

The Interval Walking Training Protocol

Three minutes brisk, three minutes easy, five times over, four days a week. What the Japanese trials actually prescribed, how to run a session with nothing but a clock, and what the evidence does and does not show.



3:00 PUSH BLOCK	3:00 EASE BLOCK	×5 REPS PER SESSION	4 DAYS PER WEEK
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Every figure in this guide is traced to a primary paper, and the full citations with DOIs are on page 7. Where the research does not support a claim, the claim is not here. This is not medical advice.

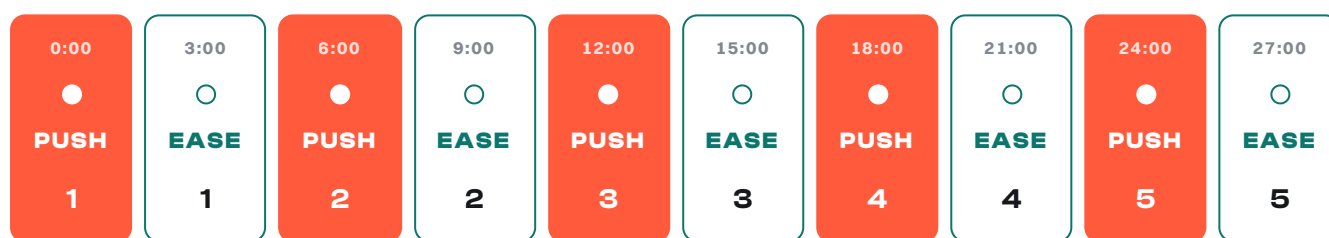
The protocol, exactly as it was written

Interval Walking Training came out of Shinshu University in Matsumoto, Nagano, where Hiroshi Nose, Shizue Masuki and their group have been publishing on it since 2007. The prescription has barely changed in that time, and it is short enough to quote in full.

“5 or more sets of 3-minute low-intensity walking at 40% of peak aerobic capacity for walking followed by a 3-minute high-intensity walking above 70%”, for 4 or more days per week.

Nemoto et al., Mayo Clinic Proceedings, 2007. Reference 1.

Two details in that sentence get lost in most write-ups. The paper puts the **slow block first** inside a set, not the fast one. And the intensities are shares of **your own** measured peak aerobic capacity, not a pace anyone can print. It is a repeating cycle, so starting with a push after a short walk-in is the same session, but the paper does not prescribe fast-first and articles that say it does have not read it.



PUSH solid block, above 70% of walking peak aerobic capacity

EASE outlined block, around 40%

BLOCK	REPS	SESSION	FREQUENCY	PUSH TIME
3:00 both kinds, equal	5+ one push plus one ease	30 min ten blocks, no equipment	4+ days per week	60 min per week, at 5 × 4 days

Why the prescription stops where it does

That last column is arithmetic, not a finding: five push blocks, four days a week, is sixty minutes of fast walking. It matters because of the 2019 dose-response paper, which followed 679 adults through five months and found that gains climbed with fast walking time up to **about 50 minutes a week** and then flattened. Slow walking time predicted nothing. Total walking time predicted nothing.

So the original prescription sits just past the knee of that curve. Doing double does not buy you double, and the push blocks are the part that pays.

How hard is brisk, without a heart-rate monitor

This is the part that decides whether the protocol works for you, and it is the part almost every summary waves through. The trials defined the blocks against each participant's own peak aerobic capacity, measured in a graded walking test. That is a per-person target, which is exactly why you cannot copy it out of an article. Someone else's brisk is not yours.

Nothing you can wear measures oxygen uptake. Every wearable version of this protocol, ours included, is using heart rate as a stand-in for the thing the studies measured. That substitution is a reasonable approximation and it is worth naming as one. Without a monitor you are approximating too, just with your breath instead, and the honest news is that breath is not a bad instrument.

WHERE YOU ARE	WHAT IT SOUNDS LIKE	WHAT IT FEELS LIKE
Too easy	You could sing a verse without running out of air.	Strolling. Fine for warming up, not a block.
EASE block	Full conversation, comfortably, in whole sentences.	Walking, not resting. You keep moving the entire three minutes.
PUSH block	Words yes, sentences a struggle. You break to breathe.	Long stride, arms working, purposeful. Sustainable for three minutes and no longer than you would like.
Too hard	You cannot get a word out at all.	You have overshot. This protocol is brisk walking, not a sprint, and you will not last five reps.

