Breathing Exercises and Pulmonary Rehabilitation

Breathing exercises are particularly important when you are recovering from a lung infection or other lung problems because they strengthen the muscles that help you breathe. These muscles include your diaphragm and the chest wall muscles.

Pursed lip breathing exercises help keep your airways open longer to allow more air to flow in and out of your lungs. To purse your lips, make a small "O" shaped opening with your lips, like you are trying to make an "ooo" sound. You can practice with a straw between your lips or purse your lips together pretending there is a straw in place. For the breathing exercises, breathe in gently and deeply through your nose for 2 slow counts, purse your lips and breathe out through your mouth for 4 or more slow counts. Breathe in a relaxed way. Do not force your lungs to be full or empty.

An incentive spirometer device helps strengthen your breathing muscles, while also opening up the air spaces in your lungs. Use it to help you practice taking long, slow, deep breaths. If you did not get an incentive spirometer at the hospital or clinic, you can purchase one on Amazon for less than $10.

How to use an incentive spirometer:
1) Sit up straight in a chair or at the edge of your bed
2) Hold the incentive spirometer upright.
3) Breathe out normally.
4) Bring the mouthpiece into your mouth and close your lips tightly around it.
5) Breathe in through your mouth as slowly and deeply as possible. Make the ball/piston rise as high as you can.
6) Hold your breath for at least five seconds.
7) Let go of the mouthpiece and exhale slowly, while watching the piston/ball fall back to the bottom.
8) Use the arrow indicator to mark your best effort (highest point reached). Keep this as a goal for each repetition.
9) Repeat 10 times. You can rest for a few seconds between repetitions.

A good video on the how to use an incentive spirometer can be found here:
https://youtu.be/-O-Zawtb32o

Recommended daily breathing exercise goals:
(can be split into several sessions per day)
- 10 minutes of incentive spirometer exercise (approximately 3 sessions of 10 reps)
- 10 minutes of diaphragmatic and pursed lip breathing exercises

Exercise Program

Exercise can help improve your shortness of breath, increase exercise capacity, decrease inflammation, and improve quality of life after a major illness.

Target
Increasing activity as tolerated is safe and will help you recover. As your symptoms improve, our eventual goal is that you are able to perform 150 minutes of moderate intensity aerobic exercise per week or 75 minutes of vigorous intensity aerobic exercise per week defined by the heart rate parameters below. Examples of moderate aerobic exercise include walking, water aerobics, or cycling <10 mph. Examples of vigorous aerobic exercise include jogging, swimming, dancing, or cycling >10mph. Additionally, about 60 minutes per week dedicated to strengthening exercises is recommended as a goal target. Consider the following resources for body-weight strengthening exercises:

https://uhs.princeton.edu/sites/uhs/files/documents/Pilates-Flex-Stretch.pdf
https://uhs.princeton.edu/sites/uhs/files/documents/Dynamic-Flexibility.pdf
https://uhs.princeton.edu/sites/uhs/files/documents/Pelvic-Stabilization-Hip-Strengthening.pdf

Getting to this target could take months, in some cases, more than a year. This will be different for each individual. Occasional setbacks are expected. It's important to start low and advance slowly at a level that feels comfortable to you. We do not want to cause rebound episodes of fatigue or "crashes". If this is happening, you may need to decrease your level of exertion.

How to Advance Exercise

Start at 10 minutes of light to moderate (definition below) aerobic exercise three times per week. Every 10 days, the amount and intensity of exercise can increase by about 10%. Following that guide, after starting at 10 minutes three times per week, after 3 weeks you would be around 12 minutes three times per week. By 6 weeks, you would be around 15 minutes three times per week. By 10 weeks, 20 minutes three times per week. By 16 weeks you could potentially be doing 30 minutes of moderate aerobic exercise three times per week. Between 16 and 24 weeks, that can be steadily increased from three times per week to five times per week. Thus, by about 24 weeks or 6 months, you could potentially be at the goal of 150 minutes of moderate exercise per week.

If having "crashes" (your Long COVID symptoms worsening in the days after exercise), do not advance exercise - you might have to temporarily decrease overall activity.

On days off from aerobic exercise, try to spend some time on strengthening exercises (linked above). At first, this may be just 1 or 2 exercises per day.

Exercise Parameters:

Light exercise intensity: Heart rate is minimally increasing with activity.

