



POTS

POSTURAL ORTHOSTATIC TACHYCARDIA SYNDROME

Non-Pharmacological Treatment Guide for POTS

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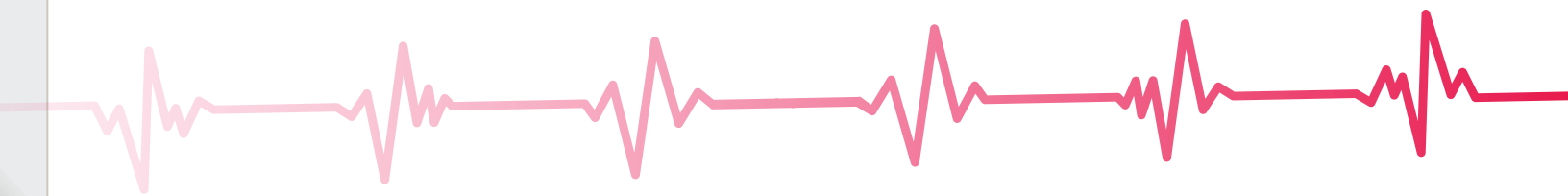
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What is POTS?

POTS is a type of autonomic dysfunction. Meaning that the autonomic nervous system is not working properly. The autonomic nervous system can be thought of as the “automatic” nervous system. The autonomic nervous system regulates processes we often don’t think about including heart rate, breathing, blood pressure, digestion and body temperature.

When a healthy individual stands up, gravity pulls blood down from the chest into the abdomen and legs. To adapt to this blood shifting, their blood vessels squeeze more tightly, and their heart rate increases a bit. These physiological changes maintain blood supply to the heart and brain, and they are able to stand without symptoms. In individuals with POTS, these changes are abnormal, causing an increase in heart rate without a decrease in blood pressure.



Common symptoms that occur when standing upright include:



LIGHTHEADEDNESS



PALPITATIONS

(heart pounding sensation in chest)



SHORTNESS OF BREATH



BRAIN FOG



TREMULOUSNESS

(internal shaking)



CHEST PAIN



NAUSEA



HEADACHE

Symptoms may negatively impact many aspects of daily life such as cognitive function, sleep and energy levels. They may also interfere with the ability to exercise, work and attend school.

Factors that worsen symptoms include:



HEAT

It is crucial to keep up with hydration. Consider bringing a portable cooling device such as a personal fan or air cooler with you on hot days.



PROLONGED STANDING

For example, cooking in the kitchen. Try using a stool in kitchen while cooking.



SHOWERS

This is due to heat and standing for a long period of time. Sitting down in the shower may help. You can also try using a shower bench or chair.

What can I do to help with my POTS symptoms?

Medications:

There are no medications approved specifically for use in POTS. Some medications can be used “off-label,” and may help reduce your heart rate and improve your symptoms. Your doctor may prescribe some medications to help with POTS.

Non-Medication Treatment:

These treatments do not require a prescription and are strategies that you can implement at home. These treatments are the first strategy in managing POTS and can be used with or without medications. Since there is no single treatment that works for all patients, a combination of non-medication strategies is encouraged.

TYPES OF NON-MEDICATION TREATMENTS



DRINK more water



EAT more salt



EXERCISE training program



COMPRESSION garments

Some POTS patients have less blood in their body, compared to people without POTS.

Also, some POTS patients have higher than normal levels of a chemical messenger called norepinephrine.

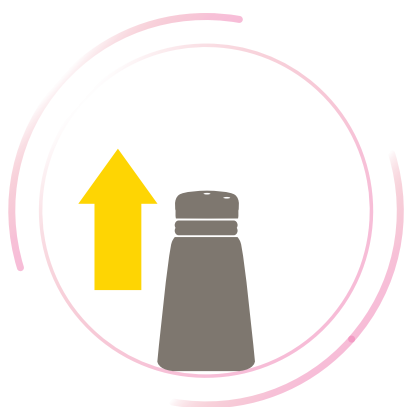
Norepinephrine activates the “fight or flight” response in your body, increasing your heart rate.

Non-Medication Treatments

DRINK MORE FLUID (3L/DAY)

Drinking three litres daily will help increase your blood volume. This will help your body more easily adapt to standing and may reduce your POTS symptoms. These should be water or water equivalents. Most of this volume should NOT be caffeine-containing beverages. This is a lot of water, but it can be done. We recommend you start drinking water first thing in the morning.

Most people that are successful have a water bottle that they keep with them all of the time. If you measure the volume, you can figure out how many times you need to fill and drink this water per day (e.g. for a 750ml bottle, it would be 4 times per day).



INCREASE YOUR SALT INTAKE

Increasing your salt intake may help improve POTS symptoms by increasing the amount of blood in your body. Additionally, a high salt diet reduces the amount of norepinephrine in the body. This helps reduce the heart rate to normal levels. Try reaching the daily salt intake of 10-12 g through a progressive increase in salt intake. This will prevent upsetting your body's gastrointestinal system.

Most people find it easiest to add it to foods, but some people prefer to add it to hot water and lemon juice and to drink it, while others do "salt-water shots". Eating high salt foods such as nuts, pickles, olives, cheese and broth soups can help you reach your daily salt intake.

Measure out 2 teaspoons of salt and put this in a ziploc bag. Two teaspoons of salt contains about 10-12 g of salt, or 4-5 g of sodium. Use the salt from the ziploc bag to incorporate into your foods and fluids for the day. It will be easier for you to reach your goal when you visualize your salt intake.

