

Heart Rate Monitoring

Category: 3. Road to Recovery

What is heart rate monitoring and why is it important for Long COVID?

Heart rate monitoring involves tracking your heart rate throughout each day to get an idea of how different activities affect you. Your heart rate can give you some useful information that can help you avoid over-exerting yourself without realizing it and help prevent you from crashing.

Monitoring your heart rate can be part of conserving your energy and pacing when you have Long COVID. Research evidence shows that it can help people with myalgic encephalomyelitis (ME), which has similarities with Long COVID, to help reduce severity and duration of post-exertional malaise (PEM). Please see [recommendations for rest and pacing](#) by the Canadian Guideline for Post-COVID-19 Condition (CAN-PCC) for suggestions on self-monitoring heart rate under 'Implement considerations.'



POST-COVID-19
Interdisciplinary Clinical Care Network
Provincial Health Services Authority

How heart rate monitoring can help you conserve energy if you have post-exertional malaise

Cells produce energy in two different ways:

1. The aerobic pathway produces energy using oxygen. It's far more efficient, and it produces a lot more energy from the fuel it is using.
2. The anaerobic pathway produces energy without oxygen. It uses up far more fuel to produce that energy so that you end up feeling drained and your symptoms may become worse.

For people who have Long COVID who also have post-exertional malaise (PEM), it is important to stay **below** the anaerobic threshold to help conserve energy. This is also called 'staying in the aerobic zone.' If you do not have PEM, this advice does not apply.

How you can stay in the aerobic zone if you have post-exertional malaise

Aerobic activity is generally lower intensity with a lower heart rate. It is more sustainable for longer durations of activity.

Anaerobic activity is higher intensity with a higher heart rate. It is meant for short bursts of activity only and typically requires rest afterwards to recover.

For each person there is a certain heart rate where the cells switch from aerobic to anaerobic energy production – this is called the **anaerobic threshold**. If you keep your heart rate below this threshold, you will stay in the aerobic zone.

This threshold can be estimated with a simple calculation. Please note that this is an **estimate** and a starting point rather than a strict rule. It needs to be adjusted up or down based on symptoms, certain medication, presence of postural orthostatic tachycardia syndrome (POTS), etc.

First, subtract your age from 220

Then, take that number and multiply by 0.6

$$(220 - \text{Your Age}) * 0.6$$

So, for example, if you are 46 years old, your anaerobic threshold is:

$$\text{First, } 220 - 46 = 174$$



Then, $174 \times 0.6 = 104.4$

This means that if you are 46 years old, your anaerobic threshold is about 104 beats per minute. If you are someone who experiences post-exertional malaise, it is recommended to pace your activities so that your heart rate stays below this number (in this case, 104 beats per minute) as much as possible.

Please note that this is a very conservative estimate, but it is better to start lower to ensure you are able to find an activity level that does not cause a crash.

We also know that people with Long COVID can be similar to those with Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) who tend to have a lower anaerobic threshold than a person without these conditions.

You may be able to adjust your threshold as you recover from Long COVID and try to increase your activity.

Tools to help you monitor your heart rate throughout the day

- **Meditation and breathwork**

Meditation/relaxation exercises and breath work can help you lower your heart rate.

- **Fitness trackers or smart watches**

Fitness trackers and smart watches are convenient ways to check your heart rate quickly throughout the day (because you can wear them all the time). You can check your heart rate when you do various activities throughout the day (such as housework, walking, watching TV) to make sure you are staying below your anaerobic threshold.

Be sure to adjust your activity immediately if you find yourself going over your anaerobic threshold – slow down and/or rest. Please note, this recommendation is only for people with post-exertional malaise.

- **Pulse oximeters**

This is another method of monitoring your heart rate. These devices can be more affordable, but they are less convenient to use than fitness trackers and smart watches – to get a reading, you may have to stop your activity to put the device on your finger, and the reading can take some time.

- [Tracking sheet](#)

This tool helps you to see how certain physical activities, your work activities, and breath work may affect your heart rate.

Also, it can show you how your resting heart rate varies from day to day. Tracking your resting heart rate everyday can be helpful because a significantly higher resting heart rate one day can be a good indicator that you have already 'overdone it' and you may want to rest more that day to help prevent a crash. Your resting heart rate is taken first thing in the morning before you get out of bed.

Where to next?

- Review [the recommendation](#) by CAN-PCC on using rest/pacing.

