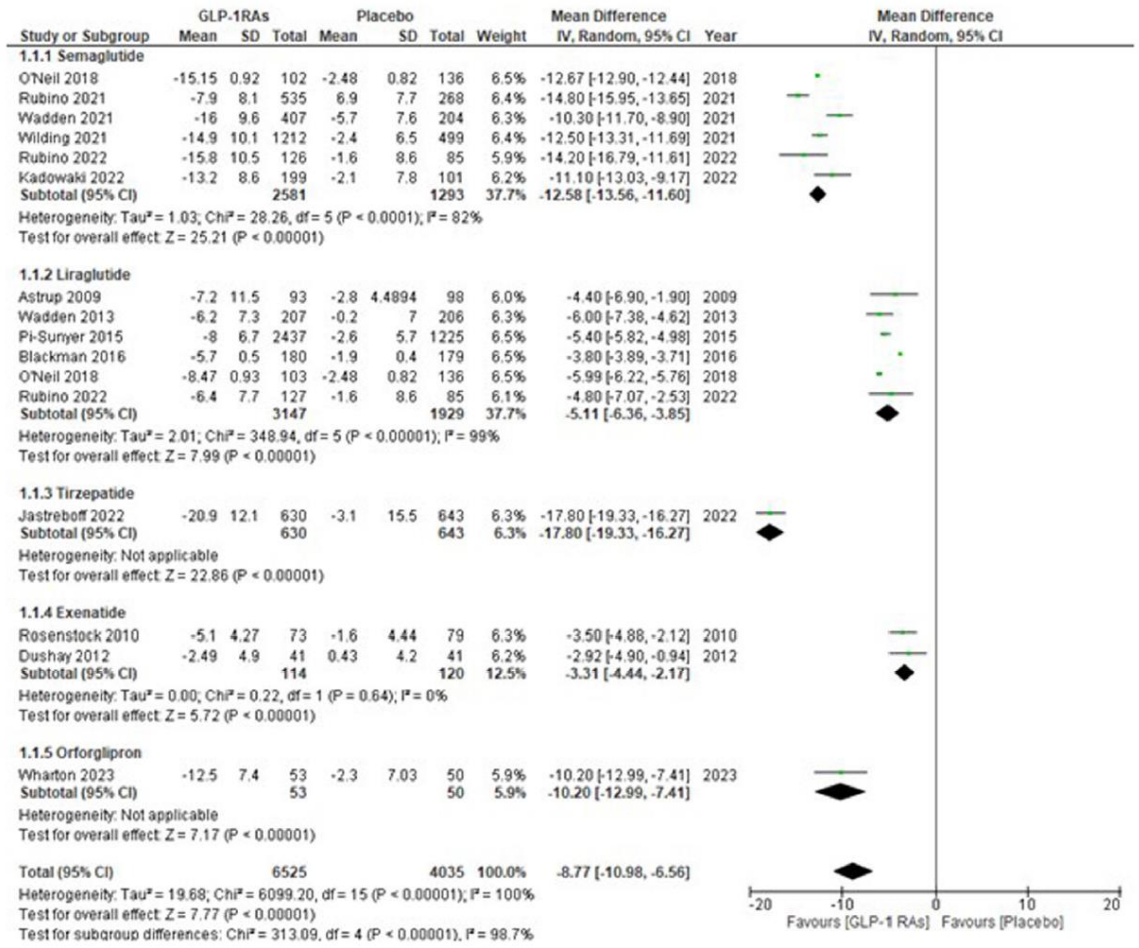
most substantial weight reduction at **17%** (95% CI, 19.33 to 6.27; P<.01).

Semaglutide

12% weight loss (95%CI, 13.56 to 1.60; P <.01; I2 ¼ 82%),

Liraglutide

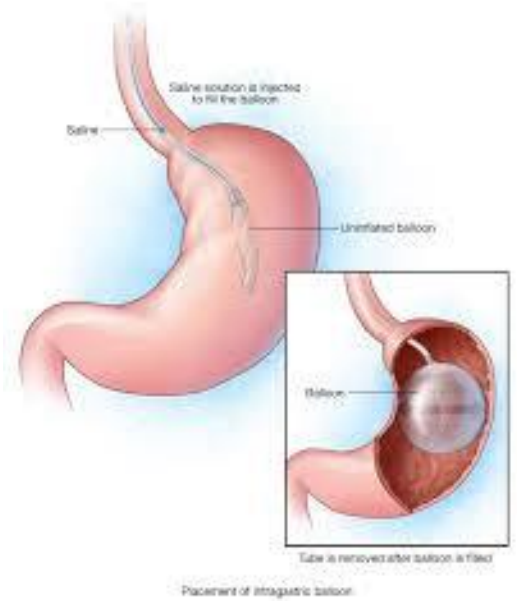
5%weight loss of (95% CI, 6.36 to .85; P <.01; I2 ¼ 99%)



INTRAGRASTIC BALLOON

The **IGB** is a **temporary restrictive technique**

a balloon is inflated with air or fluid and endoscopically placed in the patient's stomach for up to 3–6 months.