The talk test is a simple way to measure relative intensity. It should be easy to talk during light activity.

Moderate exercise intensity: **50%** to about **70%** of your maximum heart rate.

In general, if you're doing moderate-intensity activity, you can talk but not sing during the activity.

Vigorous exercise intensity: **70%** to about **85%** of your maximum heart rate.

In general, if you're doing vigorous-intensity activity, you will not be able to say more than a few words without pausing for a breath.

Maximum Heart Rate: 220 – age = maximum heart rate
O2 sat > 90 % pulse oximeter

Deconditioning and Fatigue

Gradually ease back into work and usual activities. If you find that everyday activities continue to leave you feeling weak, short of breath, or tired, consider the following pacing and energy conservation recommendations below. You can also discuss with your doctor whether you need outpatient physical therapy to work on generalized strengthening, balance, functional activities, endurance building, and developing a home exercise program.

Pacing and Energy Conservation in Recovery from Medical Illness

Pacing is important as it is designed to slowly but progressively increase stamina in a manner that improves endurance and minimizes risk of harm. Working on a pacing plan is especially important given the strong impact that physical activity can have on long term brain health.

The type of appropriate exercise can vary from walking, stretching (e.g., yoga), strength training, to swimming. The primary goal is to do something active that increases his heart rate for at least 20-30 minutes to improve stamina, cerebrovascular health, and strength. If interested, below are a few articles on the manner that exercise improves cognitive health.

How Exercise Reprograms the Brain:
https://www.the-scientist.com/features/this-is-your-brain-on-exercise-64934

This is Your Brain on Exercise
https://experiencelife.com/article/this-is-your-brain-on-exercise/

Science Daily – Exercise Effects of Brain Health
https://www.sciencedaily.com/releases/2016/02/160225101241.htm

As noted above, pacing activities (both physical and mental) are part of a vital strategy to gradually improve health in order to prevent one from "overdoing it" on certain days that can negatively impact the days to follow (e.g. several hours of gardening one day leading to spending the next day in bed).

Below are several areas of focus to better manage fatigue and deconditioning, as well as steps on how to implement pacing strategies to reduce the frequency of days that you experience considerable physical and cognitive fatigue. The goal is to gradually increase your threshold and endurance for more demanding tasks over time.

Exercise Parameters

When you exercise or engage in activities, are you doing too much or not enough? There is a simple way to know: Your target heart rate can be the guide.

Resting Heart Rate
Your resting heart rate is the number of times your heart beats per minute when you're at rest. A good time to check it is in the morning after you have had a good night's sleep, before you get out of bed. For most people, between 60 and 100 beats per minute (bpm) is normal. The rate can be affected by factors like stress, anxiety, hormones, medication, and how physically active you are. When it comes to resting heart rate, lower is generally better. It usually means your heart muscle is in better condition and does not have to work as hard to maintain a steady beat. Studies have found that a higher resting heart rate is linked with lower physical fitness and higher blood pressure and body weight.

Average **Maximum** Heart Rate, (100%) by age:	Average **Target** Heart Rate Zone (50-85%) by age:
20 years 200 bpm 30 years 190 bpm 35 years 185 bpm 40 years 180 bpm 45 years 175 bpm 50 years 170 bpm 55 years 165 bpm 60 years 160 bpm 65 years 155 bpm 70 years 150 bpm	20 years 100-170 bpm 30 years 95-162 bpm 35 years 93-157 bpm 40 years 90-153 bpm 45 years 88-149 bpm 50 years 85-145 bpm 55 years 83-140 bpm 60 years 80-136 bpm 65 years 78-132 bpm 70 years 75-128 bpm
Note: The figures are averages and should be used as a general guide.	

You can also calculate your Maximum Heart Rate:

220 - age = maximum recommended heart rate

For example, if you are 36 years old, your maximum heart rate is 184 beats per minute (bpm): 220 - 36= 184

Target heart rate during moderate intensity activities is about 50-70% of maximum heart rate, while during vigorous physical activity it's about 70-85% of maximum.

Now that you have a target, you can monitor your heart rate to make sure you are in the zone. As you exercise, periodically check your heart rate. A wearable activity tracker makes it super easy, but if you do not use one you can also find it manually:

Take your pulse on the inside of your wrist, on the thumb side.
Use the tips of your first two fingers (not your thumb) and press lightly over the artery.
Count your pulse for 30 seconds and multiply by 2 to find your beats per minute.
Important Note: Some drugs and medications affect heart rate, meaning you may have a lower maximum heart rate and target zone. If you have a heart condition or take medication, ask your healthcare provider what your heart rate should be.

