WELLTORY ELC · DATA + CODE + PHYSIOLOGY

When your heart rate climbs just walking to the car - making sense of the METs number

Some of you living with MS, hypermobility or fibromyalgia have asked us whether a high METs reading can mislead, and which metric to trust for movement when your step count sits below the guidelines while everything else looks fine. We took the question into the algorithm's code, our own community data, a comparison with a healthy reference, and the research.

> *Can MET-based activity estimates be misleading when heart rate rises from low-intensity everyday tasks like grocery shopping or walking from a car to a shop? How should METs, step count, and other metrics be weighed against each other as indicators of movement, especially when step count is low but other metrics look fine?*

For the Welltory ELC community · 2026-06-10 · Long COVID / ME/CFS / fibro / POTS

Shared with the Welltory ELC community · general information, not a substitute for medical advice

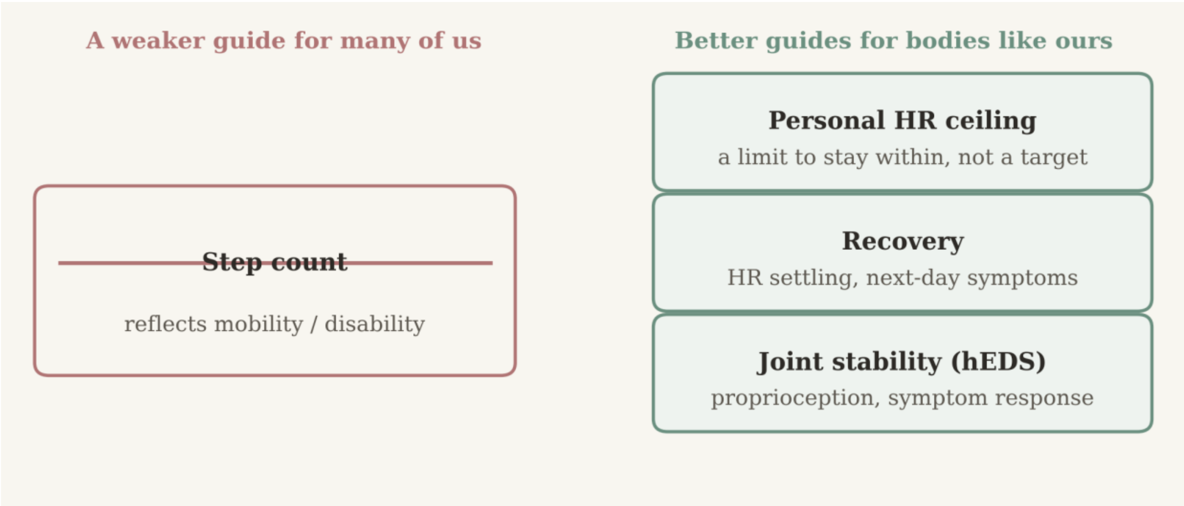
THE SHORT VERSION

If you only have energy for one page

Yes — a high METs number can over-state things for bodies like ours. METs are personalized to you, but they are still built on heart rate. In MS, hypermobility, fibromyalgia and POTS the heart speeds up to compensate — for blood pooling, or an over-active fight-or-flight branch — not because you worked hard. So a moment of racing heart reads as more intensity than it really was.

Step count is not the right yardstick either. It mostly reflects how easily you can move around. Steps below the usual guidelines are expected here — not a personal failing.

The steadier things to lean on are a personal heart-rate ceiling to stay within (a limit, not a target), how your body recovers afterwards (heart rate settling, how you feel the next day), and for hypermobility, joint stability.

