

Better Living with Chronic Obstructive Pulmonary Disease

A Patient Guide

Third Edition



*"When you can't breathe...
nothing else matters"®*



Better Living with Chronic Obstructive Pulmonary Disease *A Patient Guide* is a joint project of the Statewide Respiratory Network, Queensland Health and Lung Foundation Australia, COPD National Program.

This work is copyright and copyright ownership is shared between the State of Queensland (Queensland Health) and Lung Foundation Australia 2016. It may be reproduced in whole or in part for study, education or clinical purposes subject to the inclusion of an acknowledgement of the source. It may not be reproduced for commercial use or sale. Reproduction for purposes other than those indicated above requires written permission from both Queensland Health and Lung Foundation Australia.

© The State of Queensland (Queensland Health) and Lung Foundation Australia 2016.

For further information contact Statewide Respiratory Clinical Network, Healthcare Improvement Unit, Clinical Excellence Division, e-mail: statewide_respiratory_network@health.qld.gov.au and Lung Foundation Australia, e-mail: enquiries@lungfoundation.com.au or phone: 1800 654 301.

For permissions beyond the scope of this licence contact: Intellectual Property Officer, Queensland Health, email: ip_officer@health.qld.gov.au.

To order resources or to provide feedback please email: enquiries@lungfoundation.com.au or phone 1800 654 301.

Queensland Health Statewide Respiratory Clinical Network and Lung Foundation Australia, COPD National Program – Better Living with Chronic Obstructive Pulmonary Disease *A Patient Guide*.

ISBN 978-0-9872272-8-7

First edition published 2008, Second edition published 2012, Third edition published 2016.



Foreword



Professor Christine Jenkins,
AM, MD, FRACP, FThorSoc
Chair, Lung Foundation Australia
Clinical Professor, University of Sydney
Thoracic Physician, Concord Hospital

Chronic Obstructive Pulmonary Disease (COPD) is the second leading cause of avoidable hospital admissions. COPD impacts significantly on the day-to-day lives of people with the disease, their families and carers, and the health system. While there is no cure for COPD, there are many things people can do to improve their symptoms and therefore the quality of their lives.

The Statewide Respiratory Clinical Network identified the need for standardised, evidence-based patient information to be available to people with COPD. In response to this need, a team of health care professionals experienced in providing care to people with lung conditions compiled the original handbook in 2008. The original publication is now onto its Third Edition and has been reviewed and updated in line with current evidence-based best practice.

The aim of this booklet is to provide useful information about how to live well with a chronic lung condition and offer practical advice about what people with COPD can do to improve their well-being. We hope this book will be a valuable resource for all people with COPD, their carers and health professionals, particularly those living in regional and remote areas.

Queensland Health and Lung Foundation Australia are committed to supporting those with COPD to manage their condition and get the best they can out of life. This booklet is an important step to better living with COPD.

For access to this resource on-line, visit www.lungfoundation.com.au or for further information, call Lung Foundation Australia on 1800 654 301.



Dr John Wakefield,
Deputy Director-General,
Clinical Excellence Division

Acknowledgements

Queensland Health and Lung Foundation Australia wish to acknowledge the efforts of all those involved in the development, review and subsequent updates of Better Living with Chronic Obstructive Pulmonary Disease *A Patient Guide*.

*Current Chair: Associate Professor Stephen Morrison
Former Chairs: Dr Chris Zappala, Professor Ian Yang
Statewide Respiratory Clinical Network, Queensland*

1st Edition Project Officers

- James Walsh (Coordinating Author), Physiotherapist, The Prince Charles Hospital, Brisbane, QLD
- Helen Seale, Assistant Director of Physiotherapy, Thoracic Program The Prince Charles Hospital, Brisbane, QLD
- Heather Allan, Director, COPD National Program, Lung Foundation Australia
- Simon Halloran, Physiotherapist, Bundaberg Base Hospital, QLD