Placement of intragastric balloon

Several studies have demonstrated **substantial weight-loss outcomes** → satisfactory performance profile for incorporation into clinical practice guidelines

Weight reduction from IGB appears to **be temporary** and unsustainable in the long run

The total pooled ***complication rate*** was 8.13% (95% CI: 4.04–13.17%)
- mild (grades I–II) complications was 0.65% (95% CI: 0.00–2.71%)
- severe complications (grades III–V) was 5.45% (95% CI:1.94–10.12%)

Obesity Surgery (2022) 32:489–502
https://doi.org/10.1007/s11695-021-05772-5

REVIEW

Intragastric Balloon as Bridging Therapy Prior to Bariatric Surgery for Patients with Severe Obesity (BMI ≥ 50 kg/m^2): a Systematic Review and Meta-analysis

Jing Hong Loo[1] · Yao Hui Lim[1] · Hwee Ling Seah[1] · Andrew Zhi Quan Chong[2] · Kon Voi Tay[2,3]

Received: 17 July 2021 / Revised: 15 October 2021 / Accepted: 3 November 2021 / Published online: 17 November 2021

Bridging with IGB therapy achieved a weighted pooled BMI reduction of **6.60 kg/m²** (MD=6.60, 95% CI: 5.06–8.15; I2=72%) prior to bariatric surgery

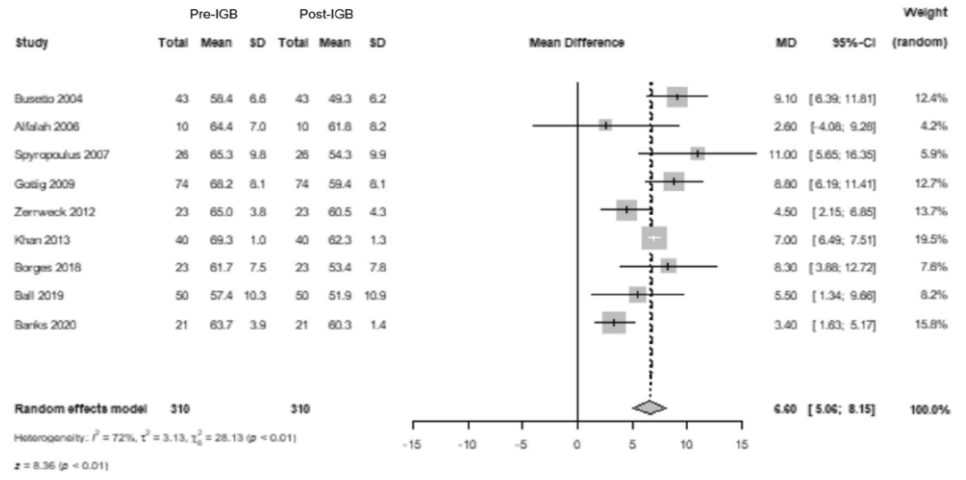


Fig. 1 Pooled change in body mass index (BMI) before and after intragastric gastric (IGB)

Obes Facts. 2023;16(5):457-464. doi: 10.1159/000531459. Epub 2023 Aug 14.

Efficacy of Intragastric Balloon versus Liraglutide as Bridge to Surgery in Super-Obese Patients

Gennaro Martines [1], Agnese Dezi [1], Carlo Giove [1], Valerio Lantone [1], Maria Tersa Rotelli [1], Arcangelo Picciariello [1], Giovanni Tomasicchio [1]

Affiliations + expand

PMID: 37579738 PMCID: PMC10601677 DOI: 10.1159/000531459

The **group treated with IGB** reported:

- a significant difference in **weight** (125 kg, IQR 119–130 vs. 136.5 kg, IQR 125.5–154.5; $p < 0.05$)
- **BMI** (47.24 kg/m^2, IQR 46.2–48.9 vs. 53.6 kg/m^2, IQR47.7–55.8; $p < 0.391$)

compared to liraglutide group.

