

Patients support exercise training and rehabilitation—what more should we be doing to ensure cardiopulmonary rehabilitation is more readily available for those with pulmonary hypertension?

Pulmonary Circulation 2020; 10(4) 1–3
DOI: 10.1177/2045894020975312

“You need to exercise and stay active. . . a little breathlessness is alright. . . there is evidence to support its use. . . visit your physiotherapist for a detailed exercise program”—How often have we said this to our patients with pulmonary hypertension (PH), without realizing what it is that they feel about it or trying to understand why they have difficulties to carry out their exercise regime? A new paper by Chia and colleagues¹ in the current issue of *Pulmonary Circulation* has done just that—to identify the behaviors toward exercising, the potential barriers and facilitators, and the accessibility of these services through an international, online survey.

Exercise intolerance is a cardinal feature of PH that is brought about by the various physiological mechanisms.² Considering the benefits of exercise training on these physiological systems,³ it has gained popularity as an adjunct to medical therapies with evidence from high-quality meta-analysis showing significant benefits on function and quality of life among those participating in exercise programs.⁴ The availability of the growing body of evidence⁵ has now resulted in exercise training receiving evidence-based recommendations in the recent PH guidelines, albeit of low quality.⁶ Despite the growing popularity for exercise training in PH, not many centers still offer exercise training to those with PH. This has been thought to be due to the lack of awareness of the benefits of exercise among both healthcare professionals and patients. It is in this context that this study by Chia et al. elucidates to the patient and their experiences with exercise.

The online survey conducted by Chia and colleagues¹ reached 202 participants from 19 countries around the world. With respondents coming mainly from Australia and New Zealand (over 60%) and targeted at well-educated, computer-literate individuals, the survey may represent a somewhat rosier view. However, the authors were able to collect both quantitative and qualitative data and reported that 77% of patients received information on the benefits of exercise—a surprisingly high percentage given the past reluctance to recommend exercise. Walking was

most used by those with PH followed by supervised exercise sessions in the gym. Disconcertingly, more than half the respondents reported a previous adverse event during exercise and these individuals reported greater levels of anxiety regarding exercise participation. This anxiety may well impact enrollment and adherence to exercise programs. Therefore, the need to reassure patients on the safety of exercise in the real world setting, despite the low rates of adverse events with exercise training.⁷

The authors have highlighted the need for a multidisciplinary rehabilitation service for PH as well, which supports the current evidence on exercise training.³ Ideally, the multidisciplinary team should include various healthcare professionals (physiotherapists, exercise physiologists, psychologists, nurses, dieticians) and be tasked to perform various health-related assessments which would be beneficial to meet the rehabilitation needs of the patient and the primary physician (Table 1).³ The fact that patients feel education, physiotherapy (i.e. exercise training), psychological support, and occupational therapy are important to the smooth delivery of a rehabilitation program suggests that the time is ripe for establishing multidisciplinary rehabilitation teams for PH led by physical medicine specialists or cardiologists.

As if the challenges in ensuring adequate focus and delivery of exercise-based programs were not enough, the COVID-19 pandemic has brought in new challenges to patient care in PH.⁸ To ensure appropriate safety through social distancing, there is a need to ensure delivery of rehabilitation programs remain robust. One such method is through the use of a technologically driven model⁹ which utilizes various forms of technology for the initial assessment, delivery of exercise, monitoring, and follow-up. However, very few models have been tested and there is a need to establish effective, safe, and culturally relevant models of rehabilitation, keeping in mind the facilitators to exercise while maintaining safety and social distancing in the context of the “new normal” during the pandemic.



Table 1. PH rehabilitation center: staff, facilities and services.

Staff:
Physician with expertise in PH
PH nurse
Clinical pharmacist
Physiotherapist
Exercise physiologist
Occupational therapist
Nutritionist
Social worker
Psychologist/psychiatrist
Facilities
<ul style="list-style-type: none"> • Evaluation labs for assessment of pulmonary function, cardiorespiratory fitness, muscle strength (both peripheral and respiratory), autonomic function (heart rate variability), energy expenditure, and body composition • Exercise training areas for aerobic, resistance, and respiratory muscle training • Patient education rooms • Counseling areas • Areas of groups discussions and therapy • Work simulation labs
Services
<ul style="list-style-type: none"> • Exercise training • Nutritional counseling • Vocational rehabilitation • Psychological support • Patient education

PH: pulmonary hypertension.

Source: reproduced with permission from Babu et al., 2017.³

With patients perceiving exercise to be of benefit, now is the time for the PH community around the world to take up promoting and setting up rehabilitation programs for PH. However, their fears and concerns, such as those highlighted by Chia and colleagues,¹ need to be satisfactorily addressed. Perhaps the best approach is to take a leaf out of the book from cardiac rehabilitation which is well accepted by both clinicians and patients alike.¹⁰ We therefore propose the following core components for PH rehabilitation:

1. **Patient assessment** through an interdisciplinary approach for evaluating physical, social, and psychological limitations to exercise.
2. **Management of pulmonary pressures and co-morbidities** by cardiologists, pulmonologists, rheumatologists, and internal medicine specialists and supporting allied health and nursing staff.
3. **Education and counseling** by healthcare professionals through reading material, technology, online sources, or one-to-one sessions.
4. **Psychological and social support** by clinical psychologists and social workers to provide strategies on coping and social integration through peer support groups and psychosocial support.
5. **Physical activity counseling and exercise training** by physiotherapists, exercise scientists, and rehabilitation counselors who will individualize each program to suit the needs and goals for each patient.
6. **Functional training** by occupational therapists who will work toward achieving independence in activities of daily living.
7. **Nutritional counseling** by dieticians and nutritionists to ensure adequate fluid balances and daily nutrient requirements are met.
8. **Healthy living strategies** by all healthcare professionals and healthy living practitioners.¹¹

In conclusion, this important study by Chia et al.¹ provides insight into the patient's perspective on exercise and PA and lays the foundation for much larger studies highlighting and targeting barriers to exercise training. PH centers could begin rehabilitation programs focusing on the core components and promoting interdisciplinarity for delivery of rehabilitation interventions. Modes of delivery and components should therefore become a priority which will help streamline and standardize rehabilitation care for PH across the world.

Conflict of interest

The author(s) declare that there is no conflict of interest.

Guarantor

Dr. Abraham S. Babu

Author contributions

Both authors created the first draft, modified and edited the subsequent versions, and finally approved the submission.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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