1st Contributing Authors

- Robyn Cobb, Physiotherapist, The Prince Charles Hospital, Brisbane, QLD
- Annette Dent, Respiratory Scientist, The Prince Charles Hospital, Brisbane, QLD
- Mary Doneley, Social Worker, The Prince Charles Hospital, Brisbane, QLD
- Emily Gill, Dietician, Royal Brisbane and Women's Hospital, Brisbane, QLD
- Di Goodwin, Respiratory Clinical Nurse Consultant, Royal Brisbane and Women's Hospital, Brisbane, QLD
- Kathleen Hall, Physiotherapist, The Prince Charles Hospital, Brisbane, QLD
- Simon Halloran, Physiotherapist, Bundaberg Base Hospital, Bundaberg, QLD
- Karen Herd, Dietician, The Prince Charles Hospital, Brisbane, QLD
- Michele Kennedy, Respiratory Clinical Nurse Consultant, Logan Hospital, Meadowbrook, QLD
- Rena Knight, Occupational Therapist, Brisbane South Respiratory Service, QLD
- Jennie Lettieri, Speech Pathologist, Toowoomba Hospital, QLD
- Lisa McCarthy, Thoracic CNC, The Prince Charles Hospital, Brisbane, QLD
- David McNamara, Respiratory Clinical Nurse Consultant, Nambour General Hospital, Nambour, QLD
- Judy Ross, Respiratory Clinical Nurse Consultant, Princess Alexandra Hospital, Woolloongabba, QLD
- Helen Seale, Physiotherapist, The Prince Charles Hospital, Brisbane, QLD
- John Serginson, Respiratory Nurse Practitioner, Caboolture Hospital, QLD
- Stella Snape-Jenkinson, Advanced Occupational Therapist, Heart Lung Team, The Prince Charles Hospital, Brisbane, QLD
- Tracy Tse, Pharmacist, The Prince Charles Hospital, Brisbane, QLD
- Barb Williams, Respiratory Clinical Nurse, Logan Hospital, Meadowbrook, QLD

- James Walsh, Physiotherapist, The Prince Charles Hospital, Brisbane, QLD
- Robert Walton, Clinical Psychologist, Nambour General Hospital, Nambour, QLD
- Brett Windeatt, Respiratory Clinical Nurse, Logan Hospital, Meadowbrook, QLD
- Michelle Wood, Physiotherapist, The Prince Charles Hospital, Brisbane, QLD
- Associate Professor Ian Yang, Thoracic Physician, The Prince Charles Hospital, Brisbane, QLD

1st Edition Statewide COPD Clinical Network, Queensland, Steering Committee

Reviewers

- Judith Hart, Australian COPD Patient Taskforce
- Associate Professor Christine McDonald, Respiratory Physician, Austin Hospital, Melbourne, VIC
- Vanessa McDonald, Clinical Nurse Consultant, John Hunter Hospital, Newcastle, NSW
- Dr Bill Scowcroft, Co-Chair, Australian COPD Patient Taskforce
- Myrna Wakeling, Talk Lung Care Support Group

2nd Edition August 2012 Project Officers

- Pauline Hughes, Respiratory Nurse Practitioner, Metro North Health Service District, Brisbane, QLD
- David McNamara, Respiratory Clinical Nurse Consultant, Nambour General Hospital, Nambour, QLD
- James Walsh, Physiotherapist, The Prince Charles Hospital, Brisbane, QLD
- Helen Seale, Assistant Director of Physiotherapy Thoracic Program, The Prince Charles Hospital, Brisbane, QLD
- Heather Allan, Director, COPD National Program, Lung Foundation Australia
- Judy Henry, Project Co-ordinator, Lung Foundation Australia

Lead Reviewers

- Dr Vanessa McDonald, Clinical Nurse Consultant, John Hunter Hospital and The University of Newcastle, Newcastle, NSW
- Associate Professor Ian Yang, Thoracic Physician, The Prince Charles Hospital, Brisbane, QLD

2nd Edition Contributing Authors

- Dr Helen Reddel, Research Leader, Clinical Management, Woolcock Institute of Medical Research, Sydney, NSW
- Moira Fraser, Clinical Nurse Specialist, Concord Hospital Medical Centre, NSW
- Amanda Ballard, Senior Social Worker, Metro North Health Service District, Brisbane, QLD
- Susan Marshall, Senior Psychologist, Metro North Health Service District, Brisbane, QLD
- Wendy Noyce, Advanced Occupational Therapist, Metro North Health Service District, Brisbane, QLD
- Judy Powell, Project Manager, Primary Care COPD National Program, Lung Foundation Australia
- Elizabeth Harper, Program Manager, Pulmonary Rehabilitation and Lungs in Action, COPD National Program, Lung Foundation Australia

