

Sleep, exercise and nutrition

The daily foundations that make everything else work

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Personalised. Proactive. Precise.



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Talk available for download on:

www.cardiologist.london/download



Why we sleep: Matthew Walker's key ideas

Two forces control sleep



Sleep pressure: adenosine builds up in the brain the longer you are awake. Caffeine works by blocking it.



Body clock: a roughly 24-hour circadian rhythm, set largely by light, that times sleep and alertness.

Deep (non-REM) sleep helps lay down memories; REM sleep is linked to emotional processing.

What short sleep does to the body



Raises sympathetic ("fight or flight") activity and evening cortisol



Two short nights: leptin (fullness) down 18%, ghrelin (hunger) up 28%



Reduces glucose tolerance within a week of sleep debt



Each extra hour of sleep linked to lower odds of new coronary calcium (observational)



Alcohol helps you drop off but fragments the second half of the night and delays REM

Sleep and the heart: what the wider evidence shows

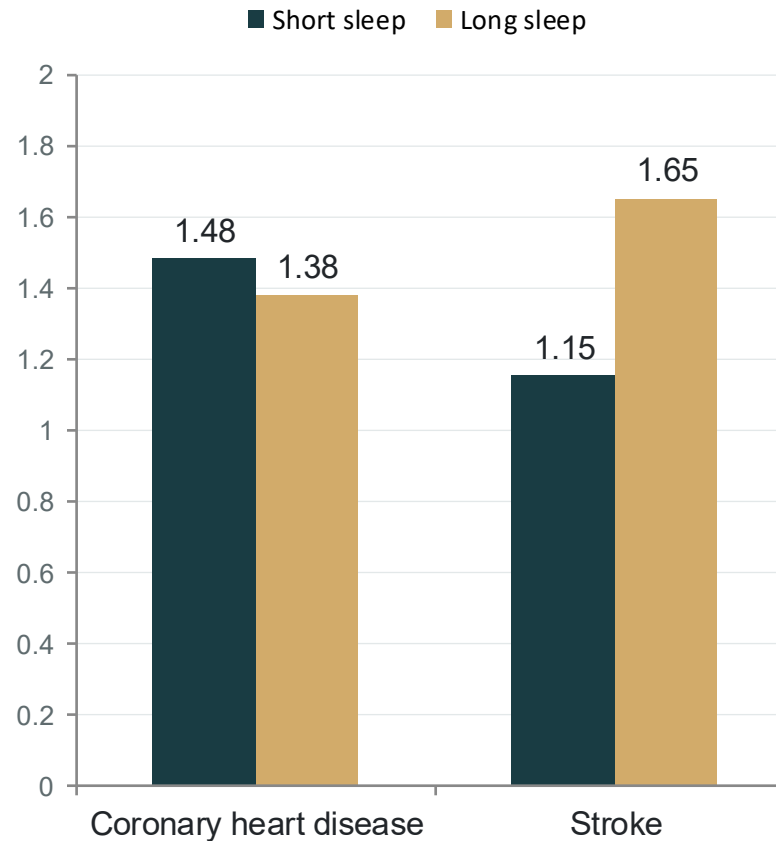
7–9 h

Recommended for adults; sleep is now one of the AHA's "Life's Essential 8"

Regularity counts

In 60,977 UK Biobank participants, consistent sleep timing predicted lower mortality more strongly than sleep duration.

Relative risk vs 7–8 h (474,684 people)



Sleep apnoea

- Linked to high blood pressure and atrial fibrillation
- Loud snoring, pauses in breathing or daytime sleepiness: ask for a test
- CPAP improves sleepiness, mood and quality of life; in the SAVE trial it did not reduce heart events

Your sleep prescription



Keep regular times

Same bedtime and wake time, including weekends.



Give yourself 7+ hours

Protect the time in bed you need.



Caffeine cut-off

None for at least 6 hours before bed; earlier if you're sensitive.



No nightcap

Alcohol disrupts the second half of the night.



Dark, cool, screen-free

And get bright daylight in the morning.



Don't lie awake

If you can't sleep, get up, do something calm, then return.



Insomnia? Ask for CBT-I

The first-line treatment, in person or digital, before sleeping pills.



