Francisco's Personal Fasting Protocol

A subjective experience, shared. 80-hour+ water fast followed by 48-hour broth phase. Quarterly cadence.

Read this first

I am not a doctor. I am not a nutritionist. I have no medical training of any kind. What follows is a personal protocol I have built and refined for myself, based on my own subjective experience and on peer-reviewed research I read in my own time. It is not advice. It is not a recommendation.

I do not encourage you to do this. Extended fasting carries real risks: electrolyte imbalance, hypoglycaemia, gallbladder complications, refeeding syndrome, drug interactions, cardiac events in people with undiagnosed conditions, and worsening of any pre-existing eating disorder. People have been seriously harmed and people have died doing extended fasts. If you have diabetes, hypertension on medication, thyroid disease, kidney or liver disease, gallstones, an eating disorder history, are pregnant or breastfeeding, or are taking any prescription medication — this protocol is not safe for you without medical supervision, and probably not safe for you at all.

If, knowing all of that, you still want to take the risk — do not do it because of this document. Do it because you have spoken with a physician who knows your history, who has agreed it is reasonable for you specifically, and who will be available if something goes wrong. Use this document only as a description of what one person did. Nothing here applies to you automatically.

Do not contact me for medical questions. I cannot answer them and would not be qualified to. If you are in any doubt at all, do not do this.

Foreword

Written for friends and coworkers who asked what I did and how. One person's account, nothing more.

The goal is mental clarity, not weight loss. The biology of autophagy and IGF-1 is in the document because it helps me understand what's happening in my body. The reason I repeat this quarterly is what my mind feels like on day 3 and 4, and how that state shapes the weeks after.

I owe this practice, and this guide, to **Prince Henry Erimodafe** — former CEO of UBS Nigeria— who introduced me to extended fasting, as a tool for clarity. Without that conversation, I would not have started. **Jack Dorsey, Tim Ferriss** and the broader public documentation of extended fasting served as further inspiration[22] [23] — not medical sources, but useful examples of the practice in the context of high-stakes work. To my parents: my father taught me to be mentally strong and to seeck the deliberate use of discomfort, and my mother who taught me the importance of discipline by example. Most of Section 6 comes from them.

AI disclosure

I built this protocol through personal experimentation and reading. To turn what I had learned into a structured document, I worked first with Chat GPT and at some point, I decided to write this guide and used Claude (Anthropic) as a research and writing collaborator. The protocol is mine — what I do, when, why. The scientific framing, references, and much of the prose were developed in dialogue with the AI over many iterations. I verified the references and decided what to keep. Disclosed because I think it should be.

How to read this

Written for non-scientists who want to understand the mechanism. What I do is what I do. What's happening physiologically is drawn from cited research. What it feels like is my experience — yours may differ.

At a glance

A 128-hour protocol structured as 80 hours of pure water fasting followed by a 48-hour broth phase using bone broth, marrow, and cooked non-starchy vegetables. The water phase drives the metabolic and immune signals; the broth phase extends the fasted-state window with mild nutrients that protect muscle, ease the sympathetic load, and produce the smoothest cognitive window of the cycle. Goal: trigger the regenerative immune signal documented in Longo's work (*Cell Stem Cell*, 2014) while sustaining mental clarity for as long as possible without the costs of a pure 96h+ water fast. Repeat every 2–3 months. Three alternative variants (shorter, longer, even-longer) are documented in Section 9 for situations that warrant deviation from the main protocol.

Phase	**Duration**	**Intake**	**Primary effect**
Water fast	0–80h	Water, electrolytes, Benifuki sencha/ green tea	Ketosis, autophagy, IGF-1 trough
Broth phase	80–128h	Bone broth, cooked greens, Benifuki sencha/ green tea	Sustained low IGF-1, muscle preservation, smooth refeed
Refeed	Day 6–8	Protein-forward whole foods	Stem cell proliferation, rebuild

The 72h+ floor is where the IGF-1 reduction needed to trigger hematopoietic stem-cell regeneration shows up in human and mouse data[1,2]. Pushing water to 80h+ gets just past that threshold; the 48h broth tail then extends the metabolically-fasted window for two additional days at lower physiological cost than continuing on water alone — preserving muscle through exogenous amino acids, easing sleep and sympathetic load, and producing the most sustained mental clarity of the cycle.

1. What happens hour by hour

Hours 0–12

Running on the last meal. Insulin elevated, glucose used directly, glycogen topped up. No fasting-specific physiology yet.

Hours 12–18

Insulin drops as the meal clears. Liver glycogen breakdown takes over to maintain blood glucose. The liver holds roughly 80–120 g of glycogen (~400 kcal). Muscle glycogen exists too but stays locked in muscle — muscle lacks glucose-6-phosphatase and cannot release glucose to the bloodstream[3].

Hours 18–24

Liver glycogen runs low. Brain still demands ~120 g glucose per day. Two things switch on: *gluconeogenesis* (liver and kidneys synthesise glucose from lactate, glycerol, and amino acids — this is where the small early muscle cost comes from) and *lipolysis* (fat cells release free fatty acids; the liver converts a portion to ketone bodies). By hour 24, BHB is typically 0.3–0.7 mmol/L. Insulin is near its floor. The brain is still mostly glucose-dependent — ketones cover maybe 10–20% of brain energy.

Hours 24–36

Lipolysis accelerates. The liver scales up ketone production. Gluconeogenesis continues but slows as ketones replace glucose in more tissues. Ghrelin (hunger) often *peaks* around hour 24–32 and then declines — which is why hour 36 frequently feels easier than hour 20.

Hours 36–48

BHB climbs into 1–3 mmol/L. The brain shifts: by 48h, ketones can supply 30–50% of brain energy needs. This is when the mental clarity people describe usually shows up — not placebo. BHB is more efficient per unit oxygen than glucose and bypasses some glycolytic bottlenecks[4].

Two hormonal shifts to track:

Growth hormone — secretion rises ~5x by 48h in healthy adults, with some men hitting 10x baseline[5]. Mechanism: low insulin and low glucose disinhibit the hypothalamic GH axis. GH is muscle-sparing and lipolytic.

IGF-1 — drops, despite the GH rise. The liver normally uses GH plus amino acid substrate plus insulin signalling to produce IGF-1; without dietary protein, IGF-1 falls. Lower IGF-1 means less mTOR activation, less growth signalling, more autophagy and repair mode. This is also one of the strongest correlates of longevity in animal models[6,7].

Hours 48–80

Deep ketosis (BHB 2–5+ mmol/L). IGF-1 continues falling. Around 72h is where the threshold for hematopoietic stem-cell regeneration appears in Longo's work[1] — pushing to 80h gets just past that

threshold. Muscle protein catabolism starts to become relevant beyond this point, which is part of why ending the water phase around 80h (rather than continuing to 96h) is the sweet spot for the main protocol — you clear the regenerative threshold without paying the full muscle and sympathetic cost of going to 96h.

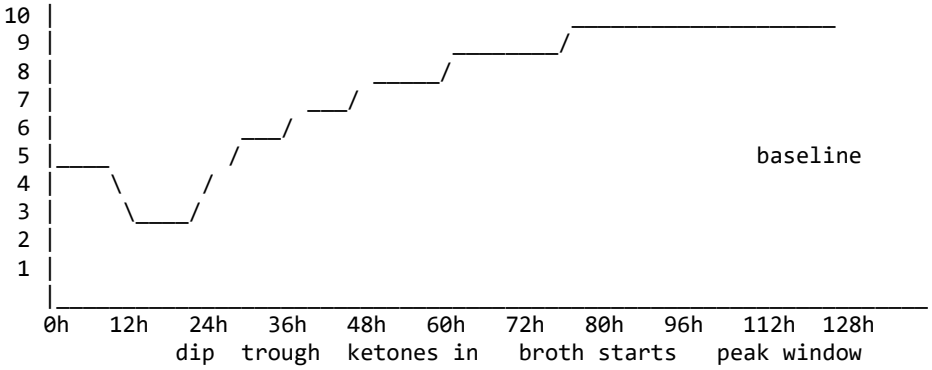
Hours 80–128 (broth phase, 48h)

Metabolic state remains fasted: ketosis stays deep, insulin stays low, IGF-1 stays suppressed (modestly higher than pure water at the same hour, but still well below baseline). What changes: gallbladder contracts periodically from CCK release triggered by the broth fat — reducing the risk of post-fast bile-related issues. Pancreatic lipase activity stays warm. Fiber-fermenting microbes get substrate. Exogenous amino acids from broth (6–10 g of collagen-derived protein per cup) supply gluconeogenic demand that would otherwise come from muscle. The exit from the fast becomes much smoother.

Across the 48 hours of broth phase, the cumulative effect is: more sustained time in the regenerative state without the deepening sympathetic load of continued water-only fasting; muscle preservation through donor amino acids; and an unusually clean cognitive state that many people describe as the best window of the cycle.

2. Mental clarity across the 96 hours

Subjective scale: 1 = foggy, 5 = baseline, 10 = sharp and focused. Pattern is remarkably consistent across people who do this regularly, with the caveats noted below.



Hours 0–12

Normal. No fasting effect yet.

Hours 12–24

Slight dip for some. Glucose still primary, blood sugar more variable, hunger noticeable. Concentration usually fine, mood slightly off.

Hours 24–36 — the trough

Worst window for most. Liver glycogen gone, gluconeogenesis ramping but not yet efficient, ketones still too low to fuel the brain meaningfully. The brain is partially under-fueled. Symptoms: fogginess, irritability, headaches (often electrolyte-driven), mild dizziness. Hunger also peaks around hour 24–32. This is when most people who quit fasts quit. *Salt and water make a noticeable difference here.*

Hours 36–48 — the lift

BHB crosses ~1 mmol/L. The fog clears. Many people report feeling notably better than baseline by hour 40–48 — clearer, more focused, less mental noise. Sleep may get lighter or shorter from low insulin and elevated norepinephrine, but daytime cognition usually improves[4].

Hours 48–80 — plateau, building toward peak

BHB 2–3+ mmol/L. The brain runs on a stable mix of ketones and gluconeogenic glucose. The "fasting high" begins here: low-grade clarity and calm, partly from elevated norepinephrine, partly from BHB's mild GABA-ergic effects, partly from the simple absence of post-meal glucose swings. Day 3 (hours 48–72) is often when productivity peaks for complex cognitive work. By hour 80, you've cleared Longo's regenerative threshold and ready to transition to the broth phase.

Hours 80–128 — the broth phase peak

Often the best window of the entire cycle. Metabolic state matches the deep-fasted state of hour 80 but the small amount of nutrients takes the edge off. Warm liquid is psychologically grounding.

Electrolytes from broth eliminate the late-fast headache common in pure water fasts. Energy steady, mood good, focus sharp. The 48-hour broth phase gives you two consecutive days of this state — long enough to be genuinely productive, short enough that fatigue from cumulative caloric deficit hasn't set in.

Caveats: already-keto-adapted people often skip the hour 24–36 trough entirely. A small minority — more often women in the luteal phase, or people with thyroid/cortisol issues — feel poor throughout. If multiple attempts confirm that pattern, shorter cycles (24–36h) deliver most of the benefit with less suffering.

