

# Effectiveness and durability of common weight loss methods

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## Background

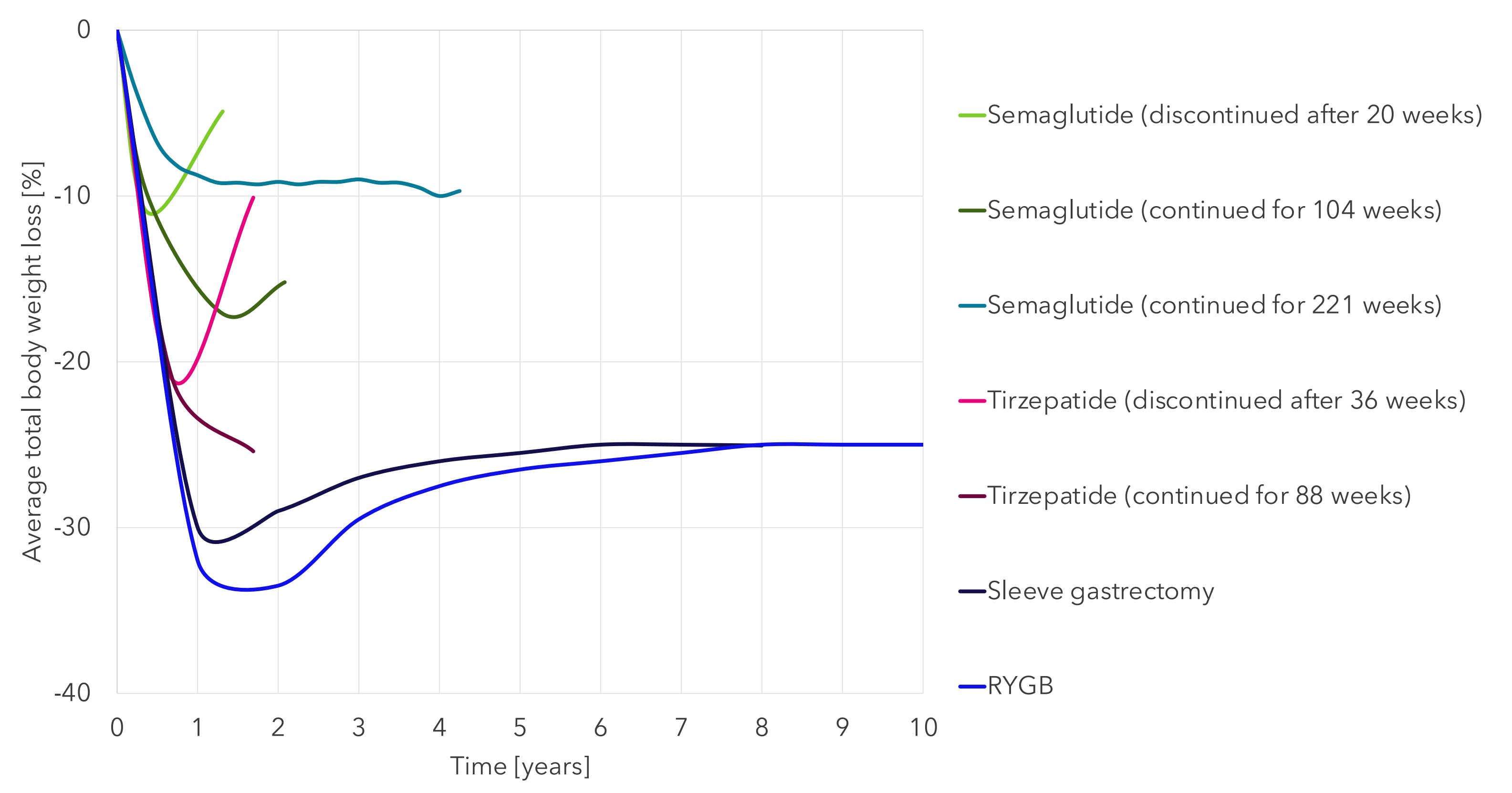
- Obesity is a chronic disease requiring long-term treatment to achieve sustainable weight loss.<sup>1</sup>

## Methods

- Based on published data, three treatment approaches were compared regarding their effectiveness and stability of results (Table 1):
  - Lifestyle interventions<sup>2</sup>
  - GLP-1 receptor agonists (semaglutide and tirzepatide)<sup>3-7,9</sup>
  - Bariatric surgery (Roux-en-Y gastric bypass (RYGB) and sleeve gastrectomy)<sup>8</sup>

