

Light Energy Protocol — Daily Quick Reference

Last updated: 2026-01-22

Morning (with breakfast containing fat)

Breakfast MUST contain dietary fat: eggs, olive oil, MCT oil, avocado, nuts, fatty fish, or full-fat yogurt

Take all together:

- ☐ **Acetyl-L-Carnitine** 1000 mg (1 capsule)
- ☐ **CoQ10 Ubiquinol** 100–200 mg (1–2 capsules) ★ **needs fat**
- ☐ **B-Complex** (1 tablet/capsule)
- ☐ **Magnesium Glycinate** 200–400 mg (1–2 capsules)
- ☐ **MCT Oil** 1 tablespoon (15 mL) — add to coffee, tea, smoothie, or food
- ☐ **D-Ribose** 5 g (optional) — dissolve in water

Evening (with dinner containing fat)

Dinner MUST contain dietary fat: fatty fish (salmon, mackerel), olive oil (2 tbsp), avocado, cheese, or nuts

Weekly (once per week):

- ☐ **Vitamin D3** 25000 U.I. (1 capsule) ★ **needs fat**

Optional (if migraines or extra fat-burning support):

- ☐ **Riboflavin (B2)** 400 mg (1 capsule) ★ **needs fat**

Bedtime (30–60 minutes before bed)

- ☐ **MCT Oil** 1 teaspoon (5 mL)
- ☐ **D-Ribose** 5 g (optional) — dissolve in water
- ☐ **Magnesium Glycinate** 200–400 mg (if not taken in morning)

Optional: Fat Malabsorption Support

If vitamin D remains low after 2–3 months:

- **Digestive Enzyme** (Metagenics MetaDigest TOTAL or similar)
- Comprehensive enzyme formula supporting fat, protein, and carbohydrate digestion
- Take immediately before breakfast and dinner

Key Reminders

- **Fat is essential:** CoQ10 and Vitamin D will NOT absorb without dietary fat
- **MCT oil:** Start with 1 tsp, increase slowly to 1 tbsp over 1–2 weeks (avoid GI upset)
- **Timeline:** Acetyl-L-carnitine takes 4–6 weeks; maximum benefit at 3–6 months
- **Vitamin D:** Retest blood levels at 2–3 months to verify protocol working
- **Coconut oil ≠ MCT oil:** Only pure MCT oil (C8 or C8/C10) bypasses broken system

Light Energy & Fat Metabolism Protocol

For Chronic Fatigue & Energy Production Support

Focused on maximizing energy production, fat utilization, and essential vitamin absorption

Last updated: 2026-01-21

Protocol Overview

This simplified protocol focuses on the core interventions for:

- Restoring fat-burning capability (addressing “running on empty” sensation)
- Maximizing mitochondrial energy production
- Correcting vitamin D deficiency (common with fat malabsorption)
- Supporting cellular ATP availability

Core Principle

Most chronic fatigue involves **impaired fat metabolism**. The body cannot access stored fat for energy despite having adequate reserves. This protocol:

1. Provides immediate energy bypass (MCT oil)
2. Repairs the fat-burning system (acetyl-L-carnitine)
3. Supports the energy production machinery (CoQ10, B vitamins, magnesium)
4. Ensures fat-soluble vitamin absorption (critical for vitamin D)

Morning Protocol (with breakfast)

Core Energy Supplements

1. **Acetyl-L-Carnitine 1000 mg**
 - Opens the “carnitine shuttle” to transport fats into mitochondria for energy
 - **This is the root cause fix for fat metabolism**
 - Timeline: 4–6 weeks initial effect; 3–6 months maximum benefit
 - Can take on empty stomach or with food
2. **CoQ10 Ubiquinol 100–200 mg ★ needs fat**
 - Essential cofactor in mitochondrial energy production (electron transport chain)
 - Antioxidant protecting mitochondrial membranes
 - **MUST take with dietary fat** or absorption is <10%
 - Ubiquinol is the active, reduced form (better absorption than ubiquinone)
3. **B-Complex (containing at least B1, B2, B3, B5, B6, B12, Folate)**
 - B vitamins are cofactors in energy metabolism at every step
 - B2 (riboflavin) essential for fat-burning
 - B12 and folate support methylation and cellular energy
 - Any reputable B-complex works
4. **Magnesium Glycinate 200–400 mg**
 - Cofactor for ATP synthesis (your body makes ATP using magnesium)
 - “Off switch” for muscle contraction — prevents cramps
 - Glycinate form: best absorbed, gentlest on stomach
 - Can split dose: half morning, half bedtime
5. **MCT Oil 1 tablespoon (15 mL)**
 - Medium-chain fats bypass the broken carnitine shuttle
 - Provide immediate energy while acetyl-L-carnitine repairs the system
 - Go straight to liver; preferentially burned for energy (not stored as fat)
 - Also helps fat-soluble vitamin absorption
 - Add to coffee, tea, smoothie, or drizzle on food
 - **Start with 1 tsp; increase slowly over 1–2 weeks to avoid GI upset**

Breakfast Requirements

Breakfast MUST contain dietary fat for CoQ10 absorption:

- **Best:** MCT oil (already in protocol), olive oil, eggs, fatty fish
- **Good:** Avocado, nuts, nut butter, full-fat yogurt, cheese
- **Minimum:** 1–2 tablespoons of fat source

Without fat, CoQ10 absorption fails and vitamin D will remain deficient.

