

HERITAGE HAVENS

NUTRITION &amp; PEPTIDE WELLNESS COHORT

# *GLP-1 Peptide Summary*

Semaglutide, Tirzepatide, and the GLP-1 class — mechanisms, clinical evidence, and nutritional considerations

Nutrition & Peptide Wellness Cohort · Month 5

## **Prescription Medications — Not Peptide Supplements**

Semaglutide (Ozempic, Wegovy) and Tirzepatide (Mounjaro, Zepbound) are FDA-approved prescription medications — not over-the-counter supplements. They require a prescription, physician oversight, and ongoing monitoring. This document is educational; it does not constitute medical advice or a recommendation to use these medications.

## THE GLP-1 SYSTEM

## *What Is GLP-1 and What Does It Do?*

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GLP-1 (Glucagon-Like Peptide-1) is an incretin hormone produced by L-cells in the small intestine and colon in response to food intake. It is one of your body's primary post-meal metabolic regulators — and one of the most therapeutically important hormones discovered in modern medicine.

### **Pancreatic Beta Cells**

Stimulates glucose-dependent insulin secretion — insulin is released only when blood glucose is elevated, making hypoglycemia rare

### **Pancreatic Alpha Cells**

Suppresses glucagon (the hormone that raises blood sugar) — further controlling post-meal glucose elevation

### **Hypothalamus (Brain)**

Signals satiety and fullness — reduces appetite, slows the drive to eat, and may reduce food reward signaling

### **Gastric Motility**

Slows gastric emptying — food moves more slowly from the stomach to the intestine, extending satiety and blunting glucose spikes

### **Cardiovascular System**

Cardioprotective effects — reduces inflammation, improves endothelial function, reduces cardiovascular events (demonstrated in major trials)

### **Liver**

Reduces hepatic glucose output; may reduce liver fat accumulation (NAFLD/NASH benefit in research)

## SEMAGLUTIDE

## *Semaglutide — Ozempic / Wegovy*

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Semaglutide is a GLP-1 receptor agonist with 94% structural homology to human GLP-1 but modified for prolonged activity. It has a half-life of approximately 7 days (allowing once-weekly dosing) and is the most studied GLP-1 agonist in the current pipeline.

Parameter	Details
Brand names	Ozempic (T2DM), Wegovy (obesity/weight management), Rybelsus (oral)
Mechanism	GLP-1 receptor agonist — binds GLP-1R throughout the body
Half-life	~7 days — allows once-weekly subcutaneous injection
FDA approvals	Type 2 diabetes (Ozempic 2017); Chronic weight management (Wegovy 2021); Cardiovascular risk reduction (Ozempic 2023)
Dose range	0.25mg/week (starting) titrated to 0.5mg → 1.0mg → 2.4mg weekly (Wegovy max)
Average weight loss	STEP trials: 14.9% body weight reduction at 68 weeks (2.4mg Wegovy) vs 2.4% placebo
STEP-1 trial result	Semaglutide 2.4mg: 68-week mean weight loss of 15.3 kg vs 2.6 kg placebo (NEJM 2021)
SELECT trial result	20% reduction in MACE (cardiovascular events) in non-diabetic obese adults (NEJM 2023)
Common side effects	Nausea (44%), diarrhea (30%), vomiting (24%), constipation — mostly first 4–8 weeks
Contraindications	Personal/family history of MTC or MEN2; pancreatitis history; caution in gastroparesis

## TIRZEPATIDE

### *Tirzepatide — Mounjaro / Zepbound*

Tirzepatide represents the next generation of incretin therapy — it is a dual GIP/GLP-1 receptor agonist (called a 'twincretin'), acting on both GIP (Glucose-dependent Insulinotropic Polypeptide) and GLP-1 receptors simultaneously. This dual action produces synergistic metabolic effects that exceed GLP-1 alone.

