

## Global Training Guidelines

*H.E. (Beverly Karabin/Dr. Grubb)*

1. The training cycle is 3 months in duration, regardless as to its start date.
2. The days chosen each week for training are flexible provided the frequency, type, intensity and duration are adhered to as written.
3. Alternate training modes, e.g. recumbent bike, rower, swimming can be used on any one base pace training day each week. It is desirable to perform some alternate modes of exercise throughout your week.
4. Specific workouts are individually prescribed based on your age, your stand test, and the fact you've been diagnosed with POTS. The heart rate at the "maximal steady state" or MSS is set at approximately 75% of your max heart rate. The workout zones are structured around the MSS value. The workout types are defined as follows:  
**THESE ZONES ARE FOR OFF BETA BLOCKERS ONLY.**  
**If remaining on beta blocker, only follow the RPE.**

Training Zone	Heart Rate (bpm)	Expected RPE
Intervals	>196	19-20
Race Pace	183-196	
*Maximal Steady State, MSS	172-182	16-19
*Base Pace	152-171	13-15
*Recovery	<152	6-12

\*These are the only heart rate training zones you'll use for this 3 month program.

5. Training Log Definitions for your log sheet:

**Training Zone** – recovery, base, MSS

**Mode** – examples: walk, recumbent bike, row, etc.

**Rating of Perceived Exertion (RPE):** Scale of 6 to 20 where you subjectively rate each entire workout afterwards as a number:

6 is very, very easy

11 is fairly easy

13 is somewhat hard

15 is hard

17 is very hard

19 is very, very hard

**Weather** – examples: hot, humid, windy, cold or indoors

# 10 min Stand Test after \_\_\_\_ Month(s) Training

Patient Initials: \_\_\_\_\_  
 Patient DOB (mo/day/yr): \_\_\_\_\_

Date: \_\_\_\_\_  
 Time: \_\_\_\_\_

This stand test needs to be performed by an RN or medical provider (patient should be off medications that affect heart rate for an appropriate number of days). Lay down quietly for 10 minutes and then take HR, BP and symptoms. Then stand quietly and take the same measurements at 1, 3, 5, and 10 minutes standing.

### SUPINE

Time	HR	BP	Symptoms
after 10 min			

### STANDING

Time	HR	BP	Symptoms
at 1 min			
at 3 min			
at 5 min			
at 10 min			

Current Meds/Dose/Frequency	Time of last dose

Signature of Physician Administering Stand Test: \_\_\_\_\_

Please fill out another SF-36 form as well and send back to us by fax (214-345-4618), Attention Tiffany. THANK YOU.

intentional. Lower body muscles act as pumps when they contract (as you are walking about in daily life) to return blood to your heart. Increased leg muscle mass means more blood returned with each step you take. This is the minimum we recommend you do as you are getting started. After the first month, if you would like to add new weight training exercises to this routine you may, but do so slowly and knowing that working new muscle groups might make you sore again.

We recommend you purchase a heart rate monitor (watch with a chest strap) for your cardio training. You do not need to purchase an expensive model. It will help you monitor your heart rate throughout your training session on any piece of equipment or even swimming in the pool (for the models that are waterproof). Each cardio workout is prescribed to be within a specific heart rate range (see Training Guidelines sheet), and it is crucial that you complete them in that heart rate range. The 10 minute warm up and cool down can be done on any piece of equipment and should not be skipped. At the end of your warm up you should have your heart rate approaching the appropriate range for your prescribed workout, so you can simply begin your workout time there. For the cool down, simply remove all resistance from the piece of equipment you are using and slow down. In the beginning, your heart rate will take a long time to recover (and may not until after you leave the gym), but as you become more trained it will lower more quickly during your cool down.

To begin we recommend using modes of cardio exercise that keep you seated or horizontal: the recumbent bike, a rowing ergometer (such as the Concept II rower), and swimming (or kicking with just a kickboard) because they will not exacerbate any symptoms you have by being in the upright position. Use these modes until you feel you are ready to try moving on to the upright bike (incorporate this for a few weeks), the elliptical (incorporate this for a few weeks) and then some treadmill walking. Lastly, you can increase speed and grade on the treadmill as is necessary to keep your heart rate in the correct heart rate zone for your workouts. You may not be able to add an incline on the treadmill until after you have completed this 3 months of training. It may be hard to imagine walking on the treadmill for exercise right now, but most POTS patients that have done this program has been able to utilize a treadmill by the end of the 3 months of training. The rower is one of the best pieces of cardio equipment you can use to strengthen your heart. Please do not be afraid of it! Ask someone at your gym to teach you how to use it, and we recommend continuing to use the rower for occasional workouts throughout your training (and for the rest of your life).

Each of you progresses through the program to upright exercise at a different pace. And you need never do any jogging in your life if you do not wish. The calendar shows that you should be trying to move to upright activity in Month 2. If you are unable to do so without having symptoms (which is not uncommon), then simply stick to the pieces of equipment you are utilizing that allow you to complete the workout at the prescribed intensity and duration. You should then try something more upright a few weeks later. Moving to a more upright mode of training is not as important as working out in the proper heart rate zone for the prescribed amount of time without symptoms that are so severe they cause you to stop. If you want to use two different pieces of equipment (for example, 15 minutes on the recumbent bike and 15 minutes on the rower) that is fine, just be sure you complete an entire 30 minutes with your heart rate in the appropriate zone before cooling down.