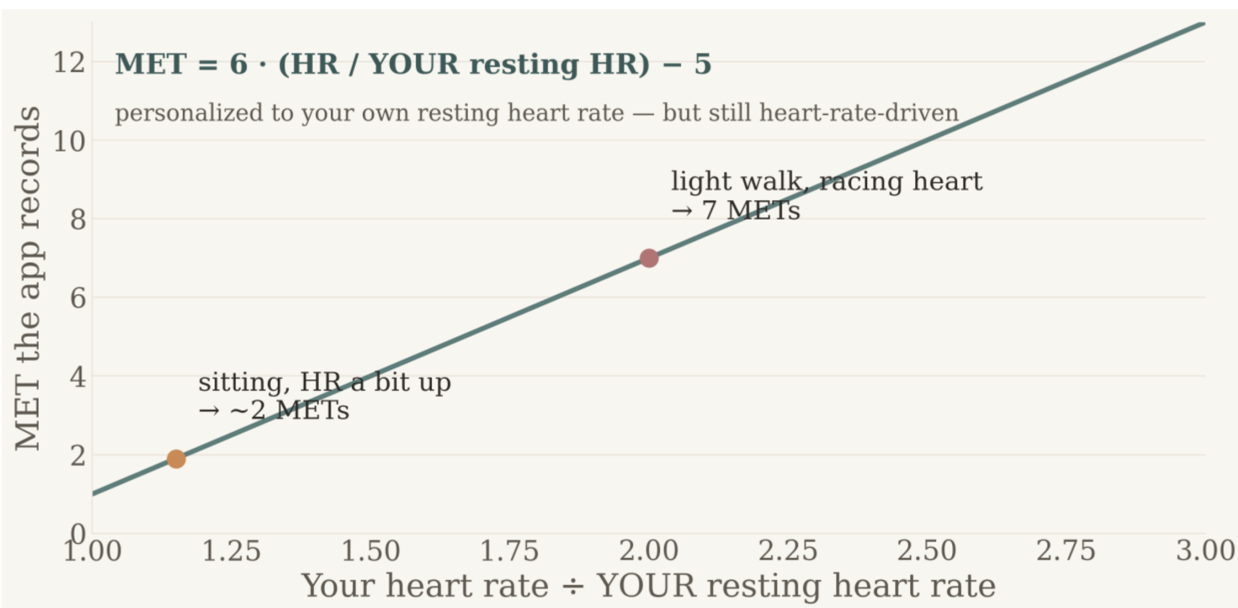


The rest of this note shows how we got here. Read whichever parts you have energy for, and skip the rest.

STEP 1 · WHAT A MET ACTUALLY IS

A personalized number — but built on heart rate

In the code, a MET is computed from heart rate relative to your own resting rate: MET = 6 · (HR / your resting HR) − 5. So it is already personal — the same beats-per-minute means a different MET for two different people. But the raw signal underneath is still heart rate.