The median **%EWL** (**15.5**, IQR 13–18.7 vs. 6.71, IQR 5.8–7.4; $p < 0.05$)
median **%EBWL** (**28.5**, IQR 24.8–33.07 vs. 11.8, IQR 10.3–14.3; $p < 0.05$)
were significantly higher in IGB group when compared to liraglutide group

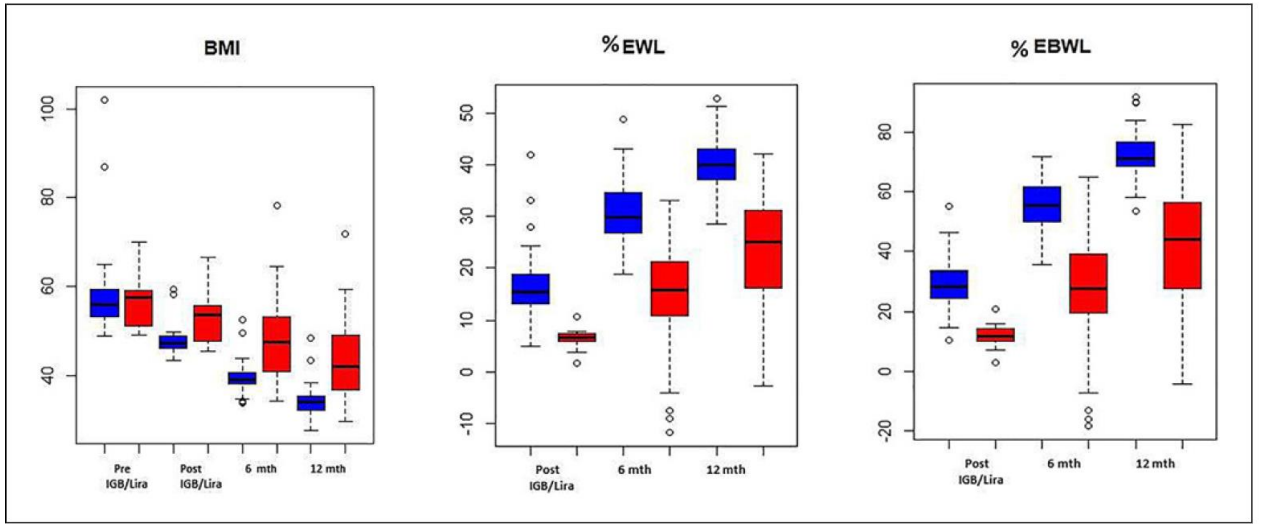


Fig. 2. Relationship between intragastric balloon (IGB) (with blue) and liraglutide (Lira) (with red) management and body mass index (BMI), percent excess weight loss (%EWL), and percent excess body weight loss (%EBWL) at 6 and 12 months.

There were **no differences recorded** between the two groups concerning postoperative complications according to Clavien-Dindo grade

ENDOSCOPIC GASTROPLASTIES

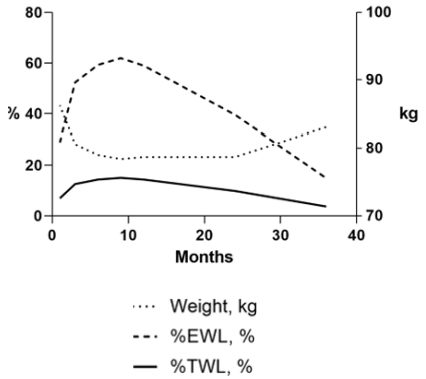
Patients with class **I and II obesity**, those with **class III** obesity who are not suitable candidates for metabolic bariatric surgery

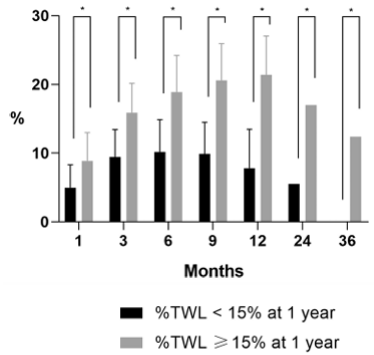
Obesity Surgery (2024) 34:2537–2545
https://doi.org/10.1007/s11695-024-07313-2

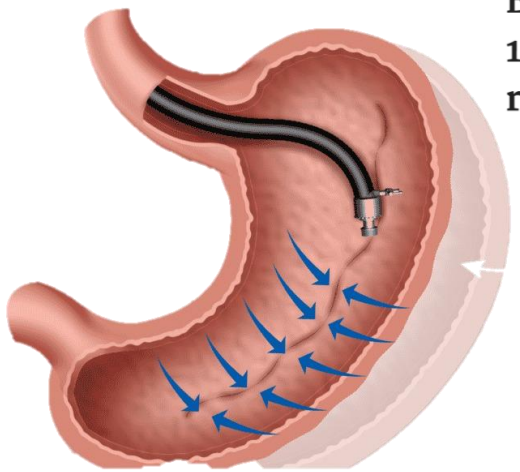
ORIGINAL CONTRIBUTIONS

From Early to Mid-Term Results of Endoscopic Sleeve Gastroplasty: A Retrospective Analysis of a Bariatric Center

