

An unstable heart rate in ME is common and is linked to autonomic nervous system dysfunction, with symptoms like tachycardia (racing heart) and palpitations. This is often due to an imbalance in the sympathetic nervous system (SNS) and parasympathetic nervous system (PNS), with an overactive SNS leading to an increased heart rate and reduced heart rate variability (HRV). Individuals may experience exaggerated heart rate fluctuations throughout the day and night compared to healthy people.

### Symptoms

- \* Tachycardia and palpitations: A racing or skipping heartbeat is a common experience for many with ME/CFS.
- \* Erratic heart rate fluctuations: The heart rate can fluctuate more dramatically than normal throughout the day and night.
- \* Postural Orthostatic Tachycardia Syndrome (POTS): Some individuals with ME/CFS may also have POTS, which involves a significant increase in heart rate upon standing.

### Underlying causes

- \* Autonomic nervous system dysfunction: The autonomic nervous system, which regulates involuntary functions like heart rate, is often impaired in ME/CFS.
- \* Sympathetic nervous system dominance: Research suggests a state of over-vigilance in the SNS, potentially due to higher levels of norepinephrine, which increases heart rate.
- \* Reduced vagal modulation: The parasympathetic nervous system, which has a calming effect, may have less influence, leading to a less stable heart rate.
- \* Disrupted circadian rhythms: The body's internal clock is often disrupted in ME/CFS, leading to more erratic heart rate and blood pressure patterns throughout a 24-hour cycle.
- \* Reduced Heart Rate Variability (HRV): Lower HRV is often observed in ME/CFS patients, indicating the heart rate is less responsive and flexible.

Those symptoms — very high heart rate, chest pressure, heart pain, and a fluttering or straining heart — are commonly reported in people with Myalgic Encephalomyelitis (ME) and often indicate cardiovascular or autonomic nervous system dysfunction, particularly involving orthostatic intolerance (difficulty maintaining blood pressure and heart rate when upright).

### Very High Heart Rate

- \* Often seen in Postural Orthostatic Tachycardia Syndrome (POTS), which is frequent in ME.

- \* The heart rate can spike 30+ beats per minute (or exceed 120 bpm) when moving from lying down to standing.

- \* This occurs because blood pools in the lower body due to low circulating blood volume and dysautonomia, forcing the heart to beat faster to maintain circulation.

#### Chest Pressure or Pain

- \* Can result from reduced oxygen delivery to the heart or autonomic dysregulation.

- \* Low blood pressure, especially when upright, can cause poor cardiac perfusion.

- \* Some patients describe it as “a heavy weight” or “tightness” rather than sharp pain.

#### Heart Pain (Angina-like)

- \* ME patients may experience non-ischemic cardiac pain — pain not due to coronary artery blockage, but due to metabolic or mitochondrial dysfunction in heart muscle cells.

- \* In more severe cases, myocardial strain or inflammation can contribute.

#### Fluttering or Straining Heart

- \* This can indicate palpitations or arrhythmias, such as premature beats or short bursts of tachycardia.

- \* Caused by imbalanced autonomic signaling (sympathetic overactivation and parasympathetic underactivity).

- \* May also worsen with post-exertional malaise (PEM) or overexertion.

#### Related ME Mechanisms

Research has shown:

- \* Reduced blood volume (up to 50%)

- \* Small-fiber neuropathy affecting autonomic nerves

- \* Endothelial dysfunction (poor vessel tone and blood flow)

- \* Mitochondrial energy deficits in cardiac and vascular tissue

#### Important

If you (or someone else) experiences new or worsening chest pain or palpitations, medical evaluation is essential — especially to rule out cardiac or vascular emergencies.

A very low heart rate (bradycardia) can also occur in people with Myalgic Encephalomyelitis (ME) and is part of the same autonomic nervous system instability that can cause high heart rate or palpitations.

