HEALTH AND LONGEVITY

The Longevity Baseline

Ten areas of health worth understanding — what each one is, what the evidence actually says, the numbers worth tracking, and when to talk to your doctor.

A FREE GUIDE FOR READERS OF HEALTH AND LONGEVITY

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Contents

Ten areas, one page each. Each area follows the same shape: what it is, why it matters, what the evidence says (every claim graded), what to track, and when to talk to your doctor. The final two pages are the Longevity Starter Kit & Protocol Tracker — the action companion to this guide.

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Your Starter Kit & Protocol Tracker — pp. 13–14

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How to use this guide

Read it once through, then use it as a reference. Pick one area to work on at a time. A single lab value never tells the whole story — patterns over months, read alongside your doctor, are what count. Nothing here is a target set for you personally: the ranges are population figures from guidelines and trials, and your doctor adjusts them for your age, history, and medication.

How the evidence grades work

Grade	What it means
A	Randomised trials in humans with hard outcomes (heart attacks, strokes, deaths, fractures, falls)
B	Randomised trials on markers, or large prospective cohorts
C	Observational studies or small trials
D	Animal work, preliminary data, or marketing claims

Every factual claim in this guide carries its grade in line, like this **[B]**. A claim is never stated above its grade. Where the evidence is thin, the text says so. Correlation is not causation, and this guide does not blur the two: cohort findings are reported as associations, and trial findings as what the trial actually tested.

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1. Sleep

Sleep is the nightly repair window: memory consolidation, metabolic reset, waste clearance from the brain, and blood-pressure dipping all happen during sleep. Short or broken sleep is linked, in population data, to worse outcomes across nearly every other area in this guide.

Why it matters. Sleep shapes the numbers you track elsewhere — blood pressure, blood sugar, mood, and reaction time all worsen after short sleep. It is also one of the few areas where a small change in routine can be measured within weeks.

What the evidence says

- **Seven to nine hours is the guideline range for adults.** The American Academy of Sleep Medicine and the Sleep Research Society consensus (2015) recommends at least 7 hours a night for adults aged 18–60; the American Heart Association's Life's Essential 8 (2022) scores 7–9 hours as ideal. **[B]**
- **Both short and long sleep are associated with higher mortality — but the shape is not symmetric.** A 2025 meta-analysis of 79 cohort studies found short sleep (under 7 hours) carried a 14% higher mortality risk and long sleep (9 hours or more) a 34% higher risk, versus 7–8 hours. These are observational findings: long sleep often reflects underlying illness rather than causing it. **[B]**
- **Regularity may matter as much as duration.** In a 2024 UK Biobank analysis of 60,977 adults wearing accelerometers, the most regular sleepers had 20–48% lower mortality risk than the least regular. Observational; the Biobank sample skews healthier than average. **[B]**
- **Cognitive behavioural therapy for insomnia (CBT-I) is the best-tested treatment for chronic insomnia.** A 2015 meta-analysis of 20 randomised trials (1,162 participants) found moderate-to-large improvements in sleep onset and maintenance versus control. It beats sleeping pills on durability in trial data, with no drug side effects. **[B]**

What to track

Measure	Population range	How
Nightly sleep	7–9 hours	Same bedtime and wake time; a simple log beats a gadget
Regularity	Bed/wake times within ~30 min day to day	Log for 2 weeks
Snoring / pauses	None, or rare	Ask a partner; note morning headaches
Daytime sleepiness	Alert most of the day	Note dozing off while reading or driving

When to talk to your doctor

Loud nightly snoring with witnessed breathing pauses; waking unrefreshed despite 7–9 hours in bed; falling asleep during the day; insomnia lasting more than 3 weeks; or restless legs that keep you awake. Sleep apnoea is common, treatable, and often missed — a sleep study, not a supplement, is the way to check.

Sources: Ungvari 2025 (79 cohorts); Windred 2024 (n = 60,977); Watson 2015 (AASM/SRS consensus); Lloyd-Jones 2022 (AHA Life's Essential 8); Trauer 2015 (20 RCTs, n = 1,162).

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2. Movement

Movement covers aerobic activity (walking, cycling, swimming), strength training, and daily steps. Aerobic work trains heart, lungs, and metabolism; strength work preserves muscle and bone; neither substitutes for the other.

Why it matters. Inactivity is one of the largest modifiable contributors to chronic disease, and the dose-response is forgiving: the biggest gain comes from moving from none to some, not from some to extreme.