Sébastien Frey[1,2] · Eric Sejor[1] · Pierre-Alain Cougard[3] · Dorith Benamran[1,2] · Hugues Sebbag[3]





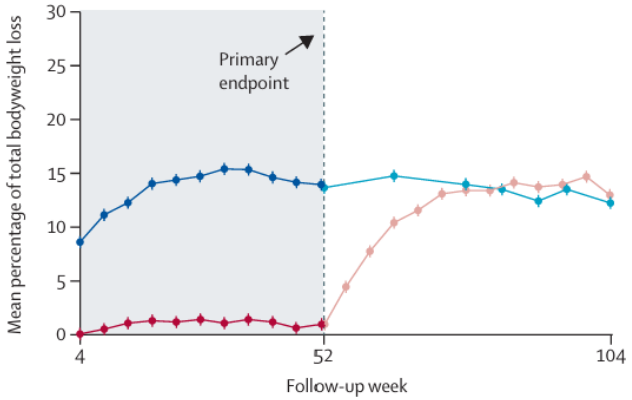


% TWL → 14.37% at 12 months
%TWL ≥ 10%, → 41.2%of patients at 3 years.

learning curve → 26 procedures.

Randomized Controlled Trial > Lancet. 2022 Aug 6;400(10350):441-451.
doi: 10.1016/S0140-6736(22)01280-6. Epub 2022 Jul 28.

Endoscopic sleeve gastroplasty for treatment of class 1 and 2 obesity (MERIT): a prospective, multicentre, randomised trial



At 52 weeks
- **%EWL → 49.2%** vs 3.2% (*P* < 0.0001).
- **%TWL → 13.6%** vs 0.8% (*P* < 0.0001).
- > 25% EWL → 77% vs 12% (*P* < 0.0001)

At 104 weeks → 68%

ESG is more effective at weight loss than lifestyle

Obesity Surgery (2022) 32:3504–3512
https://doi.org/10.1007/s11695-022-06254-y

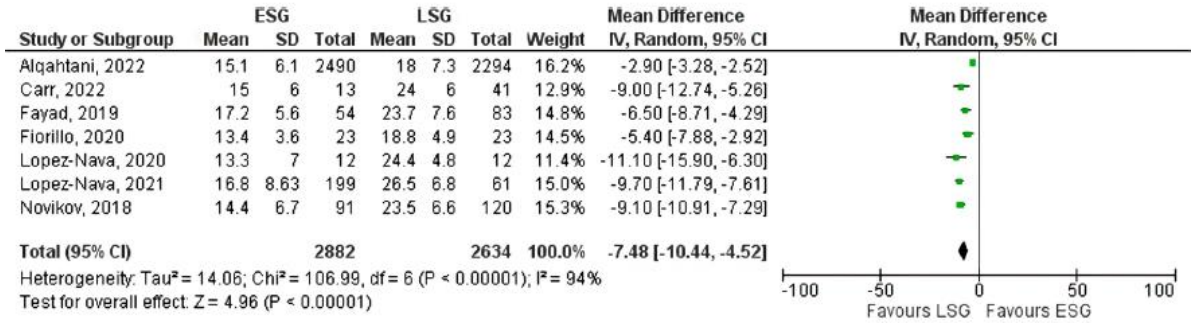
ORIGINAL CONTRIBUTIONS

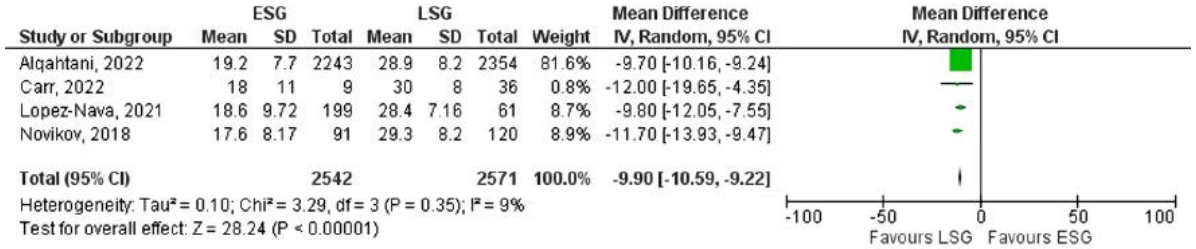
Comparative Effectiveness and Safety Between Endoscopic Sleeve Gastroplasty and Laparoscopic Sleeve Gastrectomy: a Meta-analysis of 6775 Individuals with Obesity