**Table 1 Publication overview**

Intervention	Reference	Study type	Population size	Nadir weight with treatment	Weight loss at plateau or end of study with treatment
Lifestyle interventions	Nordmo et al. (2020) <sup>2</sup>	Systematic review	723	7.4% after treatment of varying lengths	Regain of lost weight on average within 4.1 years
Semaglutide	Rubino et al. (2021) <sup>3</sup>	RCT (STEP-4)	803	-17.8% at 15 months	-17.1% at 17 months
Semaglutide	Garvey et al. (2022) <sup>5</sup>	RCT (STEP-5)	304	-17.5% at 17 months	-15.2% at 26 months
Semaglutide	Ryan et al. (2024) <sup>9</sup>	RCT (SELECT)	8,803	-10.0% at 4 years	-9.7% at 4.3 years
Semaglutide	Wilding et al. (2021) <sup>6</sup>	RCT (STEP-1)	1,961	-16% at 15 months	-14.9 at 17 months
Tirzepatide	Aronne et al. (2024) <sup>4</sup>	RCT (SURMOUNT-4)	670	-25.9% at 19 months	-25.8% at 22 months
Tirzepatide	Jastreboff et al. (2022) <sup>7</sup>	RCT (SURMOUNT-1)	2539 Tirzepatide: 5 mg: 630 10 mg: 636 15 mg: 630	Tirzepatide at 18 months: 5 mg: -16.0% 10 mg: -21.4% 15 mg: -22.5%	Tirzepatide at 18 months: 5 mg: -16.0% 10 mg: -21.4% 15 mg: -22.5%
RYGB	van Rijswijk et al. (2021) <sup>8</sup>	Systematic review	18,665	-34% at 1.5 years	-25% at 8 years
Sleeve gastrectomy	van Rijswijk et al. (2021) <sup>8</sup>	Systematic review	6,095	-31% at 1.3 years	-25% at 6 years



**Figure 1 Percentage of total body weight lost over time combined from different publications.**

The semaglutide graphs are based on the STEP trials and the SELECT trial where participants received a weekly dose of 2.4 mg semaglutide for 20 weeks and 221 weeks, respectively.<sup>3,9</sup> This treatment was then either continued through week 68 (STEP-1, STEP-4)<sup>3,6</sup> to week 104 (Step-5),<sup>5</sup> to week 221 (SELECT),<sup>9</sup> or discontinued and switched to placebo until week 68 (STEP-4).<sup>3</sup> The tirzepatide graphs are based on the SURMOUNT-4 trial, where participants were treated with tirzepatide for 36 weeks.<sup>4</sup> This treatment was then either continued or discontinued and switched to placebo until week 88.<sup>4</sup> Finally, the data for sleeve gastrectomy and Roux-en-Y gastric bypass (RYGB) is based on the pooled mean percentage of total weight loss from 46 studies in a systematic review.<sup>8</sup> The longest follow-up times were 8 years for sleeve gastrectomy and 10 years for RYGB.<sup>8</sup>

## Disclaimer

MEJ, CF, GP, and MK declare no conflict of interest.  
 JOH is an employee of Coreva Scientific, who received consulting fees for this research.  
 This research was funded by Medtronic™

## Conclusion

- Lifestyle interventions do not lead to sustainable weight loss.<sup>2</sup>
- The effect of weight loss medications is durable only with sustained use of the medications<sup>3,4,9</sup>
- Bariatric surgery demonstrated the greatest weight loss and sustained weight loss in comparison to other interventions.<sup>8</sup>

## Results

- A systematic review of lifestyle interventions demonstrated a 7.4% mean weight loss at the end of the treatment period, but 0.14% of weight was regained per month post-treatment, reaching pre-intervention weights within 4.1 years.<sup>2</sup>
- Weekly injections of semaglutide for 20 weeks and tirzepatide for 36 weeks resulted in 10.6% and 21.1% weight loss, respectively.<sup>3,4</sup>
- Once injections were stopped, approximately half of that weight was regained within a year.<sup>3,4</sup>
- If injections were continued, a plateau was reached after 17-18 months at 22.5% for tirzepatide<sup>7</sup> and between 9.7% and 14.9% for semaglutide.<sup>6,9</sup>
- Within 2 years of semaglutide treatment, approximately 2% of the lost weight was regained in one study.<sup>5</sup> In another study, weight loss plateaued at approx. 9.5% over 4 years.<sup>9</sup>
- A systematic review of weight loss outcomes after RYGB and sleeve gastrectomy demonstrated a total weight loss of 31.9% and 29.5% one year after surgery, respectively.<sup>8</sup>
- Over the following years, roughly 5-7% of that weight was regained, so that both procedures resulted in a stable total weight loss of approximately 25% after 8-10 years.<sup>8</sup>

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