Better Living with Chronic Obstructive Pulmonary Disease

A Patient Guide Third Edition

2nd Edition Statewide Respiratory Clinical Network, QLD

Consumer Reviewers

- Judy Hart, QLD
- Caroline Polak Scowcroft, ACT
- Ezy Breathers Support Group, Northlakes, QLD

Pulmonary Rehabilitation Booklets

The following COPD Pulmonary Rehabilitation Booklets were reviewed and used as models to produce this Patient Guide:

- Brisbane South Community Health Service District
- Bundaberg Health Service District
- Cairns Health Service District
- Nambour General Hospital
- Gold Coast Health Service District
- The Prince Charles Hospital
- The Alfred Pulmonary Rehabilitation Program

3rd edition Review:

Lead reviewers

- Professor Ian Yang, Thoracic Physician, The Prince Charles Hospital and The University of Queensland, Brisbane, QLD
- John Serginson, Nurse Practitioner Respiratory, Caboolture Hospital and Adjunct Lecturer, School of Nursing, Midwifery and Social Work, University of QLD
- Kirsten Phillips, Director, COPD National Program, Lung Foundation Australia
- Diane Barton, Marketing and Communications Coordinator COPD National Program, Lung Foundation Australia

Contributing Authors

- Dr Hayley Scott, Postdoctoral Research Fellow, Centre for Healthy Lungs, The University of Newcastle, NSW
- Fiona Collins, Senior Dietitian, WACHS - South West Bunbury Primary Health & Community Rehabilitation, South West Health Campus, Bunbury, WA
- Jenna Stonestreet, Senior Dietitian, Nutrition and Dietetics Department, The Prince Charles Hospital, Metro North Hospital and Health Service, Brisbane, QLD

Additional reviewers

- Ainsley Ringma, Respiratory CNC
- Simon Halloran, Physiotherapist and Program Director, LungSmart Pulmonary Rehabilitation, Bundaberg, QLD
- Helen Seale, Clinical Consultant Physiotherapist, Heart Lung Program, The Prince Charles Hospital, Brisbane, QLD
- James Walsh, Physiotherapist, Clinical Consultant, The Prince Charles Hospital, Brisbane, QLD
- Jenny Hose, Consumer and Information and Support Centre representative, Lung Foundation Australia
- 2016 Statewide Respiratory Clinical Network, QLD

Contents

Chapter	Page
1. Introduction	1
2. The lungs	2
3. Lung conditions	5
4. Lung function tests	8
5. Your role in managing your COPD	11
6. Stopping smoking and preventing a relapse ...	16
7. Knowing your medicine	20
8. Using your inhaler devices	27
9. Preventing and managing a flare up	36
10. Introduction to pulmonary rehabilitation	40
11. Exercise and physical activity	42
12. Breathlessness, breathing control and energy conservation	52
13. Airway clearance: keeping your lungs clear ...	58
14. Home oxygen therapy	60
15. Healthy eating	63
16. COPD and swallowing	70
17. COPD and other related conditions	73
18. Managing stress, anxiety and depression	78
19. Intimacy and COPD	82
20. Travel and COPD	84
21. Community support services	88
22. Frequently asked questions	92
23. Resources and support available from Lung Foundation Australia	94
24. References	96

Introduction

Chronic Obstructive Pulmonary Disease (COPD) is an umbrella term for a group of conditions that cause obstruction of airflow in the breathing tubes or airways of the lungs. These conditions commonly include chronic bronchitis, emphysema and chronic asthma. When the condition occurs it is chronic (long term) in nature, and therefore the airflow obstruction is usually permanent or 'irreversible'.