Read this before you trust the table above

The talk test is not what the trials used, and no paper in this bibliography validates it against the 70% and 40% targets. It is practical guidance, offered as practical guidance. What it is genuinely good at is the thing that matters most in week one: telling you whether your push blocks are actually pushing.

If you do have a heart-rate monitor

Set your zones from your own resting and maximum heart rate rather than from an age-based formula. An age formula gives you a population average with your name written on it, and for any specific person it can be well off.

Expect the number to lag the switch in both directions. Your heart rate keeps climbing after a push starts and takes its time coming down after an ease block begins. Judge a block by how the middle of it felt, not by the first few steps.

Two ways people get this wrong

Pushing with your feet instead of your legs. Brisk is a longer stride and a driving arm swing, not a faster shuffle. If your steps got shorter when you sped up, you are working harder for less.

Treating ease as a break. The slow block is 40%, not zero. It exists so the next push block can be a real one, which is the whole argument of the 2019 dose-response result. Stopping to stand still turns five reps into five separate short walks.

Running a session with nothing but a clock

You can start this afternoon, for free, with whatever is already on your wrist. The protocol is public and a timer does the job. Here is the version that actually survives contact with a footpath.

1 Pick a route with no interruptions.

A traffic light at minute two of a push block is the single most reliable way to ruin a session. A park loop, a running track, a long quiet street, a treadmill. Out-and-back works: turn round at fifteen minutes.

2 Note your start time on the hour or half hour.

Blocks land on 3, 6, 9, 12, 15, 18, 21, 24, 27 and 30. Starting at a round number means you are adding three to a small number in your head rather than doing arithmetic on 47.

3 Walk easy for three to five minutes first.

The published protocol has no separate warm-up, because the slow blocks do that job. Starting cold on a push block is your call, and a short walk-in makes the first one honest rather than a fright.

4 Count reps, not minutes.

Ten blocks is hard to keep in your head. Five reps is not. Move a coin from one pocket to the other, or press a finger down, at the end of each ease block. You are done at five.

5 Push properly, especially at reps three and four.

Undercooking the push blocks is the usual failure, and the 2019 paper is specific that fast walking time is what predicted the result. A tepid push block is an ease block that took more effort to talk yourself into.

6 Four days a week, counted in weeks rather than sessions.

The trials ran five months. The one that measured adherence ran twenty-two. Nothing in this literature is a fortnight-long project, and the field study found the largest gains in the people who started least fit.

If the clock-watching is the part that beats you

That is a real problem and a small one. Glancing at a watch face every three minutes for half an hour, in the rain, while trying to keep your effort up, is the friction that ends most attempts at this. A kitchen timer or a repeating three-minute alarm solves it for free, and the protocol does not care which you use. Solving it without looking at anything is what we build.

What the trials actually measured

Five studies do most of the work. Every figure below is from the paper it sits next to, and every one of those papers is cited in full on page 7 so you can check us. These are changes measured against each group's own starting point, in people who were mostly sedentary when they began.

2007**N = 246 · 5 MONTHS**

**Nemoto et al.
Mayo Clinic Proceedings**

The landmark trial. 60 men and 186 women, mean age 63 ± 6 , randomised to no walking, moderate continuous walking, or interval walking. The interval group also dropped resting systolic blood pressure further than the continuous walkers.

+13% knee extension

+17% knee flexion

+8% peak aerobic capacity, cycling

+9% peak aerobic capacity, walking

2011**N = 826 · 4 MONTHS**

**Morikawa et al.
British Journal of Sports Medicine**

The protocol out in the field rather than in a lab, in 246 men and 580 women of around 65. Aerobic capacity and thigh muscle strength rose. Body weight, BMI, body fat, blood pressure and blood glucose fell. The largest gains went to the participants who started least fit.

2013**N = 32 · 4 MONTHS**

**Karstoft et al.
Diabetes Care**

A Danish group, independent of the Japanese one, in adults with type 2 diabetes. Control 8, continuous 12, interval 12, with energy expenditure matched between the walking arms. Only the interval walkers improved. Small sample, specific population, and the most important replication in the set.