3. Training during the fast

Three energy systems power physical effort. In a fasted state, two of them keep working while one breaks down:
a) **alactic** systems (*without lactate*, i.e., the phosphocreatine system that powers explosive 1-2 second efforts e.g. Single max lifts, short sprints, single boxing combinations), hold up in fasted state.

b) **aerobic** systems (oxygen-based, sustainable. Fat and ketones for fuel e.g. Sustainable low-intensity work. Walking, easy cardio, zone 2) improves in fasted state.

c) **glycolytic** (burns glucose, produces lactate e.g. sustained hard efforts of 10 seconds to 2 minutes. The "burning legs, can't catch breath" zone >4) capacity degrades in fasted state.

Practical implication. Anything that makes you redline for more than ~30 seconds is glycolytic and will feel terrible past hour 48. Boxing rounds at full tempo, hard interval running, high-rep lifting, sustained sprinting — all glycolytic. Avoid them. Single explosive efforts with full recovery (alactic) and steady-state walking or easy cardio (aerobic) are fine

Hours	Glycogen state	Recommended training
0–24	Mostly intact	Anything. Heavy lifting, sprints, max efforts. If a hard session is planned, do it on day 1.
24–48	Liver depleted, muscle local	Moderate boxing, jump rope, zone 2 cardio, technique work, light–moderate lifting. Avoid true max efforts. Catecholamines elevated — effectively a free pre-workout.
48–80	Deep ketosis, muscle glycogen depleting	Walking, mobility, light technique, easy zone 2, breath work, yoga. Skip impact work and lifting.
80–128	Fully ketoadapted, broth phase	Walking, mobility, breath work. The 48h broth phase doesn't restore glycogen meaningfully, so still no real training. You might feel weak, and you might have a bad sleep. Take it easy and Save the motivation for after refeed.
Refeed days 1–3	Insulin sensitivity peaks	Schedule a heavy lift or hard interval session 24–48h after breaking the fast. Rebound effect on muscle protein synthesis is real[8].

Why hours 24–36 work well for moderate combat-sport sessions

Two reasons. Norepinephrine and epinephrine are meaningfully above baseline by hour 24 — the same hormones that fuel boxing and jump rope. Free fatty acids are abundant from elevated lipolysis, and moderate-intensity work that doesn't max out glycolysis runs cleanly on FFAs plus residual local muscle glycogen. Boxing's energy-system mix — alactic for combinations, aerobic for recovery between rounds — tolerates this state well. Sustained high-tempo glycolytic rounds would feel terrible.

AfterDay-2 sessions might still feel good. That's the trap. The next instinct is to push harder, longer, or later — and past hour 48, the math turns against your fast. Returns drop, muscle cost rises. Hold the line: moderate, technique-focused, 30–60 minutes. That dose works. More doesn't.

On Wim Hof breath work after fasted training

Smart sequencing. Hyperventilation phase spikes adrenaline further, then breath holds drop CO_2 and produce a parasympathetic rebound — more pronounced when sympathetically activated from training. Net effect: faster shift back to rest-and-digest. Both fasting and Wim Hof breath work elevate cellular stress resilience pathways (heat shock proteins, mitochondrial biogenesis signalling), and the effects appear additive rather than redundant. **Important safety note:** never do breath work in or near water during a fast. Fasting lowers blood pressure and the breath holds compound vasovagal syncope risk.

4. Sleep and supplementation during the fast

Why sleep gets lighter

Several things stack. Norepinephrine and cortisol run elevated — the body interprets prolonged fasting as a mild stressor and stays slightly more alert. Adenosine accumulation may be modestly reduced. Core body temperature runs slightly higher in the early night, and falling core temp is a key sleep-onset signal. Melatonin substrate (tryptophan via dietary protein) is depleted. GABA tone is partially offset by BHB but the net is usually less sedation than fed state.

Electrolytes — the highest-leverage piece

More important than melatonin for fast-related sleep issues. Target 3–5 g sodium per day across the water-fast phase. Magnesium glycinate 300–400 mg in the evening for sleep quality. A small dose of sodium (~500 mg, roughly ¼ tsp salt in water) about an hour before bed blunts the late-night cortisol/norepinephrine spike that causes 3 am wake-ups. Potassium too — broth covers this in the last 24h, but during the water phase consider potassium chloride or a lite-salt mix.

Melatonin — 300 mcg, sublingual, on nights 2 and 3

300 mcg is the right dose. The 3–10 mg products sold over the counter are 10–30x physiological levels and largely a result of supplement-industry inertia. Wurtman's MIT work in the 90s established 300 mcg as the lowest dose that reliably produces physiological plasma melatonin levels and improves sleep onset[9]. Higher doses don't work better; they cause receptor desensitization and morning grogginess from the long half-life at supraphysiological levels.

Take 30–45 minutes before intended sleep, sublingual or fast-dissolve (oral bioavailability is ~15% and variable). Don't take it if waking at 3 am — at that point the salt approach is more useful, since the issue is cortisol-driven, not substrate-driven.

Cool room, no caffeine after noon

Drop ambient temperature to ~17–18°C. Caffeine half-life extends during fasting (liver enzyme activity shifts), so green tea or coffee that normally clears by bedtime may not.

Acceptable sleep loss

Many experienced fasters need 30–60 minutes less sleep on day 2–3 and feel fine. Sleeping 6 hours instead of 7.5 but waking refreshed and cognitively sharp is not a problem to solve.

Drug interactions to flag

Melatonin interacts with SSRIs, blood thinners, blood pressure medications, and immunosuppressants. Curcumin interacts with anticoagulants and antiplatelet medications (warfarin, aspirin, clopidogrel) through mild antiplatelet effects of its own; with chemotherapy drugs through CYP enzyme modulation; and may increase bleeding risk before any surgery. Ashwagandha interacts with thyroid medication (raises T3/T4), benzodiazepines and sedatives (additive GABA effect), immunosuppressants (mild immune-stimulant in some pathways), and is contraindicated in

pregnancy and hyperthyroid conditions. If on any of these medications or affected by any of these conditions, check with a physician before adding any of the night-stack supplements to the protocol.

Curcumin — nights 2 and 3, paired with melatonin

Curcumin is the principal polyphenol in turmeric (*Curcuma longa*) and stacks unusually cleanly with the deep-fasted state on nights 2 and 3. It activates AMPK[1] and inhibits mTOR — the same pathways the fast and green tea are already using — meaning it amplifies autophagy rather than competing with it[24]. It reduces inflammation through NF-κB inhibition (a different mechanism than the fast's own anti-inflammatory shift, so the effects appear additive)[25]. It mildly raises BDNF (**Brain-Derived Neurotrophic Factor**. It's a protein your brain produces that does for neurons what fertilizer does for plants — it keeps existing neurons alive, stimulates growth of new ones, and supports the connections between them), which ketosis is also raising. The direct curcumin-and-sleep evidence in humans is modest, but the mood and anxiety literature is stronger[26], and the mechanism — cortisol modulation and reduced inflammatory tone — is the right one for taking the edge off the sympathetic-leaning state that makes day-2 and day-3 sleep light. This is not a sedative effect; expect a smoother night, not a knockout.

Form matters — bioavailability is the catch

Plain curcumin from turmeric powder has poor oral bioavailability. Less than 1% of what you swallow reaches systemic circulation — most is glucuronidated in the gut wall and liver before doing anything useful. This is why the form of the supplement matters more than the dose.

Form	Bioavailability	Notes
Curcumin + piperine (BioPerine)	~20× plain	Most common formulation. Piperine inhibits glucuronidation. Effective and inexpensive.
Phytosome (Meriva, with phosphatidylcholine)	~30× plain	Best-studied for inflammation. Slightly easier on the stomach than piperine forms.
Liposomal curcumin	High	Lipid-encapsulated. Strong bioavailability; usually liquid or capsule.
Theracurmin / nano-curcumin	~27× plain	Colloidal dispersion. Well-studied in Japanese trials.
Plain turmeric capsules (no enhancer)	Negligible	Effectively useless at supplement doses. Would need 10+ g to feel anything.

[1] **AMP-activated protein kinase**. It's a metabolic enzyme that lives inside almost every cell of your body and acts as a kind of cellular fuel sensor — when energy gets low, AMPK switches on and tells the cell what to do about it. This is the key conceptual frame: **AMPK and mTOR are the two opposing levers of cellular metabolism.**

- **mTOR** = "growth mode." Activated by abundance of food, especially protein and insulin. Builds tissue, builds muscle, but also blocks autophagy and accelerates aging when chronically elevated.
- **AMPK** = "repair mode." Activated by energy scarcity. Triggers autophagy, fat-burning, mitochondrial renewal. Linked to longevity in essentially every animal model studied.

Your body is always in some balance between the two. **Eating activates mTOR, fasting activates AMPK.** Resistance training acutely activates both at different timescales. Most longevity research over the past 20 years comes back to this same axis: keep mTOR from being chronically elevated, give AMPK regular activation, the cell stays younger.

Practical: 500–1000 mg of curcuminoids in any of the enhanced forms above, taken 30–45 minutes before bed on nights 2 and 3. With a small amount of water (don't overdo it — the fast already increases bathroom wake-ups). Pairs naturally with the rest of the night stack: salt water for sodium, magnesium glycinate for GABA-driven sleep quality, 300 mcg melatonin sublingual for substrate replacement, curcumin for inflammation and the sympathetic edge. Different mechanisms, no conflicts.

Does it break the fast? No. Capsule curcumin has negligible calories and no insulin response. The trace fat in piperine or phytosome formulations is below any threshold that matters. **What does break the fast:** turmeric latte preparations with milk, oil, sugar, or honey. That's food, not a curcumin supplement.

When to skip: known gallstones (curcumin stimulates gallbladder contraction, and bile has been concentrating for ~65+ hours by night 3 — this combination can trigger an attack). On warfarin, aspirin, or other anticoagulants — curcumin has mild antiplatelet effects, the interaction is real, dose-dependent. If empty-stomach curcumin has caused you nausea or reflux before, skip it on the water phase and try it during the broth phase instead, where the marrow fat buffers the effect.

Iron at refeed: like green tea catechins, curcumin chelates iron. Irrelevant during the fast; matters at refeed if you take it with iron-rich meals. Separate by an hour.

Ashwagandha — nights 2through refeed, ideally continuous

Ashwagandha (*Withania somnifera*) is the most-studied adaptogen, and it modulates the HPA axis — meaning it acts on the cortisol system rather than as a direct sedative. The relevant mechanisms for fasted sleep: *cortisol reduction* (multiple RCTs show 14–28% reductions over 60[2] days at standard doses[27]); *GABAergic activity* via withanolides binding GABA-A receptors as positive allosteric modulators (different site than benzodiazepines, same direction)[28]; and modest *sympathetic damping* — reduced resting heart rate and blood pressure. In a fasted state where cortisol is elevated and norepinephrine is high, these are the right directions.

Form and dose

Standardized extracts dominate the literature. Generic root powder has highly variable withanolide content (0.3% to 5%+) and is hard to dose meaningfully. The forms worth knowing:

Form	Source	Typical dose	Notes
KSM-66	Root only (Ixoreal)	300–600 mg	Most-studied. Used in most cortisol RCTs.

[2] **How long to take Ashwagandha?** Single doses help acutely, but the published cortisol effects come from 8-week protocols. Two nights during the fast captures only a fraction of what the compound can do. There are three reasonable patterns: **Minimum — nights 2 through refeed day 4 (six nights total).** Covers the fast itself plus the first few refeed nights, when cortisol is still elevated from the metabolic transition and the body is in active rebuild. This is the floor I would recommend if you're adding ashwagandha to the protocol. It captures most of the immediate sleep benefit and most of the relevant cortisol exposure. **Continuous — nightly, year-round.** Closest to how the published RCTs use it, and what most performance-oriented practitioners actually do. The 14–28% cortisol reductions in the literature are from 60-day protocols, not 6-day ones. If you find it helps your sleep and you don't have contraindications, continuous use is the better-supported pattern.**Cycled — 8 weeks on, 2–4 weeks off.** Some practitioners argue receptor adaptation occurs with continuous use. The evidence for tolerance is weak. Cycling is the conservative middle ground if you're cautious about long-term use of any supplement.