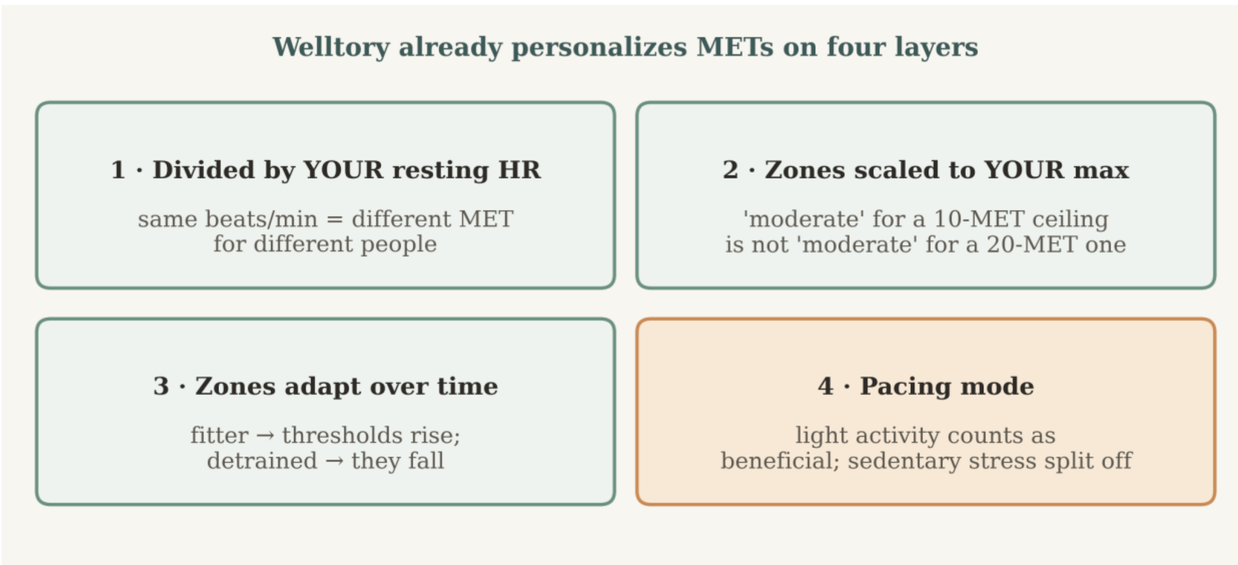


Personalized to your resting heart rate — yet a moment of racing heart still reads as more intensity, whatever caused the racing.

STEP 2 · THE NUMBER IS MORE PERSONALIZED THAN IT LOOKS

Welltory already adapts METs to you on four layers

It is fair to say the METs number is not a crude absolute. The code personalizes it: it divides by your resting heart rate, scales the intensity zones to your own aerobic ceiling, lets those zones drift up or down as your fitness changes, and offers a pacing mode where light activity counts as beneficial.

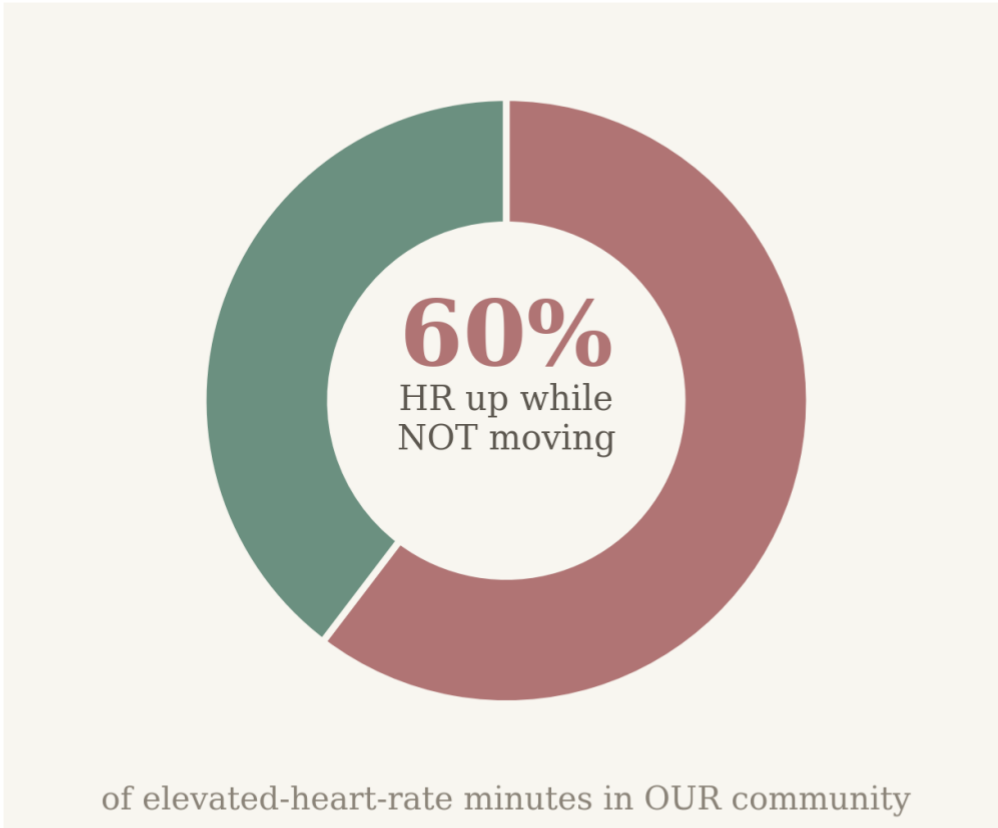


Four layers of personalization. What this fixes: what counts as 'hard' for YOU. What it cannot fix: the heart-rate→intensity conversion still assumes the healthy relationship.