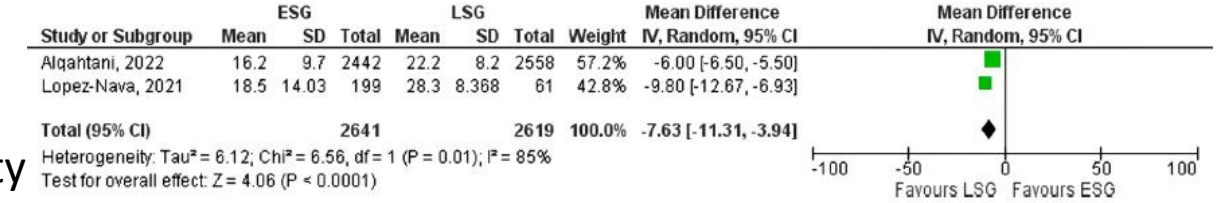
Azizullah Beran[1] · Reem Matar[2,3] · Veeravich Jaruvongvanich[3] · Babusai B. Rapaka[3] · Abdullah Alalwan[4] · Ray Portela[5] · Omar Ghanem[5] · Barham K. Abu Dayyeh[3]

3143 ESG vs 3362 LSG.
ESG vs LSG
6-month %TWL → **7.5%** vs **10.4%**
12-month %TWL → **7.6%** vs **11.3 %**

ESG had fewer adverse effects → patients with moderate obesity







Laparoscopic sleeve gastrectomy versus endoscopic sleeve gastroplasty: a systematic review and meta-analysis

Giuseppe Marincola [1], Camilla Gallo [2 3], Cesare Hassan [4], Marco Raffaelli [1], Guido Costamagna [2 3], Vincenzo Bove [2 3], Valerio Pontecorvi [2 3], Beatrice Orlandini [2 3], Ivo Boškoski [2 3]

Affiliations + expand

PMID: 33403240 PMCID: PMC7775813 DOI: 10.1055/a-1300-1085

BMI between 30 and 40 kg/m^2 and follow-up 12 months
ESG vs LSG
%EWL → 62% vs 80%
LSG showed moderate superiority over ESG.

ESG is less invasive and preferred for patients with class I or II obesity

WEIGHT REGAIN

The literature **lacks a clear consensus on how to define weight regain**, described as:

a regain of 10% to 25% of excess weight or total weight loss recovery from the lowest weight achieved loss.

Up to **20%** of bariatric patients experience weight regain or fail to achieve long-term weight loss → undermines the long-term benefits of the metabolic surgery

Individuals with poor weight loss or weight regain have:

- increased appetite
- unfavorable postoperative gut hormone profile→ lower circulating GLP-1 levels.

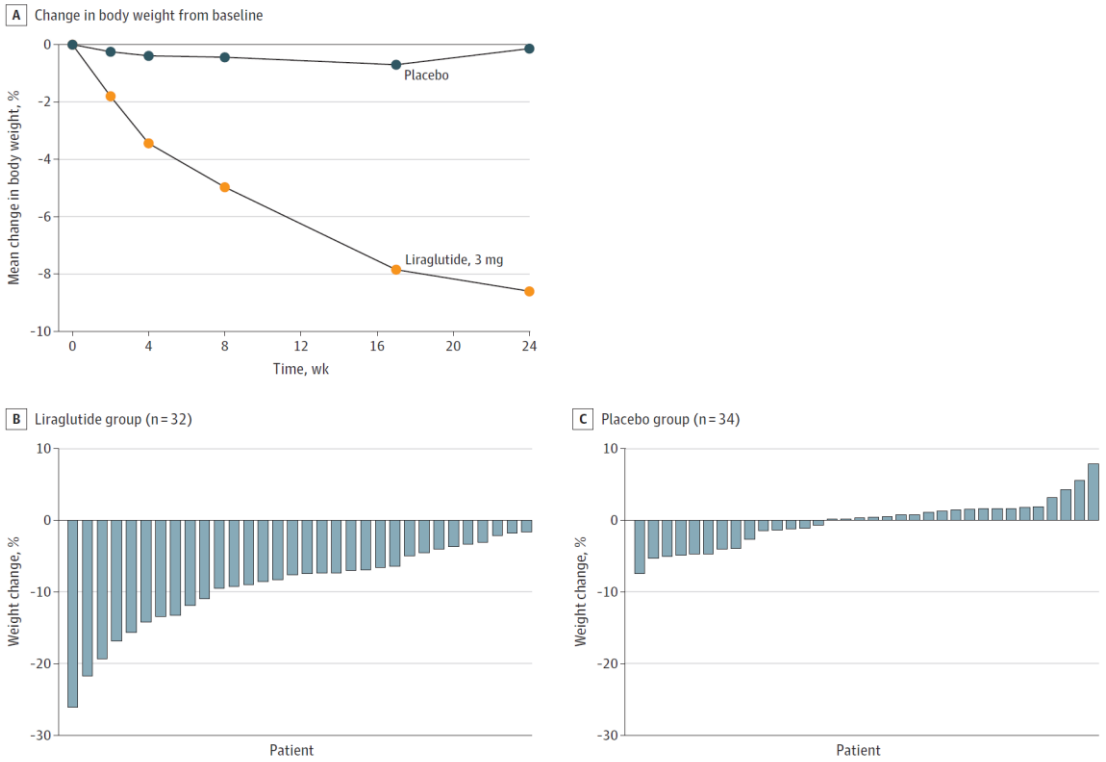
Treatment with GLP-1 analogs may therefore benefit people with poor post-surgery weight