Sensoril	Root and leaf (Natreon)	125–250 mg	Higher withanolide concentration; smaller dose.
Shoden	Leaf-derived (Arjuna)	60–120 mg	Newer; 35% withanolides; smaller dose still.
Generic root powder	Variable	Varies	Skip. Withanolide content unreliable.

Practical: 300–600 mg KSM-66 (or equivalent in another standardized extract) about 60 minutes before bed. Pairs naturally with the rest of the night stack — the mechanisms don't overlap with melatonin, magnesium, or curcumin, so the combined effect addresses the breadth of what degrades fasted sleep rather than hitting one pathway harder.

When to skip: pregnancy (historically used as an abortifacient at high doses); hyperthyroid conditions (ashwagandha modestly raises T3/T4 and can worsen hyperthyroidism); autoimmune thyroid disease (Hashimoto's, Graves') — the immune-modulating effect can flare symptoms; currently on benzodiazepines or other sedatives (additive effect is unpredictable); on immunosuppressants or thyroid medication; pre-surgical (mild GABA effect can interact with anesthesia).

Does it break the fast? No. Capsule extracts have negligible calories and no insulin response.

5. Green tea — when, why, and how much

The most useful adjunct to the water-fast phase. Green tea stacks with the metabolic state rather than competing with it — the same pathways fasting activates (AMPK up, mTOR down, autophagy up) are the pathways EGCG[3] amplifies. Plain green tea, including high-quality Japanese teas, does not break the fast in any meaningful sense.

Three compounds matter. *Catechins, primarily EGCG* (50–100 mg per cup of brewed sencha) inhibit mTORC1 directly and activate AMPK — both pathways converging on autophagy. Since fasting already suppresses mTOR and elevates AMPK, EGCG potentiates the existing signal rather than triggering it from scratch[11,12].

Caffeine (25–50 mg per cup, roughly a third of coffee) provides cognitive clarity without the spike. Absorption is slowed by tannins and L-theanine, so the curve is gentler than coffee — more sustained, less peaky.

L-theanine (25–60 mg per cup; gyokuro can hit 80+ mg) crosses the blood-brain barrier and increases alpha brain wave activity. It smooths the catecholamine surge running high in the fasted state. The effect is most useful in the hour 24–48 window where norepinephrine is up but ketones haven't fully kicked in — green tea here produces a sustained calm-alert state where coffee alone might amplify the jitter.

The fat oxidation effect is real but smaller than headlines suggest. EGCG plus caffeine increases fat oxidation by roughly 15–20% in fed humans[13]. In a fasted state, lipolysis is already near maximum from low insulin, so the absolute effect is modest. The directional benefit holds.

On Japanese green teas specifically

Different cultivation produces different L-theanine to caffeine ratios. *Gyokuro* is shade-grown for the final weeks before harvest, which dramatically increases L-theanine and the theanine-to-caffeine ratio. The result is the smoothest, most calming option — best for hour 24–48 when the trough is at its worst, or for mornings after light sleep on day 2 or 3 where catecholamines are already elevated and a sharper stimulant would overshoot. *Sencha* is the standard sun-grown leaf, balanced ratio, the workhorse cup. *Matcha* is whole leaf consumed as suspension, so the full catechin and caffeine load

[3] EGCG stands for Epigallocatechin Gallate. It's the most studied and most potent of the catechins — a class of plant polyphenols — and it's the molecule responsible for most of green tea's claimed health effects.
What it is structurally ? A polyphenol from the *Camellia sinensis* plant (the tea plant). Green tea contains four main catechins: EC, ECG, EGC, and EGCG. Of these, EGCG is the most abundant and most biologically active — typically 50-80% of total catechin content in a brewed cup of green tea.
When you drink a cup of high-quality sencha, you're getting roughly **50-100 mg of EGCG**. Matcha, because you consume the whole leaf, can deliver 100-200 mg per bowl. **What it does in the body ?** EGCG is unusual because it acts on multiple cellular pathways simultaneously, most of which overlap with what fasting is already doing: **1. mTOR inhibition.** EGCG directly inhibits mTORC1 signaling. This is the same lever fasting pulls — both push the cell out of "growth mode" and toward "repair mode." Stacking them amplifies the signal rather than competing with it. **2. AMPK activation.** As we just discussed, AMPK is the cellular fuel sensor that triggers autophagy and fat-burning. EGCG is one of the strongest natural AMPK activators known. Same lever as fasting, same lever as cold exposure, same lever as curcumin — the protocol is converging on this pathway from multiple angles.**3. Autophagy enhancement.** Through both mTOR inhibition and AMPK activation, EGCG amplifies the autophagy signal. In a fasted state where autophagy is already running at peak, EGCG pushes the dial further.**4. Anti-inflammatory.** EGCG suppresses NF-κB activation (the master inflammation switch) and several inflammatory cytokines (TNF-α, IL-6). This stacks with fasting's own anti-inflammatory effects through different mechanisms. **5. Antioxidant activity.** EGCG is a potent direct antioxidant, but more importantly it activates the body's own antioxidant defense system (Nrf2 pathway), which is more durable than supplementing antioxidants directly. **6. Fat oxidation.** EGCG plus caffeine increases fat oxidation by roughly 15-20% in fed humans. In a fasted state where lipolysis is already near maximum from low insulin, the absolute effect is smaller — but directionally helpful.

comes through — the most concentrated EGCG dose per serving and the strongest autophagy signal, but also the most gut-active.

For the water phase, sencha or gyokuro fits best. Save matcha for the broth phase, where marrow fat in the system buffers the catechin punch and broth electrolytes pair well with matcha's stronger stimulant load.

When to drink it

Window	Use	Notes
Day 1 (0–24h)	Optional	Not needed. Day 1 is metabolically still fed.
Day 2 (24–48h)	**Primary window**	One cup mid-morning, one early afternoon. Sencha or gyokuro. Covers the worst of the cognitive trough.
Day 3 (48–80h)	Optional, morning only	Useful if working or after light sleep. Skip if catecholamine state already feels sharp.
Days 4–5 broth (80–128h)	Freely	Lowest-risk window. Matcha works well here, paired with broth ritual.
Refeed days	Normal use	Separate from iron-rich meals by ~1 hour.

When to be careful

Caffeine timing. Caffeine half-life extends during fasting because liver enzyme activity shifts. A cup at 4 pm that normally clears by bedtime may not in the fasted state. Cut caffeine — green tea included — by early afternoon, especially on days 2 and 3 when sleep is already lighter.

Empty stomach. Catechins in strong matcha or long-brewed sencha can irritate the gut on a true empty stomach. If sensitive, brew shorter (2–3 minutes), use cooler water (70–75°C, which is what gyokuro wants anyway), and reserve matcha for the broth phase.

Stacking with coffee. If coffee is already in the protocol, pick one as primary to keep total caffeine reasonable. A workable pattern: coffee in the morning, green tea early afternoon, nothing caffeinated after ~2 pm.

EGCG ceiling. Hepatotoxicity has been documented for concentrated EGCG supplements at >800 mg/day on empty stomach[14]. Brewed tea cannot reach that dose even at five cups daily. The risk is capsules, not tea — don't substitute supplements during the fast.

Iron at refeed. Catechins inhibit non-heme iron absorption. Irrelevant during the fast. Matters on refeed days when rebuilding — keep green tea away from iron-rich meals (red meat, lentils, leafy greens) by at least an hour.

L-theanine — the reason green tea feels different

L-theanine is an amino acid found almost exclusively in tea, responsible for the calm-but-alert quality that distinguishes a cup of good Japanese tea from coffee at equivalent caffeine. It crosses the

blood-brain barrier within 30–40 minutes and increases alpha brain wave activity (8–12 Hz) — the EEG signature of relaxed, focused attention seen in experienced meditators[18]. It modulates glutamate and GABA signalling, raises dopamine and serotonin in some regions (rodent data), and blunts the cortisol response to acute stress in humans.

The interaction with caffeine is the key piece. Caffeine alone produces alertness with anxiety, jitter, and a hard come-down. L-theanine alone produces calm without much energy. Together — roughly 2:1 L-theanine to caffeine — cognitive performance and subjective alertness improve more than caffeine alone, without the sympathetic edge[19]. This is approximately the ratio gyokuro produces naturally.

Cultivar and processing determine L-theanine content. The plant synthesises it in the roots; sunlight on the leaves gradually converts it to catechins. Shading the plant 2–4 weeks before harvest stops the conversion and L-theanine accumulates.

Tea type	L-theanine	Caffeine	Ratio (T:C)
Gyokuro	60–80 mg	30–40 mg	~2:1
Matcha (1 g)	30–46 mg	60–70 mg	~1:2
Sencha (standard)	20–30 mg	25–40 mg	~1:1
Bancha / hojicha	10–20 mg	10–20 mg	~1:1
Black tea	5–10 mg	40–70 mg	~1:6

Why this matters on day 2 specifically: norepinephrine is already elevated from 36+ hours of fasting, plus light sleep often pushes it further. Coffee alone risks tipping into jitter. Green tea provides the same cognitive lift with the L-theanine smoothing the curve. Same caffeine, different landing.

On Benifuki sencha specifically

Benifuki (べにふうき) is a Japanese cultivar originally bred for black tea but unusually interesting when processed as green tea. The leaves retain 1.5–2% by dry weight of *methylated catechins* — specifically epigallocatechin-3-O-(3-O-methyl)-gallate, abbreviated EGCG3''Me. Standard sencha cultivars (yabukita, the dominant Japanese cultivar) contain trace amounts. Benifuki has substantially more[20].

The methyl group makes the catechin more bioavailable than regular EGCG. Standard EGCG has poor oral bioavailability (~5–10%) — most degrades in the gut before absorption. The methylated form survives better, achieves higher plasma levels, and stays in circulation longer. The active dose per cup is meaningfully higher than the EGCG content alone would suggest. Same number of cups, more of the autophagy-amplifying, mTOR-inhibiting compound actually reaching cells.

Benifuki is also the cultivar Japanese researchers (Maeda-Yamamoto and colleagues) demonstrated reduces seasonal allergy symptoms through mast-cell stabilisation[21]. The same mechanism contributes to anti-inflammatory effects beyond standard green tea.

Brewing for the fasting protocol

Package directions on most senchas (including Benifuki) optimise for quick flavour extraction: near-boiling water, 45–60 seconds. This works for taste but isn't ideal for catechin extraction or for fasted-stomach use. Adjusted brewing for the protocol:

Parameter	First infusion	Second infusion
Leaf	3 g per 150 ml cup	Same leaves
Water temperature	80–85°C	~90°C (just off boil)
Steep time	90 sec – 2 min	45 sec
Yield	Full flavour, slow catechin pull	60–70% of first cup's actives

Two infusions means brewing the same leaves twice with fresh hot water each time — not reusing first-cup water. After the first steep, pour all liquid out into your cup; the leaves stay in the teapot, wet but no longer in water. Boil fresh water for the second infusion and use it slightly hotter than the first. Counterintuitive but correct: the first (cooler) infusion extracts L-theanine, methylated catechins, and aromatic compounds while leaving harsh tannins behind; the second (hotter, shorter) infusion pulls the remaining catechins from partially-depleted leaves without over-drawing tannins.

