

## Effects of Home-Based Pulmonary Rehabilitation in Patients with Chronic Obstructive Lung Disease

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The full report is titled “Effects of Home-Based Pulmonary Rehabilitation in Patients with Chronic Obstructive Pulmonary Disease. A Randomized Trial.” It is in the 16 December 2008 issue of *Annals of Internal Medicine* (volume 149, pages 869-878).

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### What is the problem and what is known about it so far?

Chronic obstructive pulmonary disease (COPD) is one of the most frequent causes of death in the United States. Patients with COPD nearly always have a long history of cigarette smoking. The irritants in cigarette smoke cause inflammation of the airways, which leads to obstruction of airflow in and out of the lungs. Poor airflow causes patients to have shortness of breath, especially during exercise. The lung damage from cigarette smoke is usually permanent, so drugs are only partially effective in improving air flow. However, exercise training can reduce shortness of breath even in severe COPD. Many hospitals have programs that provide closely supervised exercise training in the hospital setting. However, access to these programs is limited. Only a small fraction of patients with COPD are able to get exercise training.

### Why did the researchers do this particular study?

To see whether a home-based, largely unsupervised, exercise-training program was as effective as a hospital-based program.

### Who was studied?

252 patients with moderate to severe COPD.

### How was the study done?

All patients had 4 weeks of education about living with COPD. Then, the researchers randomly assigned patients to home-based exercise training or hospital-based outpatient training to do 3 sessions per week for 8 weeks. The hospital-based program consisted of strength training and exercise training on a bicycle, both closely supervised by a qualified exercise trainer. The exercise trainer initially visited the home-based group to get them started, but then patients were on their own except for weekly telephone calls to encourage them to do the exercises and check for problems. After 8 weeks, patients were encouraged to buy their own exercise equipment and talked to the therapist by telephone once every 2 months. The study's main outcome was the patients' report of the severity of their shortness of breath 1 year after the beginning of the study.

### What did the researchers find?

At the end of the training period and 9 months later, patients in both groups had less shortness of breath than before they began exercise training. Patients in the home-based program did just as well as the patients in the hospital-based program.

### What are the limitations of the study?

Some patients did not report the severity of their shortness of breath at the end of the study.

### What are the implications of the study?

Exercise training reduced shortness of breath in both the home-based program and the hospital-based program. The 2 programs were equally effective and safe. If organizations start home-based pulmonary rehabilitation programs, patients with COPD should have more opportunities to get exercise and strength training, which will help to reduce their shortness of breath.

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