Revisional surgery is an invasive with even higher complication rate than that of a primary procedure

JAMA Surgery | Original Investigation

Safety and Efficacy of Liraglutide, 3.0 mg, Once Daily vs Placebo in Patients With Poor Weight Loss Following Metabolic Surgery
The BARI-OPTIMISE Randomized Clinical Trial

Jessica Mok, BMBS, MPhil; Mariam O. Adeleke, PhD; Adrian Brown, PhD; Cormac G. Magee, MBBChir, MA; Chloe Firman, MRes; Christwishes Makahamadze, MRes; Friedrich C. Jassil, PhD; Parastou Marvasti, PhD; Alisia Carnemolla, PhD; Kalpana Devalia, MBBS, MS; Naim Fakih, MD; Mohamed Elkalaawy, MRCSEd, MS, MD; Andrea Pucci, MD, PhD; Andrew Jenkinson, MBBS, MS; Marco Adamo, MD; Rumana Z. Omar, PhD; Rachel L. Batterham, MBBS, PhD; Janine Makaronidis, MBChB, PhD



BARI-OPTIMISE trial is the first randomized clinical trial to evaluate the efficacy and safety of liraglutide, 3.0 mg, compared to placebo as an adjunct to a lifestyle intervention in people with ***suboptimal weight loss after metabolic surgery***.

liraglutide, 3.0 mg, for 24weeks →

- reduction in percentage body weight, **−8.03** (95% CI,10.39 to −5.66)
- Body weight (−8.82 [4.94] vs −0.54 [3.32]; P < .001)
- reduced fat mass,
- favorable changes in cardiometabolic risk factors,
- improvement in health-related quality of life.

in the liraglutide group compared to the placebo group lost 5% or more of their body weight (**71.9% vs 8.8%)**

Obesity Surgery (2024) 34:2844–2853
https://doi.org/10.1007/s11695-024-07384-1

ORIGINAL CONTRIBUTIONS

Liraglutide for the Treatment of Weight Regain After Bariatric Surgery: A Systematic Review and Meta-analysis

Francisco Cezar Aquino de Moraes[1] · Victoria Morbach[2] · Vitor Kendi Tsuchiya Sano[3] · Lilianne Rodrigues Fernandes[4] · Michele Kreuz[5] · Francinny Alves Kelly[6]

Liraglutide

- 8-point reduction in (**BMI**) (MD − 8.56 Kg/m^2 ; 95% CI 3.34 to 13.79; p < 0.01; I2, 97%),
- significant mean 16 kg reduction in **total weight** (MD − 16.03 kg; 95% CI 0.03 to 32.02; p = 0.05)

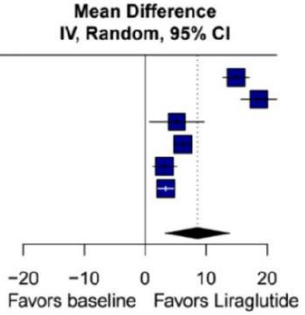
65% of patients who took liraglutide had a total

- body weight loss (BWL) of over 5% → 65%
- > 10% of total BWL → 26%,

A) BMI Change from Baseline

Study	BMI at baseline Mean	SD	BMI after Liraglutide Total	Mean	SD	Total	Weight	MD	95% CI
Di Sacco 2021	44.50	5.10	45	29.60	5.20	45	16.9%	14.90	[12.77; 17.03]
Horber 2021	45.00	8.00	34	26.40	3.50	34	16.5%	18.60	[15.66; 21.54]
Muratori 2018	36.30	9.30	20	31.10	4.40	20	15.4%	5.20	[0.69; 9.71]
Muratori 2022	34.20	4.80	62	28.04	3.60	62	17.1%	6.16	[4.67; 7.65]
Vinciguerra 2023	38.30	5.50	59	35.10	5.60	59	16.9%	3.20	[1.20; 5.20]
Vinciguerra 2024	37.60	5.30	119	34.19	5.10	119	17.2%	3.41	[2.09; 4.73]
Total (95% CI)			**339**			**339**	**100.0%**	**8.56**	**[3.34; 13.79]**