Snoring? Get checked

Especially with high blood pressure or AF.

How much exercise? What the guidelines say



150–300

**minutes a week of
moderate activity**

brisk walking, cycling, swimming:
you can talk but not sing



75–150

**minutes a week of vigorous
activity**

or an equivalent mix: running,
hard cycling, sport



2+

**days a week of resistance
training**

working all major muscle groups



Less

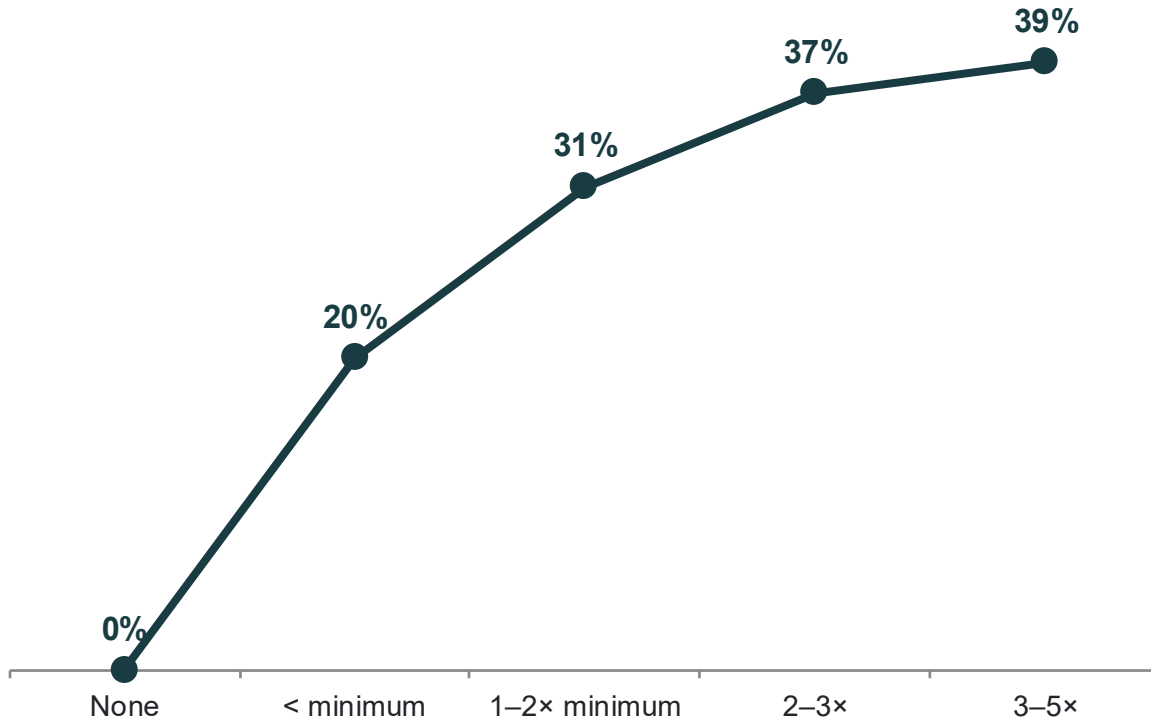
sitting

break up long periods; any
movement counts

Broadly aligned across ESC, US, WHO and UK CMO guidance. Older adults: add balance and strength work to reduce falls. If you're starting from zero, build up gradually: some is better than none.

The dose–response: the biggest win is from none to some

Lower risk of death by weekly activity (661,137 adults)



Steps

Benefit starts from around 2,500 steps a day and levels off at roughly 7,000–9,000. 10,000 is not a magic number.



Fitness

Each 1-MET increase in fitness is linked to about 13% lower mortality.



Strength work

30–60 minutes a week of muscle-strengthening is linked to 10–20% lower mortality and CVD.

Walk at least 8,000 steps a day, and keep moving in between



8,000+

steps a day: my everyday target

- Each extra 1,000 steps a day: ~15% lower all-cause mortality
- Risk keeps falling to about 7,000–9,000 steps
- Even 8,000+ steps on just 1–2 days a week is linked to lower mortality

NEAT: non-exercise activity thermogenesis

The energy you burn through everything that isn't sleeping, eating or deliberate exercise: walking, standing, climbing stairs, housework, gardening, even fidgeting.