- C** – chronic – long term
- O** – obstructive – partly blocked
- P** – pulmonary – the lungs
- D** – disease – or illness

Lung Foundation Australia estimates that one in seven Australians over 40 years of age has COPD. Alarmingly at least 50% of those people do not know they have COPD, and, therefore are not taking the important steps to control their symptoms and slow down the progress of this disabling condition.

Breathlessness and cough are key symptoms of COPD. These symptoms can creep up on people slowly. As symptoms begin people may not be able to run to catch the train or play with young children.

However, they can worsen to a stage where everyday tasks, such as hanging out the washing or walking to get the mail become more and more difficult.

If you have COPD, the good news is that there are steps you can take to control the symptoms of COPD and slow down the ongoing damage to your lungs.

Better Living with Chronic Obstructive Pulmonary Disease *A Patient Guide* outlines the important steps that will make you feel better, such as:

- Quitting smoking.
- Understanding your medicines.
- Enrolling in a pulmonary rehabilitation program.
- Maintaining a healthy diet.
- Developing an COPD Action Plan.
- Joining a support group.
- Discussing immunisation with your doctor.

Better Living with Chronic Obstructive Pulmonary Disease *A Patient Guide* has been written specifically for people with COPD. However, there are many chronic lung conditions for which the principles and advice written in these pages will apply.

For more information about this Patient Guide and how to use it, contact Lung Foundation Australia (phone: 1800 654 301 or website: www.lungfoundation.com.au) or speak to your doctor, nurse or pulmonary rehabilitation coordinator.



The lungs

This chapter will help you to understand:

- What the respiratory (or breathing) system is.
- What the structure of the lungs is.
- What the lungs do.
- How you breathe.
- What the role of the nose and nasal cavity is.
- How the breathing system protects against irritants or foreign particles.

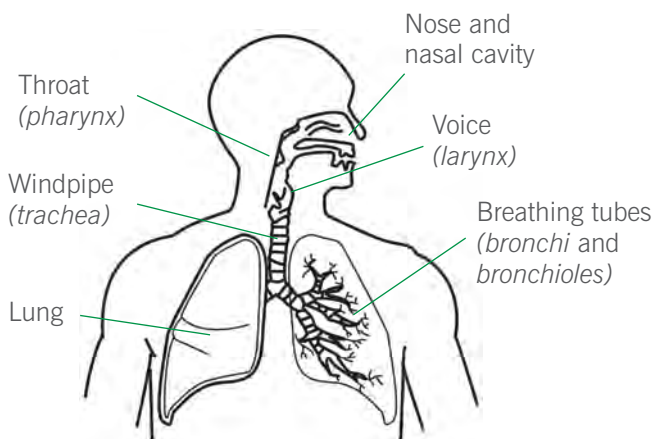
What is the respiratory (or breathing) system?

The respiratory system includes the upper and lower respiratory tract. The upper respiratory tract consists of:

- The nose and nasal cavity.
- The throat (*pharynx*).
- The voice box (*larynx*).

The lower respiratory tract consists of:

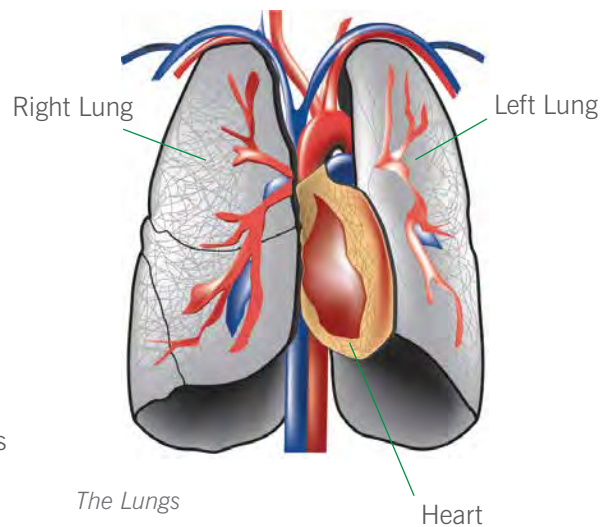
- The windpipe (*trachea*).
- Breathing tubes (*bronchi and bronchioles*).
- Air sacs (*alveoli*).



