

3:07

Solved

The 3 A.M. Files

12 sleep mysteries science has solved — and the one thing to do about each of them, tonight.

27 SOURCES

12 CHARTS

7-NIGHT PROTOCOL

Noddie NIGHT

You already know the advice.

Eight hours. No screens. Cut the coffee. And you still wake at 3 a.m. staring at the ceiling, doing maths about how many hours are left.

This isn't that guide. Each file opens with something your body does at night that almost nobody explains — why you wake at the same hour, why a hotel bed ruins the first night, why the harder you try to sleep the more awake you get — and then shows you what the research actually found, **with the numbers**.

Every claim is traced to a published study or official dataset. All 27 are listed in the **Evidence Locker** on page 32, with PubMed IDs, so you can check every one of them.

You probably wake up more than 20 times a night. You remember almost none of them.

File 01 → page 4

Three ordinary coffees leave 79% of a cup in your blood at 11 p.m.

File 03 → page 8

On your first night somewhere new, half your brain stays on watch.

File 09 → page 20

HOW TO READ IT

One file a night, in any order. Each takes about four minutes to read and ends with **Tonight's Move**: one action, under five minutes, that costs nothing.

IF YOU WANT A PLAN

Go straight to the **7-Night Protocol** on page 28. It adds one move a night, in the order that works, and the worksheet on page 29 turns it into your own times.

This guide is general information about sleep and everyday habits. It is not medical advice and does not diagnose or treat any condition. If you have a health condition, are pregnant, take medication, or have trouble sleeping most nights, talk to a doctor. See page 31.

Twelve files. One night each.

01	The 3:07 Wake-Up	p. 4	02	The Two Clocks	p. 6
	Why you wake at the same dead hour			Wired at 10 p.m., wrecked at 3 p.m.	
03	The Ghost in Your Coffee	p. 8	04	The Lamp That Lies	p. 10
	The cup you finished at 4 is still awake at 11			Your living room says it's still daytime	
05	The Cold-Body Secret	p. 12	06	The Nightcap Trap	p. 14
	A hot bath makes you sleepy by cooling you down			Knocks you out, then wakes you up	
07	The Debt You Can't Feel	p. 16	08	The Weekend Jet Lag	p. 18
	Why six hours feels fine (and isn't)			The number that beat sleep length	
09	The Hotel Night Watch	p. 20	10	The Five-Minute List	p. 22
	Why half your brain stays on guard			A sleep-lab trick that costs one pen	
11	The Harder You Try	p. 24	12	The Night Shift	p. 26
	The only thing effort makes worse			What your body does while you're gone	

AFTER THE FILES

The 7-Night Protocol	P. 28
Your Numbers	P. 29
The Night Log	P. 30
When It's More Than Habits	P. 31
The Evidence Locker	P. 32

Files are written to stand alone, but they connect: sleep pressure (02) explains caffeine (03); temperature (05) explains the bath; alcohol (06) explains a lot of 3 a.m. wake-ups (01).



CASE • WHY YOU WAKE AT THE SAME DEAD HOUR

The 3:07 Wake-Up

THE MYSTERY

It's always the same. You fall asleep fine. Then — 3:07. Wide awake, heart ticking, mind already on tomorrow. Nothing woke you. So what did?

Clue 1

A 90-minute rhythm

Clue 2

A number you've never been told

Clue 3

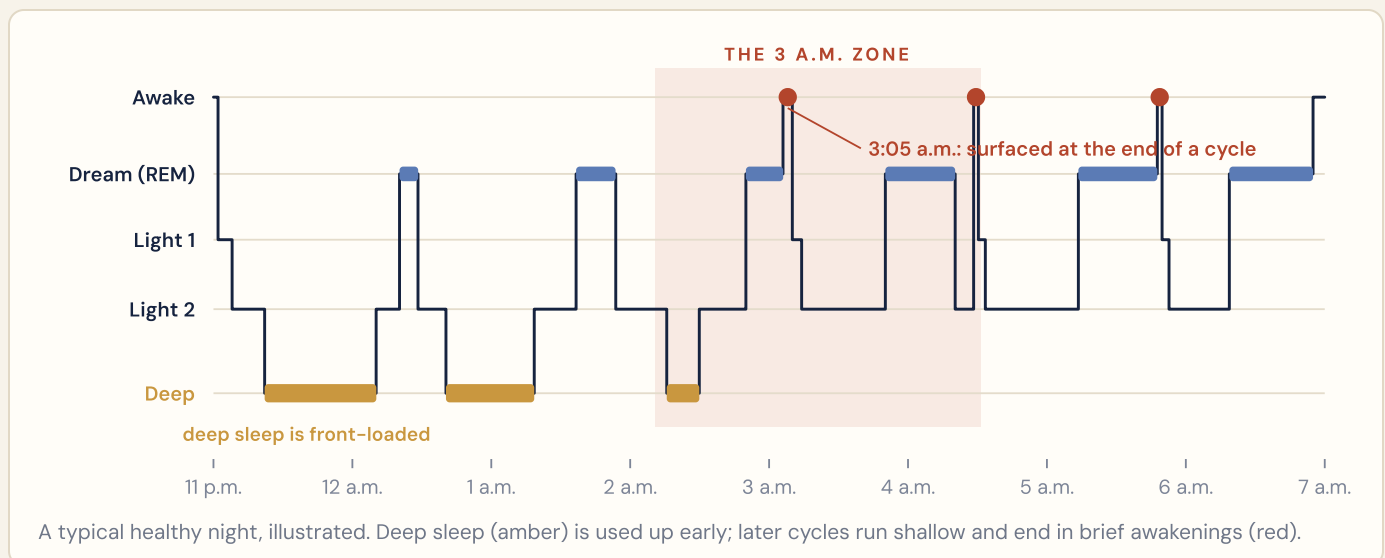
Why checking the clock is the trap

The evidence.

Sleep isn't one long dive. It runs in cycles of roughly 90 minutes, and they are not alike. Your **deepest sleep is front-loaded** into the first two or three cycles, while sleep pressure (File 02) is high. By about 2 to 3 a.m. most of it is spent, and the cycles that follow sit much closer to the surface: more light sleep, longer dream periods, and a brief surfacing at the end of each one.

You surface far more than you think. In one sleep-lab study, healthy young adults with no sleep problems averaged **21 to 26 awakenings in a single night**. Almost all were too short to remember. Your 3 a.m. wake-up is usually one of those — one that caught your attention, and then your attention kept it going.

The twist: people who sleep badly tend to **overestimate** how long they lie awake and **underestimate** how long they slept. A major review found the best-supported explanations: light sleep felt as wakefulness, worry, and these brief awakenings.



21–26

brief awakenings in one night, healthy young adults, measured in the lab

~90 min

the length of one sleep cycle

TONIGHT'S MOVE

Turn the clock to face the wall. If you surface at 3, don't check the time. Say to yourself "end of a cycle" and let each out-breath run longer than the in-breath. Checking the clock starts the maths ("only three hours left"), and the maths is what keeps you up.

✗ MYTH

Waking up in the night means something is wrong with your sleep.

✓ WHAT THE EVIDENCE SAYS

Brief awakenings are part of every healthy night. What decides the rest of the night is what you do in the next minute.