It protects against weight gain

When 16 volunteers were overfed by 1,000 kcal a day for 8 weeks, about two-thirds of the rise in their energy expenditure came from NEAT, and it explained a ten-fold difference in how much fat they gained.



Sitting time adds up

In a detailed monitoring study, people with mild obesity sat about 2 hours a day longer than lean people. Matching the lean group's movement could burn roughly 350 kcal more a day.

Easy ways to add NEAT

Walk or cycle part of your commute

Take stairs, not lifts

Walking meetings and phone calls

Stand or move every 30 minutes

10-minute walk after meals

A resistance-training template: the weekly plan

3 resistance sessions + 3 cardio sessions + 1 rest day, every 7 days. Keep the order; start on any day.



Why once a week per muscle works: each group also gets indirect work on other days (pressing and pulling load the arms; sprints load the legs). Beginners: start with a few weeks of lighter, technique-focused training.

Inside each session: the key numbers

~60 min

Session length

5-min warm-up, then 1–3 lighter warm-up sets per exercise (about 40%, 65%, 75% of the first work-set weight).

4–9

Hard sets per muscle

Over 2–3 exercises; at least one compound (e.g. squat, row, press) and one isolation (e.g. curl, leg extension).

5–30

Reps per set

Compound lifts: usually 5–12. Isolation: 8–15. Effort matters more than the exact number.

1½–5 min

Rest between sets

3–5 min for compound lifts; 1½–3 min for isolation; 1–2 min between warm-up sets.

+5–10%

Progression

Add weight or reps week by week in good form. Stalled for 2 weeks? Do fewer sets or take a week off.

12–16 wk

Deload

Take a full week off resistance training every 12–16 weeks.

Train safely: a cardiology perspective

Before you start

- If you have heart disease, high blood pressure, or symptoms on exertion, get a medical review before high-intensity training or training to failure.
- If you're sedentary and over 35 with high risk, start at low to moderate intensity; ESC guidance suggests assessment (ECG, often an exercise test) before vigorous exercise.
- Beginners, and anyone with a heart condition: stop 1–2 reps short of failure rather than taking sets to failure. This is expert advice; no guideline endorses training to failure for heart patients.

During every session

- Breathe steadily; don't hold your breath under heavy load (it sharply raises BP)
- Use safety pins, a spotter or machines when lifting heavy alone
- Muscle burn is fine; sharp joint pain means stop that exercise



Stop and seek advice if you get:

chest pain or pressure, breathlessness out of proportion, palpitations, dizziness or fainting, or unusual fatigue.

The Mediterranean diet: the strongest trial evidence

PREDIMED

~30%

fewer heart attacks, strokes and CV deaths

7,447 high-risk people without heart disease; Mediterranean diet with extra-virgin olive oil or nuts vs a reduced-fat diet. Absolute difference ~1% over ~5 years. Republished in 2018 after randomisation problems; results held.

Lyon Heart Study

14 vs 44

cardiac deaths + non-fatal heart attacks

After a first heart attack, a Cretan-style diet vs usual advice. Small (~600 people) and older, and it used a rapeseed-oil-based margarine rather than olive oil.

CORDIOPREV

~25%

fewer CV events vs a low-fat diet

1,002 people with coronary heart disease over 7 years. Clear benefit in men; too few women to tell. Single centre.

The portfolio diet: food as a cholesterol-lowering “portfolio”



Plant sterols

~2 g/day (fortified foods)



Viscous fibre

oats, barley, psyllium, beans, aubergine, okra



Soy & plant protein

tofu, soy milk, lentils, chickpeas



Nuts

a small handful (~30 g) a day

How much does it lower LDL?

