

# Sleep Debt Recovery Guide

Evidence-Based Protocols to Rebuild Your Sleep Baseline

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## What Is Sleep Debt?

Sleep debt is the cumulative deficit between the sleep you need and the sleep you get. Research from the University of Pennsylvania (Van Dongen et al., 2003) showed that six hours of sleep per night for 14 days produces cognitive impairment equivalent to 48 hours of total sleep deprivation — and crucially, subjects did not perceive themselves as impaired. The debt is real; the subjective adaptation is not.

Short-term sleep debt (1–3 nights) can be substantially recovered. Chronic sleep debt accumulated over weeks or months requires a deliberate multi-week protocol. This guide outlines a structured 21-day approach grounded in current sleep medicine.

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## Phase 1: Stabilization (Days 1–7)

Goal: stop adding to the deficit and stabilize sleep timing.

Set a fixed wake time and hold it 7 days regardless of when you fell asleep

Eliminate all alarm snoozing — fragmented morning sleep worsens sleep pressure

No naps longer than 20 minutes before 3 PM during this phase

Reduce caffeine to before 1 PM; eliminate alcohol entirely

Set bedroom temperature to 65–68°F (18–20°C) — core body temperature drop triggers sleep onset

Block all screens 60 minutes before your target sleep time

Track sleep timing daily — even a basic log (in/out/estimated total) reveals patterns

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## Phase 2: Extension (Days 8–14)

Goal: add 60–90 min of sleep per night to repay accumulated debt.

Move bedtime 30–45 minutes earlier than your Phase 1 average

Add a 20-minute nap at 1 PM if total nightly sleep remains below 7.5 hours

Begin magnesium glycinate supplementation: 200–400mg elemental 60 min before bed

Implement 4-7-8 breathing at lights-out: inhale 4 counts, hold 7, exhale 8

Avoid exercise within 3 hours of bedtime (raises core temperature; delays sleep onset)

Keep light exposure bright within 30 minutes of waking (suppresses residual melatonin)

Log perceived energy and mood daily — improvement confirms debt repayment progress

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## Phase 3: Consolidation (Days 15–21)

Goal: establish sustainable sleep habits that prevent re-accumulation.

- Settle on a fixed sleep window that allows 7.5–9 hours depending on your chronotype
- Evaluate whether current sleep environment meets the 3 core requirements: dark, cool, quiet
- Assess morning alertness at 30-min post-wake – this is your recovery indicator
- Maintain weekend wake time within 30 minutes of weekday time (social jet lag prevention)
- If still waking at night: rule out sleep apnea symptoms (snoring, gasping, dry mouth)
- Reassess caffeine timing – many people are slower metabolizers than they assume
- Build a non-negotiable wind-down routine of at least 30 minutes

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## Key Research Behind This Protocol

### Van Dongen et al. (2003)

Sleep, 26(2): 117–126. Chronic sleep restriction produces impairment equivalent to total deprivation.

### Leproult & Van Cauter (2010)

JAMA, 305(21): 2173–2174. One week of sleep restriction reduces testosterone by 10–15%.

### Spiegel et al. (2004)

Sleep, 27(1): 661–668. Sleep curtailment elevates cortisol and disrupts insulin sensitivity.

### Vgontzas et al. (2007)

J Clin Endocrinol Metab, 92(8): 3063–3068. Daytime napping reduces the cortisol stress response.

### Walker, M. (2017)

Why We Sleep. Penguin Press. Comprehensive synthesis of sleep science and recovery.

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## Recovery Indicators to Track

Rate each on a 1–10 scale each morning. Look for upward trend over 14+ days:

- Morning energy (1 = exhausted, 10 = fully rested)
- Mood stability through afternoon (1 = severe crash, 10 = stable)
- Concentration quality during focused work (1 = unable to focus, 10 = sharp)
- Spontaneous wake time (are you waking before your alarm by week 3?)

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