#### Very Low Heart Rate (Bradycardia)

- \* Defined as a resting heart rate below 60 beats per minute — though in ME, it may drop much lower during rest, sleep, or crashes.

- \* Can occur because the autonomic nervous system (ANS) — which regulates heart rhythm and blood pressure — is dysregulated.

- \* The parasympathetic (vagal) branch may become overactive during “shutdown” or post-exertional malaise (PEM), slowing the heart too much.

- \* It can also reflect low metabolic demand, reduced blood volume, or abnormal baroreflex function (the system that controls blood pressure).

#### Mechanisms in ME

- \* Autonomic dysfunction (dysautonomia): the same system that fails to raise heart rate properly at times can also slow it excessively.

- \* Brainstem involvement: the brainstem controls heart rate through the vagus and sympathetic nerves; inflammation or injury here (seen in ME brain imaging studies) can cause erratic signals.

- \* Mitochondrial or metabolic suppression: during energy crashes, overall metabolism slows, lowering cardiac output and heart rate.

#### Symptoms

When the heart rate drops too low, patients may feel:

- \* Lightheaded, dizzy, or faint

- \* Extremely weak or fatigued

- \* Cold, clammy, or “shut down”

- \* Cognitive fog or confusion

#### When to Seek Medical Review

If your heart rate consistently drops below 50 bpm (or below 40 bpm during rest), or if you feel faint or lose consciousness, it should be evaluated by a doctor — preferably with Holter monitoring or tilt table testing to capture both low and high rate episodes.

<https://www.mererearch.org.uk/research/cardiac-function/...>

<https://pmc.ncbi.nlm.nih.gov/articles/PMC6824690/>

<https://www.journal-of-cardiology.com/.../S0914.../fulltext>

<https://esmed.org/MRA/mra/article/download/2891/193546174>

Medications for an irregular heartbeat (arrhythmia) include antiarrhythmics like Amiodarone to correct rhythm, beta-blockers (e.g., Metoprolol, Atenolol) and calcium channel blockers to control heart rate, potassium channel blockers such as Sotalol, and blood thinners (anticoagulants) like Xarelto or Eliquis to prevent blood clots. Other options include cardiac glycosides and flecainide, but the most appropriate medication depends on the specific type of arrhythmia and an individual's health. A doctor must prescribe and monitor these medications.

#### Antiarrhythmics (Correct Rhythm)

- \* Amiodarone: is a common antiarrhythmic that works by slowing nerve impulses to help keep the heart's rhythm normal.
- \* Other antiarrhythmics include flecainide, which may be started in a hospital under close monitoring.
- \* Potassium channel blockers, including Amiodarone and dronedarone, help by slowing electrical signals in the heart.

#### Rate-Controlling Medications

- \* Beta-blockers such as metoprolol, atenolol, and bisoprolol help control the heart rate, preventing it from beating too fast.
- \* Calcium channel blockers reduce the amount of calcium entering heart and blood vessel walls, which helps slow the heart rate and manage an irregular heartbeat.

#### Blood Thinners (Anticoagulants)

- \* These medications, such as apixaban (Eliquis), rivaroxaban (Xarelto), and warfarin, are prescribed if there's a risk of blood clots or stroke due to the arrhythmia.

#### Other Options

- \* Cardiac glycosides: are another class of drugs used to treat irregular heartbeats and related heart conditions.

#### Important Considerations

- \* Medications for irregular heartbeats are available only with a doctor's prescription.
- \* A healthcare professional must closely monitor the patient to ensure they are on the correct dosage and to watch for side effects.
- \* Do not stop taking beta-blockers or other prescribed heart medications suddenly, as symptoms may return

<https://www.healthline.com/health/arrhythmia/drugs...>

[https://www.templehealth.org/.../arr.../treatment-options...\).](https://www.templehealth.org/.../arr.../treatment-options...)

<https://www.heart.org/.../atrial-fibrillation-medications...>

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