You may shift training sessions on the calendar a day or so before or after it is scheduled. However, it is important that all sessions for that week then are shifted so the order they are performed is maintained as prescribed (and you complete all workouts for that week within a week). One guideline is that after 'Maximal Steady State' workouts you must always complete a 'Recovery' workout the next day. A 'Recovery' workout can actually be doing anything active as long as your heart rate stays below the zone prescribed. This can be done by slowly cycling at a low level on the recumbent bike, using a kickboard to leisurely kick laps in the pool, taking a walk outdoors, playing in the yard with your kids, anything active that gets you moving for the prescribed amount of time. Also, we have found that keeping the workouts spread out throughout the week is more beneficial than bunching them up and then taking several days off from exercising. Please keep this in mind!!

Some find that they can only get to the gym 3-4 days a week. It is alright to do your weight training at the end of your cardio workouts instead of on separate days if you prefer. Another guideline to remember about weight training is that you perform 2 sessions per week, with at least one day between weight training sessions (and preferably 2-3 days). You need to allow your muscles at least that day to recover and build muscle.

There are a few other points to keep in mind. If for some reason you miss a period of workouts (illness, etc.) it is best to back up in the calendar and repeat some workouts. For example, if you miss several workouts, back up and repeat a full week. If you miss a week, back up and at least repeat 1 ½ -2 weeks. The program gets progressively more difficult, and when you take time off you loose some of your hard-

earned conditioning, therefore it is important to back up and repeat some workouts before moving forward in the program again.

This program is not an easy fix to having POTS, and if exercise made everyone feel better in a matter of weeks, everyone would be doing it. The real results that you may see will come after several committed months of training on this program. It is our experience in training patients that the first month may be very difficult, and you may very well feel worse during this month. This is not surprising, so do not give up! You are challenging your system to do things it CAN do, but is not USED TO doing. The second month may still be tough. Sometime (generally in the second or third month) you'll hit a plateau where it will not feel quite as difficult to do your workouts, and you should notice that you are not as fatigued and suffer from less POTS symptoms in your daily life than you did before beginning the training. This is the goal!!!

Your commitment and mental toughness are keys to pushing yourself to follow this program to the letter. If you are anything like the individuals we've met with POTS, you no doubt do not feel good a majority of the time, and have tried several other things to make your condition better. So why not give this program your utmost effort for three full months before deciding if it helps you or not? If you think so, you will need to exercise for the remainder of your life, and you will experience the benefits of regular exercise in many other areas of your life and health as well. If you have any questions about the training please contact Tiffany via email and she'll respond as quickly as she can.

In exchange for giving you this program to follow, we would sincerely appreciate follow up reports to put into a registry. You have signed a consent form stating that you'll do this, so please do not forget to follow up! The information you provide us will be very helpful as this is the first time we are sharing this with other physicians and POTS patients around the world. We ask that you send us 10 minute stand test results and complete the SF-36 quality of life questionnaire after 3 months of the training program. Please be proactive about seeing your doctor again after completing the 3 months training and send the follow up information to us in a timely fashion (whether or not you felt this program was helpful for you). Those who complete this program should continue to exercise on their own at the end of the three months. Maintaining exercise and physical activity are important for you to sustain the benefits and continue to see further improvements in your health and quality of life. We cannot count the number of times we've

heard back from someone after a year that has continued regularly exercising on their own, and they are doing things they NEVER thought they could!

We are further interested in how well you do on your own beyond this structured program, and would like to continue to receive follow-ups (consisting of a report of physical activity you're doing, 10 min stand test & SF-36 questionnaire) from you and your doctor at 6 and 12 months if you are willing. This is strictly voluntary but again will be wonderful information for us to be able to gather as well. Thank you again for your willingness to have your information included in the POTS World-Wide Registry. This knowledge truly is invaluable to doctors and patients like you!

