

# Pulmonary Rehabilitation for Diseased Lungs: An Information Booklet for Patients with COPD

Soumya G. Menon

**Abstract:** *Pulmonary Rehabilitation is a very important aspect of diseased lung rehabilitation. It is a rehabilitation programme that helps to improve the breathing difficulties and helps the lungs to achieve a near normal function. This article provides information about the debilitating disease of Chronic Obstructive Pulmonary disease (COPD) and discusses about the various aspects of pulmonary rehabilitation which can help a person affected with COPD to live a near normal life through an Information booklet.*

**Keywords:** Pulmonary rehabilitation, Rehabilitation for COPD, Information booklet, Awareness booklet, COPD

## 1. Aim

The aim of this information booklet is to improve knowledge of patients with COPD about the importance of pulmonary rehabilitation so as to reduce the disease symptoms and improve the overall health related quality of life.

## 2. Objectives

On reading the information booklet, patients with COPD can:

- Explain the meaning of COPD.
- List the causes of COPD.
- Enumerate the signs and symptoms of COPD.
- Explain the meaning of pulmonary rehabilitation.
- List the aims of pulmonary rehabilitation.
- Describe the techniques of breathing retraining and coughing exercise.
- List the benefits of regular physical exercise.
- List the various ways of avoidance of lung irritants.
- Explain about dietary modifications to be observed in COPD.
- Describe the action of medicines received.
- Explain about metered dose inhalers and technique of using it.
- Identify when to seek medical help.

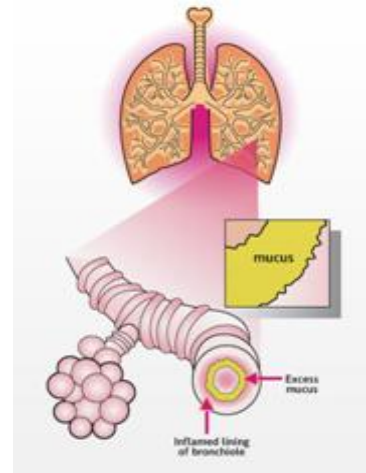
Chronic obstructive pulmonary disease is a lung disease often abbreviated as COPD.

Chronic means a long term illness.

Obstructive means causing airway obstruction

Pulmonary means related to lungs

Disease means illness



Thus, COPD is characterized by chronic obstruction of lung airflow that interferes with normal breathing and is not fully reversible.

### Causes of COPD :

#### Cigarette Smoking



#### Second Hand smoke

(Smoke in the air due to other people smoking),



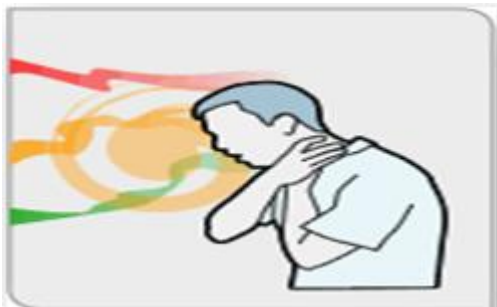
Exposure to Air Pollutants



- Chest tightness



Occupational Dusts and Chemicals



**These symptoms of COPD can be improved through effective pulmonary rehabilitation**

Pulmonary rehabilitation has proved to be an integral component of comprehensive medical therapy for patients with COPD.

It is well established and widely accepted as a means to alleviate symptoms and optimize functional status in patients with COPD.

The signs and symptoms of COPD include:

- An ongoing cough or a cough that produces large amounts of mucus (often called "smoker's cough")



- Shortness of breath, especially with physical activity and Wheezing (a whistling or squeaky sound when you breathe)



Thus, Pulmonary Rehabilitation is the medical art and science by which people disabled with lung disease is returned to a more active and enjoyable life style.

Aims of pulmonary rehabilitation:

- Increase exercise tolerance and reduce breathlessness
- Increase muscle strength and endurance
- Improve health related quality of life
- Increase independence in daily functioning
- Increase knowledge of lung condition
- Promote long term commitment to exercise

Components of pulmonary rehabilitation that you should be aware of:

**Breathing retraining:**

Learning new breathing techniques will help you move air in and out of your lungs.