Exercise Recommendations and Monitoring Vital Signs

Heart rate is a good vital sign to monitor exercise intensity in most people. If you have other medical problems with your blood pressure or breathing, you may need additional monitoring during exercise.

Heart rate

- To start out, focus on moderate exercise intensity: 50-70% of maximum heart rate, starting at the lower end of your target range and then building up.
- Increase to more vigorous exercise intensity: 70-85% of maximum heart rate as tolerated.
- If you are above 85% of maximum heart rate, slow down.

If your heart rate is too high, you are straining. If it is too low, and the intensity feels “light” to “moderate,” you may want to push yourself to exercise a little harder.

Blood Pressure

- If you have high blood pressure or history of stroke or brain bleed, it is important to check your blood pressure periodically with a home blood pressure cuff while exercising.
- If Blood Pressure is greater that 200 systolic (top number) or 120 diastolic (bottom number) stop exercising, rest for 5-10 minutes, and recheck. If it remains elevated above these numbers contact your primary doctor immediately.

Oxygen

- If you have shortness of breath or lung disease (e.g. asthma, cigarette smoking, recent pneumonia), you will want a pulse oximeter to monitor your oxygen status periodically with exercise.

- Your oxygen saturation should stay above 90% on a pulse oximeter. Take a break and reduce exercise if O2 saturation is less than 90% .

*Adapted from American Heart Association website
https://www.heart.org/en/healthy-living/fitness/fitness-basics/target-heart-rates?gclid=EAIaIQobChMIj8TVtvKe7gIVSx-tBh3BIA4KEAAYASAAEgL8R_D_BwE

Sources:

1 All About Heart Rate (Pulse), American Heart Association website
2 Elevated resting heart rate, physical fitness and all-cause mortality, Epidemiology, 2013
http://heart.bmj.com/content/99/12/882.full?sid=90e3623c-1250-4b94-928c-0a8f95c5b36b
3 Target Heart Rate and Estimated Maximum Heart Rate, Centers for Disease Control website https://www.cdc.gov/physicalactivity/basics/measuring/heartrate.htm

Pacing Strategies to Manage Physical Fatigue and Improve Endurance

One thing at a time
When you are doing a specific task, such as preparing a meal, it's very tempting to try to complete it in one burst of activity. Instead, split the activity into a series of small stages, with periods of rest and relaxation in between. Only attempt one activity at a time.

Energy use
Activity incorporates anything that uses energy. Activities are low, medium, or high consumers of energy and include physical, mental, and/or emotional demands. Learning to classify your activities in terms of energy level and type can be helpful when you are planning your day. An activity diary may help.

Be energy wise
Look at whether there is anything you can do to make an activity easier and less taxing. For example, if you are washing up, can you sit rather than stand? Try soaking dishes first so that they are easier to clean, then leave them to dry on the draining board. In this way you might be able to modify a high-energy activity into a medium-energy activity.

It's particularly important to take this approach with demanding activities that may be taxing in several different ways. For example, shopping will include traveling, sitting, walking, carrying, and coping with a busy environment with bright lights and noise.

Do not just do things the way you have always done them. Only stick to old routines if they are manageable. For example, if you get up in the morning and have breakfast, build in a rest before you get dressed. Activities that you may have previously carried out automatically, such as showering, drying your hair etc. now need to be included in your plan.

It can help to think of your available energy as being like money in a bank account. You have a certain amount to spend, and when you exceed that you go into debt. To manage your money wisely you must budget your spending and aim to stop spending what you cannot afford. Economizing will help your budget to go further.

Rest and Relaxation
Good quality rest and relaxation is an essential part of a successful pacing program and you need to build this into your day. The amount of rest that is needed varies from person to person. Some people need a lot of rest while others find that if they are getting good quality rest, they can cope with frequent but short 'mini-rests,' lasting as little as five to ten minutes.

Relaxation is about achieving complete rest of the body and mind. If you feel that your brain or body is being stimulated, you are not achieving true relaxation. It can take some time to learn to 'switch off' both physically and mentally. Some people find it difficult to relax properly and feel guilty if they're not busy or doing something "useful."

