

# Every GLP-1 click, every titration step, in one place.

Semaglutide. Tirzepatide. Retatrutide. Cagrilintide. Reconstitution maths for every common vial size, week-by-week titration schedules, side-effect timelines, and switching protocols.

4 compounds covered

52+ reconstitution maths

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**Why this matters.** Coming off a prescription pen and into research vials is where most people get confused. Pen titration is automatic — you just turn a dial. With a vial, every dose is a manual calculation. This sheet is every calculation you'll need, pre-computed for the most common vial sizes and BAC volumes.

**How to use it.** Find your compound. Find your vial size + the BAC water you added. Read across to your target dose to see exactly how many units to draw on a U-100 insulin syringe.

## Semaglutide (Ozempic / Wegovy)

**Half-life:** ~7 days · **Frequency:** once weekly SubQ · **Standard dose ladder:** 0.25 → 0.5 → 1.0 → 1.7 → 2.4 mg. Hold each step for at least 4 weeks before escalating to manage GI side effects.

WEEKS	DOSE	WHAT TO EXPECT	ADJUST IF...
1-4	0.25 mg	Mild nausea on dose day, appetite blunting starts	Reduce to 0.125 mg if GI is severe
5-8	0.5 mg	Stronger appetite suppression, sulfur-burps possible	Hold another 4 wk if still nauseous
9-12	1.0 mg	Plateau commonly reported around here	Hold if weight loss is steady
13-16	1.7 mg	Diminishing returns for some, fatigue can appear	Drop back to 1.0 mg if effect fades
17+	2.4 mg	Maintenance dose for chronic weight management	Don't escalate beyond 2.4 mg

## Semaglutide — units to draw on a U-100 syringe

VIAL	BAC WATER	CONCENTRATION	0.25 MG	0.5 MG	1.0 MG	1.7 MG	2.4 MG
2 mg	1 mL BAC	2.00 mg/mL	12u	25u	50u	85u	120u
5 mg	2 mL BAC	2.50 mg/mL	10u	20u	40u	68u	96u
10 mg	2 mL BAC	5.00 mg/mL	5u	10u	20u	34u	48u
10 mg	3 mL BAC	3.33 mg/mL	8u	15u	30u	51u	72u

### Sema pro tip — the 5 mg + 2 mL sweet spot

Reconstitute a 5 mg Semaglutide vial in **2 mL BAC water** (2.5 mg/mL). A 0.5 mg dose is **20 units** on a U-100 syringe — easy to read, leaves room to titrate up. The vial lasts ~10 weekly doses, well inside the 28-day BAC window.

## Tirzepatide (Mounjaro)

**Half-life:** ~5 days · **Frequency:** once weekly SubQ · **Standard dose ladder:** 2.5 → 5 → 7.5 → 10 → 12.5 → 15 mg.  
Dual GLP-1 / GIP agonist — typically more effective per mg than Sema, with similar GI profile.

WEEKS	DOSE	WHAT TO EXPECT	ADJUST IF...
1–4	2.5 mg	Mild GI, appetite blunting kicks in fast	Reduce to 1.25 mg if GI severe
5–8	5 mg	Strong fullness signals, food noise drops	Hold if losing > 1.5 kg/wk
9–12	7.5 mg	Energy may dip, hydrate & protein up	Stay at 5 mg if happy with progress
13–16	10 mg	Common stable maintenance dose	Many people maintain here long-term
17–20	12.5 mg	Diminishing returns for some	Drop back to 10 mg if no extra effect
21+	15 mg	Maximum standard dose	Don't push above 15 mg

## Tirzepatide — units to draw on a U-100 syringe

VIAL	BAC WATER	CONCENTRATION	2.5 MG	5.0 MG	7.5 MG	10.0 MG	12.5 MG	15.0 MG
10 mg	2 mL BAC	5.00 mg/mL	50u	100u	150u	200u	250u	300u
15 mg	2 mL BAC	7.50 mg/mL	33u	67u	100u	133u	167u	200u
20 mg	2 mL BAC	10.00 mg/mL	25u	50u	75u	100u	125u	150u
30 mg	3 mL BAC	10.00 mg/mL	25u	50u	75u	100u	125u	150u

### Tirz pro tip — the 30 mg + 3 mL workhorse

Reconstitute a 30 mg Tirzepatide vial in **3 mL BAC water** (10 mg/mL). A 5 mg dose is **50 units**, a 10 mg dose is **100 units** (the full barrel of a U-100). One vial covers 6 weekly doses at 5 mg, or 3 weekly doses at 10 mg.

## Retatrutide (the triple agonist)

**Half-life:** ~6 days · **Frequency:** once weekly SubQ · **Triple agonist:** GLP-1 / GIP / glucagon receptor. Trial data shows the largest effect size of any GLP-1-class compound. Still investigational — protocols are extrapolated from Phase 2 trials.