02

CASE • WIRED AT 10 P.M., WRECKED AT 3 P.M.

The Two Clocks

THE MYSTERY

At 3 p.m. you could sleep on your desk. At 10 p.m., when you finally can, you're strangely awake — scrolling, snacking, catching a second wind. Your body isn't broken. It's running two systems at once, and they disagree.

Clue 1

The two forces behind every night

Clue 2

A "forbidden zone" found in the lab

Clue 3

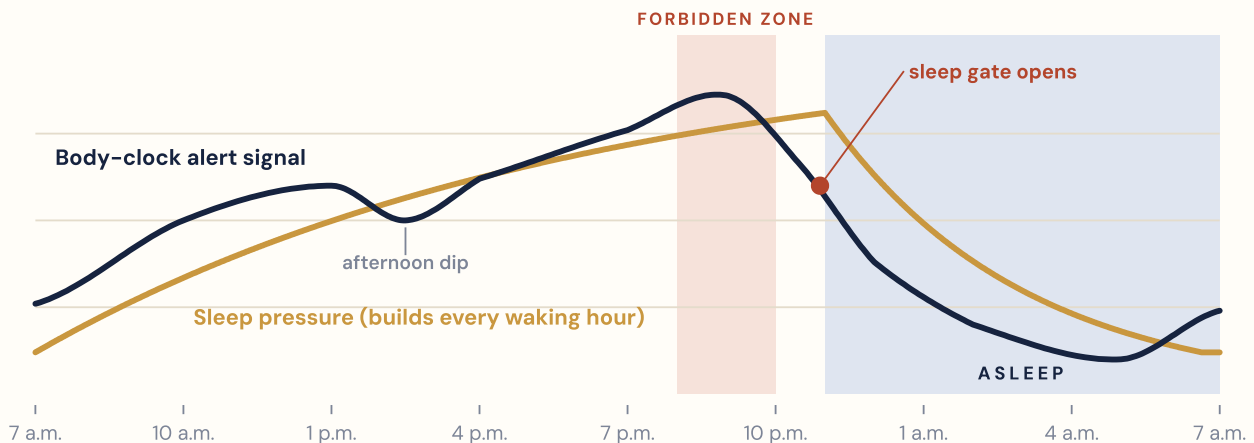
The exact moment a sleep gate opens

The evidence.

In 1982 the sleep researcher Alexander Borbély described sleep as the product of two separate processes. **Process S is sleep pressure:** a sleepiness debt that builds every hour you're awake and drains while you sleep. **Process C is your body clock:** a roughly 24-hour rhythm that pushes you toward alertness at some hours and lets go at others.

When they line up — high pressure, clock stepping aside — you fall asleep in minutes. When they fight, you get the strange moments. Mapping sleepiness around the clock, one study found a secondary sleepiness peak in the **mid-afternoon**, and a **“forbidden zone” for sleep centred at around 8 to 10 p.m.** — just before the real sleep gate opens, which it did as an all-or-nothing event.

Naps sit in between: a 60–90 minute nap matched a full night for a learning task in one study, but a long or late nap spends tonight's pressure.



Illustrative, after Borbély (1982) and Lavie (1986). Not to scale.

Sleep comes easily only when pressure is high and the clock's alert signal is falling.

8–10

p.m.: the “forbidden zone”, when sleep is hardest to reach

2

separate systems decide when you can sleep

TONIGHT'S MOVE

Don't go to bed in the forbidden zone just because the day is over. Wait for the gate: heavy eyelids, yawning, rereading a line. Note the time. That's your natural window.

× MYTH

Tired at 9 p.m.? Go to bed early and you'll sleep better.

✓ WHAT THE EVIDENCE SAYS

Going to bed in the forbidden zone often means lying awake. Tired isn't the signal. Sleepy is.



03

CASE • THE CUP YOU FINISHED AT 4 IS STILL AWAKE AT 11

The Ghost in Your Coffee

THE MYSTERY

Your last coffee was at 4. By bedtime you feel fine and you fall asleep. But the coffee didn't leave when the buzz did — and there's a way to see exactly how much of it is still there.

Clue 1

What caffeine actually blocks

Clue 2

The gene that sets your cut-off

Clue 3

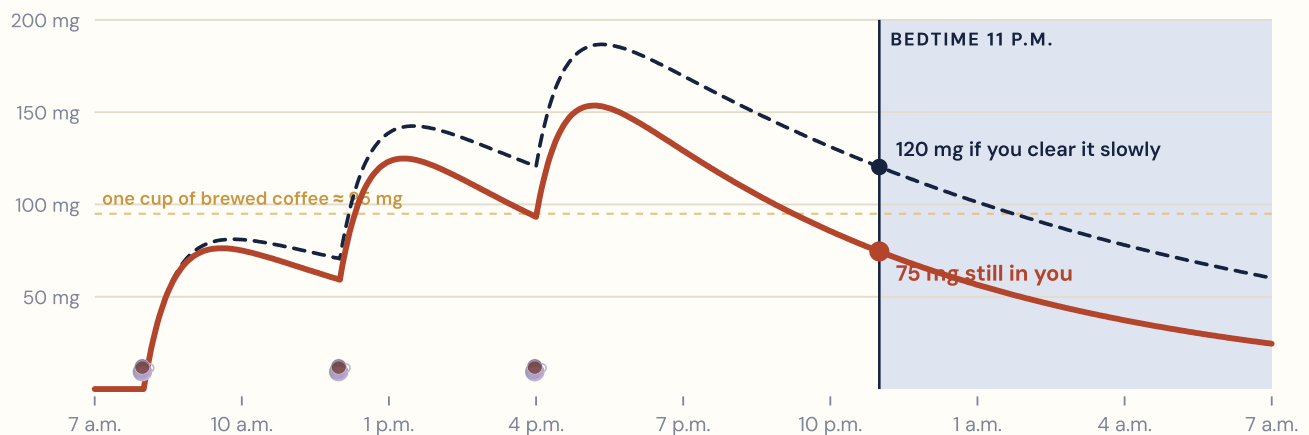
A cup's worth, still in you at bedtime

The evidence.

Caffeine works by blocking **adenosine**, the molecule behind the sleep pressure in File 02. The pressure keeps building; you just can't feel it. Then caffeine clears slowly. For an average adult, half of it is still in the body about five hours later — and that varies enormously, because **one liver enzyme handles about 95% of it**, and how fast it works is partly genetic.

The chart models an ordinary day: three cups at 8 a.m., noon and 4 p.m. At 11 p.m. about **75 mg is still circulating — 79% of a whole cup**. For someone who clears it slowly, it's about 120 mg.

Does it matter if you fall asleep anyway? A home study gave people 400 mg of caffeine (about four cups) at bedtime, 3 hours before, or 6 hours before. **All three disrupted sleep** compared with a placebo — including the dose taken six hours earlier.



Model: three 95 mg coffees; half-life 5 h (average, red) or 8 h (slow, dashed). Real values vary.

Caffeine in the body across a day, modelled from average clearance rates.