Evening Protocol (with dinner)

Weekly Vitamin D

1. **Vitamin D3 25000 U.I. (once weekly) ★ needs fat**
 - Essential for immune function, bone health, mood regulation
 - Weekly high-dose may overcome absorption issues better than daily low-dose
 - **MUST take with fatty dinner** or absorption fails
 - Common in chronic fatigue to have vitamin D deficiency despite supplementation (indicates fat malabsorption)

Optional Evening Additions

1. **Riboflavin (Vitamin B2) 400 mg ★ needs fat**
 - Essential cofactor for fat-burning (beta-oxidation)
 - Works synergistically with acetyl-L-carnitine
 - Also proven for migraine prevention at this dose (4–12 weeks)
 - Take with dinner containing fat
 - Optional if B-complex already contains 50–100 mg B2; use higher dose if migraines present

Dinner Requirements

Dinner MUST contain dietary fat for vitamin D3 (and B2 if taken):

- **Best:** Fatty fish (salmon, mackerel, sardines), olive oil (2 tbsp in salad), avocado
- **Good:** Nuts, cheese, eggs
- **Minimum:** 2–3 tablespoons of fat source (more is better for vitamin D)

Bedtime Protocol

Overnight ATP Support

1. **MCT Oil 1 teaspoon (5 mL)** (30–60 min before bed)
 - Provides fuel overnight when body should be burning fat
 - Prevents nocturnal ATP depletion
 - Reduces morning exhaustion and night cramps
 - Can be same bottle as morning MCT oil
2. **D-Ribose 5 g** (optional but recommended)
 - Direct building block of ATP molecule
 - Replenishes cellular ATP stores overnight
 - Dissolve powder in water and drink before bed
 - Take another 5 g in morning for 10 g/day total (optional)
 - Timeline: Assess at 2 weeks for nocturnal cramp reduction
3. **Magnesium Glycinate 200–400 mg** (if not taken in morning)
 - Prevents nocturnal muscle cramps
 - Supports sleep quality
 - Best taken at bedtime if splitting daily dose

Fat Malabsorption Support (if vitamin D remains low)

If vitamin D stays low despite weekly 25000 U.I. + dietary fat, add:

Digestive Enzymes (Metagenics MetaDigest TOTAL)

- Take immediately before breakfast and dinner
- Comprehensive enzyme formula: lipase, protease, amylase, cellulase, lactase
- Helps break down dietary fats, proteins, and carbohydrates for absorption
- Critical for fat-soluble vitamin absorption (D3, CoQ10, B2)
- Alternative products: NOW Foods Digestive Enzymes, Enzymedica Digest Gold

Complete Daily Schedule

Morning (with breakfast containing fat)

- MetaDigest TOTAL (immediately before or with first bite)
- Acetyl-L-Carnitine 1000 mg
- CoQ10 Ubiquinol 100–200 mg
- B-Complex (any reputable brand)
- Magnesium Glycinate 200 mg (or 400 mg if not splitting dose)
- MCT Oil 1 tablespoon (in coffee, tea, smoothie, or on food)
- Optional: D-Ribose 5 g

Evening (with fatty dinner)

- MetaDigest TOTAL (immediately before or with first bite)
- **Weekly:** Vitamin D3 25000 U.I.
- Optional: Riboflavin B2 400 mg (if migraines or want extra fat-burning support)

Bedtime

- MCT Oil 1 teaspoon (30–60 min before bed)
- D-Ribose 5 g (optional)
- Magnesium Glycinate 200–400 mg (if not taken in morning, or split dose)

Shopping List

Essential Supplements

1. **Acetyl-L-Carnitine 1000 mg** (any reputable brand: NOW Foods, Jarrow, Doctor's Best)
2. **CoQ10 Ubiquinol 100–200 mg** (Jarrow QH-Absorb, Doctor's Best, Qunol)
3. **B-Complex** (Thorne, NOW Foods, Jarrow, Life Extension)
4. **Magnesium Glycinate 200–400 mg** (Doctor's Best, KAL, NOW Foods)
5. **MCT Oil** (pure C8 or C8/C10 blend) (Sports Research, NOW Foods, Bulletproof Brain Octane)
6. **Vitamin D3 25000 U.I. weekly** (or equivalent: 3500–4000 U.I. daily)

