

What are heart rate zones, and how can you incorporate them into your exercise routine?

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If you spend a lot of time exploring fitness content online, you might have come across the concept of heart rate zones. Heart rate zone training has become more popular in recent years partly because of the

boom in wearable technology which, among other functions, allows people to easily track their heart rates.

[Heart rate zones](#) reflect different levels of intensity during [aerobic exercise](#). They're most often based on a percentage of your [maximum heart rate](#), which is the highest number of beats your heart can achieve per minute.

But what are the different heart rate zones, and how can you use these zones to optimize your workout?

The three-zone model

While there are several models used to describe heart rate zones, the most common model in the [scientific literature](#) is the [three-zone model](#), where the zones may be categorized as follows:

- zone 1: 55%–82% of maximum heart rate
- zone 2: 82%–87% of maximum heart rate
- zone 3: 87%–97% of maximum heart rate.

If you're not sure what your maximum heart rate is, it can be calculated using [this equation](#): $208 - (0.7 \times \text{age in years})$. For example, I'm 32 years old. $208 - (0.7 \times 32) = 185.6$, so my predicted maximum heart rate is around 186 beats per minute.

There are also other models used to describe heart rate zones, such as the [five-zone model](#) (as its name implies, this one has five distinct zones). These [models](#) largely describe the same thing and can mostly be used interchangeably.

What do the different zones involve?

The three zones are based around a person's [lactate threshold](#), which describes the point at which exercise intensity moves from being predominantly aerobic, to predominantly anaerobic.

Aerobic exercise [uses oxygen](#) to help our muscles keep going, ensuring we can continue for a long time without fatiguing. Anaerobic exercise, however, uses stored energy to fuel exercise. Anaerobic exercise also accrues metabolic byproducts (such as lactate) that increase fatigue, meaning we can only produce energy anaerobically for a short time.

On average your lactate threshold tends to sit around [85% of your maximum heart rate](#), although this varies from person to person, and can be [higher in athletes](#).

In the three-zone model, each zone loosely describes [one of three types of training](#).

Zone 1 represents high-volume, low-intensity exercise, usually performed for long periods and at an easy pace, well below lactate threshold. Examples include jogging or cycling at a gentle pace.

Zone 2 is threshold training, also known as tempo training, a moderate intensity training method performed for moderate durations, at (or around) lactate threshold. This could be running, rowing or cycling at a speed where it's difficult to speak full sentences.

Zone 3 mostly describes methods of high-intensity interval training, which are performed for shorter durations and at intensities above lactate threshold. For example, any circuit style workout that has you exercising hard for 30 seconds then resting for 30 seconds would be zone 3.

Striking a balance

To maximize endurance performance, you need to strike a balance between doing enough training to elicit positive changes, while avoiding over-training, injury and burnout.

While zone 3 is thought to produce the largest improvements in [maximal oxygen uptake](#)—one of the best predictors of [endurance performance](#) and overall health—it's also the most tiring. This means you can only perform so much of it before it becomes too much.

Training in different heart rate zones improves [slightly different physiological qualities](#), and so by spending time in each zone, you ensure a [variety of benefits](#) for performance and health.

So how much time should you spend in each zone?

Most [elite endurance athletes](#), including runners, rowers, and even cross-country skiers, tend to spend most of their training (around 80%) in zone 1, with the rest split between zones 2 and 3.

Because elite endurance athletes train a lot, most of it needs to be in zone 1, otherwise they risk injury and burnout. For example, some runners accumulate [more than 250 kilometers per week](#), which would be impossible to recover from if it was all performed in zone 2 or 3.

Of course, most people are not professional athletes. The [World Health Organization](#) recommends adults aim for 150–300 minutes of moderate intensity exercise per week, or 75–150 minutes of vigorous exercise per week.

If you look at this in the context of heart rate zones, you could consider zone 1 training as moderate intensity, and zones 2 and 3 as vigorous. Then, you can use heart rate zones to make sure you're exercising to

meet these guidelines.

What if I don't have a heart rate monitor?

If you don't have access to a heart rate tracker, that doesn't mean you can't use heart rate zones to guide your [training](#).

The three heart rate zones discussed in this article can also be prescribed based on feel using a simple [10-point scale](#), where 0 indicates no effort, and 10 indicates the maximum amount of effort you can produce.

With this system, zone 1 aligns with a 4 or less out of 10, zone 2 with 4.5 to 6.5 out of 10, and zone 3 as a 7 or higher out of 10.

Heart rate zones are not a perfect measure of exercise intensity, but can be a useful tool. And if you don't want to worry about heart rate zones at all, that's also fine. The most important thing is to simply get moving.

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