79%

of a cup still in you at 11 p.m. after three ordinary coffees

6 h

before bed, a big dose still disrupted sleep

TONIGHT'S MOVE

Work out your cut-off: **bedtime minus 8 hours**. Set a phone alarm for it called "last coffee". It counts tea, cola, energy drinks, pre-workout and dark chocolate too.

✗ MYTH

"Coffee doesn't affect me. I can drink it after dinner and still sleep."

✓ WHAT THE EVIDENCE SAYS

Falling asleep isn't the test. In the home study, sleep was measurably disrupted even when the caffeine came 6 hours before bed.

04

CASE · YOUR LIVING ROOM SAYS IT'S STILL DAYTIME

The Lamp That Lies

THE MYSTERY

Every evening your body releases a darkness signal — melatonin, the hormone that tells every organ it's night. You are very probably switching it off with the lamp you're reading by.

Clue 1

What ordinary room light did to 116 people

Clue 2

The e-reader experiment

Clue 3

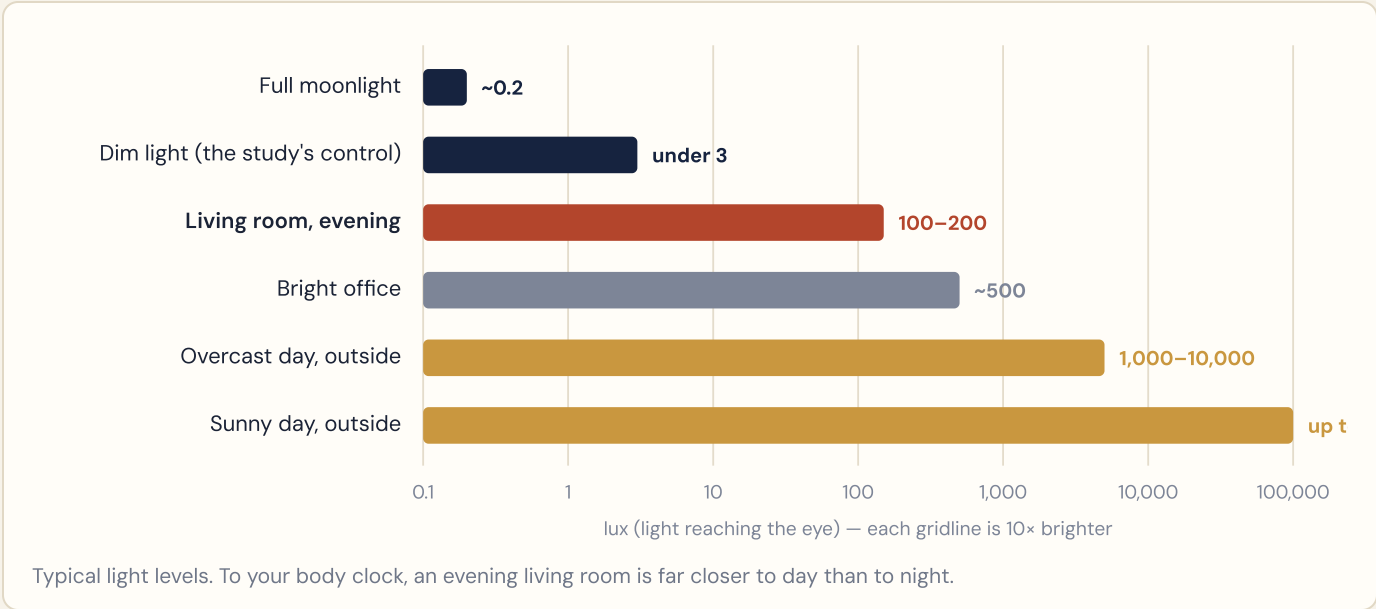
What camping did to body clocks

The evidence.

A study of 116 volunteers compared evenings in ordinary room light (under 200 lux) with dim light (under 3 lux). Room light before bed **delayed melatonin onset in 99% of people** and shortened the body’s melatonin “night” by **about 90 minutes**. Room light during the usual sleep hours cut melatonin by more than half in 85% of trials.

Screens add to it. Reading on a light-emitting e-reader instead of a printed book before bed meant people **took longer to fall asleep**, felt less sleepy in the evening, made less melatonin, had a later body clock, and were less alert the next morning.

It works in reverse, too. Camping with only natural light synchronised people’s clocks to the sun: **biological night began at sunset** and ended just after sunrise.



99%

had a later melatonin onset in ordinary room light

~90 min

cut from the body’s melatonin “night”

TONIGHT’S MOVE

Two hours before bed: **overhead lights off, low lamps on**, screens dimmed and warm. Tomorrow, get 10 minutes of outdoor light within an hour of waking. Even a cloudy sky is brighter than any room.

✗ MYTH

Night mode on your phone solves the light problem.

✓ WHAT THE EVIDENCE SAYS

Night mode changes the colour, not the amount. The 116-person study used ordinary room lamps, not screens, and that alone was enough.

05

CASE • A HOT BATH MAKES YOU SLEEPY BY COOLING YOU DOWN

The Cold-Body Secret

THE MYSTERY

The fastest route to sleep isn't warming up. It's cooling down. That's why a hot bath works — and why cold feet can keep you staring at the ceiling.

Clue 1

The temperature curve under every night

Clue 2

The best predictor of falling asleep fast

Clue 3

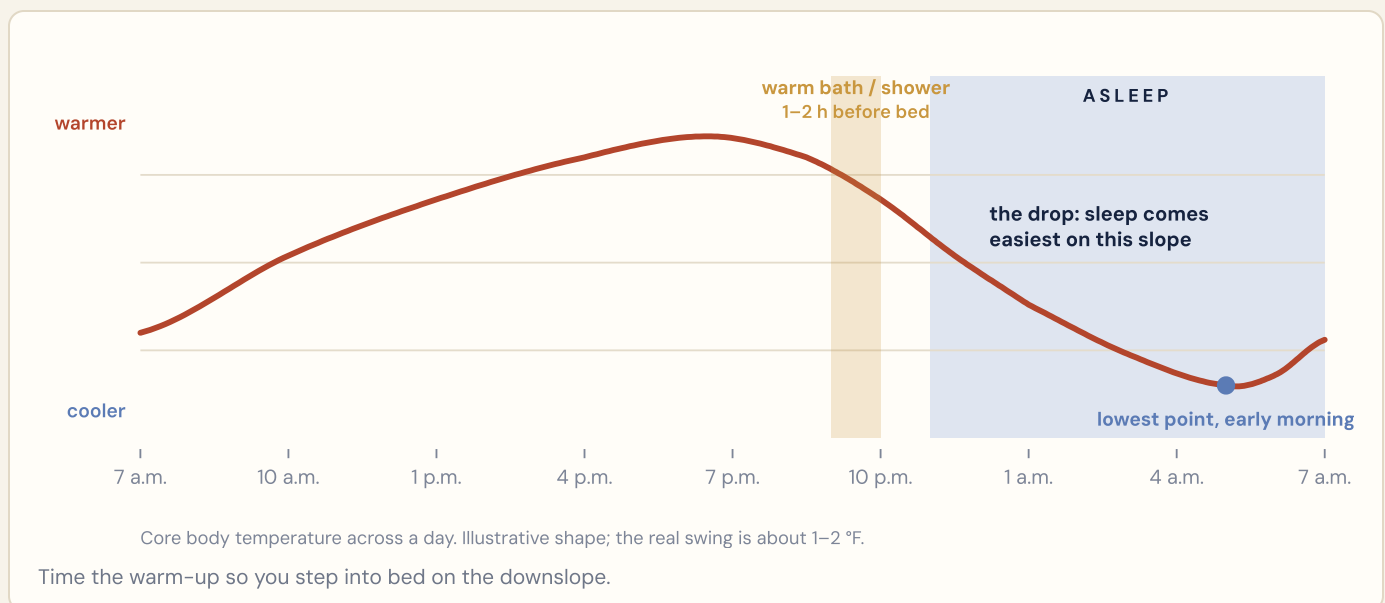
The bath timing that worked in 17 studies

The evidence.