Also, it is helpful to use effective breathing techniques with exercise to minimize shortness of breath and assure adequate oxygen to your working muscles. Breathing retraining has the added benefit of helping you relax when you are anxious or stressed.

Two types of breathing techniques which are useful for you are:

Pursed lip breathing and Diaphragmatic breathing

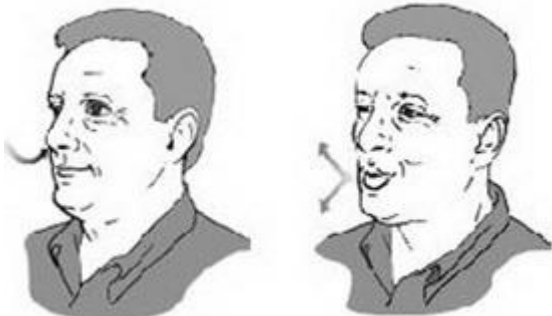
**Pursed lip breathing:**

Pursed-lip breathing is an exercise that can be practiced several times daily in order to improve your breathing. The purpose of pursed lip breathing is to help keep your airways open. It also slows down your breathing rate and calms you down



Here are the steps for pursed lip breathing:

- Inhale slowly through your nose for 2 secs with your mouth closed; try to take in a normal amount of air.
- Exhale slowly for 4 secs through your mouth with your lips in the whistling or kissing position.
- Breathe out for twice as long as you breathe in.



Do not take in a large deep breath and never try to force out the air.

Practice this procedure **4-5 times a day** initially to get the correct breathing pattern.

*Note: You may experience a light-headed feeling while doing pursed lip breathing. This indicates that you are over ventilating yourself and you should breathe more slowly.*

**Diaphragmatic breathing**

These steps should be followed while doing diaphragmatic exercises:

- Lie down and place a pillow behind your head for support.



- Place one hand on your abdomen and the other on the upper portion of your chest.



- Control your breath as you breathe in slowly on a count of 3 as the hand on your stomach should rise.
- If your hand on your chest moves, try to divert the air to your abdomen.
- Purse your lips and breathe out slowly on a count of 6. The hand on your stomach should move inward



In the beginning, practice this procedure for **5-10 minutes, 3-4 times a day**. You can gradually increase the length of your exercises period.

**Coordinated breathing**

With the help of coordinated breathing adequate oxygen is delivered to your working muscles

Here are the steps for coordinated breathing.

- Inhale through your nose before starting the exercise or activity.
- Exhale through pursed lips, during the most exerting part of the exercise or activity.

*If you become very short of breath during exercise---stop the exercise, use pursed lip breathing to help control your breathing,---and then start exercising again.*

Practice these breathing techniques daily so they become routine.

**Here are some positions for you to try to help ease your discomfort and manage shortness of breath**

**Sitting**

- Rest your feet flat on the floor.
- Lean your chest forward slightly.
- Rest your elbows on your knees or on a table
- Relax your neck and shoulder muscles.



--OR--

- Rest your feet flat on the floor.
- Lean your chest forward slightly.
- Rest your arms on a table.
- Rest your head on your forearms or on some pillows.

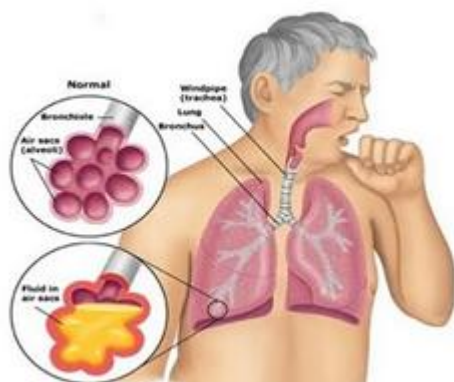


### Coughing technique:

A primary symptom of COPD is increased mucus production which contributes, in large part, to your shortness of breath.

If the mucus continues to obstruct your airway, your breathing will become increasingly more difficult and an infection may occur.

That's why it is important for you to know how to clear your airways, which can help you get rid of unwanted mucus and breathe easier.



