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## ME/CFS Activity Management

### with a Heart Rate Monitor

Heart rate monitoring during activity provides biofeedback that promotes symptom awareness and control.

When heart rate is associated with symptoms and perceived exertion, it becomes a powerful tool to manage post-exertional malaise (PEM), i.e., worsening of symptoms after activity (for more see our PEM Timecourse).

Energy production is not normal in ME/CFS. Even light/easy everyday tasks can exacerbate fatigue, cause dizziness and prolong recovery time. People with ME/CFS have a low anaerobic threshold which can decrease further after activity. Pacing with a heart rate monitor (HRM) interrupts the push-crash cycle and prevents PEM.

1 Determine resting heart rate (RHR). After waking, remain flat in bed and record resting heart rate with a HRM.

Calculate the 7-day average RHR. Use this average heart rate as a baseline to evaluate recovery from daily activities. If morning RHR is 10 beats higher or lower than the normal average this indicates "overdoing" or lack of recovery from previous activities. When this occurs, it is recommended to rest and decrease time spent doing activities, including cognitive tasks.

2 Use heart rate at the anaerobic threshold from day two of cardiopulmonary exercise testing (CPET) to

monitor daily activities. Identify those activities and body positions which put you over this HR. Avoid spending more than 2 minutes above the anaerobic threshold.

3 Absent CPET, activity limits should be 15 beats per minute (bpm) above the average RHR. Our research

shows the anaerobic threshold is on average 15 bpm above resting heart rate.

4 Identify PEM symptoms for heart rates above the anaerobic threshold. Learn to recognize your symptoms

when approaching and exceeding the HR threshold.

- Immediate symptoms might include difficulty breathing, dizziness, and nausea.
- Short-term symptoms of overdoing activity include muscle/joint pain, brain fog, headache, and sleep disturbance.
- Long-term symptoms of PEM include weakness, a decrease in function, flu-like and cardiopulmonary symptoms.
- What is the first symptom you experience when over your threshold? This, plus heart rate, is a red light indicator to stop activities before symptoms flare up.

5 Stop activities if feeling immediate symptoms of exceeding the anaerobic threshold and rest until heart rate

returns to within 10 beats of the RHR. The time required to return to RHR can be longer for severe PEM and vary from minutes to hours.

6 Tie activities to perceived exertion. Activities above the anaerobic threshold should feel "hard." Activities

below the anaerobic threshold should feel "light and easy." If an activity feels hard, stop and rest. If an activity feels light and easy with no symptoms of PEM, that activity can be continued safely.

7 Stay below the RHR+15 bpm threshold and rest when the immediate symptoms of exceeding the anaerobic

threshold occur and, over time, short-term and long-term PEM symptoms will resolve.

1 Snell CR, SR Stevens, TE Davenport, and JM Van Ness 2013. Discriminative validity of metabolic and workload measurements for identifying people with chronic fatigue syndrome. *Physical Therapy* 83:1484-92.

2 Mateo LJ, L.Chu, S Stevens, J Stevens, CR Snell, T Davenport 2020. Post-exertional symptoms distinguish myalgic encephalomyelitis/chronic fatigue syndrome subjects from healthy controls. *Work* 66:265-75.