The Breathing System

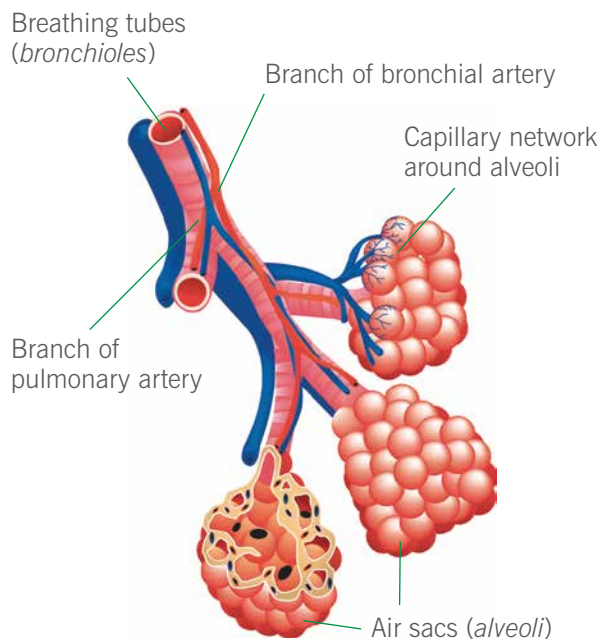
What is the structure of the lungs?

Both lungs and the heart are located within the chest. There are two lungs inside the chest: the left lung and the right lung. Each lung is divided into segments called lobes. The lungs are soft and protected by the ribcage.



Within the lungs is a transport system for oxygen and carbon dioxide. Each time you breathe, air is drawn via the mouth and nose into the windpipe (*trachea*).

The windpipe splits into two breathing tubes (*bronchi*): one to the left lung and one to the right lung. The breathing tubes continue to divide into smaller and smaller tubes (*bronchioles*), which take air down into each lung.



The Bronchi

What do the lungs do?

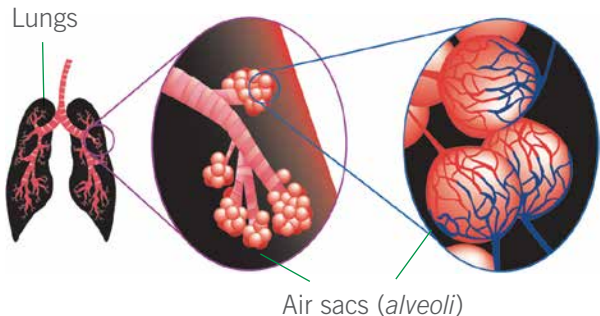
To survive, your body needs oxygen (O_2) which you get from the air you breathe. The lungs help take the oxygen from the air, through the air sacs (*alveoli*), into the body.

The air sacs are surrounded by tiny blood vessels (*capillaries*), which crisscross the walls of the air sacs. The air sacs are where oxygen, which is a gas, is absorbed into the bloodstream.

Oxygen is then carried along the bloodstream, through the heart, to where it is needed in the body.

Carbon dioxide (CO_2) is a waste product that is produced by the body. As a gas, carbon dioxide moves from the

bloodstream back into the air sacs and through the breathing tubes or airways, where it is breathed out.



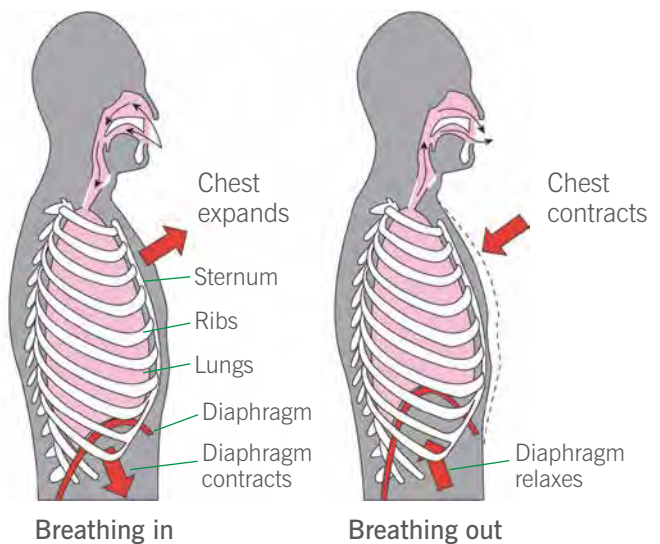
Capillaries crisscrossing the air sacs (alveoli)

How do you breathe?