What the evidence says

- **The guideline dose is 150–300 minutes of moderate aerobic activity a week, plus strength work on 2 or more days.** World Health Organization guidelines (2020), echoed by the CDC and NHS. **[B]**
- **Even below the guideline, activity is associated with lower mortality.** A 2015 pooled analysis of 6 cohorts (661,137 adults, median 14.2 years follow-up) found people doing less than the recommended minimum had 20% lower mortality than inactive people; those at 1–2 times the minimum had 31% lower risk. Observational and self-reported, so the numbers describe association, not a proven effect size. **[B]**
- **Strength training adds its own benefit.** A 2022 meta-analysis of 16 cohort studies (about 480,000 people) linked muscle-strengthening activity to 10–17% lower all-cause mortality, with the largest benefit at 30–60 minutes a week. **[B]**
- **Steps plateau.** A 2022 meta-analysis of 15 cohorts (47,471 adults) found mortality benefit levelled off around 6,000–8,000 steps a day for adults over 60, and 8,000–10,000 for younger adults. **[B]**
- **Exercise programmes cut falls in older adults.** A 2019 Cochrane review of 108 trials (23,407 participants) found exercise reduced the rate of falls by 23% in community-dwelling older people. **[A]**

What to track

Measure	Population range	How
Aerobic minutes	150–300 min/week moderate, or 75–150 vigorous	Weekly total, not daily perfection
Strength sessions	2+ days/week, all major muscle groups	Log sessions; 30–60 min/week total is the evidence sweet spot
Daily steps	~6,000–8,000 (60+), ~8,000–10,000 (under 60)	Phone or pedometer average over a week
Balance	Able to stand on one leg 10 seconds	Monthly self-check; practise if not

When to talk to your doctor

Chest pain, unusual breathlessness, or fainting during exercise; a fall, or a new fear of falling; joint pain that does not settle after 2 weeks of rest; or starting vigorous exercise after a long sedentary period with known heart disease. Ask about a supervised programme after a cardiac event rather than resuming alone.

Sources: Bull 2020 (WHO guidelines); Arem 2015 (n = 661,137); Momma 2022 (16 cohorts, ~480,000); Paluch 2022 (15 cohorts, n = 47,471); Sherrington 2019 (108 trials, n = 23,407).

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3. Nutrition

Nutrition is pattern over pills: the overall shape of what you eat, week after week, matters far more than any single food, supplement, or "superfood". The Mediterranean pattern — vegetables, legumes, whole grains, fish, olive oil, nuts, little processed meat — has the strongest trial evidence of any named diet.

Why it matters. Diet is the main lever on blood pressure, blood sugar, cholesterol, and weight that does not require a prescription. It is also the area with the most marketing noise relative to evidence, so the grading matters here more than anywhere.

What the evidence says

- **A Mediterranean pattern cut major cardiovascular events by about 30% in a randomised trial.** PREDIMED (2018 reanalysis, 7,447 Spanish adults at high cardiovascular risk, median 4.8 years) found Mediterranean diet plus olive oil or nuts reduced heart attack, stroke, and cardiovascular death versus low-fat advice. Caveat: the original 2013 paper was retracted for randomisation faults affecting about a fifth of participants; the 2018 reanalysis corrected for this and found nearly the same result. **[A]**
- **The finding held in people who already had heart disease.** CORDIOPREV (Lancet 2022, 1,002 adults with coronary heart disease, 7 years) found fewer major cardiovascular events on a Mediterranean pattern than on a low-fat pattern (28.1 vs 37.7 per 1,000 person-years). **[A]**
- **The DASH eating pattern lowers blood pressure in trials.** The original DASH trial (1997, 459 adults) showed a diet rich in fruit, vegetables, and low-fat dairy lowered blood pressure within weeks; the effect was larger when sodium was also reduced (2001 trial, 412 adults). Blood pressure is a marker, not a hard outcome, so this grades lower than the event trials above. **[B]**
- **Highly processed food is linked to worse outcomes in cohorts — with the usual caveat.** Large prospective cohorts link a higher share of ultra-processed food to higher mortality and cardiovascular risk, but diets differ in many ways at once, and no long randomised trial has tested ultra-processed food against hard outcomes. **[C]**
- **No supplement has trial evidence for extending life in healthy adults.** Vitamin D, fish oil, and multivitamin mega-trials (notably VITAL, 2019, 25,871 adults over 5 years) found no reduction in cancer, cardiovascular events, or fractures in the general population. **[A]**

