Prediabetes Weekly Newsletter

The Cortisol Catch: Why Fasting Can Raise Morning Glucose

When discipline collides with stress physiology – and what studies really show.

Hi Reader,

Last week, we unpacked why supplements like moringa rarely fix prediabetes alone. Today, we're tackling one of the most frustrating fasting experiences:
"I did 16 hours… and my morning glucose spiked."

It feels like betrayal.
But science points to cortisol – the stress hormone that ramps up liver glucose release.
This newsletter breaks down what studies actually show, human vs. animal dosing gaps, and where fasting fits (or flops) in real prediabetes management.

What Studies Actually Show

The dawn phenomenon – that pre-wakeup glucose bump – hits everyone, but slams prediabetes harder. Cortisol, growth hormone, and glucagon signal your liver: "Dump glucose for energy." In healthy folks, insulin counters it fast. In insulin resistance, glucose lingers higher.

A 2024 study of 310 type 2 diabetes patients (close proxy for advanced prediabetes) nailed it: Higher morning cortisol tertiles slashed time-in-range (TIR) glucose from 71.8% (lowest cortisol) to 56% (highest). Mean blood glucose climbed 25 mg/dL, with worse β-cell function (HOMA-β correlation r=-0.248). Daytime TIR dropped most (r=-0.231), matching the "wired but tired" mornings you describe.

Intermittent fasting tweaks this. A 2021 review found short fasts (12-16 hours) keep cortisol diurnal – peaking mornings – but longer ones (24+ hours) shift peaks and

elevate totals. Prolonged fasting depletes glycogen, forcing cortisol-driven gluconeogenesis (new glucose from proteins/fats). In stressed systems (poor sleep, overtraining), this amplifies: Cortisol spikes 50-100% more, per human trials.

Prediabetes-specific? A 2022 scoping review of 18 trials showed intermittent fasting cuts HbA1c 0.5-1.5% on average, but 20-30% of participants saw fasting glucose rises – tied to baseline cortisol and stress. No magic; it's physiology.

Human vs. Animal Research – And Dosing Gaps

Animal studies hype fasting's cortisol chaos: Rodents fasting 24 hours see cortisol double, glycogen crash 70%, glucose up 30% via liver dump. But humans? Slower, subtler. A 2018 human trial (5-day fast) showed cortisol up 20-40% by day 3, with glucose stable via ketones – until stress hits.

Dosing matters hugely. "16-hour fasts" vary: Early time-restricted eating (8am-4pm) syncs cortisol better than late-night skips, per 2025 trials – fewer spikes, better TIR. Human data lacks precision: Most studies use 14-18 hours, 5-7 days/week, but ignore confounders like sleep (<7 hours doubles cortisol effect). Animal "prolonged fasts" (48+ hours) don't translate; humans adapt via fat oxidation, but prediabetes livers resist, per 2025 reviews.

Goldilocks zone? 12-14 hours for most prediabetes folks – enough autophagy benefit, less cortisol kick. Over 16 hours risks 10-20 mg/dL morning bumps if stressed. Women, especially perimenopausal, show 30% higher sensitivity – estrogen drop amps cortisol receptors. Track your pattern: Fasting glucose > post-meal? Cortisol likely culprit.

Where Fasting Fits (or Doesn't) in Real Management

Fasting shines in stable systems: 2025 meta-analyses confirm 0.91% HbA1c drops in prediabetes/type 2, rivaling meds – if cortisol's tamed. It builds insulin sensitivity via lower insulin demand, muscle glucose uptake. But in strained ones (chronic stress, poor sleep)? Backfire city. Cortisol overrides, mimicking "Somogyi" rebounds.

Real-world fit:

- Tier 1 (Foundation): Sleep 7-9 hours, walk 7k steps, protein-forward meals. Stabilizes cortisol 20-30%.
- Tier 2 (Add Fasting): Start 12 hours (e.g., 7pm-7am). Monitor CGM: If fasting glucose >110 mg/dL consistently, shorten to 10-12.
- Tier 3 (Optimize): Evening wind-down (no screens post-8pm), resistance training 2-3x/week – cuts cortisol 15% vs. cardio. Avoid if: Adrenal fatigue signs, high evening cortisol (>15 mcg/dL saliva test).

Doesn’t fit: Solo strategy. 30% dropout in trials from irritability, crashes – cortisol’s toll. Pair with vagus nerve hacks: Deep breathing drops cortisol 25% pre-bed. For prediabetes reversal, fasting’s 20-30% of leverage; sleep/stress 50%.