There are several techniques or skills that you can learn to help achieve a state of relaxation. It helps to: make room for relaxation and breathe well.

Make room for relaxation
Set aside a time and place to relax. You don't need to go to bed to relax and in fact it can be best to save your bed for night time sleep. Where you choose will depend on your home circumstances but you need to find a place where you won't be disturbed. Switch off the phone and let those around you know that you don't want to be interrupted. Get yourself really comfortable, either lying down on a mat, or sitting in a chair with your neck, feet and arms well supported. Make sure you are warm enough.

Breathe well
Learning breathing techniques, and remembering to put them into practice, is important. When you are feeling stressed, anxious, or worried, your breathing can be shallow and quick. This is called hyperventilation. When you hyperventilate you use only the upper part of your chest rather than your whole chest and lung area. Often, people are unaware that they are hyperventilating, and it can become a habit. It alters blood chemistry and causes symptoms such as pins and needles, dizziness, palpitations, breathlessness, and chest pain, and heightens anxiety and panic. Naturally, these symptoms can cause further worry and anxiety and a vicious cycle is created.

Abdominal breathing involves two basic components:

Breathing control
- Find a quiet, comfortable spot where you won't be disturbed.
- Sit in a comfortable chair, or lie down if breathing from the diaphragm is difficult for you.
- Breathe slowly, from the diaphragm (belly breathing).
- Breathe in a smooth continuous motion. Do not hold your breath prior to exhaling. Allow your breath in to be smoothly followed by your breath out. If you become dizzy or feel faint, just stop for a little while and then try again.

Concentration
- Imagine your breath as a full circle. Imagine your breath in and out to be a smooth, circular process without becoming stuck or jagged.
- Repeat the following in your mind. Inhale: “In full body.” Exhale: “Out letting go.”
- If you notice yourself becoming distracted, gently bring your attention back to your breathing. Allow the distracting thought to pass away.
- Once you start to feel comfortable with counting, you can start to slow the number of breaths.

If relaxing and breathing techniques are difficult for you to learn or stick to on your own, consider trying a meditation app such as: Headspace, Calm, or Insight Timer.

Finding a sustainable baseline and stabilizing activity

To find the amount of activity that you can confidently manage on a day to day basis, you first need to have a good awareness of your current activity patterns and their impact on your symptoms and how you feel. How do your symptoms change and fluctuate in relation to what you have been doing? Remember to consider not just physical activity but also mental and emotional activities.

Keep a diary

It can help to keep a simple diary of activity and rest. A diary will help you to understand what is going on and enable you to reflect on your own circumstances. The effects of 'overdoing it' may not show up for a day or two but your diary may help you to identify what triggered your symptoms.

Sometimes, diaries are more helpful to identify peaks and troughs in activity, than symptom responses, because of the delay. Also, of course, symptoms vary for other reasons than activity levels. You will need to keep your diary until you are able to spot patterns, apply the pacing and planning principles in your head, and build the principles into your routines. A diary may need to be temporarily restarted during a setback or relapse and can also be helpful when attempting to start a significant activity change, for example returning to work or study, or starting to drive a car again.

Calculate your baseline

There are several ways to work out the length of time you can do a particular activity, and you may need to experiment to find the best one to suit your situation. This can take some time. You will need to work out a baseline for each different activity you undertake.

Techniques include:

- The 75% rule. If you think that you can carry out an activity for 20 minutes, try reducing your activity time by five minutes to 15 minutes (75% of 20 minutes). The aim would then be to maintain 15-minute blocks of activity interspersed with rest/relaxation periods throughout the day.
- Split each activity up with 5-15 minute rest breaks.

When you're setting a baseline, the golden rule is to remember that **all activities must be set at a level that can be maintained on both a good and a bad day**. It can be very disappointing to find that your baseline is lower than you expected but remember that you are taking a step back to go forward.

Stabilizing your activity

When you have set your baseline you need to give your body time to settle into the level. How long this takes will vary from person to person but it can take weeks. You will be ready to gradually increase your activities when you feel your body has acclimatized to the level and you can confidently sustain it.

'Increasing as able'
As natural recovery occurs following an illness, and you have found a sustainable baseline, you should find that you are able to gradually increase your activity. You could do this by adding one small extra task or by lengthening an existing activity. Any increases should be very gradual and the process should be initiated and controlled by *you*.