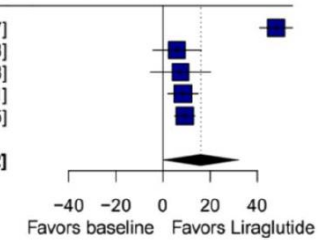
Heterogeneity: Tau^2 = 40.9360; Chi^2 = 156.62, df = 5 (P < 0.01); I^2 = 97%
Test for overall effect: Z = 3.21 (P = 0.001)



B) Weight Change

Study	Weight at baseline Mean	SD	Weight after Liraglutide Total	Mean	SD	Total	Weight	MD	95% CI
Horber 2021	120.00	19.00	34	72.00	9.00	34	20.4%	48.00	[40.93; 55.07]
Jamal 2023	96.12	29.26	57	90.19	26.82	57	19.5%	5.93	[−4.37; 16.23]
Pajacki 2013	100.90	18.30	15	93.50	17.40	15	18.7%	7.40	[−5.38; 20.18]
Vinciguerra 2023	101.80	17.90	59	93.30	17.60	59	20.5%	8.50	[2.09; 14.91]
Vinciguerra 2024	100.90	17.20	119	91.52	16.40	119	20.9%	9.38	[5.11; 13.65]
Total (95% CI)			**284**			**284**	**100.0%**	**16.03**	**[0.03; 32.02]**

Heterogeneity: Tau^2 = 313.7440; Chi^2 = 98.59, df = 4 (P < 0.01); I^2 = 96%
Test for overall effect: Z = 1.96 (P = 0.050)



Obesity Surgery (2024) 34:1324–1332
https://doi.org/10.1007/s11695-024-07137-0

ORIGINAL CONTRIBUTIONS

Semaglutide and Tirzepatide for the Management of Weight Recurrence After Sleeve Gastrectomy: A Retrospective Cohort Study

Mohammad Jamal[1,2,3,4] · Mohsen Alhashemi[3,4] · Carol Dsouza[4] · Sara Al-hassani[4] · Wafa Qasem[2,5] · Sulaiman Almazeedi[3] · Salman Al-Sabah[3]

Post-treatment weight:

