AI-03510 Metabolic Stages and GLP-1

Owner	Ⓡ Rigel Arcayan
Tags	MD
Created time	@February 24, 2026 8:02 PM

3 states of metabolism. Explain the physiology of glp-1 supplements and metabolism relationship. What is the best way to optimize weight loss but not being tired in the morning.

The 3 Primary States of Human Metabolism

Your body is always in one of three dominant fuel states. These shift throughout the day depending on food intake, hormones, sleep, and activity.

1️⃣Fed State (Absorptive State)

Time: 0–4 hours after eating

Dominant hormone: Insulin

Physiology:

- Glucose from food enters bloodstream
- Insulin rises
- Liver stores glycogen
- Muscle stores glycogen
- Fat storage increases
- Fat burning decreases

Primary fuel: Glucose

Goal of body: Store energy

2️⃣Post-Absorptive / Fasting State

Time: 4–16 hours after eating

Dominant hormones: Glucagon, low insulin

Physiology:

- Liver releases glycogen
- Fat breakdown increases (lipolysis)
- Free fatty acids rise
- Mild ketone production begins

Primary fuel: Fat + glycogen

Goal of body: Maintain blood sugar

3️⃣Starvation / Long-Fasting State

Time: 16+ hours to days

Physiology:

- Glycogen depleted
- Fat oxidation dominant
- Ketone production increases
- Protein breakdown minimized (adaptive phase)
- Insulin very low

Primary fuel: Fat + ketones

Goal of body: Preserve lean tissue

GLP-1 Physiology and Metabolism

GLP-1 = Glucagon-Like Peptide-1

It is a natural hormone released from the gut after eating.

Modern GLP-1 medications include:

- Ozempic

- Wegovy
- Mounjaro

What GLP-1 Does Physiologically

1️⃣ Increases insulin (but only when glucose is high)

Glucose-dependent insulin release → lower blood sugar safely.

2️⃣ Decreases glucagon

Less liver glucose output.

3️⃣ Slows gastric emptying

Food stays in stomach longer → longer satiety.

4️⃣ Acts on the brain (hypothalamus)

Reduces appetite and food noise.

5️⃣ Indirect metabolic shift

Lower insulin → easier fat mobilization between meals.

GLP-1 and the 3 Metabolic States

GLP-1 essentially:

- Shortens the high-insulin overfed window
- Makes fasting state easier
- Reduces caloric intake without triggering severe stress hormones

It pushes people gently toward a fat-burning dominant metabolism without full starvation physiology.

Why Some People Feel Tired on GLP-1

Morning fatigue can happen because:

1. Calorie intake drops too quickly

2. Carbohydrate intake becomes too low
3. Protein insufficient → muscle breakdown
4. Electrolytes drop (especially sodium)
5. Sleep disturbed by nausea or GI slowing
6. Blood glucose slightly lower than usual

Your brain runs heavily on glucose — too aggressive restriction = sluggish mornings.

Best Way to Optimize Weight Loss WITHOUT Morning Fatigue

This is the strategic balance.

1️⃣ Prioritize Protein (Non-Negotiable)

Target:

0.7–1.0 g per lb lean body mass

Why:

- Preserves muscle
- Prevents metabolic slowdown
- Reduces fatigue
- Stabilizes blood sugar

Low protein = tired + weak + flat.

2️⃣ Do NOT Eliminate Carbs Completely

Especially if active (like cycling).

Morning fatigue often = low liver glycogen.

Solution:

- Small carb portion at dinner (fruit, rice, sweet potato)
- Avoid ultra-low carb unless medically necessary

3️⃣ Electrolytes in the Morning

During fat loss insulin drops → kidneys excrete sodium.

Low sodium = fatigue, brain fog.

Morning fix:

- Water + pinch of salt
- Or electrolytes
- Especially important in tropical climates like the Philippines

4️⃣ Strength Train 2–4x/week

GLP-1 without resistance training:

→ muscle loss

→ lower metabolic rate

→ worse energy

Muscle = metabolic engine.

5️⃣ Don’t Chase Rapid Weight Loss

Ideal rate:

- 0.5–1% bodyweight per week

Faster than that = cortisol rise = poor sleep = morning exhaustion.

6️⃣ Optimize Sleep

GLP-1 slows digestion.

Large late meals → reflux → poor sleep → tired mornings.

Eat last meal 3–4 hours before bed.

The Metabolic Sweet Spot

You want:

- Low enough insulin to burn fat
- High enough glycogen to wake up sharp
- High enough protein to protect muscle
- Low stress hormones

Think:

Metabolic flexibility — not metabolic punishment.

Practical Morning Energy Stack (Fat-Loss Phase)

1. Hydrate + electrolytes
2. Light movement (5–10 min walk)
3. Protein-forward breakfast (30–40g)
4. Moderate caffeine (not excessive)
5. Strength training later in day

If you'd like, I can:

- Tailor this to an endurance cyclist profile
- Or create a GLP-1 + cycling fueling strategy
- Or design a metabolic optimization protocol for a 59-year-old high-volume rider

Just tell me your current weight, fasting schedule, and whether you're using GLP-1 or just exploring it.