What to track

Measure	Population range	How
Plant foods	Vegetables, legumes, whole grains most days	Count plant items per day for one week
Fish	2 servings/week in most guidelines	Weekly log
Processed meat / sugary drinks	As little as practical	Weekly frequency, not guilt
Sodium	Under ~2,300 mg/day (AHA); lower if hypertensive	Check labels on the top sources: bread, sauces, processed meat

When to talk to your doctor

Unintentional weight loss of more than 5% of body weight in 6–12 months; persistent difficulty swallowing or abdominal pain; a new diagnosis of diabetes, kidney disease, or coeliac disease that changes what you can eat; or before starting a very low-calorie or exclusion diet. A registered dietitian referral beats a supplement aisle.

Sources: Estruch 2018 (PREDIMED, n = 7,447); Delgado-Lista 2022 (CORDIOPREV, n = 1,002); Appel 1997 (DASH, n = 459); Sacks 2001 (DASH-Sodium, n = 412); Manson 2019 (VITAL, n = 25,871).

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4. Metabolic health

Metabolic health is how your body handles energy: blood sugar, insulin sensitivity, blood fats, blood pressure, and where fat is stored. Problems here rarely cause symptoms until they are advanced, which is why blood tests and a tape measure catch what feeling fine cannot.

Why it matters. Prediabetes and high blood pressure are both common, silent, and reversible in their early stages. The same few numbers — glucose, ApoB, blood pressure, waist — predict most of the risk that the cardiovascular section measures in detail.

What the evidence says

- **Lifestyle change cut new diabetes by 58% in a randomised trial.** The Diabetes Prevention Program (2002, 3,234 adults with prediabetes, average 2.8 years) found intensive lifestyle intervention (modest weight loss, 150 minutes of activity a week) reduced diabetes incidence by 58% versus placebo; metformin cut it by 31%. **[A]**
- **Blood sugar categories are set by guideline, not by feeling.** The American Diabetes Association defines normal HbA1c as below 5.7%, prediabetes as 5.7–6.4%, and diabetes as 6.5% or above (confirmed by a repeat test). Fasting glucose: normal below 100 mg/dL, prediabetes 100–125 mg/dL. **[B]**
- **Waist circumference predicts risk better than weight alone.** World Health Organization thresholds flag increased risk above 102 cm (40 in) for men and 88 cm (35 in) for women; risk rises further at higher values. Waist tracks visceral fat, the fat around organs. **[B]**
- **ApoB counts the particles that drive plaque, not just the cholesterol inside them.** The National Lipid Association consensus (2024) proposes ApoB thresholds of about 90 mg/dL at borderline-to-intermediate risk, 70 mg/dL at high risk, and 60 mg/dL at very high risk, as points to consider intensifying treatment. These are treatment thresholds tied to overall risk, not a single "normal" range. **[B]**

What to track

Measure	Population range	How
HbA1c	Below 5.7% normal; 5.7–6.4% prediabetes	Lab test, usually yearly if normal
Fasting glucose	Below 100 mg/dL	Lab test with HbA1c
ApoB (or LDL-C)	See thresholds above; lower with higher risk	Lab test; ApoB adds most when triglycerides are high
Blood pressure	Below 120/80 normal; see Area 5	Home average, correct cuff size
Waist	Below 102 cm men / 88 cm women	Tape at navel level, monthly

When to talk to your doctor

HbA1c 5.7% or above; fasting glucose repeatedly above 100 mg/dL; waist above the thresholds above with rising trend; blood pressure repeatedly above 130/80; or a family history of early diabetes or heart disease. Ask whether a repeat test, a lifestyle programme, or medication fits your overall risk — not any single number in isolation.

Sources: Diabetes Prevention Program 2002 (n = 3,234); American Diabetes Association Standards of Care 2024; WHO waist guidance 2008; Soffer 2024 (NLA ApoB consensus).

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5. Cardiovascular

Cardiovascular health is the state of your heart and arteries. Heart attack and stroke remain the leading causes of death in most countries, and most of the risk is measurable years in advance with four numbers: blood pressure, ApoB, hs-CRP, and smoking status.

