

### ***Activity recommendations for ME/CFS to maintain muscle and function***

Always begin a session with diaphragmatic or belly breathing. This is particularly important to promote good blood flow, movement of lymph to clear waste products, and relaxation. If you have pain symptoms, you are likely not breathing fully and also tightening muscles even though you may not realize it.

#### ***Diaphragmatic breathing:***

- 1) Sit or lie comfortably – if lying on your back, bend your knees with feet flat on the floor, and rest arms on the floor at your sides.
- 2) Place one hand on your upper chest to feel if your chest is still. If you are engaging your diaphragm properly, your chest should move very little, if at all.
- 3) Place your other hand between the bottom of your ribcage and your navel to feel if your diaphragm is moving (it should be!).
- 4) Through your nose, breath in slowly then breathe out slowly through pursed lips. Remember, your chest should be still.
- 5) Don't force the exhalation, your belly should stay soft and supple.

Heart rate at ventilatory/anaerobic threshold (**HR@VAT**) is a simple measure to help manage activity intensity and avoid exceeding your threshold of energy production that provokes post-exertion symptoms. To best manage activity to avoid post-exertion symptoms, you should strive to maintain a HR at least **10 bpm below your HR@VAT** that was determined in CPET 1.

If you exceed your HR@VAT, try to minimize the time you spend above HR@VAT, and plan to recover for about 3-6, times the amount of time you spent at a HR above VAT. For example, when climbing stairs, if your HR exceeds your recommended HR (10 bpm below HR@VAT), stop part way up the stairs, sit and recover. If that is not feasible, stop at the top of the stairs and plan to recover for 3-6, times the amount of time your HR exceeded your recommended HR.

#### **Is this activity management helpful?**

The effectiveness of this activity management strategy is best indicated by how you feel later in the day or the next day. If you do not experience post-exertion relapse (PEM symptoms) when adhering to this activity management strategy, you know your HR guideline is effective. If you continue to experience PEM when practicing this activity management approach, then consider reducing your activity HR to 15-20 bpm below your HR@VAT.

#### **The best activities for ME/CFS:**

To maintain muscle mass and muscle function, activities that challenge your 'core' muscles (muscles and connective tissue of your trunk and hips that stabilize your spinal column) should be the focus of your activity management plan. Keeping your core muscles functioning well improves your efficiency of movement and overall flow of blood and lymph.

**REMEMBER-** you do not recover appropriately following aerobic (endurance-type) activities, so do not persist so long in your exertion that your muscle endurance is challenged. This is counterproductive and will cause PEM.

For most ME/CFS patients, this means that the duration of your physical exertion should be short (10 seconds to 1 or 2 minutes), with a recovery period that is 3 to 4 times the duration of the exertion period. For example, if you perform a 'Superman' exercise and hold it for 10 seconds, you should recover for 30-40 seconds (3-4x recovery period). Or, if you do several short Supermans- maybe 2 seconds each, in a repetitive manner for 10 seconds, follow with a 30-40 second recovery as well. However, it is best to start an exercise program with low movement activities (ie., one 10-second Superman vs five quick 2-second Supermans). Low movement activities will not increase your HR as quickly and are helpful for staying below your recommended HR, particularly early in your activity program.

A general rule of thumb is to start with **1 set of 3 repetitions per exercise**. Depending on your current level of function, you may start with 3 reps x 5 second Superman, as follows:

- 1 x Superman for 5 seconds
- Rest 15 seconds (3x5 seconds)
- 1 x Superman for 5 seconds
- Rest 15 seconds
- 1 x Superman for 5 seconds
- Rest 3-4 minutes before starting another exercise

At first, your total activity time (exertion + recovery) should be short- no more than 10 minutes. This means you may only complete two different exercises (e.g., Superman and Modified pushup). That's ok. Keep track of how you feel later in the day and the next day. If you experience PEM symptoms, then you need to shorten your routine (hold the exercise for less than 5 seconds, and/or do only one 1 exercise and/or increase recovery time between reps).

**The exercises below are helpful for maintaining Core stability and spinal alignment. MODIFY them for your level of function. That is, don't try to be the model in the exercise video, but DO try to keep your spine aligned, and BREATHE rhythmically in and out throughout the exercise. DO NOT HOLD YOUR BREATH.**

- 1) **Exercises while lying down** (can be done on a bed, but firmer surface is helpful). *Some links have movement and you may need to click on the video to start it.*
  - a. **Superman (or SUPERwoman ☺)** *You can start by lifting only 1 arm + the opposite leg (diagonal pair), and over time work toward a full Superman*  
<https://i.giphy.com/media/QGNrV1BuuLIVq/giphy.mp4>
  - b. **Modified or full pushup**  
<https://big.assets.huffingtonpost.com/Untitled-6.gif>

- c. **Supine arm circles on foam roller or mat**  
<http://onelombard.com/wp-content/uploads/2016/02/Blink-CorteMadera-color-2016-02-09-23-13-48-630-683086-full-gif-1.gif>
  - d. **Hip bridge**  
<https://assets.vogue.com/photos/5891863158aa89a00d544190/master/paas/bridge.gif>
  - e. **Trunk curl-ups** <http://en.bcdn.biz/Files/2016/4/29/73348b7c-28ae-4913-99bc-ddbb600371c6.gif>  
**Or**  
<https://myrehabconnection.com/curl-up-progressions/>
- 2) **Exercises while standing** (good for posture- keep it short if you get lightheaded when standing):
- a. **Posture exercise with foam roller**  
(view both images to see the movement in this exercise)  
<https://onelombard.com/wp-content/uploads/2016/02/editBlink-CorteMadera-color-2016-02-09-23-17-30-780-683096-full.jpg>  
  
<https://onelombard.com/wp-content/uploads/2016/02/editBlink-CorteMadera-color-2016-02-09-23-17-37-600-683099-full.jpg>
  - b. **Chair squat** (use wall or another chair for balance if needed)  
<http://www.magazinediscountcenter.com/blog/wp-content/uploads/2014/11/chair-squats-300x226.jpg>