The gap between infusions is forgiving — anywhere from 5 minutes to an hour. Leaves can sit damp in an empty teapot during that window. What doesn't work: leaves sitting in water continuously between cups (that's one over-steeped cup, not two infusions). Equipment requirement: a teapot or vessel that lets you pour all the liquid out and leaves the wet leaves in place. A kyusu, small Western teapot, or French press works. A cup with a dangling tea ball does not.

Stop at two infusions. A third pulls harsher tannins and the cup turns unpleasant.

Storage: green tea oxidises faster than people realise. Squeeze air out of the bag, seal tightly, store away from light and heat. Catechin content starts dropping noticeably 3–4 months after opening even in good storage.

6. Practices that compound — meditation, cold, breath, more

Each of these addresses a different piece of what fasting is doing to the body. Meditation balances elevated catecholamines with parasympathetic tone. Cold exposure compounds the metabolic stress productively. Wim Hof breathing primes the same pathways the fast is already activating. Done together they amplify each other; done badly they over-stress the system. Order them carefully and skip what isn't working on a given day.

Meditation

Default Mode Network activity — the brain's self-referential rumination — drops measurably after about 36 hours of fasting. Sustained meditation reduces DMN activity through a different mechanism. The two effects compound. Practitioners consistently report that practice gets dramatically easier from hour 48 onward; content that takes effort on a fed day shows up almost without resistance.

Mechanistically: BHB has mild GABA-ergic effects, and elevated norepinephrine creates a focused arousal state. The combination — calm but alert — is essentially the neurochemical state experienced meditators cultivate, except the fast is producing it without effort.

Practical: 20 minutes morning and evening across the four days. Mornings for breath-focused or open-monitoring practice. Evenings for body scan or yoga nidra — the heightened interoceptive awareness during fasting makes body-scan practice unusually rich, and the relaxation aids sleep that's already running thin. Loving-kindness practice is worth trying on day 3; emotional reactivity threshold drops during fasting and these practices land harder than usual.

What to avoid: highly activating practices (intense kundalini, breath of fire) during the hour 24–36 trough. Save for day 1 or post-refeed.

Cold showering

Cold exposure produces a 200–300% norepinephrine surge lasting about an hour after the cold stops. Fasting independently elevates norepinephrine 1.5–2x baseline. Stacking them on day 2 or 3 produces significant sympathetic activation — sharper cognition, improved fat oxidation, brown adipose tissue activation — which is mostly useful but can tip into too much, particularly if blood pressure is already running low.

Brown adipose tissue (BAT) is the relevant tissue. Cold activates it; BAT burns fat for heat rather than storing it. Søberg et al.[15] showed habitual cold-water swimmers had higher BAT activity and improved insulin sensitivity. The mechanism stacks with the lipolytic state of fasting — same direction, different lever.

Practical: morning, after wake-up but before training. Start at 2 minutes the first day, build to 3–5 by day 3. Whole body, not just the head. Water around 10–15°C is sufficient — colder isn't proportionally better.

Timing rules: morning aligns the catecholamine bump with the cortisol awakening response. Don't do cold within 4 hours of bedtime — norepinephrine half-life disrupts sleep onset. Skip the hour 24–36 window if

feeling depleted. **Hard rule:** never combine cold-water immersion with breath-hold practice. Breath holds drop blood oxygen, cold causes vasoconstriction, fasting lowers blood pressure. Layering all three in water has killed people. Cold shower yes, ice bath with breath holds during a fast no.

Wim Hof breathing

Two-stage mechanism. Hyperventilation (30–40 deep breaths) blows off CO_2 and produces respiratory alkalosis — blood pH rises, oxygen affinity for hemoglobin increases. Breath retention drops O_2 saturation while CO_2 stays low, producing a paradoxical state the body interprets as both abundant and threatened air. Adrenaline rises sharply. Kox et al.[16] showed measurable surges and voluntary suppression of the innate inflammatory response in an endotoxin challenge.

Stacks well with fasting because both elevate norepinephrine through different mechanisms — fasting through low insulin, breath work through respiratory alkalosis and CO_2 chemoreceptor signalling. Effects appear additive.

Practical: one session in the morning of day 1 and day 2. Three rounds of 30 breaths, breath holds at the end of each round (50 seconds, then 90, then 120+ as you adapt). Roughly 12–15 minutes total.

When to skip: day 3 (the fast itself is doing enough to the catecholamine system, and breath work past hour 48 sometimes produces lightheadedness during holds because BP is genuinely lower); any day with elevated resting heart rate or feeling unwell; within 30 minutes of cold exposure; absolutely never in or near water during the fast.

Other practices, in rough order of value

Morning sunlight, 10–15 minutes within an hour of waking.

Probably the single most underrated practice in the protocol because it solves the sleep problem from the front end rather than the back end. Bright light on the retina anchors the cortisol awakening response, sets the master clock, starts the 14–16 hour countdown to evening melatonin release. During a fast, when sleep is already light, getting circadian timing right matters more than usual. Outdoor light, eyes open but not at the sun, no sunglasses, ideally with a short walk. Cloudy days still work — outdoor lux is dramatically higher than any indoor lighting.

Walking, 30–60 minutes daily, ideally outdoors.

Different from formal training. Low-grade aerobic work that runs cleanly on free fatty acids without glycolytic demand. Helps mood, supports lymphatic drainage, doesn't compete with the fast metabolically. Particularly valuable on day 3 when nothing strenuous is appropriate. Walking in nature shows measurably different effects on stress markers than urban walking; if accessible, prioritise it.

Sauna, 15–20 minutes at 80–90°C, 3–4 sessions across the four days.

Heat shock proteins are activated by sauna; cold shock proteins by cold; both adaptations stack across the week. Sauna also potentiates GH — Finnish data shows 2–5x baseline acutely after a session, on top of the 5x already elevated by fasting[17]. Caution: hydration risk is real during a fast. Salt and water before and after. Skip if dizzy or BP is running low.

Sleep environment.

Worth being mechanical about during the fast since baseline quality is reduced. Blackout curtains or sleep mask. Room at 17–18°C. No screens 60 minutes before bed (blue light suppresses already-reduced melatonin further). Phone out of the bedroom if possible.

Journaling, 10 minutes per day.

Specific to fasting because the mental clarity of day 2–3 produces unusual cognitive material — solutions to problems that have been stuck, decisions that have been deferred, perspective on relationships and work. Capturing in real time is more valuable than trying to remember after refeeding when the fasted state's perspective fades. A notebook, not an app.

Limit decisions and meetings on day 2.

Hour 24–48 is the worst cognitive window. Don't schedule anything requiring careful judgment, conflict resolution, or first-impression management. Day 3 onwards is fine, often better than baseline.

No alcohol three days before, three days after.

Alcohol depletes the same electrolytes the fast stresses (magnesium especially), disrupts sleep, and adds liver burden during a window where the liver is already running ketogenesis at full output. The week of the fast is functionally alcohol-free.

Daily flow — how the practices fit together

Time	Day 1 (water)	Day 2 (water)	Day 3 (water)	Day 4 (broth ~80h)	Day 5 (broth)
Morning	Sunlight + walk Wim Hof Cold shower Meditation	Sunlight + walk Wim Hof Cold shower Meditation Green tea	Sunlight + walk Meditation Gyokuro + Green tea	Sunlight + walk Meditation Matcha + broth	Sunlight + walk Meditation Matcha + broth
Morning	Work	Work	Work	Work	Work
Midday	Training (anything)	Boxing / jump rope Green tea	Walk Light technique	Walk Mobility Broth + marrow	Walk Mobility Broth + greens
Midday	Work	Work	Work	Work	Work
Afternoon	Work Sauna optional	Work (light) Sauna optional	Walk Reading / journaling	Walk Reading / journaling	Walk Reading / journaling
Afternoon	Work	Work	Work	Work	Work

Evening	Body scan / yoga nidra Salt + magnesium	Body scan / yoga nidra Melatonin 300 mcg Curcumin Ashwagandha Salt + magnesium	Body scan / yoga nidra Melatonin 300 mcg Curcumin Ashwagandha Salt + magnesium	Body scan / yoga nidra Melatonin optional Ashwagandha Salt + magnesium	Body scan / yoga nidra Ashwagandha Salt + magnesium

The schedule is a menu, not a checklist. Doing meditation + walk + green tea + morning sunlight on day 2 captures most of the value. Adding sauna and Wim Hof on the same day is fine if energy allows. Skipping anything that feels forced is fine too — the fast itself is the work; everything else is multiplier.

7. Breaking the fast — the refeed protocol

This is where most people leave benefit on the table. The fast clears damaged immune cells. The *refeed* signals stem cells to proliferate and rebuild. A poor refeed blunts the second half of the cycle[1,2].

Because the 48h broth phase already partially wakes digestion, the refeed can be slightly more substantial than after a pure 96h water fast. Plan it anyway — assumption is the most common cause of bad first meals.

Hour 128 (breaking)

Small, gentle, low-glycemic. Two soft-boiled eggs with avocado. Or fish with cooked vegetables. Or a small bowl of soup with shredded chicken. Roughly 300–400 kcal. Mostly fat and protein, vegetables cooked rather than raw, no grains or sugar yet.

Why moderate rather than tiny: the 48h broth phase has kept the gut, gallbladder, and pancreas partially online for two full days, so the systems aren't waking from cold. After a pure water 96h fast, the first meal would need to be ~150–250 kcal. After this protocol, 300–400 is fine.

Hours 128–132[4]

Wait. Don't graze. Let the first meal land. The temptation after 128 hours of no food is huge. Your first meal lands well — you feel satisfied, energized, mentally clear. The instinct is "I want more of that feeling, immediately." This is when grazing happens — a few nuts at hour 129, a piece of fruit at hour 130, another small snack at hour 131.

Three things break:

1. Insulin never returns to baseline. Each small input keeps insulin elevated. Instead of one clean insulin curve, you get a sustained mid-level plateau. The metabolic flexibility you spent five days building gets blunted by extended hyperinsulinemia.

2. Digestive load compounds. Your gut handles the first meal well because it's fresh. Adding a second small input before the first is processed forces the system to multitask before it's ready. This is when people experience bloating, mild nausea, or stomach cramping after refeeding — it's almost always grazing, not the first meal itself.

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[4] **What's happening physiologically**
You haven't eaten in 128 hours. Your gut has been resting in a state with very low digestive activity — gallbladder partially contracted (the broth helped), pancreatic enzymes downregulated, gastric acid production reduced, intestinal motility slowed.
When you eat your first meal at hour 128, your body initiates a cascade:
Within 5-10 minutes: Cephalic phase — even before the food hits your stomach, the sight and smell trigger gastric acid and salivary release. Your insulin starts rising in anticipation.
Within 15-30 minutes: Food reaches the stomach. Gastric stretch receptors fire. Insulin rises sharply in response to the first carbohydrates and amino acids reaching the bloodstream. Cholecystokinin (CCK) releases from the small intestine, telling the gallbladder to contract and release bile, telling the pancreas to release lipase and protease.
Within 60-90 minutes: Peak digestive activity. Your gut is now fully online — but it's running its first cycle in over five days. Enzyme production is catching up to demand. Gastric emptying is slower than baseline. Intestinal absorption is happening but at reduced efficiency.
Within 2-3 hours: First meal mostly absorbed. Insulin peak passes. Glucose returns toward baseline. Your body is now actively integrating the new substrate — building amino acids back into proteins, storing some glucose as glycogen, processing fats.
Within 3-4 hours: Most digestive activity has settled. Your gut is now experienced again, primed for the next meal.
This is why the four hours matters. **You're not just digesting — you're recalibrating an entire system.**

3. The mTOR handoff happens chaotically. The whole point of the controlled refeed is letting AMPK gradually hand off to mTOR. Grazing creates multiple small mTOR pulses instead of one clean transition. Stem cell proliferation signaling depends on a clean amino acid pulse against a clean insulin background — fragmented inputs muddy the signal.[5]

The deeper point

The fast doesn't end at hour 128. The fast ends when your first proper digestion cycle completes — around hour 132. Until then, you're still in a transition state where the wrong inputs can blunt the benefit of everything that came before.