STEP 3 · IN OUR COMMUNITY

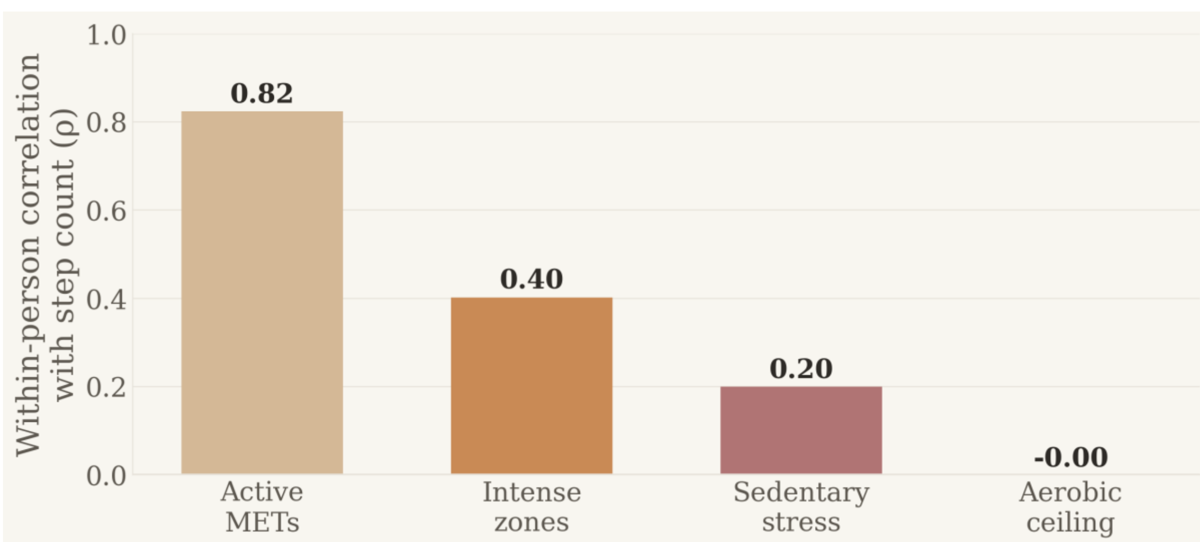
Most elevated heart rate here is not movement

Across 79 of our ELC members and 27,585 days, the majority of elevated-heart-rate time is spent sitting or standing still — Welltory's harmful sedentary stress, which is already separated from movement in the zones.



60% of elevated-heart-rate minutes in our community happen with no movement.

And the step count doesn't capture the physiology. Within each member, steps barely track intensity, autonomic load, or aerobic ceiling.