~29%

with all food provided (4 weeks); similar to an early low-dose statin

~13%

with people choosing their own food (6 months)

~17%

average across trials (meta-analysis), plus lower BP and CRP

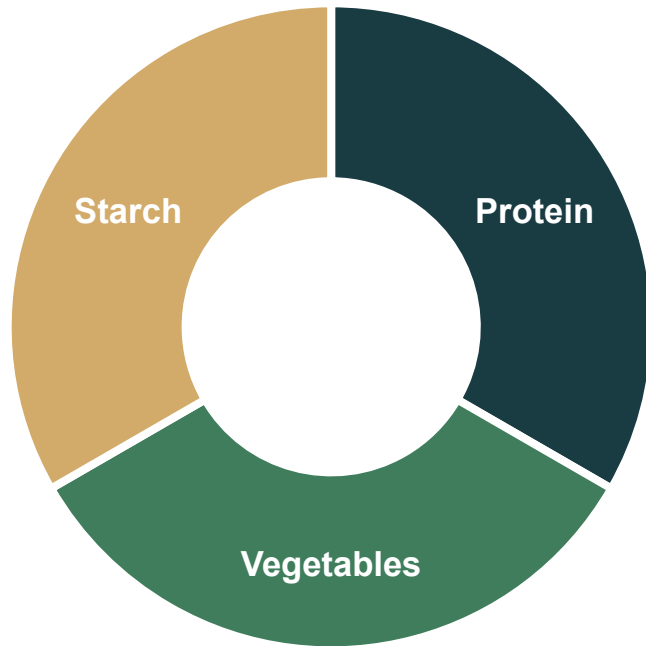
In long-term cohorts, people eating closest to the portfolio pattern had about 14% lower CVD risk (association, not trial).

Low-carb versus low-fat: what the evidence shows

	Low-carb / ketogenic	Low-fat
Pros	Faster early weight loss for some; triglycerides fall and HDL rises; better blood sugar control	Lowers LDL cholesterol; decades of guideline experience
Cons	LDL can rise, sometimes markedly; hard to sustain; worse outcomes in cohort studies when based on animal fat and protein	Neutral for heart events in the large WHI trial; can drift towards refined carbohydrate; triglycerides may rise
Weight at 12 months	Similar to low-fat: 6.0 kg vs 5.3 kg (DIETFITS, no significant difference)	Similar to low-carb; benefits fade over time with most diets

The bottom line: the quality of fats and carbohydrates, and plant versus animal sources, matter more than the ratio between them.

What good nutrition looks like: a “clean omnivore” plate



Each meal: $\frac{1}{3}$ protein, $\frac{1}{3}$ vegetables, $\frac{1}{3}$ starch (sized to how active you are)



Plenty of protein

30–50 g at each meal from protein-dense foods: e.g. a large chicken breast, 170–225 g of salmon or other fish, or 140–200 g of steak. Daily aim in the book: about 1 g per lb (~2.2 g/kg) of body weight, adjusted to appetite.



Fibre from vegetables

About 35 g a day for men and 25 g for women, plus vitamins and minerals.



Healthy fats

Olive oil, avocado, nuts and nut butters (watch portions; no added oils or sugar), Greek-style yoghurt. A little butter is fine.



Fruit, 2–4 servings a day

Berries, citrus, apples, peaches; favour lower-sugar, higher-fibre choices.



Clean starches

Rice, oats, potatoes, sweet potatoes, sourdough or rye bread, beans and lentils: enough to fuel activity.



Limit ultra-processed food

Very little starch + fat (+ sugar) food: sweets, biscuits, ready meals, sugary drinks. A real dessert, pizza or ice cream up to about once a week is fine.

Alcohol: why I suggest no more than 10 units a week

1 unit = 8 g

(10 ml) of pure alcohol

Pint of 4% beer **≈ 2.3 units**

175 ml glass of 13% wine **≈ 2.3 units**

25 ml single spirit (40%) **1 unit**

So 10 units ≈ 4 glasses of wine a week

- UK guidance: no more than 14 units a week, spread over 3+ days. The risks start from any level of regular drinking.
- In nearly 600,000 drinkers, the lowest mortality was at or below ~100 g a week (~12.5 units). The ESC sets the same maximum. My 10 units (80 g) sits below both.
- The “J-curve” is fading: once biases are corrected, light drinking shows no clear survival benefit, and genetic studies link alcohol at all levels to higher blood pressure and heart disease risk.
- Blood pressure rises steadily with intake, with no safe threshold.
- Atrial fibrillation: in a trial of regular drinkers with AF, abstinence cut recurrence from 73% to 53%.