Your core temperature follows the body clock: it peaks in the evening and falls through the night, reaching its lowest point in the early morning. **Sleep comes most easily on that downslope.**

To cool the core, the body opens blood flow to the hands and feet and releases heat through them. A study in *Nature* found that **warm hands and feet**, compared with the core, were the best physiological predictor of how quickly people fell asleep.

A 2019 review of 17 studies found that a warm bath or shower at **104–108.5 °F (40–42.5 °C), 1 to 2 hours before bed**, was linked with better self-rated sleep and sleep efficiency, and as little as **10 minutes** shortened the time it took to fall asleep. The heat draws blood to the skin; afterwards the core cools faster.



10 min

of warm water was enough to fall asleep faster

1–2 h

before bed: the timing that worked

TONIGHT'S MOVE

A warm shower or bath 60 to 90 minutes before bed. Cold feet? Wear socks. Keep the bedroom cool — around 60–67 °F (15–19 °C) is the range sleep organisations usually suggest.

✗ MYTH

A warm, cosy bedroom helps you drift off.

✓ WHAT THE EVIDENCE SAYS

Your core needs to shed heat to fall asleep. The recipe is warm skin and feet, and a cool room.



06

CASE · KNOCKS YOU OUT, THEN WAKES YOU UP

The Nightcap Trap

THE MYSTERY

One glass of wine and you're out like a light. Then at 3 a.m. you're wide awake, warm, thirsty, heart a little quick. Same drink, two opposite effects. The research explains both halves.

Clue 1

Every known study, one pattern

Clue 2

What happens to dream sleep

Clue 3

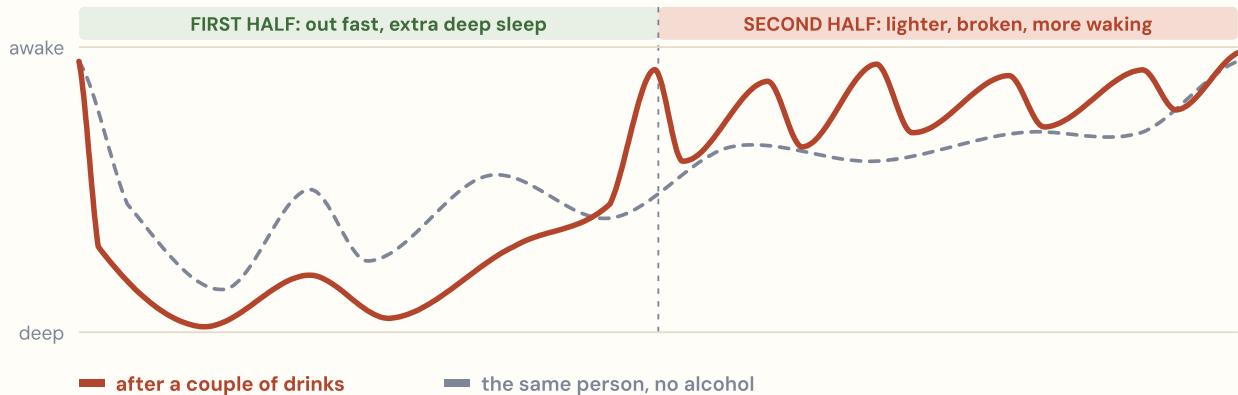
Why yesterday feels louder

The evidence.

A review of every known study of alcohol and sleep in healthy volunteers found the same pattern **at all doses**: you fall asleep faster, and the first half of the night is more consolidated, with extra deep sleep. **The second half is more disrupted.** That second half is where the 3 a.m. wake-up lives.

Dream (REM) sleep takes a hit too. Alcohol reliably **delays the first dream period**, and at moderate and higher doses it reduces REM across the night.

That matters beyond feeling rested. Brain-imaging work links REM sleep to an overnight **reduction in the brain's emotional reaction** to the previous day's experiences — a kind of overnight therapy. Cut REM short and yesterday stays louder.



Pattern reported across studies of healthy volunteers (Ebrahim et al., 2013). Illustrative, not measured data.

Faster to sleep, then lighter and broken: the same pattern shows up across studies.

All doses 1st REM

faster sleep first, then a more disrupted second half

delayed at every dose studied

TONIGHT'S MOVE

If you drink, finish at least **3 hours before bed**, with a glass of water. And if you wake at 3 after a drink, know what it is: the rebound, not insomnia. Don't treat it with another.

✗ MYTH

A nightcap helps you sleep.

✓ WHAT THE EVIDENCE SAYS

It helps you fall asleep. It takes that time back, with interest, from the second half of the night.

07

CASE • WHY SIX HOURS FEELS FINE (AND ISN'T)

The Debt You Can't Feel

THE MYSTERY

Six hours a night. You're fine — you've done it for years. That feeling of "fine" is exactly what one famous experiment measured. It's the part that turned out to be wrong.