If you decide to extend an activity, do this by 10% and no more. For example, if you can currently carry out housework for 10 minutes, try increasing it to 11 minutes. Or you could break this up into two five and a half minute activity periods with a rest/relaxation period in between. Increasing from 5 to 10 minutes would not be advisable as this is a 100% increase! Remember: only increase by 10%. Over time, repeat this process so that your activity periods are gradually lengthened and your rest periods shortened. Whichever approach you choose, do not be too ambitious and only increase activities little by little.

Side effects and listening to your body
Learning to notice the signals that your body gives you and making sense of them is an important part of pacing. You will need to learn to distinguish between the normal effects of increasing activities and the negative effects of having over-done it. For example, you are likely to notice a temporary increase in stiffness or fatigue when increasing your activity levels. This is normal and your body will need a few days to adjust and adapt. Stretching after exercise can help to reduce muscle soreness. However, if your fatigue and other symptoms continue for a week or longer this might indicate that you have increased the activity too quickly.

The signals that your body gives out can be quite subtle and are not necessarily physical, such as pain or fatigue. Feeling irritated, stressed, or starting to lose concentration can equally be an indication that you are doing too much. Some people benefit from learning to recognize these early warning signs – but for others, these signs are post-exertional. In other words, they only happen sometime after they have already overdone things.

Goal setting
To help you increase your activities, set targets against which you can measure your progress. These goals must be realistic, achievable, and sustainable. For example, if concentration and memory problems make reading difficult, you might set yourself a specific reading goal. Choose a book that is enjoyable and not too taxing, then build in small stages – tackle a couple of pages at a time, or a chapter, and build in quality rest periods. Similarly, you could choose a newspaper or magazine.

Stumbling blocks

Now that you understand how pacing works, you can imagine how hard it can be to put into practice. There is likely to be pressure from everyday life and from yourself or others to deviate from your plans. If your lifestyle makes pacing extra difficult you will

need to take some time to stand back and reflect. Think about whether everything you are attempting to do is essential.

Taking on too much
It can be hard to let go of things that might be preventing you from pacing effectively. There are likely to be demands and pressures from other people and you may also be battling with your own expectations. If you have standards that are getting in the way of pacing you will need to adapt and change them.

It is all too easy to push yourself to finish a task you have started, or to feel bad about 'letting somebody down.' It is important to learn to let go and to make fewer demands on yourself. It simply is not possible to do all the things you did before your illness. You may have people in your life who drain you emotionally, or you may be the sort of person who is always available in a crisis. Do you always put other people first, regardless of how you are feeling? This may be the time to put yourself and your recovery first. Remember that emotions are far harder to account for when learning to pace.

The unexpected
Life is unpredictable, so however thoroughly you might plan your time you can still be surprised by the unexpected. Because of this, it is important not to work right up to the margins of what you can sustain – leave a bit of a gap or cushion so that you can deal with any activities that come unexpectedly. When this happens, you will need to compensate by removing a similar activity from your plan.

Setbacks
Setbacks or relapses can happen for all sorts of reasons but often they are caused by trying to do too much. If you think you may be heading for a setback, take some time to review why this is happening. It is sensible to drop back to a secure level of activity while you recover, even if this means dropping several levels, or going back to where you started, before building up again. It is not a good idea to cut activity out altogether because too much rest and too little activity can exacerbate the setback rather than improve matters.

Dropping to a lower activity level can be demoralizing, but the good news is that people usually find it is easier to build up through the levels after the first time. If you are having regular setbacks/relapses it is likely that you are attempting to do too much when you are going through a good phase, then suffering the consequences afterward.
Think about the following:

- Did I set my baseline correctly?
- Have I attempted to increase my activity too quickly?
- Have I been pushing myself too hard?
- Have I considered all my activities – emotional as well as physical and mental?
- Am I resting properly?
- Am I getting enough good quality sleep? Or sleeping too much?
- Are my goals realistic?

If you are finding it difficult to return to normal activity levels after a setback, it's advisable to talk to your doctor or other health professionals involved in your care. Learn from your experiences. Develop a personal strategy for preventing the same thing from happening again.

Pacing Log

Estimate how long you can safely do one of your regular activities (i.e., yardwork; dishes) without causing severe pain flair up and/or becoming overly exhausted, and then mark 75% of that effort as your “active” goal. For example, if you feel you can manage 30 minutes of raking leaves without any trouble, then your “active” goal would be about 22 minutes. Then incorporate a 5-15 minute break and if the project is not finished but you feel you can continue, repeat the same cycle.