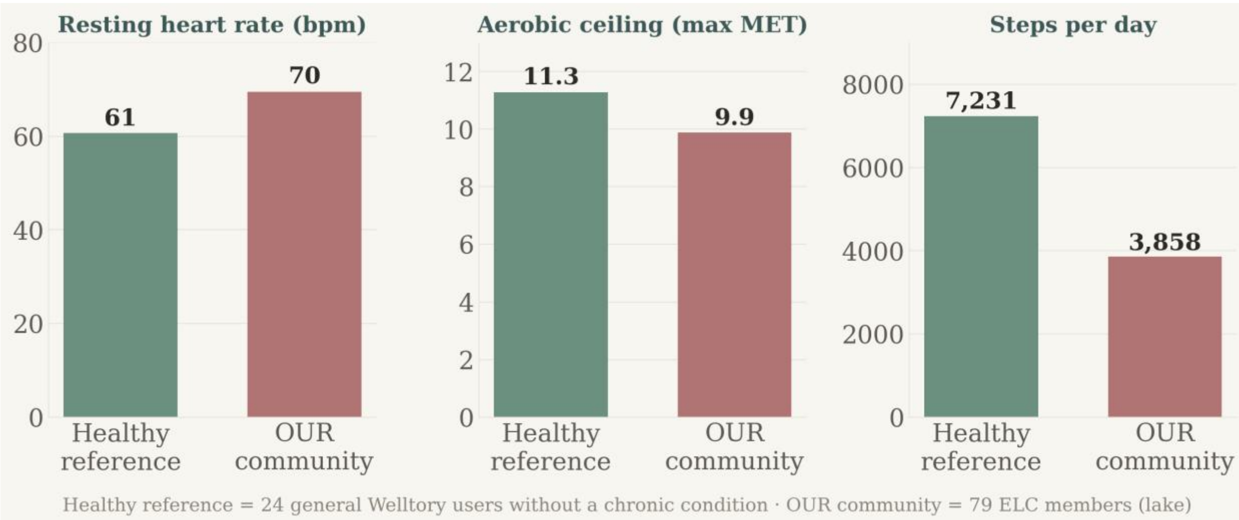


Steps move with active METs (computed over walking) but not with intense-zone time, sedentary stress, or aerobic ceiling.

STEP 4 · OUR COMMUNITY VS A HEALTHY REFERENCE

As a community, we run hotter at rest, with a lower ceiling and fewer steps

Comparing 79 of our ELC members against 24 general Welltory users without a chronic condition, three things separate them — and the first one feeds the MET formula directly.



Our community vs a healthy reference. Resting heart rate is ~9 bpm higher, the aerobic ceiling ~12% lower, and steps roughly halved.

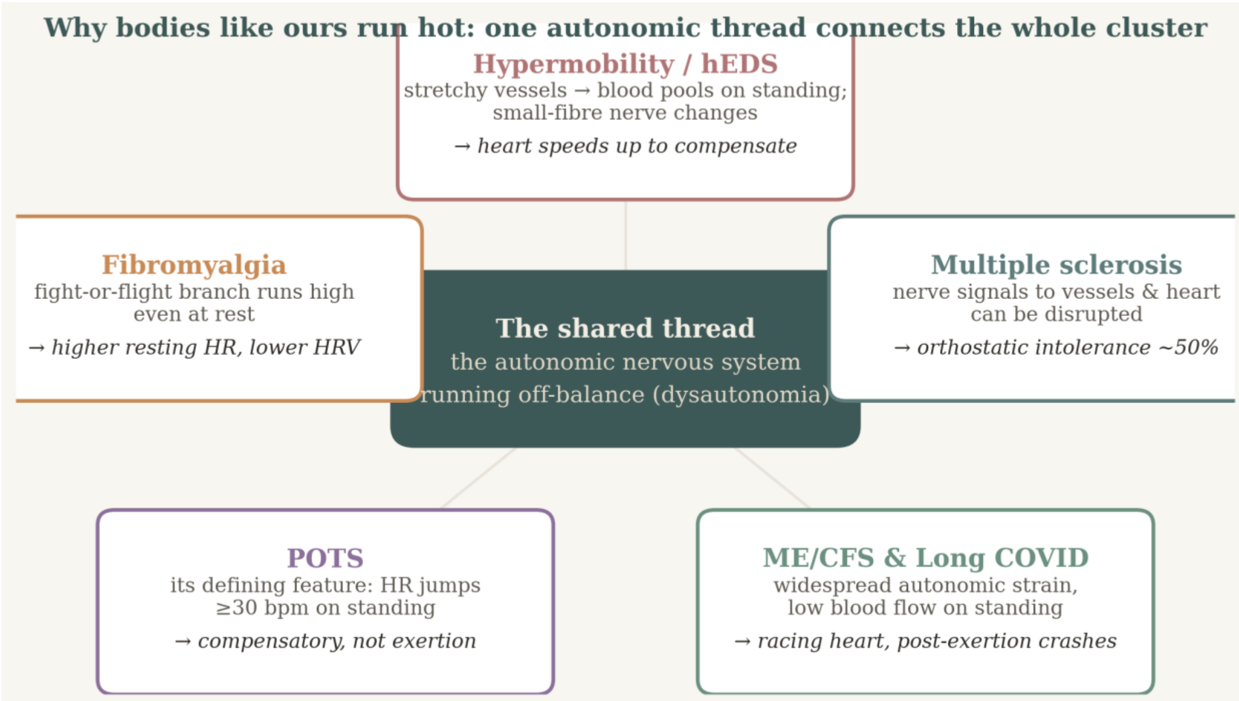
+9 bpm higher resting HR (ours)	**−12%** lower aerobic ceiling	**−47%** fewer steps/day