Clue 1

48 people, 14 nights, three doses of sleep

Clue 2

The gap between feeling and performance

Clue 3

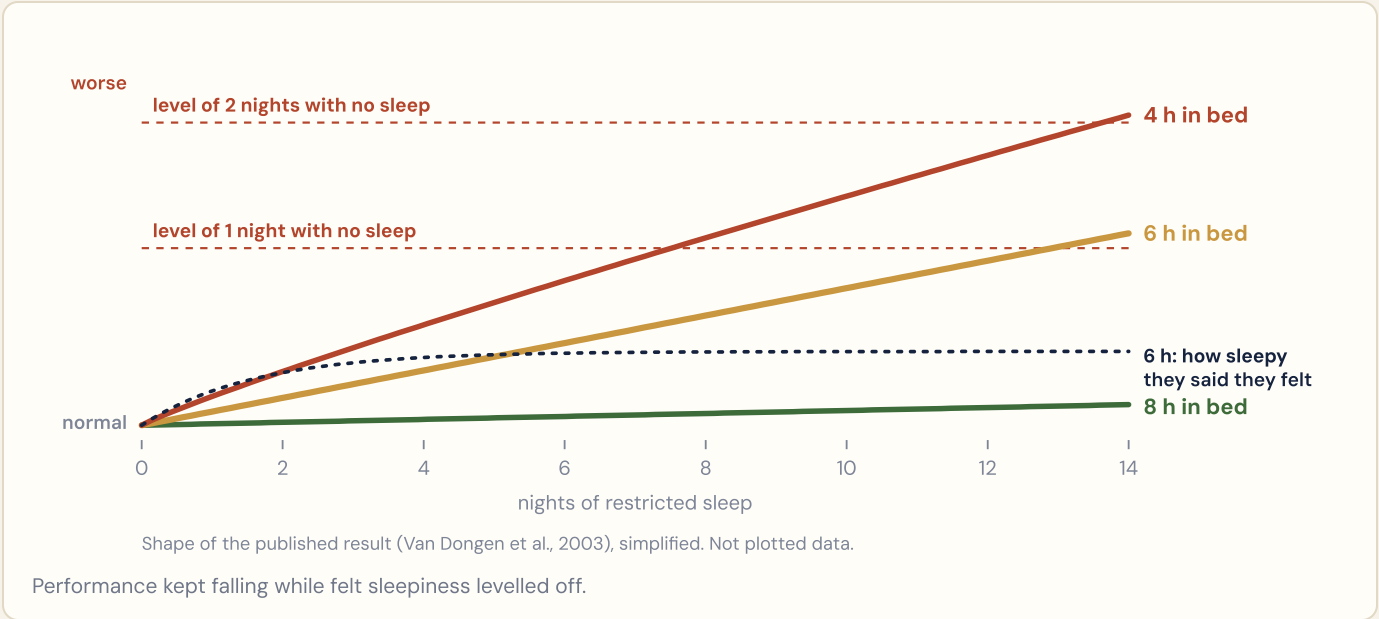
What one night does to your temper

The evidence.

48 adults were assigned to 8, 6 or 4 hours in bed for 14 nights, with regular attention and memory tests. The 6-hour group slid steadily, night after night. Restricting sleep to **6 hours or less produced deficits equal to up to two nights of total sleep deprivation.**

The unsettling part: **they were largely unaware of it.** Their sleepiness ratings rose a little early on, then levelled off while their performance kept falling.

Mood pays too. After one night without sleep, the brain’s threat centre (the amygdala) reacted about **60% more strongly** to upsetting images, with weaker control from the reasoning brain. In another lab, six nights of 4 hours pushed blood-sugar handling and evening cortisol toward patterns seen in normal ageing. Across US states in 2022, 30% to 46% of adults weren’t getting seven hours.



Up to 2

nights of no sleep: what 6 h or less added up to

~60%

stronger threat response after one sleepless night

TONIGHT'S MOVE

This week, don't trust how you feel — count. Log your real hours for seven nights (page 30). If the average is under 7, move bedtime **15 minutes earlier every three nights** instead of sleeping in.

✗ MYTH

Your body adapts to less sleep.

✓ WHAT THE EVIDENCE SAYS

You adapt to the feeling, not the deficit. Sleepiness ratings levelled off while performance kept falling.

Sources: Van Dongen 2003 · Yoo 2007 · Spiegel 1999 · CDC 2022. Full references on page 32.

THE 3 A.M. FILES

17

08

CASE • THE NUMBER THAT BEAT SLEEP LENGTH

The Weekend Jet Lag

THE MYSTERY

Researchers tracked the sleep of 60,977 people with wrist sensors — over ten million hours of data. The number that best predicted who would still be alive years later wasn't how long they slept.

Clue 1

The measure that beat duration

Clue 2

The jet lag you give yourself every Friday

Clue 3

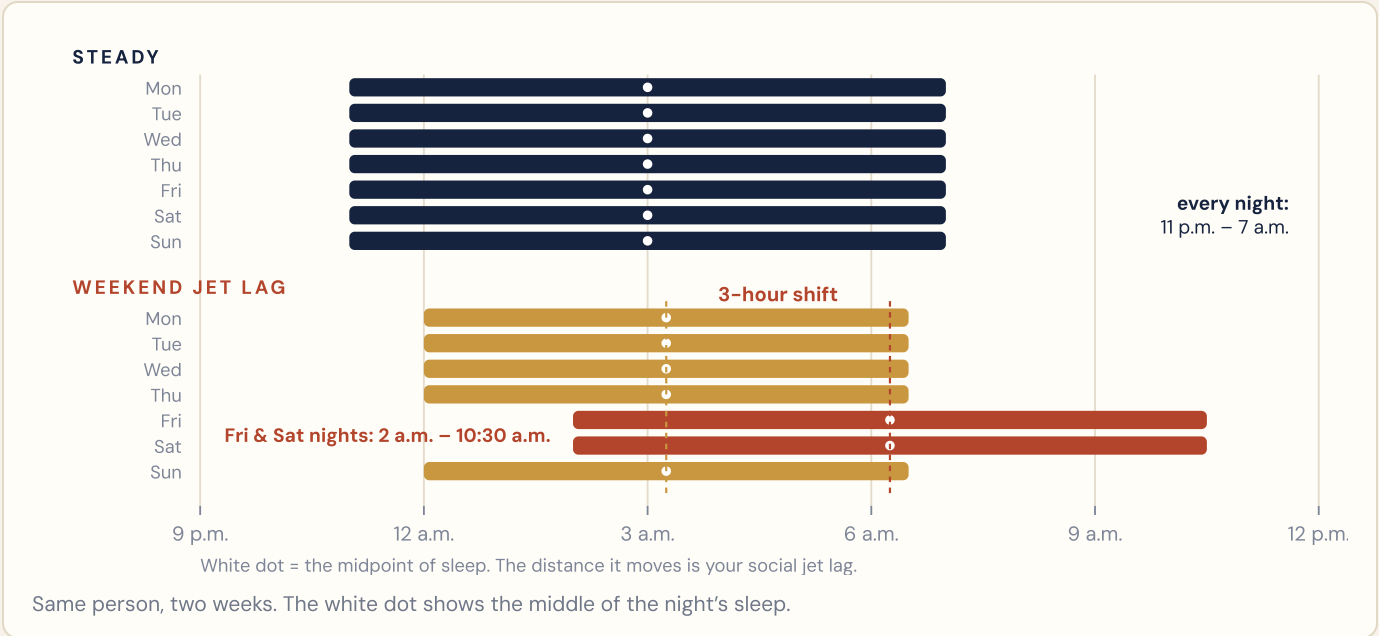
How to calculate yours

The evidence.

It was **how regular they were**. People whose sleep timing was most regular had a **20% to 48% lower risk of death** from any cause during follow-up than the least regular sleepers, and regularity was a stronger predictor than duration. These are associations, not proof of cause — but regularity is also the variable you control most easily.

The most common irregularity has a name: **social jet lag**, the gap between when your body sleeps on free days and when the alarm makes you sleep on workdays. In a large study it was linked with higher body-mass index, beyond sleep length itself.

Going to bed at 2 a.m. and waking at 10:30 on weekends, after a week of midnight to 6:30, is a three-hour time shift — **like flying New York to Los Angeles every Friday** and back every Monday.



60,977
people and 10 million+
hours of sensor data

20–48%
lower risk of death for the
more regular sleepers

TONIGHT'S MOVE

Pick **one wake-up time you can keep seven days a week** and set it tonight. On weekends allow up to an hour extra, not three. Work out your own social jet lag on page 29.