Why it matters. The risk factors are silent and the events are sudden. The good news is that the same numbers that predict events also respond to treatment — and the trials behind them are among the strongest in medicine.

What the evidence says

- **Treating blood pressure intensively prevented events in a randomised trial.** SPRINT (2015, 9,361 adults aged 50+ at elevated cardiovascular risk, no diabetes or prior stroke) found a systolic target below 120 cut major cardiovascular events by 25% and all-cause death by 27% versus a target below 140, over a median 3.26 years. The trial stopped early for benefit. One caveat: SPRINT used unattended automated measurement, which reads lower than routine clinic readings. **[A]**
- **The current US guideline sets hypertension at 130/80 and the treatment goal below 130/80 for most treated adults.** AHA/ACC guideline (2025, replacing 2017), with a systolic goal below 120 encouraged where tolerated. European guidance still uses 140/90 as the diagnostic line — guidelines disagree, and your doctor applies the one that fits your country and risk. **[B]**
- **Inflammation predicts events independently of cholesterol.** In the Women's Health Study (Ridker 2024, 27,902 women followed 30 years), hs-CRP was the strongest single predictor of cardiovascular events among the markers tested. AHA categories: below 1 mg/L low risk, 1–3 intermediate, above 3 high. Above 10 mg/L usually means acute infection — retest, don't act on it. **[B]**
- **Statins helped people with normal cholesterol but high inflammation.** JUPITER (2008, 17,802 adults with LDL below 130 mg/dL and hs-CRP at or above 2 mg/L) found rosuvastatin cut major cardiovascular events by 44% over a median 1.9 years. The trial cannot separate the LDL-lowering effect from any anti-inflammatory effect, since the drug did both. **[A]**
- **Lipoprotein(a) is mostly genetic — measure it once.** Lp(a) is set largely by genes, is barely moved by lifestyle, and is an independent risk factor. One lifetime measurement is enough for most people; high values argue for tighter control of the factors you can change. **[B]**

What to track

Measure	Population range	How
Blood pressure	Below 120/80 normal; goal below 130/80 if treated	Home average: 2 readings morning and evening for a week
ApoB	~90 / 70 / 60 mg/dL by risk (see Area 4)	Lab test
hs-CRP	Below 1 mg/L low; 1–3 intermediate; above 3 high	Lab test when well, not during illness
Lp(a)	Measure once; high is roughly above 50 mg/dL	Lab test, once in a lifetime
Smoking	None	Any amount raises risk; quitting helps at any age

When to talk to your doctor

Blood pressure repeatedly at or above 130/80; chest pain, breathlessness, or palpitations on exertion; a parent or sibling with heart disease before 60; Lp(a) high; or hs-CRP above 3 mg/L on repeat testing. Sudden severe chest pain, breathlessness, or one-sided weakness is an emergency — call emergency services, do not wait for an appointment.

Sources: SPRINT 2015 (n = 9,361); Jones 2025 (AHA/ACC guideline); Ridker 2024 (n = 27,902, 30 years); Ridker 2008 (JUPITER, n = 17,802).

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6. Brain and cognition

Brain health in midlife and later life is shaped less by puzzles and supplements than by blood flow, sleep, hearing, and social engagement. The same vascular risk factors that damage arteries damage the brain — slowly, over decades.

Why it matters. Dementia has no cure and no reliable early treatment, so prevention is the only lever with real evidence. The factors involved are mostly the ones already covered in this guide, which means progress in other areas counts twice here.

What the evidence says

- **About 45% of dementia cases are attributed to 14 modifiable factors — as a model, not a promise.** The Lancet Commission (2024) estimates 14 factors — including hearing loss, hypertension, low education, smoking, obesity, depression, physical inactivity, diabetes, heavy drinking, social isolation, air pollution, high LDL cholesterol, and untreated vision loss — together account for roughly 45% of cases worldwide. These are population-attributable fractions from modelling, not a guarantee for any individual. **[B]**
- **Hearing loss is the largest single factor in that model, at about 7%.** Midlife hearing loss carries the largest attributable share of any single factor. Whether hearing aids reduce dementia risk is unresolved: the ACHIEVE trial (2023, 977 adults aged 70–84 with hearing loss, 3 years) found no overall difference in cognitive decline, with a 48% slower decline only in a prespecified higher-risk subgroup of 238 people — a subgroup result that generates a hypothesis, not proof. **[B]**
- **A combined lifestyle programme slowed decline in a randomised trial.** FINGER (2015, 1,260 Finnish adults aged 60–77 at risk of cognitive decline, 2 years) combined diet, exercise, cognitive training, and vascular risk management, and improved or maintained cognition versus control. The effect was modest — the package delays decline; it does not remove the risk. **[B]**
- **Lowering blood pressure reduced mild cognitive impairment.** SPRINT MIND (2019, the SPRINT cohort) found intensive blood-pressure treatment cut the risk of mild cognitive impairment by 19% versus standard treatment. Dementia itself was not significantly reduced in the trial's follow-up window. **[B]**
- **No supplement or brain-training app has trial evidence for preventing dementia.** The Lancet Commission and subsequent reviews find no convincing trial support for supplements or commercial brain-training programmes as dementia prevention. **[B]**