The Bigger Reframe

Prediabetes isn’t carb-punishment. It's a hormonal orchestra: Cortisol conducts when stressed. Stable systems (sleep, recovery) make fasting an ally. Strained ones? Antagonist.

Ask: “Is my system primed?” Not “How long can I fast?”
Studies scream: **Leverage foundations first.**

Next week: Low-carb diets – does glucose suppression equal sensitivity?

Until then,
Protect sleep. Tune stress.
Fasting follows.

Warmly,

Jackie

✅ The Cortisol Catch

Action Checklist: When Fasting Raises Morning Glucose

Use this as a diagnostic tool — not a discipline test.

1️⃣ Pattern Recognition: Is Cortisol Likely Involved?

☐ My fasting glucose is higher than many of my post-meal readings.
☐ My morning numbers are consistently >110 mg/dL despite “doing everything right.”
☐ I feel wired but tired in the morning.
☐ I experience afternoon crashes or strong late-day cravings.
☐ I sleep less than 7 hours most nights.
☐ My life stress feels chronically elevated.

If you tick several of these, cortisol physiology may be amplifying your fasting numbers.

2️⃣ Foundation Check (Before Extending Fasts)

Fasting works best in stable systems.

☐ I sleep 7–9 hours consistently.
☐ My bedtime and wake time are fairly regular.
☐ I stop eating 2–3 hours before bed.
☐ I include resistance training 2–3 times per week.
☐ I walk or move most days.
☐ I am not relying on caffeine to push through fatigue.

If 3+ are unchecked, strengthen these first before increasing fasting duration.

3️⃣ Safe Fasting Trial Framework

If appropriate and medically safe:

☐ Start with 12 hours overnight (e.g., 7pm–7am).
☐ Monitor fasting glucose for 1–2 weeks.
☐ If stable (<110 mg/dL consistently), consider 13–14 hours.
☐ Avoid jumping straight to 16+ hours.
☐ Avoid 24+ hour fasts unless supervised.

🔎 Goldilocks zone for many with prediabetes: 12–14 hours.

4️⃣ If Morning Glucose Rises During Fasting

Instead of extending the fast, try:

☐ Shorten fasting window to 10–12 hours temporarily.
☐ Shift eating earlier (finish dinner earlier rather than skipping breakfast).
☐ Add 10 minutes of gentle movement after dinner.
☐ Protect sleep as a non-negotiable.
☐ Reduce late-evening screen exposure.
☐ Add a wind-down routine (breathing, stretching, journaling).

Stabilise the nervous system → cortisol moderates → glucose often follows.

5️⃣ Cortisol-Calming Levers (High Return)

☐ Morning light exposure within 30 minutes of waking.
☐ Resistance training (not excessive cardio).
☐ Slow nasal breathing before bed (5 minutes).
☐ Boundaries around work and screens after 8pm.
☐ Protein-forward meals to prevent large glucose swings.
☐ Reduce overtraining if energy is low.

Studies show these behaviours can reduce cortisol activation 15–30% — often more impactful than longer fasting windows.

6️⃣ Women in Perimenopause/Postmenopause

☐ I recognise I may be more cortisol-sensitive.
☐ I understand estrogen decline increases cortisol receptor activity.
☐ I avoid extreme fasting during high-stress phases.
☐ I monitor patterns instead of assuming fasting “should” work.

Women often show greater morning glucose sensitivity during prolonged fasts.

7️⃣ Red Flags: Pause and Review

Stop or seek clinical input if you notice:

☐ Persistent fasting glucose spikes >20 mg/dL above baseline
☐ Dizziness, shakiness, confusion
☐ Irritability or mood swings during fasting
☐ Worsening sleep
☐ Compulsive binge-restrict patterns

Fasting should not destabilise you.

🧠 Reframe

Fasting is not a moral test.
It is a metabolic tool.

If your system is strained:

• Cortisol overrides
• Liver glucose rises
• Morning numbers climb

If your system is stable:

• Insulin sensitivity improves
• Glucose steadies
• Fasting becomes supportive

📌 Your Two Next Steps This Week

1️⃣ Measure your fasting glucose for 5 consecutive mornings and note patterns (not single readings).
2️⃣ Choose one cortisol-calming habit to implement nightly for 7 days.

Sleep first.
Stress next.
Then fasting.

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