Parameter	Details
Brand names	Mounjaro (T2DM), Zepbound (obesity/weight management)
Mechanism	Dual GIP + GLP-1 receptor agonist — synergistic action on both incretin systems
Half-life	~5 days — allows once-weekly subcutaneous injection
FDA approvals	Type 2 diabetes (Mounjaro 2022); Chronic weight management (Zepbound 2023)

Parameter	Details
Dose range	2.5mg/week starting, titrated to 5mg → 7.5mg → 10mg → 12.5mg → 15mg/week
SURMOUNT-1 result	20.9% mean body weight reduction at 72 weeks (15mg dose) vs 3.1% placebo — historic weight loss outcomes
vs. Semaglutide	SURPASS-2 trial: tirzepatide 15mg reduced HbA1c more and caused greater weight loss vs semaglutide 1.0mg
Unique GIP benefit	GIP receptor agonism may support improved body fat distribution, bone density, and reduced GI side effects vs GLP-1 alone
Common side effects	Nausea (23%), diarrhea (17%), vomiting (10%) — generally lower than semaglutide in head-to-head data
Contraindications	Same as semaglutide: MTC/MEN2 history; pancreatitis; caution in severe GI dysmotility

## NUTRITION PROTOCOL

# Critical Nutrition Considerations on GLP-1 Medications

This is the most important section for members of this cohort using GLP-1 medications. The dramatic appetite suppression is the mechanism — but it creates a serious risk of inadequate nutrition, particularly protein deficiency and muscle loss.

### Non-Negotiable Nutritional Rules

- Protein is the first priority at every single meal — before any other food
- Minimum 100g protein daily even on your lowest appetite days
- Eat on a schedule — every 4 hours — regardless of hunger level
- If appetite is too low for solid food: protein shakes count and are encouraged
- Do NOT skip meals because you're not hungry — nutrients don't negotiate
- Track protein daily — appetite suppression makes guessing dangerous

### Foods That Work on GLP-1 Medications

- Protein shakes (whey, collagen) — easy to consume when not hungry
- Greek yogurt — high protein, easy to eat in small quantities
- Eggs — efficient protein, no volume required
- Bone broth — gut support + collagen protein with minimal appetite load
- Salmon, sardines — calorie-dense nutrition in small portions
- Avoid filling up on non-protein foods — every bite of space counts

### The Muscle Loss Risk — Not Optional Information

Studies show that 25–40% of weight lost on GLP-1 medications without resistance training is lean muscle mass. Muscle loss reduces metabolic rate long-term, increases re-gain risk when medications stop, and undermines long-term health. Resistance training 3–4x/week paired with adequate protein is the evidence-based countermeasure. This is not optional.

Common Side Effect	Why It Happens	Nutritional Response
Nausea	Slowed gastric emptying; GLP-1R activation in brainstem	Small frequent meals; cold/room temp foods; avoid high-fat meals; ginger tea
Constipation	Slowed GI motility; inadequate hydration	3+ liters water daily; magnesium glycinate 400mg; fiber from vegetables; movement
Vomiting	Too rapid dose escalation; overeating on full stomach	Smaller meal volumes; eat slowly; avoid eating when not hungry; report if persistent
Muscle loss	Inadequate protein intake + appetite suppression + caloric deficit	100g+ protein minimum; resistance training; protein-first eating at every meal
Hair thinning	Rapid weight loss + nutritional deficiencies (protein, iron, zinc, biotin)	Adequate protein; zinc 15–30mg; biotin 2,500–5,000mcg; ferritin monitoring
Fatigue	Caloric restriction; electrolyte loss; GI disruption	Electrolyte supplementation; adequate caloric intake; iron/ferritin check

### Key Takeaways for GLP-1 Medication Users

- These medications are remarkably effective tools — but they are tools, not solutions
- The nutrition, training, and sleep in this cohort are MORE important on these medications, not less
- Protein tracking is non-negotiable — set a daily alert if needed
- Resistance training 3–4x/week is the evidence-based response to muscle loss risk
- Report significant nausea, vomiting, or inability to eat to your prescriber — dose adjustment may be needed
- Long-term outcomes depend on building lifestyle habits that work independent of the medication