Caffeine: safe levels and potential benefits

400 mg

a day is safe for most healthy adults (single doses up to 200 mg). Pregnancy: 200 mg a day.

Drink	Caffeine
Cup of instant coffee	~100 mg
Filter / coffee-shop coffee	Often more; varies
Cup of tea	~75 mg
Energy drink (250 ml)	~80 mg
Can of cola	~40 mg

Potential benefits

- 3–4 cups a day linked to ~17% lower all-cause mortality (observational)
- Not linked to more AF; each daily cup associated with ~3% lower arrhythmia risk
- DECAF trial: after cardioversion for AF, continuing ~1 coffee a day meant fewer AF recurrences (47% vs 64%)
- More daily steps on coffee days (CRAVE)

Cautions

- Sleep: 400 mg even 6 hours before bed cut sleep; caffeine lingers ~5 hours on average (range ~1.5–9.5)
- Coffee days: ~50% more ventricular ectopics (“skipped beats”) and ~36 min less sleep
- Unfiltered (cafetière, boiled) coffee raises LDL; filtered barely does
- Energy drinks and pre-workouts: caution with rhythm problems or high BP

Eight things to do after tonight

1

Know your numbers

LDL, non-HDL, and your personal target
<https://www.cardiologist.london/know-your-numbers/>

2

Test Lp(a) once

and ApoB if you have diabetes, high triglycerides or metabolic syndrome

3

Check BP at home

Validated upper-arm cuff, NICE protocol

4

Aim lower

every 10 mmHg matters; less salt, more plants

5

Treat weight as a condition

GLP-1 medicines help, with care, long term

6

Sleep 7+ hours, regularly

and get snoring checked

7

Move every day

8,000+ steps, 150+ active minutes, strength twice a week

8

Eat clean, whole foods

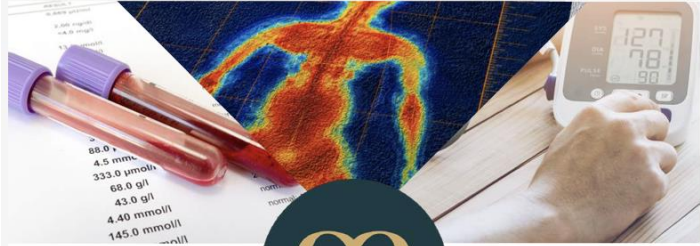
protein and fibre at every meal, little ultra-processed food; ≤ 10 units of alcohol