The lungs do not move on their own. The diaphragm (the main breathing muscle) helps the lungs to work.

When you breathe in, the diaphragm contracts and moves down. The muscles between the ribs also contract. The lungs expand, and air is drawn into the lungs.

When you breathe out, the diaphragm relaxes and moves back up. The muscles between the ribs relax. The lungs reduce to normal size and air is pushed out of the lungs.



The diaphragm is the main breathing muscle

What is the role of the nose and nasal cavity?

The nose and nasal cavity perform a number of functions, including:

- Providing us with a sense of smell.
- Warming and moistening the air that is breathed in.
- Filtering the air that is breathed in of irritants, such as dust and foreign matter.
- Assisting in the production of sound.

The nose is the preferred route to deliver oxygen to the body as it is a better filter than the mouth. The nose decreases the amount of irritants delivered to the lungs, while also heating and adding moisture (humidity) into the air we breathe.

When large amounts of air are needed, the nose is not the most efficient way of getting air into the lungs. In these situations, mouth breathing may be used. Mouth breathing is commonly needed when exercising.

Infection or irritation of the nasal cavities can result in swelling of the upper airways, a runny nose or blocked sinuses, which can interfere with breathing.

The nose decreases the amount of irritants delivered to the lungs.

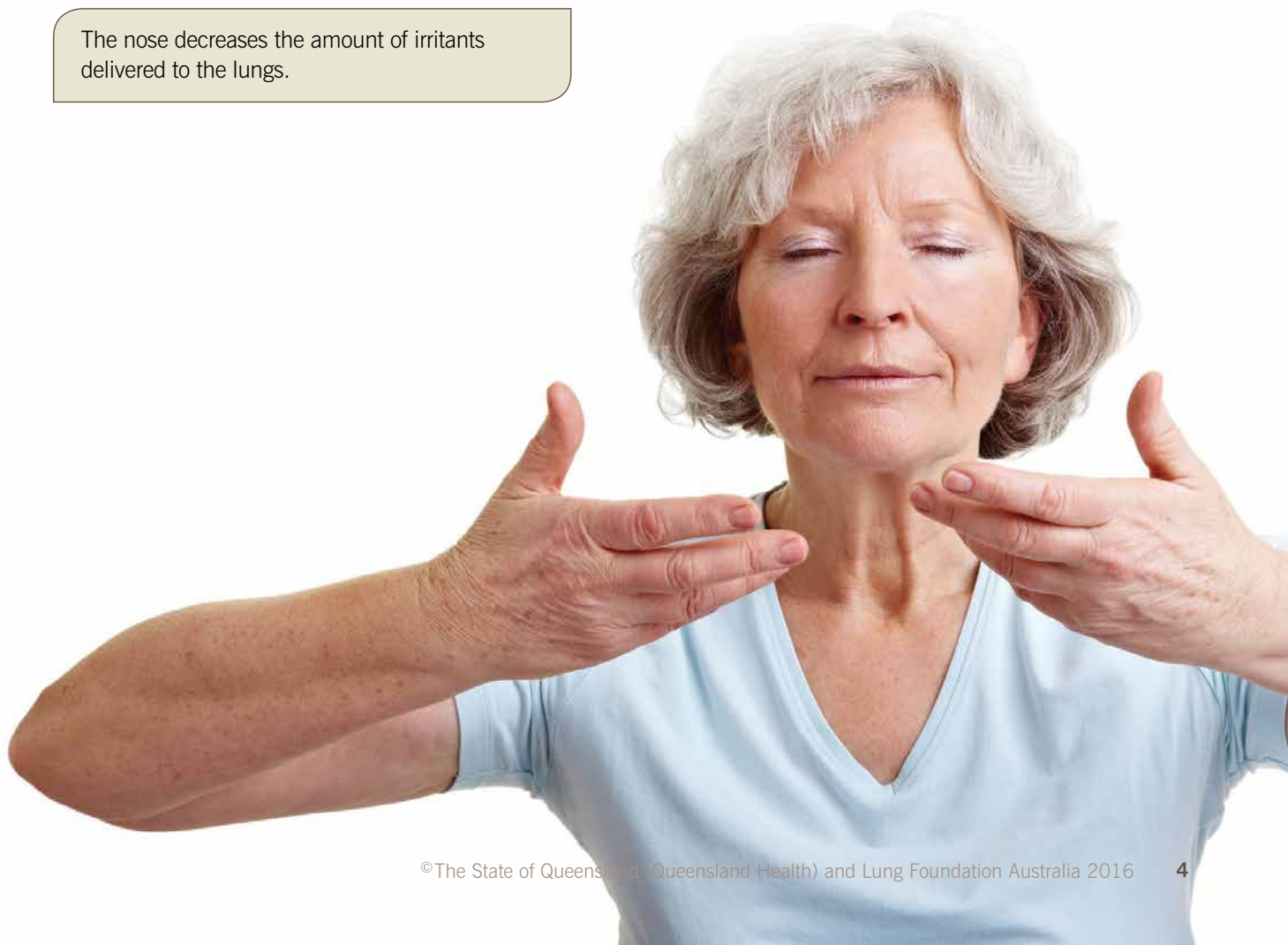
How does your respiratory (or breathing) system protect against irritants or foreign particles?