WEEKS	DOSE	WHAT TO EXPECT	ADJUST IF...
1–4	1 mg	Conservative start, milder GI than 2 mg	Optional intro step
5–8	2 mg	Appetite suppression noticeable	Hold if GI severe
9–12	4 mg	Energy increase from glucagon action	Watch heart rate (mildly elevated)
13–16	8 mg	Trial maintenance dose	Most stop here
17+	12 mg	Highest trial arm, escalate only if needed	Drop back if HR > +15 bpm baseline

### Retatrutide — units to draw on a U-100 syringe

VIAL	BAC WATER	CONCENTRATION	1 MG	2 MG	4 MG	8 MG	12 MG
10 mg	2 mL BAC	5.00 mg/mL	20u	40u	80u	160u	240u
20 mg	2 mL BAC	10.00 mg/mL	10u	20u	40u	80u	120u
30 mg	3 mL BAC	10.00 mg/mL	10u	20u	40u	80u	120u
45 mg	3 mL BAC	15.00 mg/mL	7u	13u	27u	53u	80u

## Cagrilintide (amylin analogue)

**Half-life:** ~7 days · **Frequency:** once weekly SubQ · **Mechanism:** long-acting amylin analogue — slows gastric emptying, complements GLP-1 satiety. Often paired with Sema (commercial name **CagriSema**) for additive effect.

WEEKS	DOSE	WHAT TO EXPECT	ADJUST IF...
1–4	0.5 mg	Mild GI, food volume tolerance drops	Reduce if can't finish meals
5–8	1.0 mg	Stronger meal-volume signal	Hold if happy
9–12	1.5 mg	Approaching maintenance	Often the ceiling solo
13+	2.4 mg	Trial maintenance dose	Cap here in research protocols

### Cagrilintide — units to draw on a U-100 syringe

VIAL	BAC WATER	CONCENTRATION	0.5 MG	1.0 MG	1.5 MG	2.4 MG
5 mg	1 mL BAC	5.00 mg/mL	10u	20u	30u	48u
10 mg	2 mL BAC	5.00 mg/mL	10u	20u	30u	48u
10 mg	3 mL BAC	3.33 mg/mL	15u	30u	45u	72u

# Side-effect timeline & management

WHEN	EFFECT	WHY & WHAT TO DO
Day 1–3 of new dose	Nausea, full feeling, food noise drops	Gastric emptying slows. Smaller meals, more water, avoid greasy food day-1. Should ease by day 3–4.
Week 1–2	Constipation, bloating	Fibre + 2.5 L water + magnesium 300 mg evening. Walk after meals. Stops being an issue within 3 weeks usually.
Week 2–4	Sulfur burps ("egg burps")	Classic GLP-1 sign. Reduces with smaller meals, can be helped by ginger tea, peppermint, slower escalation.
Anytime	Fatigue, low energy	Calorie deficit signal — eat more protein (1.6–2.2 g/kg), ensure electrolytes, especially sodium & potassium.
Anytime	Hair shedding	Common with rapid weight loss, not GLP-1 specific. Protein up, biotin doesn't help. Resolves 3–6 months after weight stabilises.
Anytime	Severe abdominal pain, vomiting	STOP. Could be pancreatitis or gallstones. See a doctor — these are documented risks at any dose.

## Switching protocols

### Sema → Tirz

Wait **1 week** after last Sema dose. Start Tirz at **2.5 mg** (not equivalent dose). Don't try to match dose by mg — different mechanisms. Re-titrate from the bottom.

### Tirz → Reta

Wait **1 week** after last Tirz dose. Start Reta at **2 mg**. Reta is more potent per mg — don't extrapolate from your Tirz dose.

### Adding Cagri

Layer onto existing Sema or Tirz at **0.5 mg** weekly. Inject same day, separate sites. Titrate Cagri up independently of the GLP-1.

## Plug your exact vial into the calculator

Every value in this sheet is computed live at [stackcalc.co.uk](https://stackcalc.co.uk) — pick your compound, type any pen-mg or BAC volume, get exact syringe units instantly. Custom doses, common stacks, mobile-friendly. **No signup, no paywall.**

**Research and educational purposes only.** Titration schedules are based on published Phase 2/3 trial protocols and may not reflect personal response. GLP-1 class compounds carry documented risks: pancreatitis, gallstone disease, thyroid C-cell tumour (boxed warning in some jurisdictions), gastroparesis. Not for use in patients with personal or family history of MTC or MEN-2. Reconstitution figures assume standard U-100 insulin syringes. Verify every number with the supplier's product insert and a clinician before drawing a syringe.