<https://www.cardiologist.london/know-your-numbers/>

1

Know your numbers

LDL, non-HDL, and your personal target
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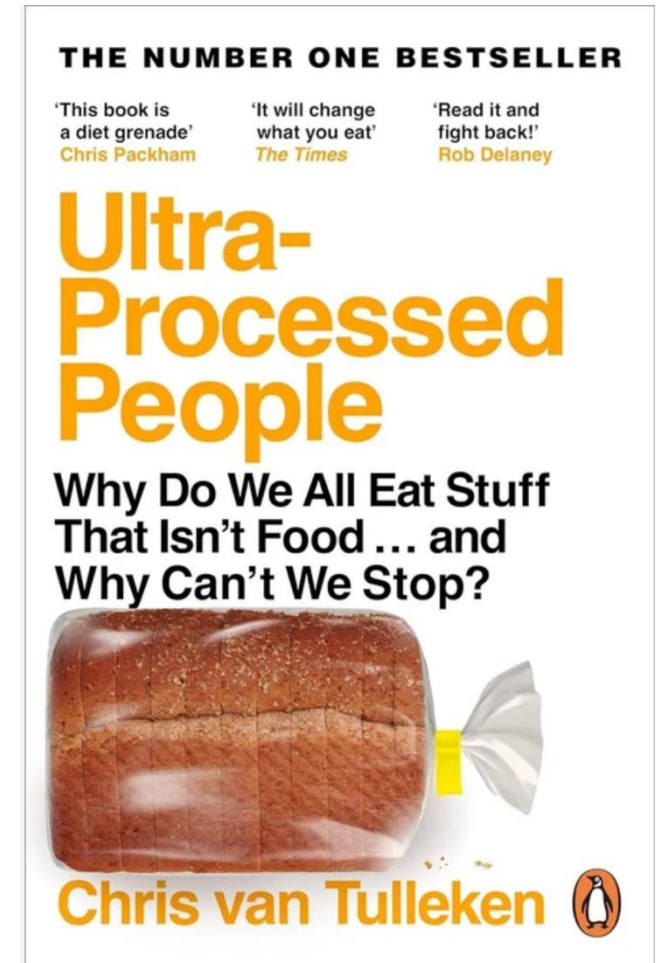
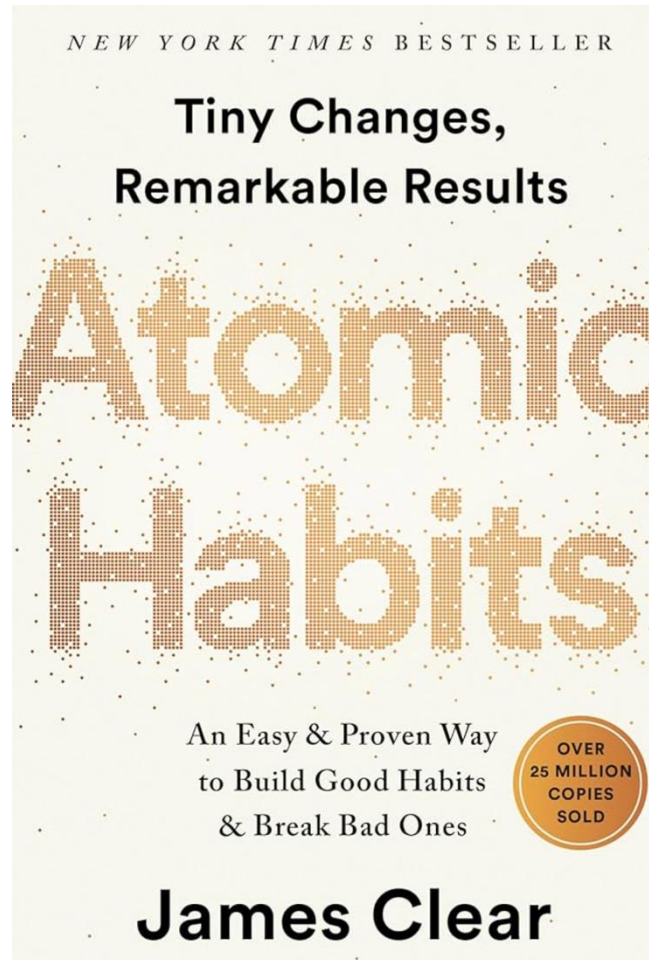
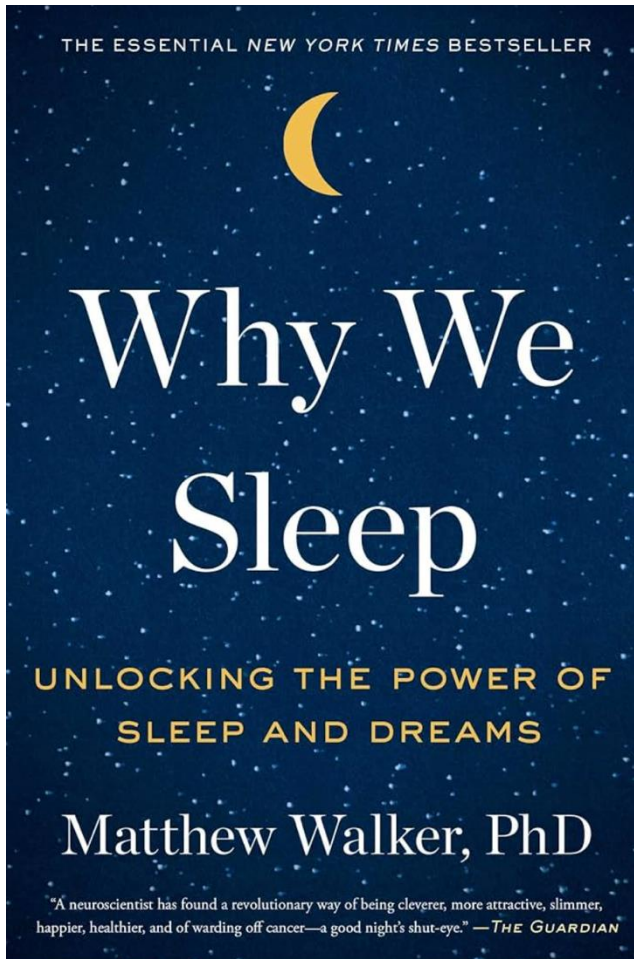
KNOW YOUR NUMBERS

Your cardiovascular health tracker — blood markers, body composition and home blood pressure.