The breathing system provides protection against irritants or foreign particles entering the lungs. The breathing system has several protection mechanisms. Firstly, the nose filters the air when breathing in, preventing irritants, such as dust and foreign matter from entering the lungs.

Secondly, if an irritant enters the airways or breathing tubes, sputum that lines the airways traps unwanted particles. Tiny hair-like structures called *cilia* line the breathing tubes or airways. They move in a sweeping motion to help move the sputum and unwanted particles up into the mouth where they can be cleared. The function of the tiny hairs can be affected by smoke, alcohol and dehydration.

The third protective mechanism for the breathing system is the cough. A cough is the result of irritation to the breathing tubes (*bronchi* and *bronchioles*). A cough can clear sputum from the lungs.

Lastly, the lungs also have a built-in immune system that acts against germs.



Lung conditions

This chapter will help you to understand:

- What chronic obstructive pulmonary disease (COPD) is.
- What chronic bronchitis is.
- What emphysema is.
- What Alpha-1 antitrypsin deficiency is.
- What asthma is.
- What bronchiectasis is.
- What interstitial lung disease is.

Your lung condition

Lung or respiratory conditions can be caused by:

- Acute or long term breathing in of toxic agents (for example, cigarette smoke or chemical fumes).
- Infections.
- Genetic causes (for example, cystic fibrosis).
- Another disease, such as a muscular disorder, that impairs the function of the lungs.
- Sometimes lung disease can be caused by unknown reasons.

What is chronic obstructive pulmonary disease (COPD)?

The term chronic obstructive pulmonary disease (COPD) is commonly used to describe a person who has chronic bronchitis, emphysema, chronic asthma or a combination of these conditions. These conditions cause shortness of breath. Chronic obstructive airways disease (COAD), is also a term that has been used to describe COPD.

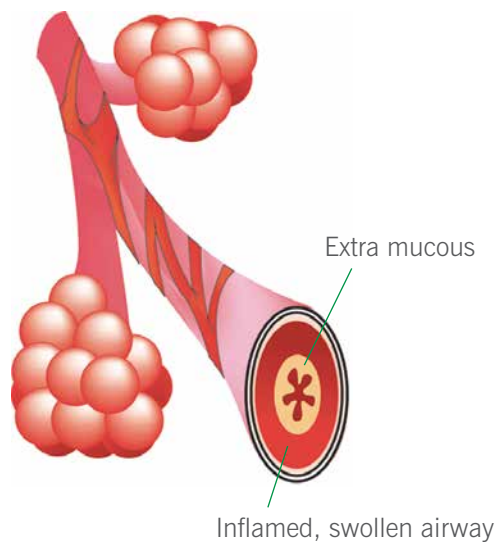
In Australia, chronic bronchitis and emphysema usually occur in people who have smoked or continue to smoke cigarettes, but they can be caused by environmental or genetic factors.

