The important benefits of exercise and pulmonary rehabilitation in PH
St. Paul, Minn. 2017 PHA on the Road

Session description:
This session will give you the opportunity to learn more about home exercise and qualifications for pulmonary rehabilitation. Pulmonary rehabilitation is a comprehensive program that includes assessment, education, therapeutic exercise and psychosocial intervention. Exercising within such a program can help increase a PH patient’s stamina, allowing the individual to become bolder in exerting themselves within the confines of a medically-safe environment. Participation can also help increase a patient’s self-esteem and improve self-efficacy.

Exercise

“If exercise/movement could be packed in a pill, it would be the single most widely prescribed and beneficial medicine in the nation.”
-National Institute of Health

Overview:
It was assumed for many years that PH patients should avoid exercise as the added strain on the right ventricle could be harmful. The last few years, however, have provided evidence that exercise and exercise rehabilitation programs can benefit patients with PH. Compelling studies have demonstrated that contemporary cardiac and pulmonary rehabilitation can improve exercise performance and quality of life. Physical activity is essential to maintain muscle tone, physical and mental wellness and, in some cases, to improve long-term survival. A major goal of PH therapy is to improve the amount of activity that you can do before you become short of breath. The ultimate goal is that safe exercise can have a positive impact on your health.

This is not to say, however, that exercise in patients with PH is risk-free. It is important that certain precautions be observed to prevent over-exertion. The supervised setting of a formal rehab program can help patients understand and adhere to these precautions, though it is important to note that the details regarding the optimal patient population, the timing of initiation and the specific regimen to be used are undefined. Still, cardiac and pulmonary rehabilitation appear to be effective resources to help patients optimize their physical abilities.

Important Considerations

General Exercise Guidelines

Beginning an Exercise Program
- Consult with your physician before starting an exercise regimen.
  - It is important to receive a physical assessment and medical clearance.
  - Conduct an exercise assessment using 6-minute walk test.
    - Determine exercise capacity and an exercise prescription.
    - Detect “exercise-induced hypoxemia” (low blood oxygen levels) and determine whether oxygen is needed.
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- Test home oxygen system with activity.
- Perform functional performance assessment (i.e. strength, range of motion, posture, balance, pain, gait, breathing, etc.) and evaluate for any other exercise limitations.
- Consider a low dose exercise program, don’t overexert yourself and know your limits.

**Exercise Safety**

- Know yourself and choose exercises that make sense for you.
- Follow your oxygen requirements.
- *Never* exercise alone! Start an exercise program in a supervised setting.
- Always have back-up medications and pumps as prescribed.
- Learn proper use of equipment – including safety with lines/pumps.
- There are two major causes of shortness of breath during exertion in PH patients:
  - The major cause is a decrease in the amount of blood pumped out by the heart because of the narrowing of arteries in the lung. This is present in all patients with PH.
  - Some patients also have a low level of oxygen in the blood

**Choosing Exercises**

- Intensity:
  - Choose your exercise intensity based on your physician recommendations.
  - Know your baseline PH symptoms.
  - Shortness of breath, dizziness, chest tightness, chest pain, fatigue, palpitations, tachycardia, hypotension, hypoxemia, etc.
  - Should be *symptom limited* - know your limits!
  - Avoid activities that increase intra-thoracic pressure or Valsalva effort (the effort to breathe out forcibly while the mouth and nose are firmly closed).
- Duration and Frequency:
  - Listen to your body; exercise for as long as is comfortable and safe
  - Try to exercise at least 4-5 times!
- Mode:
  - Walking – outside or on treadmill
  - Stationary cycling
  - Upper and lower extremity training as directed by PH physician
  - Aerobic exercise at low to moderate intensity
  - Aerobic interval training
  - Resistance training
  - Tai Chi and Yoga

**Sexual Activity**

Different reports have documented that almost all patients described that their sexual lives were severely affected, mainly because of low self-esteem and being unable to physically exert themselves.
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Intimate relationships were adversely affected as the disease progressed, like most chronic diseases PH can decrease libido. So, as you start regaining an interest in sex, this can mean that your PH might be improving.

During sex, the heart rate increases, blood pressure increases and blood flow is redirected. The magnitude of these changes depends on how “fit” you are, and very importantly whether you are with a new partner or someone you have been with for years.

The rule of thumb is: Listen and know your body.

In general, if you can walk couple of blocks, take a shower and get dressed without having to stop then you are probably ok. Patients with marked shortness of breath or symptoms with minimal activity should wait.

Take-away Messages
Exercise is individualized; it is important to listen to your body while you are exercising and to know your limits. Recommendations for PH patients differ for each individual and may change over time. You will have good days and bad days – it is important to give yourself permission to stop when your body has had enough.

Additional Resources:

- American Thoracic Society Patient Information Series “Pulmonary Rehabilitation”
  https://www.thoracic.org/patients/patient-resources/resources/pulmonary-rehab.pdf
- “What to Expect During Pulmonary Rehabilitation;” http://www.nhlbi.nih.gov/health/health-topics/topics/pulreh/during.html
- PHAClassroom.org: Recording on Exercise and Rehabilitation Programs in PH