Semaglutide treatment group,

- at 3 months → 84.9 (19.3) kg
- at 6 months → 81.0 (19.1) kg

from 90.1 (19.4) kg,

corresponding to a clinically significant mean weight loss from baseline

- to 3 months of 6.0 (3.6)%
- **to 6 months** of **10.3 (5.9)%**

mild adverse events

30.0% with semaglutide

34.0% with tirzepatide,

Tirzepatide treatment group,

- at 3 months → 91.2 (27.3) kg
- at 6 months → 87.6 (28.3) kg

from 100.2 (28.5) kg,

corresponding to a clinically significant mean weight loss from baseline

- to 3 months of 9.3 (4.3)%
- **to 6 months** of **15.5 (6.3)%**

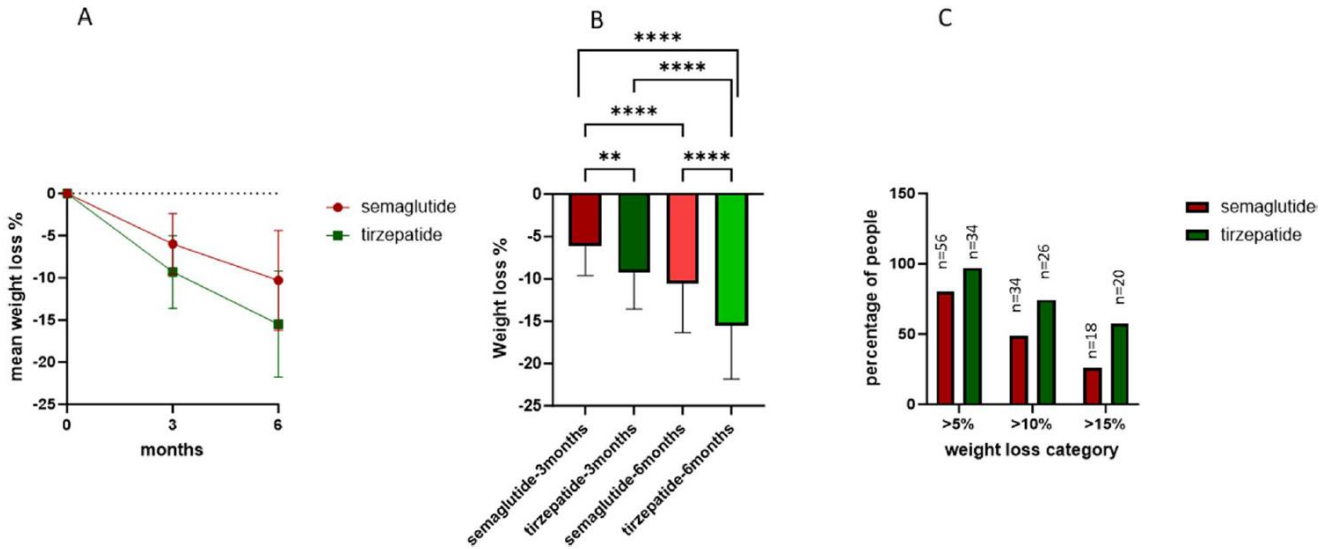


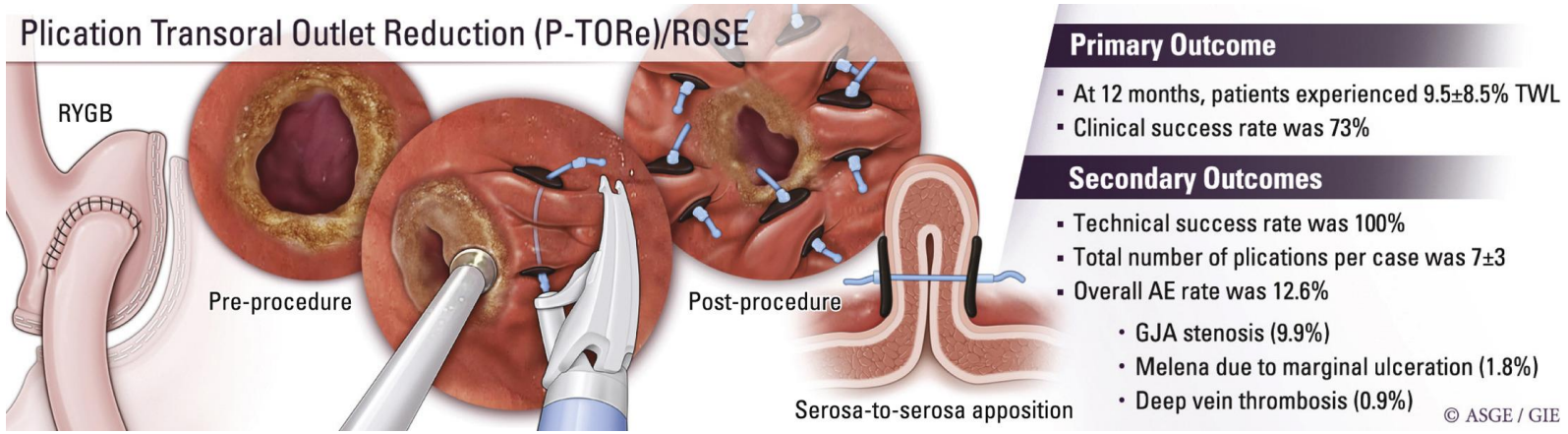
Fig. 1 Weight loss percentage. **A** Weight loss over time following adjunct treatment with semaglutide and tirzepatide, **B** comparison of weight loss by treatment, and **C** percentage of people who achieved weight loss at 6 months of at least ≥ 5%, ≥ 10%, and ≥ 15%

Tore Transoral Outlet Reduction

endoscopic technique in which the pouch and/or the gastro-jejunal anastomosis is reduced by sutured plications

Endoscopic gastric plication for the treatment of weight regain after Roux-en-Y gastric bypass (with video) CME

Pichamol Jirapinyo, MD, MPH,[1,2] Christopher C. Thompson, MD, MSc[1,2]



Efficacy and safety of revisional treatments for weight regain or insufficient weight loss after Roux-en-Y gastric bypass: A systematic review and meta-analysis

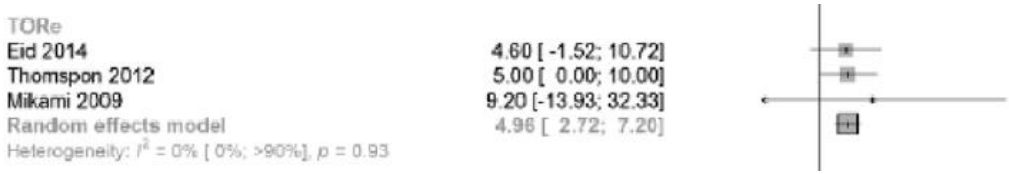
Rutger J. Franken[1] | Josephine Franken[1] | Nina R. Sluiter[1] | Ralph de Vries[2] | Sjoerd Euser[3] | Victor E. A. Gerdes[4,5] | Maurits de Brauw[1]

Pooled BMI at revision was 37.9 kg/m2 (95% CI, 34.7– 41.1),

%TWL 12 months → **5.0 %** (95% CI, 2.7–7.2)

%TWL 48 months → **1.8 %** (95% CI, 1.8 – 5.4)

Complications were reported in five cases (1.9%)

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