✗ MYTH

You can catch up on sleep at the weekend.

✓ WHAT THE EVIDENCE SAYS

A long lie-in moves your body clock, so Sunday night is harder and Monday morning feels like jet lag.



CASE • WHY HALF YOUR BRAIN STAYS ON GUARD

The Hotel Night Watch

THE MYSTERY

The bed is great. The room is dark. You're exhausted. And you sleep terribly — but only the first night. Sleep labs have known about this for decades. In 2016, a team found where in the brain it happens.

Clue 1

The night every sleep study throws away

Clue 2

A brain that sleeps in halves

Clue 3

Why odd noises wake you faster

The evidence.

It's called the **first-night effect**, and sleep researchers have long discarded the first night of their studies because of it. Using brain imaging and lab recordings, a team at Brown University found that on the first night, **one hemisphere of the brain slept more lightly than the other**.

That lighter half was keeping watch. It responded more strongly to unusual sounds played during sleep, and those sounds **woke people more often and faster**. The more lopsided the brain, the longer people took to fall asleep. By the next session the difference was gone.

The researchers' explanation is survival: in an unfamiliar, possibly unsafe place, half a brain stays partly on duty — a milder version of what dolphins and some birds do.



First night somewhere new

- One hemisphere sleeps more lightly
- It reacts more to unusual sounds
- Those sounds wake you faster
- More lopsided = slower to fall asleep
- Gone by the next night

On the first night in a new place, one side of the brain sleeps lighter and listens.

1 side

of the brain stays on watch the first night

Night 2

the asymmetry had disappeared

TONIGHT'S MOVE

Travelling? Make the new room feel familiar: your own pillowcase, **the same wind-down order as at home**, and a steady fan or white-noise sound to cover odd noises, because the watchful half reacts to the unexpected. Don't judge the trip by night one.

✗ MYTH

Some people are just bad sleepers away from home.

✓ WHAT THE EVIDENCE SAYS

The first-night effect is built-in survival wiring. Expect night one to be lighter. Night two is usually better.

10

CASE • A SLEEP-LAB TRICK THAT COSTS ONE PEN

The Five-Minute List

THE MYSTERY

Lights out, and your brain opens every tab: the email, the form, the call you forgot. The cheapest fix ever tested in a sleep lab takes five minutes and a pen. The details of how you write it matter.

Clue 1

57 people, one night, two kinds of writing

Clue 2

A measured 9-minute difference

Clue 3

Why specific beats vague

The evidence.

57 healthy adults spent a night in a sleep lab, wired for polysomnography. Five minutes before lights out, half wrote a **to-do list for the next few days**. The other half wrote about tasks they had **already finished**.

The to-do list writers fell asleep in **15.8 minutes** on average; the other group took **25.1**. And the more specific the list, the faster its writer fell asleep, while more detailed writing about the finished day trended the other way.

The idea: an unfinished task keeps part of your mind rehearsing it. Writing it down, specifically, gives the brain permission to let go.



TOMORROW AND THE NEXT FEW DAYS, I NEED TO...

-
-
-
-
-

TONIGHT'S MOVE

Ten minutes before lights out, fill in the box above (or a notebook by the bed). Be specific: not "work stuff" but "email the landlord about the heater before 10".

11

CASE • THE ONLY THING EFFORT MAKES WORSE

The Harder You Try

THE MYSTERY

Try harder at work and you get more done. Try harder at the gym and you get stronger. Try harder at sleep and you get more awake. Why is sleep the one thing effort destroys?

Clue 1

The attention–intention–effort trap

Clue 2

How a bed becomes an “on” switch

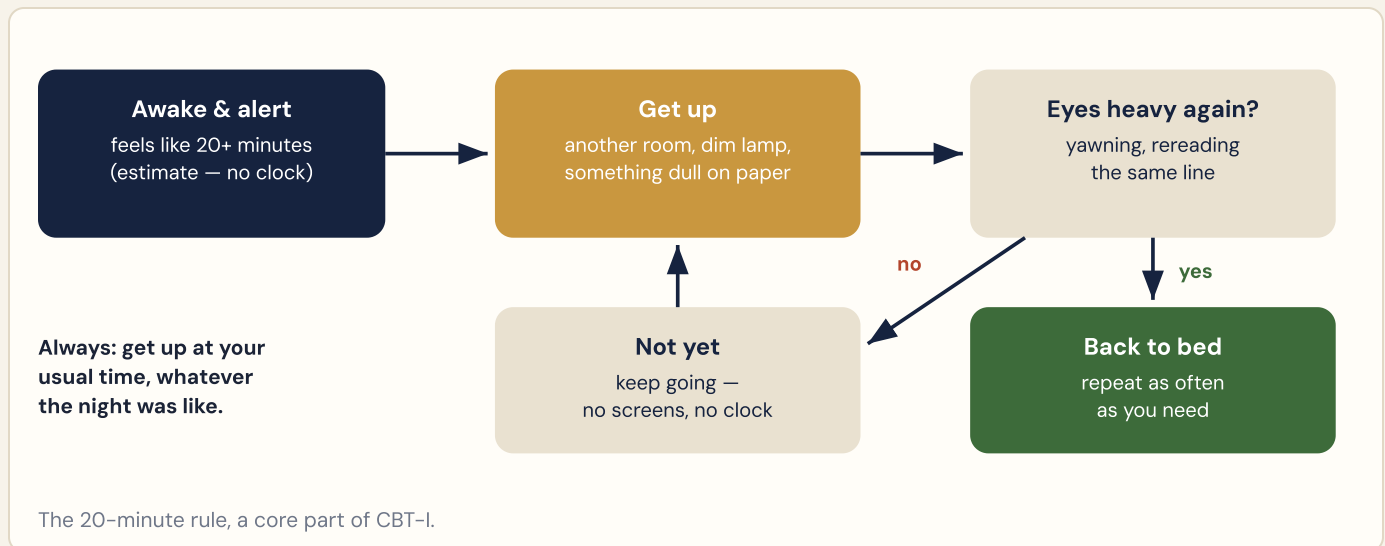
Clue 3

The first-choice treatment, in numbers

The evidence.

Researchers at the University of Glasgow put it this way: **normal sleep is automatic**, and automatic processes are easily disrupted by focused attention and by trying to control them. Watching for sleep, wanting it badly and working at it are exactly what keep you alert.

Over weeks, the bed itself can become a cue for that effort: lie down, switch on. The best-tested fix works on that link. **Cognitive behavioural therapy for insomnia (CBT-I)** retrains it with simple rules like the one below. A review of 20 trials with 1,162 people found it cut the time to fall asleep by **about 19 minutes** and time awake in the night by **about 26 minutes**, with no adverse effects reported.



19 min

faster to fall asleep with CBT-I

26 min

less time awake during the night

TONIGHT'S MOVE

Stop trying. Lie in the dark with your eyes open and **gently aim to stay awake a little longer** — a technique called paradoxical intention. If you're wide awake after what feels like 20 minutes, follow the rule above.

✗ MYTH

If you can't sleep, stay in bed. At least you're resting.

✓ WHAT THE EVIDENCE SAYS

Long wakeful hours in bed teach your brain that bed is a place for being awake. Getting up breaks the link.