What to track

Measure	Population range	How
Hearing	Test at 50 and 60, then as advised	Audiology test; use aids if prescribed
Blood pressure	Below 130/80 if treated (see Area 5)	Home average
Activity	150+ min/week aerobic (see Area 2)	Weekly log
Sleep	7–9 hours, regular (see Area 1)	Sleep log
Mood and memory	Notice change from your own baseline	Note new forgetfulness, low mood, or withdrawal

When to talk to your doctor

Memory or thinking problems that interfere with daily life, or that a family member has noticed; new confusion, personality change, or getting lost in familiar places; untreated hearing or vision loss; depression lasting more than 2 weeks; or a head injury with loss of consciousness. Early assessment rules out reversible causes — thyroid, vitamin B12, medication effects, depression — before assuming dementia.

Sources: Livingston 2024 (Lancet Commission); Lin 2023 (ACHIEVE, n = 977); Ngandu 2015 (FINGER, n = 1,260); SPRINT MIND 2019 (n = 9,361).

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7. Muscle and bone

Muscle and bone decline from your thirties onward, slowly at first and faster after 60. Muscle is not just for movement: it is the body's main site for clearing blood sugar, and leg strength predicts independence in later life. Bone loss is silent until a fracture.

Why it matters. Falls and fractures are the most common route from independence to hospital in older adults. Both are preventable to a degree — strength and balance training work, and they work late in life too.

What the evidence says

- **Resistance training is the most effective single intervention for muscle.** It improves grip strength, gait speed, and balance in older adults, and multicomponent programmes (resistance plus aerobic plus balance) give the biggest gains in functional independence. No drug is approved for sarcopenia; exercise and protein are first-line. **[B]**
- **Older adults need more protein than the standard allowance.** The PROT-AGE and ESPEN expert groups recommend 1.0–1.2 g of protein per kilogram of body weight per day for healthy older adults (up to 1.2–1.5 g/kg when ill or frail), versus the standard allowance of 0.8 g/kg. Spread across meals, about 25–30 g per meal. **[B]**
- **The higher intake beat the standard allowance in a direct trial.** A 2025 randomised trial in 126 women aged 60–75 with sarcopenia found 1.2 g/kg/day preserved muscle and improved strength more than 0.8 g/kg/day over 12 weeks. Small and short, but a direct head-to-head test. **[B]**
- **Protein works best with training, not instead of it.** A 2024 network meta-analysis of 78 randomised trials (5,272 participants) found protein plus resistance training gave the best outcomes for muscle mass, grip strength, and walking speed; protein without training showed little benefit. **[B]**
- **Vitamin D pills did not prevent fractures or falls in the general population.** VITAL (2019, 25,871 adults, 5 years) found vitamin D supplementation did not reduce fractures, cancer, or cardiovascular events. Supplements still matter for diagnosed deficiency — the trial tested routine supplementation, not treatment of deficiency. **[A]**

What to track

Measure	Population range	How
Grip strength	Men ~30+ kg, women ~20+ kg (age-dependent)	Hand dynamometer at a clinic or gym
Chair stands	5 stands in under ~12 seconds (60+)	Monthly self-test, arms crossed
Gait speed	Above ~0.8 m/s (about 4 seconds for 4 metres)	Timed walk, yearly
Protein	1.0–1.2 g/kg/day (older adults)	Food log for 3 days
Falls	Zero is the goal	Note every fall, including near-falls
Bone density	DEXA scan as your doctor advises	Usually from 65, earlier with risk factors

When to talk to your doctor

A fall, or two near-falls in a year; a fracture from a minor knock; height loss of more than 4 cm; new back pain after a fall; or difficulty rising from a chair or climbing stairs. Ask about a DEXA scan, a falls-risk assessment, and a supervised strength programme — and review medications that cause dizziness.