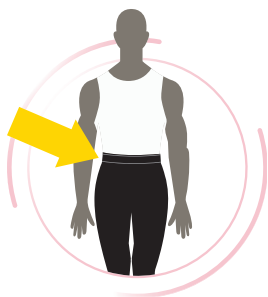
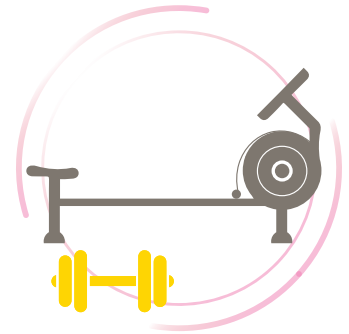
If you are having difficulty eating enough salt, you can try salt supplements. Most salt supplements only help to minimize the taste of the salt (if you dislike the taste). Most regular uncoated salt tablets might be hard on your stomach and cause nausea or vomiting (often more than dietary salt). There are buffered salt in gel capsules (e.g. Vitassium by SaltStick) that may be less likely to cause stomach upset, but these are significantly more expensive.

EXERCISE REGULARLY

Regular aerobic exercise for at least 30 minutes, at least four days a week can improve some POTS symptoms and overall quality of life.

THERE ARE SIX KEY STEPS TO THE EXERCISE PROGRAM

- ✓ **Non upright exercises** This is because being upright, let alone upright and exercising, can be difficult for POTS patients. Great activities to try include recumbent biking, rowing machine, and swimming.
- ✓ **30 Minutes** Each exercise session should last at least 30 minutes.
- ✓ **Frequency** At least every other day (4/week). Many patients will try for 5-6/week knowing that “life gets in the way” and that the odd day will be missed. 2/week is probably better than nothing, but it is much less likely to provide the aerobic training benefits needed to help with the POTS symptoms.
- ✓ **Patience** It can take up to 6 weeks before you notice any improvement
- ✓ **Manage Expectations** It is likely that you will feel WORSE initially. You may feel more fatigued. This will improve as you become more fit.
- ✓ **Leg Strengthening** Aerobic exercise is most important in POTS. Do not skip your aerobic exercise to do only leg exercises. Increasing muscle mass in your thighs can help your body return blood to the heart more effectively when you are standing. Calf raise, leg extension and seated leg press are some exercises you can try. Avoid doing squats.



WEAR COMPRESSION GARMENTS

When you stand up, blood shifts from the upper chest (at heart level) into the abdomen and legs (below the heart level). With less blood coming back to the heart, sometimes the heart rate must be increased to maintain the “cardiac output”. Compression garments help push blood that has pooled in the lower body back to the heart. When more blood returns to the heart, it doesn't have to beat as quickly.

Effective compression **MUST** squish the abdomen. Knee-high socks might help prevent blood clots, but are not effective for moving the fluid we want to move! A study shows that wearing full compression garments significantly lowers heart rate when standing.

Garments that include compression of your abdomen are the most effective. Examples are waist-high tights as well as abdominal shapewear (e.g. SPANX) and compression shorts with a high waist. Below the knee socks are not effective because there is more blood pooled in the abdomen than there is in the lower leg. Some patients report that full-length compression garments are hot or uncomfortable. In this case, a compression short or abdominal shapewear might be a good alternative.

ATHLETIC STYLE COMPRESSION

These garments generally provide up to 20mmHg compression, less than some medically prescribed garments. Some may not provide an effective level of compression. Look for a brand that provides the compression rating (in mmHg). Two brands that provide these ratings are 2XU and CW-X.

MEDICALLY PRESCRIBED COMPRESSION

Medical compression garments generally provide 20-30mmHg or 30-40mmHg of pressure. Your doctor will provide a prescription so you can be fitted for the correct size at a pharmacy or other location.



EXAMPLE EXERCISE TRAINING PROGRAM

Recumbent Bike 30 mins		Swim 30 mins		Row 30 mins		Swim 30 mins *ADD LEG WEIGHTS
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Non-upright exercise at first (and maybe forever). Being upright, let alone upright and exercising, can be difficult for POTS patients. Try rowing, recumbent cycling or swimming!

Exercise at least every other day (4/week). Many patients will try for 5-6/week knowing that “life gets in the way”. Be patient! It can take up to 6 weeks to notice improvement.

Manage expectations You will likely feel WORSE initially. You may feel more fatigued and worn out. This will improve as you become more fit.

Add leg strengthening exercises Increasing your muscle mass in your thighs can help your body return blood to the heart more effectively when standing. Strength training is not a replacement for aerobic exercise, but can be added as an additional step.

NOTES:

PRO TIPS

- * **Drink 3L of water daily** Carry a 750mL water bottle with you everywhere to remind yourself to drink water. Drinking from a large water bottle will help you keep track of how much water you intake throughout the day by paying attention to how many times you refill.
- * **Eat 10-12 grams of salt daily** Add salt to meals or to hot water and lemon juice. Two teaspoons of salt contain about 10-12 g of salt (4-5 g of sodium). Measure that amount into a Ziploc bag and incorporate it into your foods and fluids. Visualizing the amount you need will ensure you reach your goal. Eating sodium rich foods like nuts, cheese and soup will also help.
- * **Non-upright exercise** 30 minutes, 4 times a week Set a time of day to exercise and try not to vary too much. This will prevent you from putting off exercise until the next day.
- * **Wear compression** A POTS compression garment should have a strength of 20-30mmHg or 30-40mmHg. Ask your doctor about medically prescribed compression or purchase athletic style compression (generally 15-20mmHg). These garments are especially important on days where you are on your feet for extended periods of time.

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