12

CASE • WHAT YOUR BODY DOES WHILE YOU'RE GONE

The Night Shift

THE MYSTERY

When you switch off, your brain doesn't. Between midnight and morning it runs a cleaning crew, and your immune system checks its defences. Skip the shift and the evidence shows up fast.

Clue 1

The brain's overnight rinse

Clue 2

What one sleepless night left behind

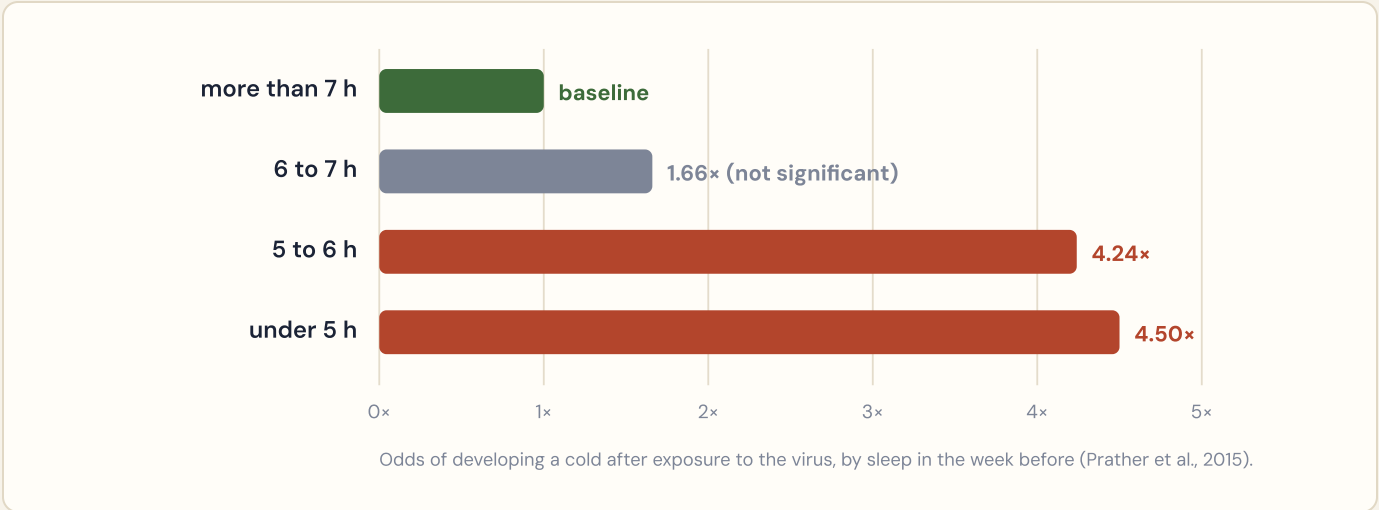
Clue 3

164 people, one cold virus

The evidence.

In mice, the space between brain cells **expands by about 60% during natural sleep**, letting fluid flush through and carry away waste, including beta-amyloid, a protein linked with Alzheimer’s disease. In people, brain scans of 20 healthy adults found that **a single night without sleep raised beta-amyloid** in the hippocampus and thalamus.

Your immune system keeps the same hours. Researchers measured 164 adults’ sleep with wrist sensors for a week, then gave them nasal drops containing a cold virus and monitored them in quarantine. Those who had slept **under 6 hours a night were over four times as likely to develop a cold** as those who slept more than 7.



60%

more space between brain cells during sleep (in mice)

4x+

odds of catching the cold on under 6 hours

TONIGHT’S MOVE

Protect **seven hours**. It’s where the cold study drew the line: between 6 and 7 hours the extra risk wasn’t significant; under 6 it was. If a short night can’t be avoided, keep tomorrow’s wake-up time and let the extra pressure carry you to an earlier bedtime.

✗ MYTH

Sleep is just downtime.

✓ WHAT THE EVIDENCE SAYS

Sleep is active. The brain clears waste and the immune system gets ready. Cut it short and the work doesn’t get done.

The 7-Night Protocol

One new move a night, in the order that works best: first the anchor (a fixed wake-up time), then the things that build pressure and set the clock, then the tools for the mind.

NIGHT	ADD THIS	WHY	DONE
1	Set one wake-up time for all seven days. Turn the bedroom clock to face the wall. Keep everything from earlier nights.	FILE 08 • 01	☐
2	Add your caffeine cut-off : bedtime minus 8 hours. Phone alarm: “last coffee”. Keep everything from earlier nights.	FILE 03	☐
3	Lamps only for the last 2 hours. 10 minutes of outdoor light within an hour of waking. Keep everything from earlier nights.	FILE 04	☐
4	Warm shower or bath 60–90 minutes before bed. Cool room, warm feet. Keep everything from earlier nights.	FILE 05	☐
5	The five-minute to-do list , specific, ten minutes before lights out. Keep everything from earlier nights.	FILE 10	☐
6	Use the 20-minute rule if you’re wide awake. Paradoxical intention if you’re trying too hard. Keep everything from earlier nights.	FILE 11	☐
7	Read your Night Log. Keep the three moves that helped most. Those are your protocol now. Keep everything from earlier nights.	FILE 07	☐

WHAT TO EXPECT

The first few nights on a fixed wake-up time can feel **worse**, not better. That’s sleep pressure building (File 02). It usually settles within one to two weeks. Don’t judge the plan on night three.

THE ONE RULE

If you only keep one move, keep the **fixed wake-up time**. It is the anchor the other six hang from, and the most regular sleepers did best (File 08).

Your Numbers

Fill in the middle column once. Stick it on the fridge. The right-hand column is a worked example for a 6:30 a.m. riser.

TIME	MINE	EXAMPLE
My wake-up time (all 7 days) Your anchor. Choose one you can keep on weekends.		6:30 a.m.
My target bedtime Wake-up minus 7½ to 8 hours. Go when sleepy, not before.		10:45 p.m.
Caffeine cut-off Bedtime minus 8 hours.		2:45 p.m.
Last alcoholic drink Bedtime minus 3 hours.		7:45 p.m.
Lamps only, screens dimmed Bedtime minus 2 hours.		8:45 p.m.
Warm shower or bath Bedtime minus 60 to 90 minutes.		9:30 p.m.
Wind-down alarm Bedtime minus 60 minutes. Finish chores and hard talks.		9:45 p.m.
The five-minute list Bedtime minus 10 minutes.		10:35 p.m.
Morning light Within an hour of waking, 10+ minutes outside.		by 7:30 a.m.

CALCULATE YOUR SOCIAL JET LAG (FILE 08)

Workdays: asleep at _____ woke at _____

Midpoint of sleep: _____

Free days: asleep at _____ woke at _____

Midpoint of sleep: _____

Difference between the two midpoints = your social jet lag: _____ hours. Under 1 hour is good. Two or more is worth fixing first.

The Night Log

Fill it in each morning, in under a minute. Guess the times; don't check the clock at night (File 01). After a week you'll see what actually moves your sleep.