Sources: Bauer 2013 (PROT-AGE); Deutz 2014 (ESPEN); Ishaq 2025 (n = 126); Liao 2024 (78 RCTs, n = 5,272); Manson 2019 (VITAL, n = 25,871); Sherrington 2019 (108 trials, n = 23,407).

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8. Immune and inflammation

Inflammation is the immune system's repair response. Short-term it heals; low-grade and persistent — "inflammaging" — it damages arteries, joints, and brain over years. The blood marker hs-CRP is the most accessible window into it, but it is a signal, not a diagnosis.

Why it matters. Chronic inflammation sits behind much of cardiovascular risk that cholesterol alone does not explain. It is also one of the few risk signals that improves with the same habits — activity, sleep, weight, dental care — that help everywhere else.

What the evidence says

- **Lowering inflammation without touching cholesterol still prevented events.** CANTOS (2017, 10,061 patients after a heart attack with hs-CRP at or above 2 mg/L) found the anti-inflammatory drug canakinumab cut major cardiovascular events by 15% with no change in LDL cholesterol. It also raised fatal infections, so it never became a usable treatment — but it proved inflammation is a cause, not just a marker. **[A]**
- **hs-CRP predicted events better than cholesterol in a 30-year study.** In the Women's Health Study (2024, 27,902 women), hs-CRP was the strongest single predictor of cardiovascular events among the markers tested, and risk rose with combined elevations. A single high reading means little — repeat it when well. **[B]**
- **A high reading above 10 mg/L means something acute.** hs-CRP above 10 mg/L usually reflects infection, injury, or a flare, not chronic cardiovascular risk. Retest after recovery. **[B]**
- **Gum disease is linked to cardiovascular risk in cohorts, but treatment trials on hard outcomes are lacking.** Periodontitis is associated with higher cardiovascular risk in observational studies; whether treating gum disease prevents heart attacks is unproven. Dental care is worth doing for its own sake, not as a heart treatment. **[C]**
- **Shingles vaccination was linked to lower dementia risk in a natural experiment.** A 2025 study in Wales used a vaccine-eligibility cut-off as a natural experiment and found shingles vaccination associated with about 20% lower dementia risk over 7 years. Eligibility, not randomisation, assigned the vaccine — a lead, not proof. **[C]**

What to track

Measure	Population range	How
hs-CRP	Below 1 mg/L low; 1–3 intermediate; above 3 high	Lab test when well; repeat if above 3
Waist	Below 102 cm men / 88 cm women	Monthly tape (see Area 4)
Dental health	Check-up and cleaning twice a year	Bleeding gums, loose teeth — note and report
Vaccines	Shingles, flu, COVID, pneumococcal as advised	Ask your doctor what is due for your age

When to talk to your doctor

hs-CRP repeatedly above 3 mg/L; frequent infections, slow wound healing, or unexplained fevers; bleeding gums or loose teeth; or a vaccine question — especially shingles vaccination after 50. Persistent inflammation deserves a search for a cause, not a supplement.

Sources: Ridker 2017 (CANTOS, n = 10,061); Ridker 2024 (n = 27,902, 30 years); Pearson 2003 (AHA/CDC hs-CRP statement); Eyting 2025 (shingles vaccine, Wales).

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9. Gut

Your gut microbiome — the trillions of bacteria in the colon — ferments fibre into short-chain fatty acids, trains the immune system, and interacts with metabolism. The science is young, the marketing is far ahead of it, and the gap between the two is where this section earns its keep.

Why it matters. Gut health is real, but most of what is sold for it — probiotic pills, microbiome tests, "gut reset" programmes — has little or no human trial evidence. Food, not products, is where the evidence sits.