This is also why the protocol calls the second meal "evening meal" rather than something earlier. Your second proper meal should be 4-6 hours after the first. You're not hungry every two hours during a normal day, and you definitely don't need to be every two hours after breaking a fast.

Practical version, four short rules

1. Eat the first meal slowly, finish it, stop.
2. Walk or sit for an hour. No food, no exercise.
3. Hydrate with water. One cup of tea or coffee maximum.
4. Wait until real hunger returns at hour 4 before the second meal.

Day 6 evening (second meal)

Normal-sized dinner. Protein at ~30 g (eggs, fish, chicken, lamb). Cooked vegetables. Healthy fats — olive oil, avocado, marrow if any is left. Skip grains, legumes, dairy. Skip sugar entirely. Total ~1,200–1,500 kcal across the day.

Hydration with electrolytes throughout. Sodium and potassium are depleted, and once carbs return, insulin will drive remaining potassium into cells fast. This is the actual mechanism of refeeding syndrome — very low risk for a 128h cycle in a healthy adult, but salt food generously and take magnesium that evening.

Refeed days 2–3 (cycle days 7–8) — the rebuild window

This is when stem cell proliferation peaks following the fast[1]. Adequate protein matters: 1.6–2 g per kg of lean body mass is a reasonable target. Whole foods, no sugar, no alcohol. Train heavy 24–48h after breaking — insulin sensitivity is at a multi-month peak and muscle protein synthesis is primed. The week after the fast is when much of the long-term benefit gets paid for.

What to avoid breaking with

5

Coffee on an empty stomach. A big steak. Fried food. Pizza. Sugar of any kind, including fruit juice. Alcohol for at least 48h. Dairy if at all sensitive.

Procedures to time around the refeed

The refeed window (days 3–7 after breaking) is unusually good for controlled-wound skin procedures — chemical peels in particular. Fasting itself is the wrong time for them: IGF-1 is crashed, insulin is at floor, cortisol and norepinephrine are elevated, dietary protein for collagen synthesis is absent. Skin is in defensive metabolic posture, not building posture.

The refeed week reverses all of that. IGF-1 rebounds and briefly overshoots baseline as the liver responds to returning amino acids. Insulin sensitivity peaks. Stem cell proliferation that drives the immune-regeneration benefit is matched by analogous regenerative activity in other tissues, including epidermal stem cell pools. Mitogenic signalling is at quarterly highs. The system is in build mode, and skin uses it.

Light peels (glycolic, lactic, mandelic 20–30%): anywhere in days 3–14 of refeed is fine. *Medium peels* (TCA 20–35%, Jessner's): schedule for day 3–5 after breaking; the first wave of healing then completes inside the high-anabolic window. *Deep peels*: doctor-coordinated, but the same biological window is still optimal.

What to avoid: a peel in the week leading into the fast (the fast catches mid-healing and stalls it — this is the worst pairing); a peel during the fast itself, including the broth phase (metabolic state wrong, and post-peel sun avoidance overlaps awkwardly with the fast week's outdoor practices). Stop topical retinoids 5–7 days before the peel as normally indicated. Sunscreen religiously through the entire refeed and post-peel period — skin is more photosensitive after both a fast and a peel, and the combination compounds.

7.5 The broth — recipe and preparation

The broth is the centrepiece of the second half of the protocol. It needs to do four things at once: stay calorically dense enough from marrow fat to feel sustaining, stay low enough in protein to keep IGF-1 suppressed, deliver electrolytes that pure water doesn't, and taste good enough to want to drink three times a day. What follows is the recipe I make. Yields about 3 litres of strained broth — enough for both broth days with reserve.

Ingredients

For the broth itself:

2 kg beef marrow bones (tuétano), ideally with knuckle and joint pieces mixed in for collagen. 1 kg oxtail or beef shank with bone (optional, adds depth without much extra protein). 4 litres cold filtered water. 3 tablespoons apple cider vinegar (raw, unpasteurised — acid pulls minerals from the bones). 1 large yellow onion, halved with skin on. 1 whole head of garlic, halved across the equator with skin on. 1 thumb of fresh ginger, sliced. 1 thumb of fresh turmeric root if available, sliced — or 1 teaspoon ground turmeric. 2 large carrots, halved. 3 stalks celery, halved. 1 small leek, white and pale green parts, halved lengthwise and rinsed. 1 small bunch fresh parsley with stems. 1 small bunch fresh thyme, or 1 teaspoon dried. 2 bay leaves. 1 teaspoon whole black peppercorns. 3–4 whole cloves. 1 small piece of kombu seaweed, about 10 cm × 10 cm (adds glutamate for umami depth). Sea salt to taste, added at the end.

If kombu is unavailable: 3 dried shiitake mushrooms or a 5 cm piece of Parmesan rind work as substitutes. Or omit — the broth is excellent without it.

Method

1. Roast the bones. Heat the oven to 200°C. Spread bones on a sheet pan, roast 35–40 minutes until deeply browned. Maillard browning is what separates a good broth from a mediocre one — don't skip this step.

2. Deglaze the pan. Pour 1 cup of water onto the hot sheet pan after removing the bones. Scrape up the browned bits with a wooden spoon. Pour the liquid into your stock pot — the stuck-on flavour compounds are the most concentrated part.

3. First soak (collagen extraction). Place bones in a large stock pot. Add 4 litres of cold water and the apple cider vinegar. Let sit cold for 30 minutes — the vinegar starts pulling minerals before heat is involved.

4. Heat slowly. Bring to a bare simmer over medium-low heat. Do not boil. Target 85–95°C, with barely visible movement on the surface. Boiling clouds the broth and breaks down collagen incorrectly.

5. Skim. As the broth heats, grey foam rises. Skim with a spoon and discard — this is denatured protein and impurities. Skim every few minutes for the first 30 minutes, then occasionally.

6. Add aromatics in stages. After 4 hours of simmering, add carrots, celery, leek, onion, garlic. After 8 hours, add parsley, thyme, bay leaves, peppercorns, cloves, kombu, ginger, and turmeric. Vegetables added too early get bitter from over-cooking; herbs added too early lose their aromatic compounds.

7. Total simmer time: 12–18 hours. Longer is better, up to about 24 hours. Beyond that, diminishing returns — the collagen has all converted to gelatin.

8. Strain. Pour through a fine-mesh sieve into a large bowl, then through cheesecloth or a clean kitchen towel for clarity. Discard the solids.

9. Cool, then refrigerate. The fat will rise and solidify on top. **Don't skim it.** That fat is the calorie source for the broth phase. A properly made broth is jelly-like when cold. If it stays liquid in the fridge, you didn't simmer long enough or used too much water. Aim for the wobble.

How to use it across 48 hours

Total intake target across both broth days: ~500–700 kcal, under 30 g protein. Spread thinly. The broth itself runs about 40–50 kcal per cup, so 6–8 cups across 48 hours covers 250–400 kcal. Marrow and vegetables cover the rest.

Broth day 1 (cycle day 4, hours 80–104)

Morning (hour 82–84): 1 large cup of broth (300 ml) heated, with a generous pinch of sea salt and a squeeze of lemon. Drink slowly.

Midday (hour 90–92) — marrow meal: 1 cup of broth with a roasted marrow bone. Get 2–3 marrow bones cut lengthwise from the butcher (or cross-cut if lengthwise unavailable). Roast at 220°C for 12–15 minutes until the marrow is bubbling and just starting to brown. Sprinkle with flaky sea salt and pepper. Scoop the marrow out and eat it on a bed of bitter greens. This is the highest-fat, most satisfying meal of the broth phase.

Late afternoon (hour 96–98): 1 cup of broth.

Evening (hour 102–104, before bed): Cooked vegetables — 200–250 g of leafy greens (spinach, chard, kale) wilted in 1 tablespoon olive oil with garlic and salt. Plus 1 cup of broth. Largest meal of the day, lands well a few hours before sleep.

Day 1 total: ~250–300 kcal, ~10–12 g protein.

Broth day 2 (cycle day 5, hours 104–128)

Morning (hour 106–108): 1 cup of broth with grated fresh ginger and turmeric, plus a small piece of marrow if any is left from day 1.

Midday (hour 114–116): Cooked vegetables — zucchini and mushrooms sautéed in olive oil with herbs, about 200 g. Plus 1 cup of broth.

Late afternoon (hour 120–122): 1 cup of broth.

Evening (hour 126–128, last broth meal before refeed): Asparagus or another non-starchy vegetable, lightly roasted with olive oil. 1 final cup of broth. Stop eating around hour 128 — the first refeed meal comes shortly after.

Day 2 total: ~200–250 kcal, ~8–10 g protein. Two-day total: 450–550 kcal, 18–22 g protein — well under the 30 g protein cap that keeps IGF-1 suppressed.

Vegetable list — use these freely, cooked

Spinach, Swiss chard, kale, collard greens, bok choy, watercress, arugula. Zucchini, summer squash, asparagus, green beans, broccoli, cauliflower. Mushrooms (any kind — shiitake especially good). Cucumber. Bell peppers. Leeks (cooked).

Avoid during the broth phase: potatoes, sweet potatoes, large amounts of carrots, beets, corn, peas, parsnips, winter squash. These spike insulin meaningfully. Also avoid: tomatoes, legumes, anything fermented (kimchi, sauerkraut). Save these for after refeed.

Storage and prep timing

Make the broth 1–2 days before the fast starts, so it's ready when needed. The first 24 hours of the fast give time to verify it gelled properly and adjust salt. In the fridge, keeps 5–7 days. In the freezer, 3 months. Freeze in 500 ml mason jars (leave 2 cm headspace for expansion) so you can pull out exactly what you need for the next quarterly cycle without remaking from scratch.

Practical move: make a double batch every other quarter. Saves the 12–18 hour cooking time on alternating cycles.

8. Muscle loss expectations

Real but small. The honest range for this protocol, done quarterly by a healthy adult who trains: **300–600 g of actual muscle tissue** (roughly 0.3–0.6 kg). Most of the scale-weight drop is glycogen, water, and gut contents, not muscle protein. The 48-hour broth phase reduces muscle catabolism meaningfully relative to a pure water fast of equivalent duration — the broth's collagen-derived amino acids supply gluconeogenic demand that would otherwise come from muscle.

Component of post-fast weight loss	Typical amount
Total scale loss after 128h	3.5–5 kg
Glycogen + bound water	~2 kg
Gut contents	0.5–1 kg
Sodium-bound water	0.5–1.5 kg
Actual fat loss	0.5–1 kg
Actual muscle protein loss (this protocol)	0.3–0.6 kg

Why the protocol is on the low end of muscle loss

Three mechanisms. *GH stays elevated the whole fast*, which is actively muscle-sparing[5]. *Deep ketosis by 48h* drops brain glucose demand from ~120 g/day to ~40–50 g/day, which cuts gluconeogenic demand on amino acids. *The broth phase donates exogenous amino acids* — 6–10 g of protein per cup of bone broth — that would otherwise come from muscle, without breaking the fast metabolically. Studies on protein-sparing modified fasts confirm this effect at very low protein intakes[10].