+16.1% VO_2max , interval arm only

2019**N = 679 · 5 MONTHS**

**Masaki, Morikawa & Nose
Mayo Clinic Proceedings**

The dose-response paper, and the most useful one if you want to know what to actually do. Both outcomes improved with fast walking time up to roughly 50 minutes a week, then flattened. Slow walking time and total walking time predicted nothing.

+14% aerobic capacity

-17% lifestyle-disease score

2015**N = 696 · 22 MONTHS · THE ADHERENCE PAPER**

Masaki et al., Journal of Applied Physiology

The longest published follow-up in this literature, in adults of mean age 65 ± 7 . Adherence to the four-days-a-week target averaged 70%. Higher adherence tracked with a 13% fall in lifestyle-disease score and a 12% rise in peak aerobic capacity. Lower starting BMI and being male predicted sticking with it. Page 6 is about what that 70% means for you.

70% average adherence over 22 months

-13% lifestyle-disease score

+12% peak aerobic capacity

What this evidence does not show

A guide that only tells you the good news is not worth keeping. Four things about interval walking are routinely overstated, and one of them we had wrong on our own website until we went and checked.

Sticking with it is genuinely hard

You will see it claimed that 95% of people stay with this protocol. No paper in the literature reports anything close, and we could find no source for that figure at all.

What the research does report: the only long-term adherence study found **70% over 22 months**. The highest figure anywhere in the literature is $89 \pm 4\%$, and that was four months, in twelve Danish participants under accelerometer and heart-rate supervision. The 2007 landmark trial reports no adherence rate at all, but it does note that the prescribed targets were met by 11 of 19 men and 31 of 68 women. A 2024 review co-authored by the protocol's own originators says plainly that long-term adherence “remains a challenge”, especially for people who are overweight or managing a chronic condition.

Seventy per cent over nearly two years is a good number for an exercise programme. It is not 95%, and planning for the harder version is the reason you might still be walking in month nine.

Three more limits worth knowing

There is no ten-year study. A ten-year item exists as a conference abstract in a meeting supplement, which is not a peer-reviewed paper. A sweep of every interval walking paper in PubMed by this group turns up no full-length ten-year follow-up. Twenty-two months is the longest published.

Blood pressure response varies between people. On average, across a group, interval walking lowered it. But a 2010 paper in *Hypertension* found the response varies with vasopressin V1a receptor genotype. The effect is real and it is unevenly distributed, and anyone quoting you a single number for what it will do to your reading is overselling.

Most of this comes from one group. Shinshu University produced the bulk of it, which is a real limitation no matter how large the cohorts. The Danish replication matters for exactly that reason. And if you already train hard, this literature is not about you.

BEFORE YOU START

Who should talk to a doctor first

None of this is medical advice, and brisk walking raises your heart rate on purpose. Talk to your doctor before your first session if any of these describe you. The 2024 review notes that people managing a chronic condition are also the ones who find long-term adherence hardest, which is worth planning around rather than being surprised by.

- ☐ A diagnosed heart condition, or chest pain on exertion
- ☐ Blood pressure that is not currently controlled
- ☐ Dizziness, fainting, or losing your balance
- ☐ Joint, hip, back or foot problems that walking aggravates
- ☐ Diabetes, or any condition where exertion changes your medication
- ☐ A long stretch away from exercise, or you are pregnant

Sources

Every number in this guide comes from one of these. Records were verified against PubMed rather than transcribed from other articles, which is how we found the mistake at the bottom of this page.