Once you have established a baseline but feel you are ready to build and extend an activity, do this by 10% and no more. For example, for your 22 minute raking leaves chore, increase it by only 2 minutes. Over time, repeat this process so that your activity periods are gradually lengthened and your rest periods shortened. Whichever approach you choose, do not be too ambitious and only increase activities little by little.

Use the table below to record how you pace activities this week (more are also included in the back). Use the sample as your guide, where each period of activity and rest equals one cycle. In the example provided, the markings of **22 / 10 (1)** indicating working for 22 minutes and resting for 10 minutes for one cycle of pacing. On the last column, mark your level of fatigue on a 1-10 scale (1 minimal fatigue and 10 exhausted) to help you track when you may be overdoing it or prepared to increase your baseline.

	Sample	**Activity 1**	**Activity 2**	**Activity 3**	**Fatigue**
Activity	Rake Leaves				
Active Goal	22 minutes				
Rest Goal	10 minutes				
Day 1	22 / 10 (1)				
Day 2	22 / 10 (2)				
Day 3	22 / 10 (3)				
Day 4	22 / 10 (2)				
Day 5	22 / 10 (3)				
Day 6	22 / 10 (2)				
Day 7	22 / 10 (2)				

**Adapted from recommendations made by UW Neuropsychology*

Managing Cognitive Symptoms after COVID-19 infection

Symptoms of memory and cognitive impairments are common after COVID-19, reported by 30-50% of hospitalized patients. Patients commonly describe "brain fog" or problems with sustained attention and impaired short-term memory.

Given that cognition can be impacted by headache, sleep disturbance, and mood disturbance (depression, anxiety and/or PTSD), we recommend that you address these symptoms **first**. Cognitive symptoms tend to improve as these related symptoms improve.

Certain medications, such as opioids, benzodiazepines and antiepileptics, can also cause fatigue, "brain fog" and mild memory impairments. If you are taking these medications, discuss with your doctor whether these medications could be contributing to your symptoms.

If cognitive symptoms are severe, of great concern, or persist after sleep, mood and headaches improve, then consider the following:

Online cognitive therapy self-management options:

- Elevate - brain training application for smartphone or tablet available in App store for Apple and Android platforms (free for basic app or 39.99/year for PRO version)
  https://www.elevateapp.com

- Constant Therapy - online library of customized brain rehabilitation exercises available by monthly subscription (free trial available)
  https://thelearningcorp.com/constant-therapy/

Speech Therapy: Referral to a speech therapist may be warranted if you meet the following criteria: documented positive COVID-19 lab test and/or antibody test , ongoing impairments in attention or memory, and/or trouble swallowing.

Neuropsychological testing: Evaluation by a Neuropsychologist for more in-depth, cognitive testing may be recommended if cognitive symptoms persist after initial treatment. This can be helpful if there are plans to return to work or other activities that may be impacted by ongoing cognitive symptoms.

Dysautonomia

Ongoing multi-system symptoms without pattern or identified cause are likely due to dysautonomia (autonomic nervous system dysfunction). This can be triggered by any significant stress on the body such as illness, injury, or trauma.
ICD Code: Disorder of autonomic nervous system (G90.9)

- Best treated with a multimodal approach. We discussed diet, exercise, stress, and nutrition today

- For more information on dysautonomia and postural tachycardia syndrome (POTS) - https://www.dysautonomiainternational.org/

- HYDRATION: make sure to stay hydrated. It is recommend you drink at least *** mL of water per day based on your weight. Add 500 mL if you have POTS or are very active.
  ***[(weight in kg - 20) + 60] x 24.

- SALT: monitor salt intake. Consider adding 1-2 teaspoons of table salt to your diet per day.

- COMPRESSION: Waist-high compression stockings 30–40 mmHg. Lower abdomen is major site of blood pooling when upright. If used, stockings should be pantyhose style, Abdominal binders or corset-like garments. If leg compression is not tolerated, abdomen/pelvis only alternatives might be an option.

- STRESS REDUCTION: mindfulness, gratitude journal, and biofeedback are all effective ways of increasing the parasympathetic drive

If no improvement, can consider treatment with a prescription medication.

For more information on dysautonomia and postural tachycardia syndrome (POTS) - https://www.dysautonomiainternational.org/