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Pulmonary Rehabilitation Resources in a Complex and Rapidly Changing World

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Nearly every aspect of life has changed dramatically in a matter of days. This new world order impacts providers, patients and our communities. Pulmonary rehabilitation (PR) is not immune to these changes. As Jean Bourbeau MD <https://rimuhc.ca/-/jean-bourbeau-md-msc-frcp-c-> has taught us, behavior change and self-management training should target a framework of adaptation, and adaptation is likely a key approach to PR during the COVID 19 pandemic.

We cannot endorse a specific approach to PR during the current challenges. Users are advised to inform patients that the resources below should only be used with involvement and agreement of their provider. To date, home PR alternatives have not had a robust body of evidence to suggest they are a substitute for center-based PR. A key concept is that, for the immediate future, PR is unlikely to be delivered with the patient and the provider face-to-face. The following approaches are offered as possible models to help patients initiate or continue rehabilitative programs in collaboration with a clinical team. This document is shared to help provide options in the current challenging circumstances and should not be considered an endorsement of any individual program model.

A number of remotely delivered PR models are available, with some published evidence of their efficacy. Remote PR should deliver the essential components of pulmonary rehabilitation, including exercise training, education, and behavior change.

1. Anne Holland PT, PhD and her group have developed a home-based rehabilitation model that is telephone based, using highly structured calls delivered by a health professional trained in Motivational Interviewing. The details are on the website <https://homebaserehab.net/>
2. The UCSF PR program has transitioned to a zoom <https://zoom.us> video-based exercise training model coordinated by Chris Garvey NP and Julia Rigler RRT. The approach targets stable patients who have been screened as clinically appropriate for this approach (e.g., those without cardiovascular contraindications, fall risk, cognitive impairment, etc. based on AACVPR PR Guidelines 5th edition). Below are strategies that may have a role for a PR program's needs.

ACSM FITT Aerobic Recommendations for COPD

FITT	AEROBIC EXERCISE
Frequency	3-5 days/week
Intensity	Moderate intensity (i.e., 4-6 on the Borg C-R 10 Scale).
Time	20-60 minutes/day. If the 20-60 minute durations are not achievable, accumulate ≥ 20 minutes of exercise interspersed with intermittent exercise rest periods of lower intensity work or rest.
Type	Common aerobic modes including walking (free or treadmill), stationary cycling, and upper body ergometry.

ACSM: American College of Sports Medicine

FITT: Frequency, Intensity, Time, Type

ACSM FITT Resistive Exercise Recommendations for COPD and Asthma

FITT	RESISTANCE EXERCISE
Frequency	2-3 days/week
Intensity	Assessment of dyspnea and / or RPE using a validated scale may be considered.
Time	<i>Strength:</i> 2-4 sets, 8-12 repetitions <i>Endurance:</i> ≤ 2 sets for 15-20 repetitions.
Type	Elastic bands, free weight, or body weight exercises.

Key: RM = repetition maximum, RPE = rating of perceived exertion

An inexpensive “**resistive circuit**” may be developed if space is available. An example of this type of resistive circuit training could include the following stations:

- Free weights (chair and dumbbells of varying weights required).
- Bands/tubes (chair and elastic bands/tubes of various tensions required).
- Hand-grip squeeze station (tennis balls, squeeze balls and/or handgrip devices required).
- Leg-lift station with ankle weights or weighted shopping bags (chair and ankle weights or cloth shopping bags with full cans or stones required).
- Patient performing resistive exercises using their body weight such as standing leg lifts, arm circles, chair raises, wall pushups, squats* and / or sit to stand* (stable chair required).

For frail or deconditioned patients, use knee extensions without weights.

*Initial squats and sit to stand require supervision for proper form.

When to Stop Exercise and Seek Help

- Breathlessness, fatigue and/or weakness beyond normal levels that does not improve with rest or usual management (e.g., oxygen, rescue inhaler or nebulizer, tripod position)
 - Chest pain or tightness
 - Muscle pain that does not improve
 - Feeling dizzy or faint
 - Leg pain, weakness, and/or cramping
 - Sweating more than usual with exercise implementation
3. <https://www.livingwellwithcopd.com/> is an online PR resource that provides helpful tools, handouts and materials found under the “Rehabilitation” tab.

The section on “PR Program” has been enriched with the contributors’ collective experience, with pre-existing resources, as well as consultation and feedback from the larger respiratory community. This PR Program includes web-based comprehensive resources with reference guides for all the elements of PR:

- Pre-program evaluation & physician consultation
- Exercise program & prescription
- Self-management behavior modification intervention
- Post-program evaluation
- Follow-up and keeping a healthy lifestyle in the long-term

The Livebetter PR Program supports healthcare professionals with i) prescription of exercises, ii) exercise tracking, iii) maintenance and iv) gradual return to exercise at home when patient have stopped exercise training, including acute exacerbations (see the tab “Rehabilitation - Exercise maintenance at home under Healthy Lifestyle, a Guide for the gradual return to exercise”). Thanks to Jean Bourbeau MD for providing this resource.

4. [Livebetter.org](http://livebetter.org) is an online resource developed by the American Thoracic Society and the Gawlicki Family Foundation to increase public awareness of PR by informing and educating individuals with chronic lung disease about potential benefits of PR.
5. **An Electronic Medical Record (EMR) Draft Note** for video visit documentation below may be updated to potentially meet PR program needs. There are no current plans for reimbursement of home PR models in the US.

Video Visit for Home Exercise performed this visit using real-time Telehealth tools, including a live video connection between my location and the patient's location. Prior to initiating the session, I obtained informed verbal consent to perform this visit using Telehealth tools and answered all the questions about the Telehealth interaction.

- Name ***
- DX ***
- Video visit via Zoom conducted from *** to ***
- Medication changes? ***

- Subjective findings:
 - Reviewed home exercise program with patient per individualized guidelines for aerobic and resistance exercises.
 - Home Exercise progress:
 - Aerobic home exercise program***
 - Resistance/strength home exercise program ***
 - Mobility***
 - During video visit we focused on ***. Pt able to do ***
 - Plan***
6. The British Thoracic Society has a Resource Pack for Pulmonary Rehabilitation that can be found here (along with numerous excellent resources for pulmonary clinicians). <https://www.brit-thoracic.org.uk/about-us/covid-19-information-for-the-respiratory-community/>

Below is information from Centers for Medicare and Medicaid (CMS). There is no clear position on billing video visits for PR at this point.

<https://news.thoracic.org/washington-letter/2020/cms-expands-telehealth-services-and-other-options-for-e-visits-effective-march-6,-2020.php>

To read the [Fact Sheet](#) on this announcement, please click [here](#).

To read the [Frequently Asked Questions](#) on this announcement, please click [here](#).

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This resource is dedicated to the memory of John Murray, MD. Dr. Murray advanced the science and care for all with lung disease.

John Murray MD (R) with Jim Beck MD, ATS president (L), 5/16/16