- 1 Nemoto K, Gen-no H, Masuki S, Okazaki K, Nose H. **Effects of high-intensity interval walking training on physical fitness and blood pressure in middle-aged and older people.** *Mayo Clinic Proceedings*. 2007 Jul;82(7):803–811. PMID 17605959 · doi:10.4065/82.7.803

- 2 Morikawa M, Okazaki K, Masuki S, Kamijo Y, Yamazaki T, Gen-no H, Nose H. **Physical fitness and indices of lifestyle-related diseases before and after interval walking training in middle-aged and older males and females.** *British Journal of Sports Medicine*. 2011 Mar;45(3):216–224. PMID 19846423 · doi:10.1136/bjsm.2009.064816

- 3 Karstoft K, Winding K, Knudsen SH, Nielsen JS, Thomsen C, Pedersen BK, Solomon TPJ. **The effects of free-living interval-walking training on glycemic control, body composition, and physical fitness in type 2 diabetic patients: a randomized, controlled trial.** *Diabetes Care*. 2013 Feb;36(2):228–236. PMID 23002086 · doi:10.2337/dc12-0658

- 4 Masuki S, Mori M, Tabara Y, Sakurai A, Hashimoto S, Morikawa M, Miyagawa K, Sumiyoshi E, Miki T, Higuchi K, Nose H. **The factors affecting adherence to a long-term interval walking training program in middle-aged and older people.** *Journal of Applied Physiology (1985)*. 2015 Mar;118(5):595–603. PMID 25539937 · doi:10.1152/jappphysiol.00819.2014

- 5 Masuki S, Morikawa M, Nose H. **High-Intensity Walking Time Is a Key Determinant to Increase Physical Fitness and Improve Health Outcomes After Interval Walking Training in Middle-Aged and Older People.** *Mayo Clinic Proceedings*. 2019 Dec;94(12):2415–2426. PMID 31477320 · doi:10.1016/j.mayocp.2019.04.039

- 6 Masuki S, Mori M, Tabara Y, Miki T, Sakurai A, Morikawa M, Miyagawa K, Higuchi K, Nose H. **Vasopressin V1a receptor polymorphism and interval walking training effects in middle-aged and older people.** *Hypertension*. 2010 Mar;55(3):747–754. PMID 20142561 · doi:10.1161/HYPERTENSIONAHA.109.147728

- 7 Karstoft K, Thorsen IK, Nielsen JS, Solomon TPJ, Masuki S, Nose H, Ried-Larsen M. **Health benefits of interval walking training.** *Applied Physiology, Nutrition, and Metabolism*. 2024 Jul;49(7):1002–1007. Review, not a primary trial. PMID 38507778 · doi:10.1139/apnm-2023-0595

A correction we owe you

Our own site carried a “95% adherence” statistic for months, attached to a citation that turned out to be an ophthalmology article about eye examinations. It had nothing to do with walking. We removed it, documented the error publicly on our references page, and this guide reports the real figure instead. We are telling you because a research summary is only worth reading if its author will say when it was wrong.

Where StepFlow fits

We make a watch app that runs this protocol so you do not have to watch it. It taps your wrist before every switch and again on the switch, a different pattern for each, so you never look at the screen. Standalone, no phone, no account, no cloud. You do not need it. What we sell is not the intervals, it is not having to count them.

stepflow.fit

The session card, the first four weeks, and somewhere to log it

Print this one, or photograph it and keep it on your phone. Everything you need to run a session is above the fold.

One session · 30 minutes · 10 blocks					PUSH 3:00 · EASE 3:00 · × 5				
REP 1	REP 2	REP 3	REP 4	REP 5					
PUSH 0:00	PUSH 6:00	PUSH 12:00	PUSH 18:00	PUSH 24:00					
EASE 3:00	EASE 9:00	EASE 15:00	EASE 21:00	EASE 27:00					

The first four weeks

The trials prescribed the full protocol from the start and did not ramp, so this ramp is ours rather than theirs. It is here for people coming back after a long layoff. If five reps four times a week is already comfortable, skip it and start at week four.

WEEK 1	WEEK 2	WEEK 3	WEEK 4
3 reps 3 days	4 reps 3 days	5 reps 3 days	5 reps 4 days
18 minutes a session. Learn what a push block feels like at minute two.	24 minutes. Keep the ease blocks moving rather than stopping.	The full 30-minute session. Reps three and four are where it gets real.	The published protocol. Sixty minutes of push a week from here on.

LOG	MON	TUE	WED	THU	FRI	SAT	SUN	REPS
Week 1 3 reps × 3 days								
Week 2 4 reps × 3 days								
Week 3 5 reps × 3 days								
Week 4 5 reps × 4 days								
Week 5 5 reps × 4 days								
Week 6 5 reps × 4 days								