Recovery

Most of the muscle returns within 7–10 days of normal eating and training. Mechanism: the same low-IGF-1, high-GH state that suppressed growth during the fast becomes a primed-for-anabolism state once amino acids and insulin return. Conditions for full recovery: protein at 1.6–2 g/kg lean mass for at least a week post-fast; resistance training within 3–4 days of breaking; not stacking another fast immediately on top.

When the math gets worse

Already lean and muscular (under 12% body fat) — less fat reserve means more protein burned for fuel, expect 0.5–0.9 kg muscle loss. Over 60 — anabolic resistance increases with age, expect 0.6–1.0 kg with slower recovery. Sedentary — without mechanical loading, the body has less reason to fully restore lost tissue, expect 0.4–0.7 kg with slower recovery. Stacking fasts every 3–4 weeks — rebuild window incomplete, losses accumulate.

9. Cadence and frequency

Quarterly. Every 2–3 months. The mouse data underpinning Longo's regenerative findings uses cycles — fast, refeed fully, fast again, refeed[1,2]. Each cycle triggers the clear-out-and-rebuild loop. A 128h cycle (the main protocol — 80h water + 48h broth) done quarterly likely captures more of the regenerative benefit than one heroic 7-day fast per year, because regeneration follows refeeding rather than fasting alone, and four cycles produce four full clear-out-and-rebuild loops.

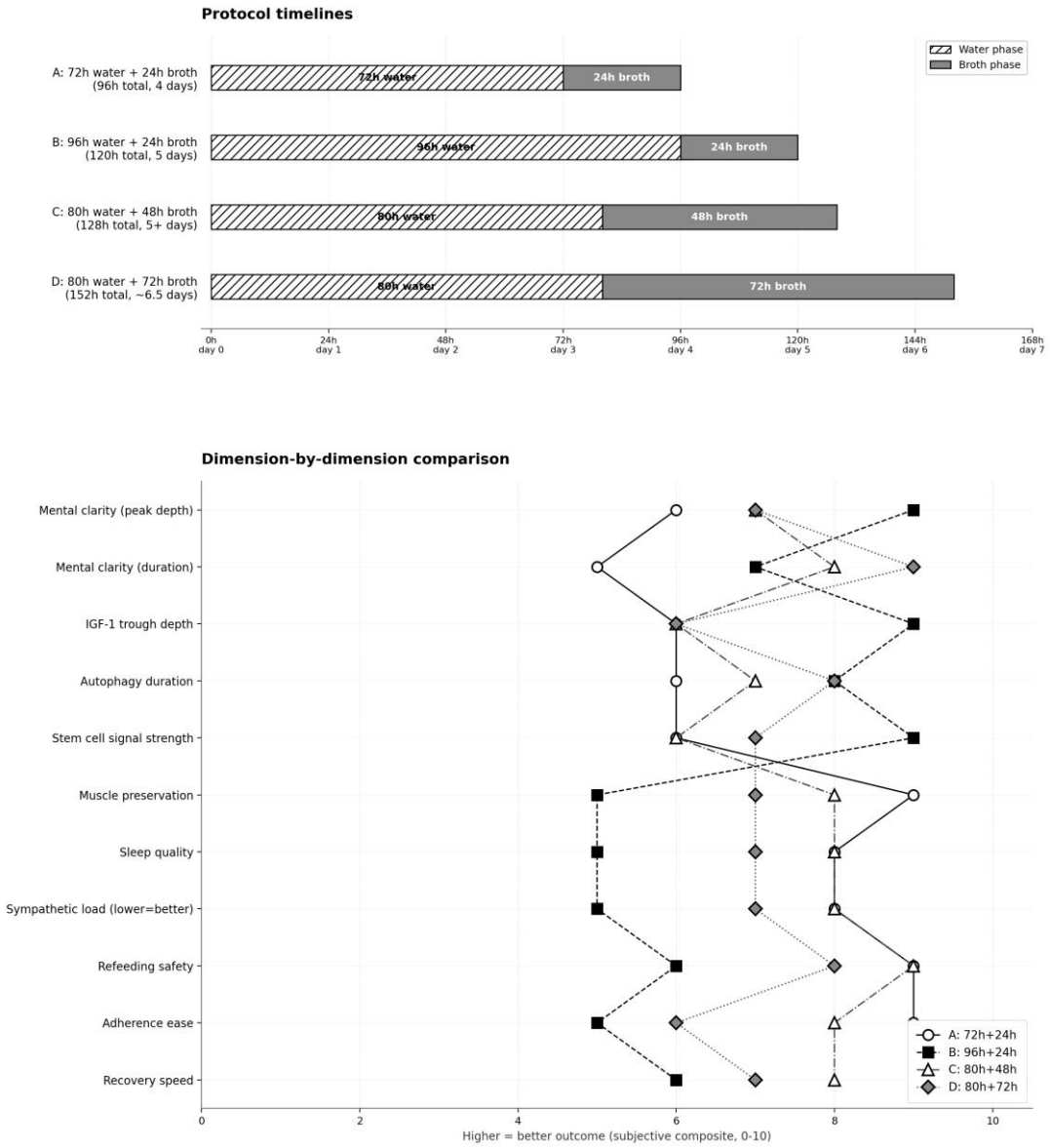
More frequent than every six weeks risks not giving the rebuild phase enough time to complete before the next clear-out. Less frequent than quarterly is fine but starts to look more like an annual reset than an ongoing practice.

Suggested annual structure

Quarter	Approximate timing	Notes
Q1	Late January / early February	Post-holiday metabolic reset. Cold weather often makes fasting easier.
Q2	April / early May	Spring. Pair with reduced training intensity that week.
Q3	July	Mid-year. Consider hydration extra-carefully if hot.
Q4	October	Pre-holiday. Final cycle before winter eating patterns.

Variants — when to deviate from the main protocol

The main protocol (Variant C below: 80h water + 48h broth) is the version I recommend repeating quarterly. It is the result of iterating across the shorter and longer alternatives and finding that 80h+48h is the most balanced option — clears Longo's regenerative threshold, sustains mental clarity for the longest practical window, preserves muscle better than the 96h+24h variant, eases sympathetic load, and remains repeatable four times a year without significant accumulating cost. The other three variants are documented for situations that warrant deviation.



Top: protocol timelines, hatched water phase + solid broth phase. Bottom: subjective composite scoring across key dimensions, where higher = better outcome (e.g., low sympathetic load is scored high).

Variant	Total duration	When it makes sense	Pros	Cons
A: 72h + 24h	96h (4 days)	First time. Logistically constrained week. No time to extend.	Easiest to execute. Lowest muscle cost. Fastest recovery. Good entry point.	Shortest broth peak. Less sustained clarity than C.
C: 80h + 48h (main)	**128h (5+ days)**	**Default quarterly cycle.**	**Best balance. Clears regenerative threshold. Long sustained clarity.**	**Requires 5+ days. Two-day broth phase needs more preparation than 24h.**

			Muscle-preserving. Smooth refeed.	
B: 96h + 24h	120h (5 days)	Once or twice a year, deliberately. Maximum regenerative depth wanted.	Deepest IGF-1 trough. Strongest theoretical immune signal.	Highest muscle cost. Hardest sleep. Sympathetic load notable. Meaningful refeeding risk.
D: 80h + 72h	152h (~6.5 days)	Once a year at most. Closest to Longo's FMD format.	Longest sustained clarity. Closest to FMD evidence base. Smooth profile.	Calendar commitment substantial. Cumulative caloric deficit affects week 2 energy.

Why C is the main, briefly

The dimension chart above makes the case visually: Variant C is never the worst on any dimension. It scores 7–8 on most. Variant A wins on the operational dimensions (muscle, sleep, recovery, adherence) but gives up duration of clarity and sustained autophagy. Variant B wins on regenerative depth but pays for it in muscle, sleep, and refeeding risk. Variant D pushes clarity duration further but starts giving back gains on adherence and recovery. C captures roughly 90% of what each of the other variants offers without their specific cost — the asymmetry of slightly longer water plus much longer broth turns out to be the elegant trade.

The other practical argument for C as the default: it can be repeated quarterly without accumulating cost. B and D are harder to do four times a year. A could be done more often than quarterly but doesn't reach the same depth. C sits at the sweet spot of "deep enough to do real work, light enough to do four times a year."

When to skip a cycle

Acute illness or recent infection. Significant unintentional weight loss in the past month. High training load week (move the fast or move the training). Major work or travel stress — the fast itself is a stressor and stacking with high cortisol blunts the benefit. Any new medication that has interactions with fasting state.

Medical flag

If immune-regeneration is a clinical goal — autoimmune condition, post-chemotherapy recovery, specific medical context — this is a physician conversation, not a self-managed protocol. Longo's clinical trials are supervised. For a healthy adult doing this 3–4x per year as a general health practice, the risk profile is low and the protocol above is reasonable. Conditions that warrant medical sign-off before starting: diabetes (any type), hypertension on medication, thyroid disorders, kidney or liver disease, history of disordered eating, pregnancy, breastfeeding, gallstones.

10. Phase-by-phase playbook

What's happening physiologically at each stage and what to do about it. Each phase has its own logic: what you can train, what to eat or drink, what practices help, what to avoid. Read the whole section once before the fast; refer to the relevant phase as you move through it.

Week before the fast

What's happening: normal life. The week's job is preparation, not restriction. The body should enter the fast well-fed, well-trained, and with a topped-up store of muscle glycogen ready to spare protein during the early hours of fasting.

What to do: train heavy 2–3 times in the days leading up — this primes muscle protein synthesis machinery and the post-fast rebuild benefits from it. Sleep prioritised; aim to enter the fast with no sleep debt, since fasting itself reduces sleep quality. Stock electrolytes (sea salt, magnesium glycinate, potassium chloride or lite-salt). Source bone broth ingredients or quality pre-made broth. Get marrow bones (tuétano). Buy non-starchy vegetables for the broth phase: spinach, zucchini, asparagus, mushrooms, leafy greens. Confirm no medication conflicts.

What to avoid: alcohol from three days out (it depletes the same magnesium the fast will stress further). Major dietary changes — this is not the week to switch to keto or experiment. High-cortisol obligations on the fast week if avoidable. Chemical peels or other controlled-wound skin procedures — these belong in the refeed window, not before.

Last meal: protein-forward, moderate carb, eaten to comfortable fullness, not stuffed. Note the start time of the fast as the moment you stop eating. Start hydration with salt that evening already.

Hours 0–24 — the fed-to-fasted transition

What's happening: running on the last meal. Insulin elevated, glucose used directly. Around hours 12–18 insulin drops and the liver starts breaking down its 80–120 g glycogen store to maintain blood sugar. By hour 24, liver glycogen is running low; gluconeogenesis and lipolysis switch on. BHB sits at 0.3–0.7 mmol/L. The body still feels essentially normal — this is not the hard part.

Training: anything. This is the day to do hard work if you're going to do any during the fast. Heavy lifting, sprints, max efforts, long sessions — all viable because muscle glycogen is intact and blood glucose is still being maintained. Boxing rounds at full tempo, intervals, technical work under load — all fine.