Honest caveat: these are two different cohorts — they differ in age, devices, engagement and era, not only in illness. So this is a disease-plus-population contrast, not a clean disease split. Steps, resting HR and aerobic ceiling are identically defined in both; we did not claim more sedentary stress, because on a like-for-like read our community is not higher there.

STEP 5 · WHY BODIES LIKE OURS RUN HOT

Hypermobility, fibromyalgia, MS and POTS share one autonomic thread

A fair question many of you have asked: is heart rate really linked to hypermobility, or to fibromyalgia. It is — and the link is the same thread that ties this whole cluster together. The autonomic nervous system, which sets heart rate and blood-vessel tone in the background, tends to run off-balance across these conditions, usually tilted toward fight-or-flight. The heart often speeds up to compensate for blood pooling or low vessel tone, not because of effort.



One autonomic thread connects the cluster. The heart races to compensate — which is exactly why a heart-rate-based number reads it as intensity.

A little more on each, in plain terms:

Hypermobility / hEDS. Stretchier connective tissue lets blood pool in the legs on standing, so the heart speeds up to keep blood moving; small-fibre nerve changes add to it. Orthostatic intolerance shows up in roughly 7 in 10, and a postural heart-rate jump in about 4 in 10 (de Wandele 2016; Igharo 2022).

Fibromyalgia. The fight-or-flight branch tends to run high even at rest — faster resting heart rate, lower heart-rate variability, and a harder time tolerating standing (Martinez-Lavin 1998; Furlan 2005).

Multiple sclerosis. The nerve signalling that steadies blood vessels and heart rate can be disrupted; orthostatic intolerance affects around half, and tracks with fatigue (Findling 2020; Flachenecker 2003).

POTS, which often overlaps the others, is defined by a heart-rate jump of 30+ bpm on standing — compensatory, not exertion (Mathias 2011; Chopra 2026).

They travel together because they share this autonomic strain — ME/CFS, Long COVID and hEDS show strikingly overlapping autonomic profiles (Novak 2026; Martinez-Martinez 2014).

STEP 6 · AND WHY HEART RATE IS AN IMPERFECT STAND-IN FOR EFFORT

The heart-rate–oxygen link that METs assume is exactly what these conditions bend

The MET formula works because, in healthy people, heart rate tracks oxygen use along a stable line. That assumption is what MS, dysautonomia and deconditioning break.

The equation our app uses is the published Heart-Rate-Index VO_2 estimate, validated on healthy exercise testing (Wicks 2025).

When disease alters the heart-rate–oxygen relationship, heart-rate-based MET estimates become inaccurate — shown directly after stroke, a close analogue (Cataldo 2024).

The heart-rate–energy line varies enormously between people, so individual readings need personal calibration (Schrack 2014).