NIGHT	1	2	3	4	5	6	7
Into bed at							
Took roughly __ min to fall asleep							
Times I woke (that I remember)							
Final wake-up							
Out of bed at							
Hours asleep (my estimate)							
Last caffeine at							
Alcohol (drinks, time)							
Moves I used (file numbers)							
How I felt next day, 1–5							

Print as many copies as you like. If you ever talk to a doctor about your sleep, bring two weeks of this. It's exactly what they will ask for.

When it's more than habits

Everything in these files works on everyday sleep. Some sleep problems need a professional. Talk to a doctor if any of these sound like you:

- **Loud snoring, gasping, or someone notices you stop breathing** in your sleep. These can be signs of sleep apnoea, which is common and treatable.
- **Falling asleep when you don't mean to** — while driving, in conversation, at your desk.
- **Trouble falling or staying asleep at least three nights a week for three months or more**, despite good habits. Ask specifically about CBT-I (File 11): it's recommended as a first-line treatment for long-term insomnia.
- **An uncomfortable urge to move your legs** in the evening or at night.
- **Acting out dreams** — shouting, kicking or moving in your sleep.
- **Sleep problems alongside low mood, anxiety, pain** or another health condition.
- **Pregnancy, or any medication** that might affect sleep, before you change anything.

This guide is general information, not medical advice. It does not diagnose, treat or replace care from a qualified professional.

The Evidence Locker

Every study behind every file. Search any PMID at pubmed.ncbi.nlm.nih.gov. Where a chart shows the shape of a result rather than plotted data, its caption says so. Animal studies are labelled.

FILE 01 • THE 3:07 WAKE-UP

Ohayon MM et al. *Meta-analysis of quantitative sleep parameters from childhood to old age in healthy individuals: developing normative sleep values across the human lifespan*. Sleep. 2004 Nov 1;27(7):1255–73. PMID 15586779

Scullin MK et al. *The effects of bedtime writing on difficulty falling asleep: A polysomnographic study comparing to-do lists and completed activity lists*. J Exp Psychol Gen. 2018 Jan;147(1):139–146. PMID 29058942

Harvey AG & Tang NK (Mis)perception of sleep in insomnia: a puzzle and a resolution. Psychol Bull. 2012 Jan;138(1):77–101. PMID 21967449

FILE 02 • THE TWO CLOCKS

Borbély AA A two process model of sleep regulation. Hum Neurobiol. 1982;1(3):195–204. PMID 7185792

Lavie P Ultrashort sleep-waking schedule. III. 'Gates' and 'forbidden zones' for sleep. Electroencephalogr Clin Neurophysiol. 1986 May;63(5):414–25. PMID 2420557

Mednick S et al. *Sleep-dependent learning: a nap is as good as a night*. Nat Neurosci. 2003 Jul;6(7):697–8. PMID 12819785

FILE 03 • THE GHOST IN YOUR COFFEE

Nehlig A Interindividual Differences in Caffeine Metabolism and Factors Driving Caffeine Consumption. Pharmacol Rev. 2018 Apr;70(2):384–411. PMID 29514871

Drake C et al. *Caffeine effects on sleep taken 0, 3, or 6 hours before going to bed*. J Clin Sleep Med. 2013 Nov 15;9(11):1195–200. PMID 24235903

FILE 04 • THE LAMP THAT LIES

Gooley JJ et al. *Exposure to room light before bedtime suppresses melatonin onset and shortens melatonin duration in humans*. J Clin Endocrinol Metab. 2011 Mar;96(3):E463–72. PMID 21193540

Chang AM et al. *Evening use of light-emitting eReaders negatively affects sleep, circadian timing, and next-morning alertness*. Proc Natl Acad Sci U S A. 2015 Jan 27;112(4):1232–7. PMID 25535358

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FILE 05 • THE COLD-BODY SECRET

Kräuchi K et al. *Warm feet promote the rapid onset of sleep*. Nature. 1999 Sep 2;401(6748):36–7. PMID 10485703

Haghighat S et al. *Before-bedtime passive body heating by warm shower or bath to improve sleep: A systematic review and meta-analysis*. Sleep Med Rev. 2019 Aug;46:124–135. PMID 31102877

FILE 06 • THE NIGHTCAP TRAP

Ebrahim IO et al. *Alcohol and sleep I: effects on normal sleep*. Alcohol Clin Exp Res. 2013 Apr;37(4):539–49. PMID 23347102

van der Helm E et al. *REM sleep depotentiates amygdala activity to previous emotional experiences*. Curr Biol. 2011 Dec 6;21(23):2029–32. PMID 22119526

FILE 07 • THE DEBT YOU CAN'T FEEL

Van Dongen HP et al. *The cumulative cost of additional wakefulness: dose-response effects on neurobehavioral functions and sleep physiology from chronic sleep restriction and total sleep deprivation*. Sleep. 2003 Mar 15;26(2):117–26. PMID 12683469

Yoo SS et al. *The human emotional brain without sleep--a prefrontal amygdala disconnect*. Curr Biol. 2007 Oct 23;17(20):R877–8. PMID 17956744

Spiegel K et al. *Impact of sleep debt on metabolic and endocrine function*. Lancet. 1999 Oct 23;354(9188):1435–9. PMID 10543671

Centers for Disease Control and Prevention. *Sleep and Sleep Disorders: data and statistics (Behavioral Risk Factor Surveillance System, 2022)*. cdc.gov/sleep

FILE 08 • THE WEEKEND JET LAG

Windred DP et al. *Sleep regularity is a stronger predictor of mortality risk than sleep duration: A prospective cohort study*. Sleep. 2024 Jan 11;47(1):zsad253. PMID 37738616

Roenneberg T et al. *Social jetlag and obesity*. Curr Biol. 2012 May 22;22(10):939–43. PMID 22578422

FILE 09 • THE HOTEL NIGHT WATCH

Tamaki M et al. *Night Watch in One Brain Hemisphere during Sleep Associated with the First-Night Effect in Humans*. Curr Biol. 2016 May 9;26(9):1190–4. PMID 27112296

FILE 10 • THE FIVE-MINUTE LIST

Scullin MK et al. *The effects of bedtime writing on difficulty falling asleep: A polysomnographic study comparing to-do lists and completed activity lists*. J Exp Psychol Gen. 2018 Jan;147(1):139–146. PMID 29058942

FILE 11 • THE HARDER YOU TRY

Espie CA et al. *The attention-intention-effort pathway in the development of psychophysiological insomnia: a theoretical review*. Sleep Med Rev. 2006 Aug;10(4):215–45. PMID 16809056

Trauer JM et al. *Cognitive Behavioral Therapy for Chronic Insomnia: A Systematic Review and Meta-analysis*. Ann Intern Med. 2015 Aug 4;163(3):191–204. PMID 26054060

FILE 12 • THE NIGHT SHIFT

Xie L et al. *Sleep drives metabolite clearance from the adult brain*. Science. 2013 Oct 18;342(6156):373–7. PMID 24136970

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Prather AA et al. *Behaviorally Assessed Sleep and Susceptibility to the Common Cold*. Sleep. 2015 Sep 1;38(9):1353–9. PMID 26118561

CASE CLOSED

Sleep well.

Know someone who's awake at 3 a.m.? This guide is free to share.
Send it to them.

Noddie NIGHT

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