Practices: morning sunlight 10–15 min within an hour of waking. Cold shower (2–3 min, 10–15°C) before training. Wim Hof breathing in the morning — full session, three rounds with increasing breath holds. Meditation 20 min morning. 30–60 min outdoor walk — ideally part of it doubles as the morning sunlight. Sauna session (15–20 min at 80–90°C) is fine on day 1 since hydration is still good.

Liquids: water with a pinch of salt across the day, target 3–5 g sodium total. Coffee freely if you want it, ideally before noon. Plain green tea or any tea fine. Magnesium glycinate 300–400 mg in the evening.

Hours 24–36 — the trough

What's happening: liver glycogen gone, gluconeogenesis ramping but not yet efficient, ketones climbing but still too low to fuel the brain meaningfully. The brain is partially under-fueled. Catecholamines (norepinephrine, epinephrine) are rising. Hunger hormone ghrelin *peaks* in this window and then declines — which is why hour 36 often feels easier than hour 28.

How it feels: worst window for most people. Fogginess, irritability, headaches (often electrolyte-driven), mild dizziness, low motivation. This is when most people who quit fasts quit. **Salt and water make a noticeable difference.** Push through and the rest of the fast gets dramatically easier.

Training: moderate, not maximal. The window is metabolically strange — between fuel sources — but works surprisingly well for moderate-intensity work because catecholamines are elevated and free fatty acids are abundant. Boxing rounds at 70–80% tempo, jump rope intervals with longer recoveries, zone 2 cardio, technical drilling. **Avoid:** sustained high-tempo glycolytic work (long rounds at full intensity), heavy lifting at near-max, true sprint work. The glycolytic system is degraded; trying to use it produces a bad session and amplifies the trough.

Practices: morning sunlight and a 30–45 min outdoor walk — both help mood and circadian timing during the worst window. Cold shower fine if energy is okay; skip or shorten to 60 sec if feeling depleted. **Wim Hof breathing: skip during the active trough itself** (system already sympathetically stressed). Save it for hour 36+ when ketones are rising. Meditation is harder here than at any other point in the fast — expect that, and lean into body scan or simple breath-counting rather than ambitious practices. Sauna: skip on day 2 morning if you're in the trough; afternoon is better once ketones lift.

Liquids: this is the primary green tea window. **Two infusions of Benifuki sencha (3 g, 80–85°C, 90 sec then second infusion at 90°C, 45 sec)** mid-morning is the highest-leverage cognitive support of the entire fast. The L-theanine smooths the caffeine, the methylated catechins amplify autophagy, and the warm liquid is psychologically grounding. A second cup of sencha or a coffee is fine in early afternoon if needed. Cut all caffeine by 2 pm. Salt water through the rest of the day — if a headache shows up, it's almost always low sodium.

Night 2 sleep stack: 60 min before bed, take 300–600 mg ashwagandha (KSM-66 or equivalent). 30–45 min before bed, take 300 mcg melatonin sublingual and 500–1000 mg curcumin (enhanced bioavailability form — piperine, phytosome, or liposomal). Salt water and magnesium glycinate before that. The combination addresses the four things degrading sleep at this stage: depleted melatonin substrate, low GABA tone, elevated norepinephrine, and the sympathetic-leaning inflammatory posture — ashwagandha working on cortisol and HPA axis, the others on GABA, circadian, and inflammation respectively.

Hours 36–48 — the lift

What's happening: BHB crosses ~1 mmol/L. The brain shifts — by hour 48, ketones supply 30–50% of brain energy. The fog clears. Growth hormone is now ~5x baseline, IGF-1 is dropping, autophagy is running at meaningful capacity. Many people report feeling notably better than baseline by hour 40–48 — clearer, more focused, less mental noise.

Training: moderate work feels surprisingly good in this window. Boxing technique, jump rope, zone 2 cardio, mobility work, light–moderate lifting if any. Catecholamine state is sharp, FFAs abundant, ketones now contributing. Still avoid maximal efforts and long sustained glycolytic work.

Practices: Wim Hof breathing in the morning — a good window for it because you're sympathetically primed but no longer in the trough. Three rounds, breath holds extending. Cold shower in the morning before training, 3–4 min. Meditation gets easier here as DMN activity drops — longer or more ambitious sessions become accessible. Morning sunlight, outdoor walk both still core practices. Sauna fine if hydration is good.

Liquids: green tea (Benifuki sencha or any quality sencha) morning. Coffee is fine if not stacking with tea. Salt water steady. Cut caffeine by 2 pm.

Hours 48–80 — the plateau

What's happening: deep ketosis, BHB 2–5+ mmol/L. The brain runs on a stable mix of ketones and gluconeogenic glucose. IGF-1 approaching its trough. Autophagy at peak. The "fasting high" lives here — low-grade clarity and calm, partly from elevated norepinephrine, partly from BHB's mild GABA-ergic effects, partly from the simple absence of post-meal blood sugar swings. Productivity is often very high; some people get their best work done on day 3 or early day 4. By hour 80 you've cleared Longo's regenerative threshold and you transition to the broth phase.

Training: back off significantly. Cost-benefit shifts here. Cortisol is already elevated, gluconeogenesis demand is meaningful, and muscle glycogen depletes from any prior use without replenishment. Hard training in this window doesn't make the fast better; it makes the fast more catabolic. Walking, mobility, light technique without impact, easy zone 2 cardio at conversational pace, breath work, yoga. **Skip boxing and jump rope. Skip lifting. Skip impact work and intervals.**

Practices: the peak window for meditation — longer sessions land deeper, body-scan practice is unusually rich, loving-kindness and compassion practices have access to material they don't normally reach. 30–45 min sessions are accessible without effort. Morning sunlight and outdoor walks remain core. **Wim Hof breathing: skip from hour 48 onward.** Blood pressure is genuinely lower in deep ketosis, and the breath holds can produce lightheadedness that wasn't there earlier. Cold shower: short, 2 min, gentle — or skip. Sauna: only if hydration is excellent and BP feels stable; shorter sessions (10–15 min) over the longer ones from earlier.

Liquids: still green tea morning if working, but lighter — one infusion rather than two, or skip. Coffee optional, smaller dose than usual; the catecholamine system is already running high. Salt water steady, target 3–5 g sodium. Magnesium and potassium becoming more important — lite-salt or potassium chloride in water through the day.

Journaling here is unusually valuable. The mental clarity of day 3 and early day 4 produces real cognitive material — solutions to stuck problems, clarity on deferred decisions, perspective on relationships and work. Capture in real time; it fades after refeeding.

Night 3 sleep stack: same as night 2 — 300–600 mg ashwagandha 60 min before bed, then 300 mcg melatonin sublingual and 500–1000 mg curcumin 30–45 min before bed, plus salt water and magnesium glycinate. Night 3 is when the full stack earns its place most clearly: deep ketosis, BP genuinely lower, sympathetic system running high, cortisol elevated from ~60 hours of fasted state. Each component handles a different piece — cortisol, GABA, melatonin substrate, inflammation.

Hours 80–128 — the broth phase (48 hours)

What's happening: metabolic state remains fasted — ketosis stays deep, insulin stays low, IGF-1 stays suppressed (slightly higher than pure water at the same hour, but still well below baseline). The small amount of fat and amino acids from broth and marrow keep digestive systems gently online: gallbladder contracting periodically, pancreatic lipase warm, fiber-fermenting microbes fed. Across 48 hours the cumulative effect is more pronounced than a 24h broth tail: muscle preservation through donor amino acids becomes meaningful, the regenerative-immune signal continues at high level, sympathetic load stops escalating, and the cognitive state stabilises into the smoothest window of the cycle.

How it feels: the best window of the entire cycle for most people. Metabolic state of hour 80 holds, but the small nutrients take the edge off. Warm liquid is psychologically grounding. Electrolytes from broth eliminate the mild dehydration headache common in pure water fasts. Energy steady, mood good, focus sharp. Day 4 (broth day 1, hours 80–104) is often the most productive day of the cycle for cognitive work; day 5 (broth day 2, hours 104–128) feels similar but with growing anticipation of refeed.

What to consume across the 48h: spread the calories thinly. Total intake target ~500–700 kcal across the whole 48h (not per day). Bone broth 2–3 cups per day. Tuétano (marrow) once on day 4 and once on day 5. Cooked non-starchy vegetables — spinach, zucchini, asparagus, mushrooms, leafy greens. **Protein under 15 g per day to keep IGF-1 suppressed** (so 30 g total across 48h, mostly from broth's collagen-derived amino acids; do not add chicken or beef). Avoid: starchy vegetables, fruit, anything sweet, dairy. The discipline of keeping calories low across the longer broth phase preserves more of the metabolic depth — doubling the calories because the phase is doubled would functionally turn this into a longer fasting-mimicking diet, which is a different protocol.

Training: walking and mobility only. Same as hours 48–80. Some people feel surprisingly good in this window and want to train hard. The metabolic state still doesn't support it well. Save real training for after refeed.

Practices — yes, all of them continue: the broth phase is still the fast, not recovery. **Morning sunlight remains core** — circadian timing matters more on the last days, not less, because the nights leading into refeed need solid sleep for the rebuild phase to use incoming amino acids efficiently. **Outdoor walking remains core** — supports lymphatic drainage, mood, and the parasympathetic shift that helps the body transition into refeed receptivity. Meditation continues to be the peak window —

arguably better than day 3 because the small amount of nutrients reduces any lingering weakness while leaving the metabolic clarity intact. Body scan practice in the evening especially. Day 4 and day 5 of the cycle, you have two consecutive mornings of unusually clean meditation available.

Practices to skip or scale back: Wim Hof breathing — blood pressure still low, skip. Cold shower — gentle and short if at all (90 sec, not 5 min). Sauna — possible if hydration is excellent, but 10 min maximum, monitor for dizziness. The principle: the body has done the metabolic work; this phase is about smooth landing, not adding stress.

Liquids: matcha works well here paired with the broth ritual — the marrow fat in the system buffers matcha's stronger catechin punch and broth electrolytes pair with its caffeine. One bowl mid-morning on each broth day. Sencha (Benifuki or otherwise) also fine, two infusions if desired. Coffee fine in moderation; not strictly necessary by this point. Cut caffeine by 2 pm both days. Continue salt and electrolytes.

Night 4 sleep stack (end of broth day 1): ashwagandha continues (300–600 mg, 60 min before bed). Melatonin and curcumin are optional — sleep usually stabilises noticeably in the broth phase, and the night 3 stress is past. If sleep was hard the night before, include them; if it felt easier, drop to ashwagandha + magnesium + salt only.

Hours 128–152 — the refeed (day 1)

What's happening: the most important window of the protocol. IGF-1 begins rebounding as amino acids return to the liver. Insulin sensitivity is at a multi-month peak. The hematopoietic stem cell proliferation Longo's work documents kicks in — the actual regenerative payoff of everything before this point. Refeed is not the end of the work; it's where most of the benefit gets paid for.

First meal (hour 128): 300–400 kcal. Two soft-boiled eggs with avocado. Or fish with cooked vegetables. Or a small bowl of soup with shredded chicken. Mostly fat and protein, vegetables cooked rather than raw, no grains or sugar yet. The 48h broth phase has kept gut, gallbladder, and pancreas partially online for two full days, so this can be moderate rather than tiny — after a pure water 96h fast, the first meal would need to be ~150–250 kcal. After this protocol, 300–400 is fine and the meal lands smoothly.

Wait 4 hours. Don't graze. Let the first meal land.