Sincerely,

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# Pre-Month 1

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
5-10 min Warm Up 3 min RBike 2 min recovery 3 min RBike 5-10 min Cool Down	5-10 min Warm Up 3 min RBike 2 min recovery 3 min RBike 5-10 min Cool Down	Weight Training	5-10 min Warm Up 3 min RBike 2 min recovery 3 min RBike 5-10 min Cool Down	Weight Training	5-10 min Warm Up 3 min RBike 2 min recovery 3 min RBike 5-10 min Cool Down	5-10 min Warm Up 3 min RBike 2 min recovery 3 min RBike 5-10 min Cool Down
8	9	10	11	12	13	14
5-10 min Warm Up 4 min RBike 3 min recovery 4 min RBike 5-10 min Cool Down	5-10 min Warm Up 4 min RBike 3 min recovery 4 min RBike 5-10 min Cool Down	Weight Training	5-10 min Warm Up 4 min RBike 3 min recovery 4 min RBike 5-10 min Cool Down	Weight Training	5-10 min Warm Up 5 min RBike 3 min recovery 5 min RBike 5-10 min Cool Down	5-10 min Warm Up 5 min RBike 3 min recovery 5 min RBike 5-10 min Cool Down
15	16	17	18	19	20	21
5-10 min Warm Up 5 min RBike 3 min recovery 5 min RBike 5-10 min Cool Down	5-10 min Warm Up 5 min RBike 3 min recovery 5 min RBike 5-10 min Cool Down	Weight Training	5-10 min Warm Up 6 min RBike 3 min recovery 6 min RBike 5-10 min Cool Down	Weight Training	5-10 min Warm Up 6 min RBike 3 min recovery 6 min RBike 5-10 min Cool Down	5-10 min Warm Up 6 min RBike 3 min recovery 6 min RBike 5-10 min Cool Down
22	23	24	25	26	27	28
5-10 min Warm Up 6 min RBike 3 min recovery 5 min RBike 5-10 min Cool Down	5-10 min Warm Up 6 min RBike 3 min recovery 5 min RBike 5-10 min Cool Down	Weight Training	5-10 min Warm Up 7 min RBike 3 min recovery 5 min RBike 5-10 min Cool Down	Weight Training	5-10 min Warm Up 7 min RBike 3 min recovery 5 min RBike 5-10 min Cool Down	5-10 min Warm Up 7 min RBike 3 min recovery 5 min RBike 5-10 min Cool Down

RBike = Recumbent Bike base pace heart rate zone (or as close as patient is able to get to that zone)  
 Recovery = slow down pedal speed, reduce resistance, get a drink  
 Warm Ups and Cool down are done on Recumbent Bike as well.  
 Physical therapist can begin with completely supine cycling if patient is beginning program as wheel-chair bound/bedridden.  
 Weight/Strength Training can be done on same days as cardio work if necessary.





POTS Training

**Month 1**

Sun	Mon	Tue	Wed	Thu	Fri	Sat	
	1 Base Pace 10min Warm-Up 30min RBike/Row 10min Cool-down	2 Weight Training	3 Base Pace 10min Warm-Up 30min RBike/Row 10min Cool-down	4 Weight Training	5 Base Pace 10min Warm-Up 30min RBike/Row 10min Cool-down	6 MSS 10min Warm-Up 20min RBike/Row 10min Cool-down	7 Recovery 40min RBike/Swim
8	9 Base Pace 10min Warm-Up 30min RBike/Row 10min Cool-down	10 Weight Training	11 Base Pace 10min Warm-Up 30min Swim/Row 10min Cool-down	12 Weight Training	13 Base Pace 10min Warm-Up 30min RBike/Row 10min Cool-down	14 Recovery 40min RBike/Swim	
15	16 Base Pace 10min Warm-Up 30min RBike/Row 10min Cool-down	17 Weight Training	18 Base Pace 10min Warm-Up 30min RBike/Row 10min Cool-down	19 Weight Training	20 Base Pace 10min Warm-Up 30min Swim/RBike 10min Cool-down	21	
22	23 Base Pace 10min Warm-Up 30min RBike/Swim 10min Cool-down	24 Weight Training	25 MSS 10min Warm-Up 25min RBike/Row 10min Cool-down	26 Weight Training Recovery 40min RBike/Swim	27 Base Pace 10min Warm-Up 30min Swim/Row 10min Cool-down	28	
	RBike = Recumbent Bike						



# Month 3

## POTS Training

Sun	Mon	Tue	Wed	Thu	Fr	Sat
1	2 Base Pace 10min Warm-Up 35min Walk/UBike 10min Cool-down	3 Weight Training	4 Base Pace 10min Warm-Up 35min Walk/Row 10min Cool-down	5 Weight Training	6 Base Pace 10min Warm-Up 35min Walk/UBike 10min Cool-down	7
8	9 Base Pace 10min Warm-Up 40min Walk/UBike 10min Cool-down	10 Weight Training	11 MSS 10min Warm-Up 30min Walk/Ellip 10min Cool-down	12 Recovery 25min Walk/RBike Weight Training	13 Base Pace 10min Warm-Up 35min Row/Ellip 10min Cool-down	14
15	16 Base Pace 10min Warm-Up 60min Walk/UBike 10min Cool-down	17 Weight Training	18 Base Pace 10min Warm-Up 30min Ellip/Row 10min Cool-down	19 MSS 10min Warm-Up 35min Walk/Ellip 10min Cool-down	20 Recovery 25min Walk/RBike Weight Training	21 Base Pace 10min Warm-Up 50min Row/Ellip 10min Cool-down
22	23 Base Pace 10min Warm-Up 35min Walk/Ellip 10min Cool-down	24 Weight Training	25 Base Pace 10min Warm-Up 45min Walk/UBike 10min Cool-down	26 MSS 10min Warm-Up 40min Walk/Ellip 10min Cool-down	27 Recovery 25min Walk/RBike Weight Training	28
	RBike = recumbent bike UBike = upright bike	Ellip = Elliptical or Cross- Trainer				