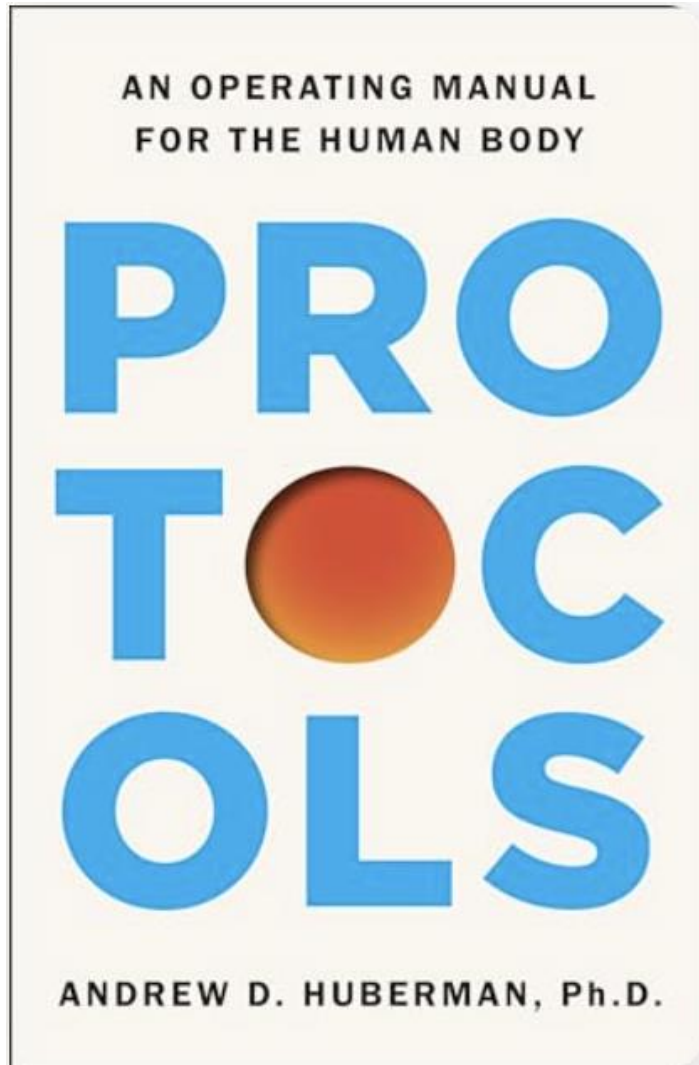
FULL NAME	DATE OF BIRTH
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REVIEWING CLINICIAN	NEXT REVIEW DATE