Here's how to do it:

- Sit upright in a comfortable, quiet place.
- Allow your head to lean forward slightly.
- Place your feet firmly on the floor underneath you.
- Using diaphragmatic breathing, inhale deeply.
- Try to hold your breath for at least 3 second when you inhale.
- Open your mouth slightly, place your hand on your abdomen and, while gently pressing inward and upward against your diaphragm, cough once. The first cough should have moved the mucus to your throat. Now, cough again to remove the mucus from your throat.
- Spit the mucus into a tissue. If the mucus is green, brown, pink or bloody, contact your healthcare provider as this may indicate the presence of infection or other problems.
- Take a break and repeat as needed. Wash your hands using proper hand washing technique

### Importance of Physical exercise

Regular exercise has many benefits for patients with COPD. It can:

- Improve your circulation and help the body better use oxygen
- Improve your COPD symptoms
- Build energy levels so you can do more activities without becoming tired or short of breath
- Strengthen your heart and cardiovascular system
- Increase endurance
- Lower blood pressure
- Improve muscle tone and strength; improve balance and joint flexibility
- Help reduce body fat and help you reach a healthy weight
- Help reduce stress, tension, anxiety, and depression
- Improve sleep
- Make you feel more relaxed and rested

Stretching and breathing exercises, plus a daily walk, are a good start.



Walking is one of the best forms of exercise around.



It's simple, cheap, and can be done anywhere, any time of year.

Try walking around your home, at the nearby mall, or a local park.

In general, try to exercise **at least 3-4 times per week lasting for 20-30 mins.**

Swimming, walking, climbing stairs, and dancing are other exercises which can be of great help.



More tips for you about exercise:

- Before starting, sit and rest for 5 minutes.
- Do light warm-up exercises.
- Take adequate rest periods during your exercise session.



Also, keep yourself away from smoky environment, extremes in temperature and people with cough and colds.

- Practice breathing techniques during your exercise.
- Commit to a regular exercise program
- Avoid sudden bursts of activity.
- Watch for worsening of COPD symptoms.
- Exercise in moderation

**The lung irritants that you should avoid:**

*If you smoke, quit.*



Smoking is the leading cause of COPD. Talk with your doctor about programs and products that can help you quit smoking.

Avoid other lung irritants that can contribute to COPD like *secondhand smoke* (smoke in the air from other people smoking), *air pollution*, *chemical fumes*, and *dust*.

Keep these irritants out of your home. If your home is painted or sprayed for insects, have it done when you can stay away for a while.

Keep your windows closed and stay at home (if possible) when there's a lot of air pollution or dust outside.

**Importance of nutrition:**

Planning what you eat and balancing your meals are important ways to manage your health. Changing your eating habits will not cure COPD but it can help you feel better.

*Have nutritious foods.* Eat plenty of fruits and vegetables.



Having *small and frequent meals* helps to ease shortness of breath during and after meals.



*Drink plenty of fluids.* You should drink at least 6 to 8 glasses of non-caffeinated beverages each day to keep mucus thin and easier to cough up.



Some people with COPD who also have heart problems might need to limit their fluids, so be sure to follow your doctor's guidelines.

*Have good amount of legumes and cereals* too in diet.



It is also beneficial to *have a diet rich in protein.* (Milk, pulses, soya, eggs, meat or fish)



*Limit caffeine*---contained in coffee, tea---and several carbonated beverages such as cola as it might interfere with some of your medicines.



*Avoid overeating and foods that cause gas or bloating* like carbonated beverages, fried, greasy, or heavily spiced foods, beans, cabbage, cauliflower, cucumbers. These foods might make breathing uncomfortable due to bloated abdomen.



**Control the sodium (salt) in your diet.** Eating too much salt causes the body to keep or retain too much water, causing breathing to be more difficult.



Maintain a healthy body weight and monitor your weight at least once a week.



Besides these, follow your doctor's other dietary guidelines

#### Know Your Medicines:

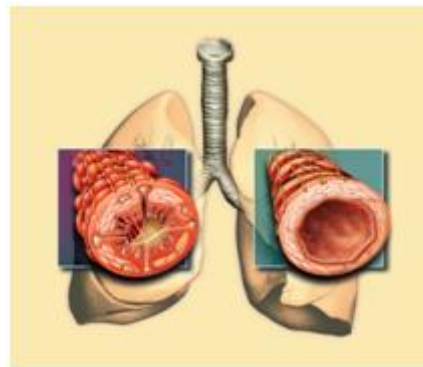
You have the right and responsibility to know what medications are being prescribed for you. The more you know about your medications and how they work, the easier it will be for you to control your symptoms.