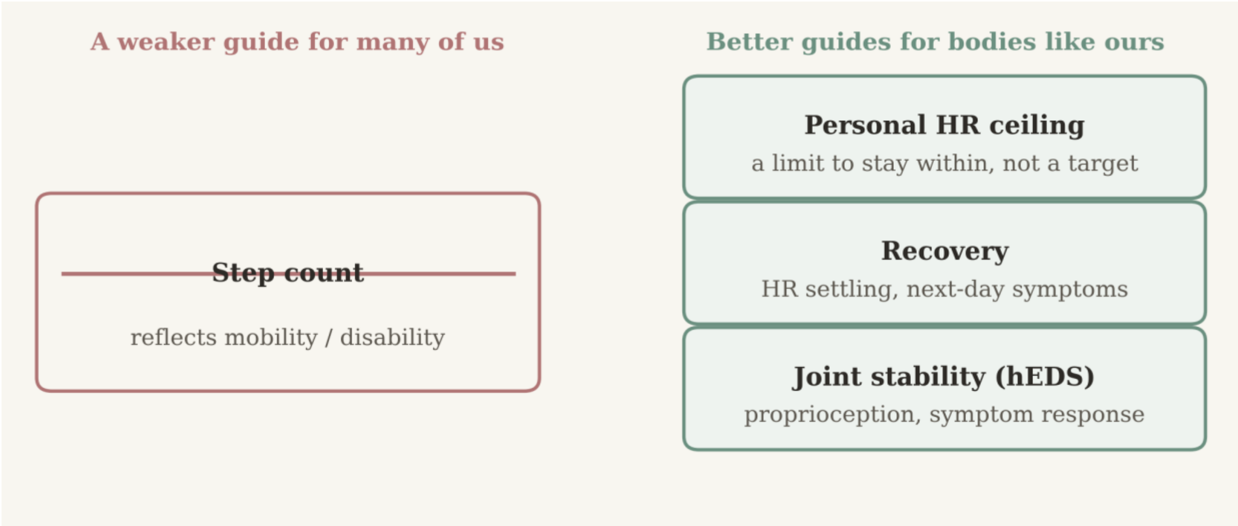
In POTS the racing heart on standing is largely compensatory — defending blood flow, not doing aerobic work (Chopra 2026).

For steps: in MS they mostly reflect mobility and disability (Goldman 2025); wrist trackers measure steps and active-minutes poorly in MS (Lavelle 2022); the ~8,000-step targets come from mostly-healthy cohorts (Master 2022).

STEP 7 · SO WHAT IS THE BETTER GUIDE

Not a single number — and not steps

If METs personalize the yardstick but still ride on heart rate, and steps reflect disability, the useful signals for bodies like ours are about how your body handles movement, read against your own baseline.



For MS + hypermobility + fibromyalgia, the steadier guides are a personal ceiling, recovery, and joint stability.

The answer

What this means for movement, for bodies like ours

Here is the honest picture. The METs number is genuinely personalized — to your own resting heart rate and your own aerobic ceiling, adaptively, with a pacing mode. It is a fair yardstick for your own capacity, not a crude absolute. What personalization cannot fix is that the moment-to-moment reading still rides on heart rate, and in dysautonomia the heart races for reasons other than aerobic work — so a given moment can still over-read metabolic effort.

So: not ‘lying’, but an imperfect proxy of how hard your body is actually working. And not the best single guide — nor are steps, which reflect disability. As a community we run about 9 bpm hotter at rest with a lower ceiling; below-guideline steps is expected. The steadier guides for many of us: a personal heart-rate ceiling used as a limit rather than a target, how the body recovers afterwards, and for hypermobility, joint stability and how symptoms respond.

Further reading

If you would like to go deeper, these are readable starting points (most have a free abstract):