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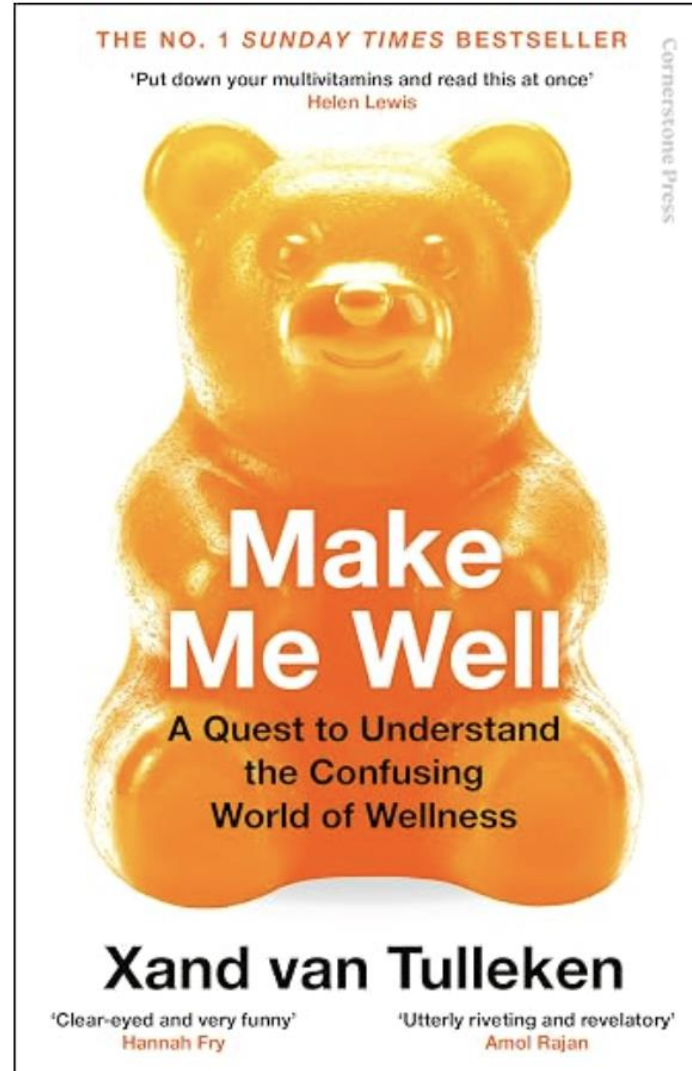
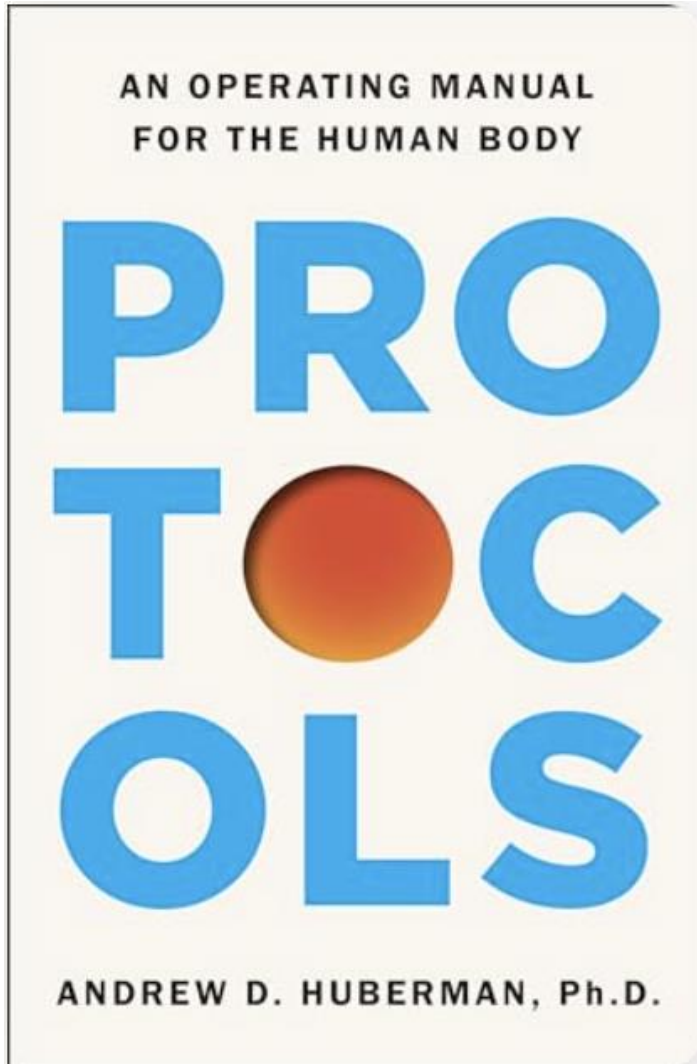
"The man who does not read has no advantage over the man who cannot read." Mark Twain



What I'm reading now and what I will read next



What I'm reading now and what I will read next



Thank you

Questions welcome



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This talk is general education, not personal medical advice. Please speak to your own doctor about your individual risks and treatment.

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Exercise template (Exercise Protocol 2) and “clean omnivore” nutrition advice adapted from Huberman AD. Protocols: An Operating Manual for the Human Body (2026).