Optional but Recommended

1. **D-Ribose powder** (NOW Foods, Doctor's Best, Jarrow)
2. **Riboflavin B2 400 mg** (if migraines or extra fat-burning support needed)
3. **Digestive Enzymes** (Metagenics MetaDigest TOTAL, NOW Foods, Enzymedica Digest Gold)

Dietary Essentials

- Eggs, olive oil, avocados, fatty fish (salmon, mackerel, sardines)
- Nuts (almonds, walnuts), nut butter
- Full-fat yogurt, cheese (if tolerated)

Timeline & Expectations

Week 1–2: Immediate Effects

- MCT oil provides immediate energy (some feel this within days)

- Better morning energy from bedtime MCT oil + D-Ribose
- Potential reduction in nocturnal cramps
- Magnesium may improve sleep quality and reduce muscle tension

Week 4–6: Early Repair Phase

- Acetyl-L-carnitine begins opening carnitine shuttle
- May notice gradual improvement in sustained energy
- Body starting to access stored fat for fuel
- Cognitive clarity may improve (acetyl group crosses blood-brain barrier)

Month 2–3: Established Effect

- Fat-burning pathway increasingly functional
- Better tolerance for activity without crashes
- Reduced reliance on MCT oil for energy (but continue for vitamin absorption)
- **Retest vitamin D levels** to verify absorption protocol working

Month 3–6: Maximum Benefit

- Full acetyl-L-carnitine effect achieved
- Normalized fat metabolism (body burns stored fat + dietary fat efficiently)
- Improved energy stability throughout day
- Potential for increased activity level

Monitoring Checklist

Track these to assess effectiveness:

Daily

- Energy level upon waking (0–10 scale)
- Sustained energy through morning/afternoon
- Nocturnal cramps (frequency, location)
- Muscle fatigue/weakness
- Post-meal energy (do you crash or improve after eating?)

Weekly

- Overall energy trend (getting better, stable, worse?)
- Sleep quality and morning refreshedness
- Exercise/activity tolerance

At 2–3 Months

- **Vitamin D blood test** (target: 30–50 ng/mL or 75–125 nmol/L)
- If still low despite protocol, increase focus on dietary fat and add digestive enzymes

Supplement	Approximate Cost/Month
Acetyl-L-Carnitine 1000 mg	\$15–25
CoQ10 Ubiquinol 100–200 mg	\$20–40
B-Complex	\$10–20
Magnesium Glycinate	\$10–15
MCT Oil (1–1.5 tbsp/day)	\$15–25
Vitamin D3 25000 U.I. (weekly)	\$5–10
D-Ribose (optional)	\$20–30
Riboflavin 400 mg (optional)	\$10–15
Digestive Enzymes (optional)	\$15–25
Core Protocol Total	\$75–135/month
With All Optionals	\$120–195/month

Cost Estimate (Monthly)

Important Notes

Why This Protocol Works

The Three-Part Strategy

1. Immediate Energy Bypass

- MCT oil provides fuel that mitochondria can use *right now*
- Bypasses blocked carnitine shuttle
- Supports you while repair happens

2. Root Cause Repair

- Acetyl-L-carnitine opens carnitine shuttle over weeks
- Restores ability to burn stored body fat
- Addresses the fundamental energy deficit

3. System Optimization

- CoQ10, B vitamins, magnesium support the energy production machinery
- Once fuel can get into mitochondria, these ensure it's used efficiently
- Maximizes ATP output from available fuel

Fat-Soluble Vitamin Fix

- MCT oil + dietary fat ensure vitamin D actually absorbs
- Fixes chronic deficiency common in fatigue conditions

What NOT to Do

- **Never skip dietary fat** when taking CoQ10 or vitamin D — absorption will fail
- **Don't increase MCT oil too quickly** — causes diarrhea (GI system needs to adapt)
- **Don't expect instant results** — acetyl-L-carnitine takes 4–6 weeks minimum
- **Don't stop after 2 weeks** if you don't see dramatic changes — repair takes time
- **Don't use coconut oil instead of MCT oil** — coconut oil is only ~15% MCTs; rest requires broken carnitine shuttle

When to Add More

This is a **light protocol**. Consider adding if:

- Vitamin D remains low after 2–3 months → add digestive enzymes with lipase
- Significant migraines → add riboflavin B2 400 mg at dinner
- Poor sleep or severe nocturnal cramps persist → add D-Ribose at bedtime
- Iron deficiency confirmed → add iron supplement with vitamin C (morning, separate from magnesium)

When to Consult Healthcare Provider

- Before starting if you have liver disease, kidney disease, or take medications
- If no improvement after 2–3 months
- If symptoms worsen

- To verify vitamin D levels after 2–3 months
- If considering adding other supplements or medications