The following types of medications may be prescribed for you by your doctor:

- **Oxygen might be prescribed if your lungs are not getting enough oxygen to your blood.** Breathing prescribed oxygen increases the amount of oxygen in your blood, reduces the extra work of the heart, and usually decreases shortness of breath.



- **Bronchodilators relax the muscle bands that tighten around the airway which open up the airways and improve breathing.** Bronchodilators also help clear mucus from the lungs. As the airways open, the mucus moves more freely and can therefore be coughed out more easily



- **Anti-inflammatories reduce swelling and mucus production in the airways,** which makes the airways less sensitive and less likely to react to triggers.
- **Expectorants thin mucus in the airways** so it can be coughed out more easily. Take these medications with about 1 glass of water.
- **Antibiotics might be prescribed to treat infections or help you recover from an illness.** To help clear up your infection completely or to help you recover more quickly from an illness, it is important to take antibiotics for the full time of treatment, even if your symptoms have improved.

#### Metered Dose Inhaler

**An Inhaler is a device that delivers a specific amount of medication to your lungs, in the form of a short burst of aerosolized medicine that is inhaled by the patient.**

It is the most commonly used delivery system for treating asthma, chronic obstructive pulmonary disease (COPD) and other respiratory diseases.



Each inhaler consists of a pressurized canister of medication and a mouthpiece.

**Pressing down on the inhaler releases a mist of medicine that you breathe into your lungs. So that your airways receive the right amount of medicine, it is important to use your inhaler correctly.**

#### How to use a metered-dose inhaler correctly:

- 1) Wash your hands thoroughly with soap and warm water.



2) Remove the cap and hold the inhaler upright.



3) Shake the inhaler.



4) Tilt your head back slightly and breathe out.  
5) Hold the inhaler as in one of the pictures



6) Press down on the inhaler to release the medicine as you start to breathe in slowly.  
7) Breathe in slowly for 3 to 5 seconds.



8) Hold your breath for 10 seconds to allow medicine to go deeply into your lungs.  
9) Repeat puffs as directed. Wait 1 minute between puffs to allow the second puff to get into the lungs better.

Metered-dose inhalers are generally safe to use. But there are a few safety precautions you should take into account:

- **Be careful not to spray your medicine mist into your eyes.** It could be irritating.
- Keep your metered dose **inhaler out of the reach of children.**

- **Don't share your inhaler** with anyone else, even if they have been diagnosed with asthma or have similar symptoms as you.
- **Use your inhaler exactly as prescribed by your doctor.** If you miss a dose, take it as soon as you remember on the same day, and then go back to your regular schedule from the next day.
- **It's a good to rinse your mouth after using your inhaler,** just in case some of the medicine stayed in your mouth, instead of getting into your airways.

**When to contact a doctor:**



- **Moderate to severe difficulty breathing or wheezing** occurs.
- **Severe chest pain** occurs, or chest pain is quickly getting worse
- **Coughing more deeply or more often,** especially if you notice an increase in mucus (sputum) or a change in the colour of the mucus or presence of blood in the mucus you cough up.
- **Unexplained weight loss or gain** of 1kg in a day or 2.5 kg in a week
- Frequent morning **headaches or dizziness**
- **Swelling in your ankles, feet, or legs** that is new or has become worse and doesn't go away after a night's sleep with your feet up



- **Fever, especially with cold or flu symptoms** and recurrent respiratory tract infections.





- *Restlessness, confusion, forgetfulness, slurring of speech, or irritability*
- *Unexplained, extreme fatigue* or weakness that lasts for more than a day

*Also, to slow down the worsening of lung function, you should have a close medical follow up for the rest of life.*

Thus, we have learned about COPD and the importance of pulmonary rehabilitation in improving your health related quality of life.

With proper management, you can slow the progression of the disease and enjoy living the life with which you have been blessed.

Remember, COPD does not have to be the end of your dreams. By implementing lifestyle changes, you can improve the quality of your life and continue to live, to the fullest extent possible.