Evening meal (day 1): normal-sized dinner. Protein at ~30 g (eggs, fish, chicken, lamb). Cooked vegetables. Healthy fats — olive oil, avocado, marrow if any is left. **Skip grains, legumes, dairy, and sugar entirely on day 1.** Total ~1,200–1,500 kcal across the day.

Training: none on day 1 of refeed. Walking is fine. The body is in transition; let it transition.

Practices: morning sunlight on waking still applies — your circadian system is still reset and you want to anchor it. Outdoor walking. Meditation. Skip cold and breath work on refeed day 1; the system is shifting back to parasympathetic dominance and adding sympathetic stress works against that.

Liquids: hydration with electrolytes throughout. Once carbs return, insulin will drive remaining potassium into cells fast — this is the actual mechanism behind refeeding syndrome. Risk is very low

for a 96h fast in a healthy adult, but salt food generously and take magnesium that evening. Coffee or tea in the morning fine. **No alcohol** for at least 48h after breaking.

Refeed days 2–3 (cycle days 7–8) — the rebuild window

What's happening: stem cell proliferation peaks. Muscle protein synthesis is primed by elevated GH plus returning amino acids and insulin. IGF-1 is rebounding strongly. The week after the fast is when much of the long-term benefit accumulates.

What to eat: 1.6–2 g per kg of lean body mass of protein — this is the higher end of normal recommendations and matches what the rebuild window can use. Whole foods. Vegetables and fats freely. Carbohydrates back online but ideally from real sources — rice, sweet potato, fruit, oats — not refined sugar. Continue avoiding alcohol through day 3.

Training: a heavy lift or hard interval session 24–48 hours after breaking the fast. Insulin sensitivity is at multi-month peak, muscle protein synthesis is primed, and the rebound effect on muscle rebuilding is real. This is the highest-leverage training session of the quarter. Don't skip it.

Practices: all daily practices resume in full. Morning sunlight, walks, meditation, cold showers, Wim Hof breathing, sauna — all back online. The body is in build mode and benefits from the full stack of inputs.

Procedures to time here: chemical peels, especially medium-depth (TCA, Jessner's), schedule for day 3–5. The first wave of healing completes inside the high-anabolic window — faster epithelialization, denser collagen deposition, better cosmetic outcome than the same peel done at any other time of the quarter.

Night supplements: drop curcumin and melatonin from refeed day 1 onward (sleep stabilises quickly once eating resumes). **Continue ashwagandha through refeed nights 1–4** — cortisol stays elevated through the metabolic transition and the early refeed weeks, and ashwagandha's effect is cumulative. After night 4 of refeed, either stop or continue continuously based on the pattern you've chosen (see Section 4).

Refeed days 4–14 — the long rebuild

What's happening: IGF-1 stabilises. Stem cell proliferation continues at lower intensity. Muscle protein returns over 7–10 days of normal eating and training. Most of the apparent weight loss from the fast (glycogen, water, gut contents) returns by day 4–5 — this is normal and expected, not a failure. Real fat loss and body composition changes show up over the longer arc of multiple quarterly cycles, not one fast.

What to eat: normal whole-food eating with protein on the higher end (1.6–2 g/kg lean mass) for at least the first 7 days. Alcohol can return after day 4 in moderation, though waiting until day 7 is cleaner. Sugar in moderation; refined sugar best avoided through day 7.

Training: at least 2–3 resistance training sessions in the first week of refeed — the rebound effect on muscle protein synthesis needs the mechanical loading signal to fully express. Without training in this window, the body has less reason to fully restore lost tissue. Endurance training and skill work resume normally.

Practices: all resume. The fast's effects on circadian timing, DMN activity, and meditation depth persist for several days — morning sunlight and meditation in this window often feel more productive than baseline.

What to track: note how you feel, how training quality returns, sleep quality, mental state. The notes table at the end of this section is where to capture it. After 3–4 quarterly cycles you'll have a personal dataset more useful than any general protocol.

Ideal daily timing across the fast

Practices stack better in some orders than others. The morning sequence below works because each piece sets up the next: light anchors the circadian clock, breath work primes catecholamines, cold consolidates the alertness, meditation lands deeper after the activation, training uses the prepared sympathetic state.

Time	Practice	Notes
On waking	10–15 min outdoor sunlight	Walk outdoors counts as both sunlight and walking. Eyes open, no sunglasses.
~30 min after waking	Wim Hof breathing (days 1–2 only)	3 rounds, increasing breath holds. Skip days 3–5.
After breath work	Cold shower 2–5 min	Days 1–2 full duration. Day 3 short or skip. Days 4–5 short or skip.
Mid-morning	Green tea (day 2 onward)	Benifuki sencha, two infusions. Days 4–5 broth: matcha works well.
Late morning / midday	Training	Day 1: anything. Day 2: moderate. Days 3–5: walk and mobility only.
Afternoon	Walk + work	30–60 min outdoor walk. Light cognitive work fine; avoid heavy decisions on day 2.
Late afternoon	Sauna (optional)	15–20 min days 1–2. Day 3: 10–15 min if hydration good. Days 4–5: 10 min max.
Evening	Body scan or yoga nidra meditation	20–30 min. The fast makes evening practice unusually rich.
Before bed	Salt water + magnesium glycinate	Plus 300 mcg melatonin sublingual, 500–1000 mg curcumin, and 300–600 mg ashwagandha (KSM-66 or equivalent) on nights 2 and 3. Ashwagandha continues through refeed nights 1–4 (cycle days 6–9).

The schedule is a menu, not a checklist. On a busy day: morning sunlight + walk + meditation + green tea covers most of the value. Skipping anything that feels forced is fine — the fast itself is the work; everything else is multiplier.

The protocol activities reinforce each other.

The tables below explain the reinforcing power of the protocol. Each row is one intervention. Each column is one cellular pathway. The protocol works by stacking interventions so multiple rows push the same column in the same direction. Day 3 has six interventions all driving AMPK up and mTOR down simultaneously — that's the molecular reason day 3 produces a stronger effect. The handoff between Day 5 and Day 6 is the critical pivot of the entire cycle: AMPK and autophagy hand off to mTOR and growth. The fast clears damaged cells; the refeed signals new ones to proliferate. A poor refeed wastes the work.

Day 1 — Hours 0–24 (water phase, fed-to-fasted transition)

Intervention	mTOR	AMPK	Autophagy
Fasting (early)	Mild inhibition	Activation begins	Begins
Cold shower	Mild inhibition	Activation in adipose	Mild
Wim Hof breathing	Mild inhibition	Mild activation	Mild
Walking / aerobic	Inhibition	Activation	Activation
Training (any)	Acute spike, then drop	Strong activation	Post-exercise
Sauna	Mild inhibition	Mild activation	Heat shock pathway

Day 2 — Hours 24–48 (water phase, supplement stack begins night 2)

Intervention	mTOR	AMPK	Autophagy
Fasting (deepening)	Strong inhibition	Strong activation	Major activation
Green tea (Benifuki)	Direct inhibition	Direct activation	Amplification
Cold shower	Mild inhibition	Activation in adipose	Mild
Wim Hof breathing	Mild inhibition	Mild activation	Mild
Walking / aerobic	Inhibition	Activation	Activation
Moderate training	Inhibition	Strong activation	Activation
Curcumin (night)	Inhibition	Activation	Amplification
Ashwagandha (night)	Indirect inhibition	Mild activation	Indirect

Day 3 — Hours 48–72 (water phase, deep ketosis, peak window)

Intervention	mTOR	AMPK	Autophagy

Fasting (deep)	Strong inhibition	Strong activation	Peak activity
Green tea (Benifuki)	Direct inhibition	Direct activation	Amplification
Cold shower (gentle)	Mild inhibition	Activation in adipose	Mild
Walking only	Inhibition	Activation	Activation
Meditation (peak window)	Indirect inhibition	Indirect	Indirect
Curcumin (night)	Inhibition	Activation	Amplification
Ashwagandha (night)	Indirect inhibition	Mild activation	Indirect

Skipped today: Wim Hof breathing (BP too low), heavy training (catabolic), sauna (hydration risk).

Day 4 — Hours 72–104 (broth phase begins at hour 80)

Intervention	mTOR	AMPK	Autophagy
Broth phase (low-cal)	Strong inhibition	Strong activation	Sustained
Marrow meal (hour 90)	Mild reactivation	Continues	Continues
Matcha (with broth)	Direct inhibition	Direct activation	Amplification
Walking	Inhibition	Activation	Activation
Meditation (peak)	Indirect inhibition	Indirect	Indirect
Cold shower (short)	Mild inhibition	Activation in adipose	Mild
Ashwagandha (night)	Indirect inhibition	Mild activation	Indirect

Melatonin and curcumin optional tonight — sleep usually stabilises in broth phase.

Day 5 — Hours 104–128 (broth phase day 2)

Intervention	mTOR	AMPK	Autophagy
Broth phase (low-cal)	Inhibition	Activation	Sustained
Matcha (morning)	Direct inhibition	Direct activation	Amplification
Walking	Inhibition	Activation	Activation
Meditation	Indirect inhibition	Indirect	Indirect
Mobility / breath work	Mild inhibition	Mild activation	Mild
Ashwagandha (night)	Indirect inhibition	Mild activation	Indirect

Day 6 — Refeed Day 1 (the handoff: AMPK → mTOR)

Intervention	mTOR	AMPK	Autophagy
First meal (hour 128)	Reactivation begins	Drops	Winding down
Eggs + avocado (small)	Mild reactivation	Drops moderately	Winding down
Walking	Inhibition	Activation	Activation
Sunlight + meditation	Mild inhibition	Indirect	Indirect
Ashwagandha (night)	Indirect inhibition	Mild activation	Indirect

Skipped today: cold, breath work, training. System needs parasympathetic dominance to receive food.

Days 7–8 — Refeed Days 2–3 (rebuild window, mTOR fully online)

Intervention	mTOR	AMPK	Autophagy
Protein-forward meals	Strong activation	Suppressed	Off
Heavy training session	Strong activation	Acute activation	Post-exercise
Walking	Inhibition (mild)	Activation	Activation
Cold shower (resumed)	Mild inhibition	Activation in adipose	Mild
Wim Hof (resumed)	Mild inhibition	Mild activation	Mild
Sauna	Mild inhibition	Mild activation	Heat shock
Ashwagandha (continues)	Indirect inhibition	Mild activation	Indirect

Notes from this cycle

Capture details after each cycle. After 3–4 quarterly cycles, patterns emerge that no general protocol can match.

Field	
Start date / time (last meal)	
End of water phase (hour 72)	
End of broth phase / refeed start (hour 96)	
Lowest scale weight (kg)	
Weight 7 days post-refeed (kg)	
Mental clarity peak (hour, what felt different)	
Worst hour (and why)	
Sleep quality, nights 1–4	
Training done during fast	
Tea / coffee pattern that worked	
Practices skipped or scaled back	
Refeed first meal and how it landed	
First hard training session post-fast	
Adjustments for next cycle	

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Final reminder

Everything above is one person's experience. I am not a doctor. None of this is medical advice or a recommendation. Extended fasting can cause serious harm and has caused deaths in people with undiagnosed conditions or who did it incorrectly. Do not do this without talking to a physician who knows your medical history. Do not do this at all if you have diabetes, hypertension on medication, thyroid disease, kidney or liver disease, gallstones, an eating disorder history, are pregnant or breastfeeding, or are taking prescription medications with fasting-state interactions. If you are reading this and you are not sure, the answer is no.