1. Aziz, Q., Harris, L. A., Goodman, B. P., Simrén, M., & Shin, A. (2025). AGA clinical practice update on GI manifestations and autonomic or immune dysfunction in hypermobile Ehlers-Danlos syndrome: Expert review. *Clinical Gastroenterology and Hepatology, 23*(8), 1291–1302. https://doi.org/10.1016/j.cgh.2025.02.015
2. Cataldo, A. R., Fei, J., Hutchinson, K. J., Sloutsky, R., Starr, J., De Rossi, S. M. M., & Awad, L. N. (2024). Enhancing heart rate-based estimation of energy expenditure and exercise intensity in patients post stroke. *Bioengineering, 11*(12), Article 1250. https://doi.org/10.3390/bioengineering11121250
3. Chopra, P. (2026). Postural orthostatic tachycardia syndrome: When dysautonomia misleads: A mechanistic argument for compensatory orthostatic tachycardia. *Frontiers in Neurology, 17*, Article 1806502. https://doi.org/10.3389/fneur.2026.1806502
4. de Wandele, I., Rombaut, L., De Backer, T., Peersman, W., Da Silva, H., De Mits, S., De Paepe, A., Calders, P., & Malfait, F. (2016). Orthostatic intolerance and fatigue in the hypermobility type of Ehlers-Danlos syndrome. *Rheumatology, 55*(8), 1412–1420. https://doi.org/10.1093/rheumatology/kew032
5. Findling, O., Hauer, L., Pezawas, T., Rommer, P. S., Struhal, W., & Sellner, J. (2020). Cardiac autonomic dysfunction in multiple sclerosis: A systematic review of current knowledge and impact of immunotherapies. *Journal of Clinical Medicine, 9*(2), Article 335. https://doi.org/10.3390/jcm9020335
6. Flachenecker, P., Rufer, A., Bihler, I., Hippel, C., Reiners, K., Toyka, K. V., & Kesselring, J. (2003). Fatigue in MS is related to sympathetic vasomotor dysfunction. *Neurology, 61*(6), 851–853. https://doi.org/10.1212/01.WNL.0000080365.95436.B8
7. Furlan, R., Colombo, S., Perego, F., Atzeni, F., Diana, A., Barbic, F., Porta, A., Pace, F., Malliani, A., & Sarzi-Puttini, P. (2005). Abnormalities of cardiovascular neural control and reduced orthostatic tolerance in patients with primary fibromyalgia. *The Journal of Rheumatology, 32*(9), 1787–1793.
8. Martínez-Lavín, M., Hermosillo, A. G., Rosas, M., & Soto, M. E. (1998). Circadian studies of autonomic nervous balance in patients with fibromyalgia: A heart rate variability analysis. *Arthritis & Rheumatism, 41*(11), 1966–1971.
9. Mathias, C. J., Low, D. A., Iodice, V., Owens, A. P., Kirbis, M., & Grahame, R. (2011). Postural tachycardia syndrome—Current experience and concepts. *Nature Reviews Neurology, 8*(1), 22–34. https://doi.org/10.1038/nrneurol.2011.187
10. Roma, M., Marden, C. L., De Wandele, I., Francomano, C. A., & Rowe, P. C. (2018). Postural tachycardia syndrome and other forms of orthostatic intolerance in Ehlers-Danlos syndrome. *Autonomic Neuroscience, 215*, 89–96. https://doi.org/10.1016/j.autneu.2018.02.006
11. Schrack, J. A., Zipunnikov, V., Goldsmith, J., Bandeen-Roche, K., Crainiceanu, C. M., & Ferrucci, L. (2014). Estimating energy expenditure from heart rate in older adults: A case for calibration. *PLOS ONE, 9*(4), Article e93520. https://doi.org/10.1371/journal.pone.0093520
12. Wickens, B., Leeming, H., Dickinson, K., McBurney, E., Leslie, K., Bull, M., & Hilliard, N. (2025). Pacing with a heart rate monitor for people with myalgic encephalomyelitis/chronic fatigue syndrome and long COVID: A feasibility study. *Fatigue: Biomedicine, Health & Behavior, 13*(1), 74–96.

Evidence and limits

Our community data: 79 ELC members, 27,585 user-days (day_info). Healthy reference: 24 general Welltory users without a chronic condition (golden_set), zero overlap with our members. Algorithm: Welltory code (MET = 6 times HR/resting-HR minus 5; zones scaled to personal maxMET). Comparable metrics: steps, resting HR, aerobic ceiling. Descriptive only; the two cohorts differ in more than illness. This is general information from our community's data — please bring any movement decisions to your own clinician.