What the evidence says

- **Fermented foods increased microbiome diversity and lowered inflammatory markers in a randomised trial.** Wastyk et al. (Stanford, Cell 2021, 36 healthy adults, 10 weeks) found a high-fermented-food diet (about 6 servings a day) increased gut diversity and reduced 19 inflammatory proteins in blood; the high-fibre arm showed no diversity change. Small (18 per arm), short, healthy adults — promising, not proven for disease outcomes. **[B]**
- **Higher fibre intake is linked to lower mortality in large cohorts.** Prospective cohorts consistently link higher dietary fibre with lower all-cause and cardiovascular mortality. The link is observational, and fibre-rich diets differ in many other ways — but the association is large, consistent, and dose-related. **[B]**
- **Probiotic pills have strain-specific, mostly small effects.** Trials support specific strains for specific problems (for example, certain strains reduce antibiotic-associated diarrhoea), but there are no long trials showing probiotic pills extend life or prevent chronic disease in healthy adults. **[C]**
- **Gut metabolites are mostly an animal story so far.** Short-chain fatty acids such as butyrate show protective effects in mice and in cell studies, and are proposed as a mechanism linking fibre to health. Direct causal evidence in humans is lacking. Claims that a metabolite test or supplement "repairs" your gut are ahead of the data. **[D]**
- **Fibre works best when increased gradually.** In the Stanford trial, some people with low baseline diversity had temporary rises in inflammatory markers when fibre was increased quickly. Add fibre over weeks, with fluids, rather than all at once. **[B]**

What to track

Measure	Population range	How
Fibre	25–38 g/day (US guidance, varies by sex and age)	Food log for 3 days
Fermented foods	1–6 servings/day	Weekly count: yogurt, kefir, kimchi, sauerkraut, miso
Plant variety	30 different plants a week is a research target, not a rule	Count over a week; variety beats perfection
Bowel habit	Your own normal pattern	Note lasting change: blood, persistent diarrhoea, constipation

When to talk to your doctor

Blood in the stool; unintentional weight loss with bowel changes; persistent diarrhoea or constipation lasting more than 3 weeks; severe abdominal pain; or a family history of bowel cancer. Screening (stool test or colonoscopy) follows your country's programme and your risk — ask when yours is due rather than waiting for symptoms.

Sources: Wastyk 2021 (n = 36, 10 weeks); Reynolds 2019 (fibre meta-analysis, 185 studies); McFarland 2018 (probiotics review).

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10. Stress and connection

Stress is the body's response to demand; connection is the buffer. Chronic stress raises blood pressure, disrupts sleep, and drives the behaviours — poor eating, drinking, inactivity — that damage health. Social connection is one of the strongest predictors of survival in population data, and one of the least medicalised.

Why it matters. Stress and loneliness are usually treated as feelings, not risk factors. The mortality data say otherwise: disconnection carries a risk comparable in size to well-known physical risk factors, and it is modifiable in ways a prescription cannot reach.

What the evidence says

- **Social isolation and loneliness are each linked to higher mortality.** A 2015 meta-analysis of 70 prospective studies (3.4 million people) found social isolation associated with 29% higher mortality, loneliness with 26%, and living alone with 32%. A 2023 meta-analysis of 90 studies (2.2 million people) confirmed the pattern: isolation 32% higher, loneliness 14% higher. These are prospective cohorts, not trials — healthier people may also find connection easier — but the association survives adjustment for health behaviours. **[B]**
- **The US Surgeon General declared loneliness a public-health epidemic in 2023.** The advisory summarised two decades of research and framed disconnection as a mortality risk on the scale of smoking and obesity. It is a policy document synthesising cohort evidence, not a trial. **[B]**
- **A sense of purpose is linked to lower mortality in cohorts.** A 2019 analysis of 6,985 US adults (Health and Retirement Study) found stronger life purpose associated with lower all-cause mortality over 4 years. Observational; purpose may travel with better health, income, and habits. **[B]**
- **Stress-reduction programmes improve stress, not proven lifespan.** Randomised trials of mindfulness-based programmes show moderate improvements in perceived stress, anxiety, and sleep quality. No trial has shown that a stress-reduction programme extends life. The honest claim is better days, not more years. **[B]**
- **Sleep is the bridge.** Chronic stress most reliably damages health through sleep disruption (see Area 1). If stress is costing you sleep, that is the first place to intervene — and the first thing to tell your doctor. **[B]**

What to track

Measure	Population range	How
Social contact	Regular contact, weekly at least	Count meaningful conversations per week
Loneliness	Ask yourself monthly: do I feel isolated?	A simple 1–5 scale, tracked over time
Sleep	7–9 hours, regular (see Area 1)	Sleep log
Mood	Notice 2-week changes	Low mood, loss of interest, or anxiety that persists

When to talk to your doctor

Low mood or loss of interest lasting more than 2 weeks; anxiety that interferes with work or sleep; feeling isolated with no one to call in a crisis; heavy drinking or other coping habits that are escalating; or thoughts of harming yourself — seek help the same day, from your doctor, a crisis line, or emergency services. Loneliness is a health issue, and it belongs in a medical conversation.

Sources: Holt-Lunstad 2015 (70 studies, 3.4 million); Lara 2023 (90 studies, 2.2 million); US Surgeon General 2023; Alimujiang 2019 (n = 6,985); Goyal 2014 (47 trials).

This guide is educational. It is not a medical assessment, it does not diagnose, and it does not replace your doctor. The numbers in it are population ranges, not personal targets. For educational purposes. Always consult with your doctor.

LONGEVITY PROTOCOL TRACKER

Name: _____

Week Of: _____

LONGEVITY STARTER KIT & PROTOCOL TRACKER

1. WEEKLY MOVEMENT & TRAINING SCHEDULE

Target Zone 2 Formula: ~60–70% of Max HR (Estimate Max HR = 208 − 0.7 × Age, Tanaka) or conversational threshold pace. Aim for 150–180 mins/week.

DAY	PLANNED SESSION	TARGET HR / ZONE	ACTUAL DURATION	RPE (1–10)
MON	Zone 2 Cardio (Steady-state)	Zone 2		
TUE	Resistance Training (Lower Body)	Hypertrophy / Strength		
WED	Active Recovery / Zone 2 Cardio	Zone 2		
THU	Resistance Training (Upper Body)	Hypertrophy / Strength		
FRI	Zone 2 Cardio + VO2 Max Intervals	Zone 2 / Zone 5 (4x4)		
SAT	Full Body Strength or Heavy Carry	Functional Strength		
SUN	Rest & Mobility / Walking	Zone 1		

Example ranges: age 30 → Zone 2 is 112–131 bpm; age 50 → 104–121 bpm. The talk test rules: full sentences, no gasping.

2. DAILY SUPPLEMENT & COMPOUND MATRIX

TIMING WINDOW	COMPOUND / SUPPLEMENT	TARGET DOSAGE	COMPLETED (M–S)
Morning (With Water)	NAD+ Booster / Creatine	500mg / 5g	☐☐☐☐☐☐☐
With First Meal	Omega-3 + Vitamin D3/K2	2g EPA+DHA / 5000 IU	☐☐☐☐☐☐☐
Mid-Day / Post-Workout	Whey or Plant Protein + Electrolytes	30-40g / 1 Serving	☐☐☐☐☐☐☐
Evening (30m Pre-Bed)	Magnesium Glycinate or L-Theonate	300–400mg	☐☐☐☐☐☐☐

3. KEY BIOMARKER POPULATION RANGES

BIOMARKER	STANDARD RANGE	POPULATION RANGE (THIS GUIDE)
ApoB	< 100 mg/dL	90 / 70 / 60 mg/dL by risk
Fasting Insulin	< 25 uIU/mL	No guideline range
hs-CRP	< 3.0 mg/L	Low <1 · mid 1–3 · high >3 mg/L
HbA1c	< 5.7%	Normal <5.7% · pre 5.7–6.4%
Homocysteine	< 15 umol/L	No guideline range

4. DAILY SLEEP & METABOLIC HYGIENE

HABIT / METRIC	WEEKLY GOAL	LOG (M–S)
7.5h+ Sleep Duration	7/7	☐☐☐☐☐☐☐
Sunlight < 30m of Waking	7/7	☐☐☐☐☐☐☐
No Calories < 3h Before Bed	6/7	☐☐☐☐☐☐☐
1.6g/kg Protein Intake	7/7	☐☐☐☐☐☐☐
Cold Finish / Heat Sauna	4/7	☐☐☐☐☐☐☐

Population ranges from guidelines and trials in this guide — discuss them with your doctor; they are not personal targets.

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5. WEEKLY N-OF-1 OBSERVATIONS & NOTES

Track energy levels, sleep scores, HRV trends, novel interventions tried this week, or biological age markers.

THIS WEEK'S NUMBERS

MEASURE	THIS WEEK	LAST WEEK	CHANGE
Weight			
Waist circumference			
Resting heart rate			
Average sleep (hours)			
Zone 2 minutes (total)			
Resistance sessions			

NEXT WEEK'S FOCUS

One thing to change next week, and why:

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