A small number of people can get emphysema from an inherited protein deficiency called Alpha-1 antitrypsin deficiency.

COPD is a term used to describe a condition that includes chronic bronchitis, emphysema, chronic asthma or any combination of these conditions.

What is chronic bronchitis?

Chronic bronchitis is a constant swelling and irritation of the breathing tubes (*bronchi* and *bronchioles*) and results in increased sputum production. This condition usually occurs as a result of infection and is often related to smoking. Chronic bronchitis is recognised or identified when sputum is produced on most days for at least three months, for two consecutive years.



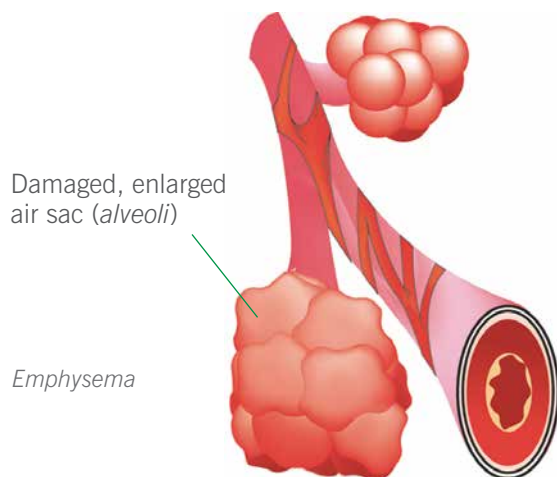
Excessive sputum obstructs airways

Airway obstruction occurs in chronic bronchitis because the inflammation and excessive sputum production causes the inside of the breathing tubes to be more narrow than usual. Frequent infections occur due to the increased sputum. As the breathing tubes or airways become more narrow, it is harder for air to move in and out of the lungs and breathlessness results.

What is emphysema?

Emphysema is a condition where the air sacs (*alveoli*) become distended and the walls between them break down causing larger air spaces.

With emphysema, the breathing tubes (*bronchi* and *bronchioles*) become more narrow and the lung tissue loses elasticity or springiness, which makes it harder to breathe the air out. As a result, air trapping (or *hyperinflation*) can occur.



The trapped air leads to an over-expansion of the lungs; this is often called a barrel chest.

The combination of constantly having extra air in the lungs, and the extra effort needed to breathe, results in the feeling of shortness of breath.

However, not all air sacs are involved to the same degree, and only some of the lungs may be affected.

What is Alpha-1 antitrypsin deficiency?

Alpha-1 antitrypsin deficiency is a genetic disorder. People with Alpha-1 antitrypsin deficiency are at greater risk of developing COPD. Alpha-1 antitrypsin (AAT) is a substance normally present in the blood; its role is to protect the lungs from damage. Over the course of a lifetime, the delicate tissues of the lungs are exposed daily to a variety of inhaled materials, such as pollutants, germs, dust and cigarette smoke. AAT helps the body fight against the damage caused by these pollutants. The estimated 1 in 2,500 Australians with a deficiency of AAT have too low a level to protect the lungs from the damaging enzymes produced by the body in reaction to the pollutants. This puts them at greater risk of developing COPD.

Other conditions:

Other lung conditions that commonly co-exist with COPD are asthma, bronchiectasis and interstitial lung disease. These are briefly explained below.

What is asthma?

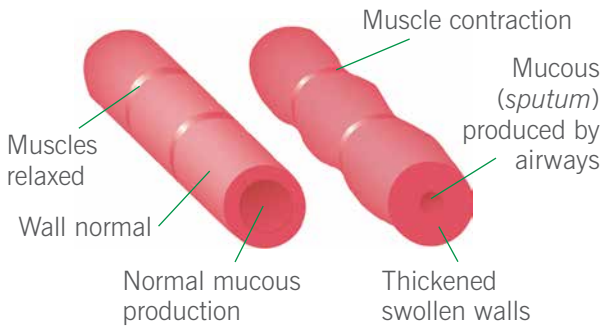
Asthma is a chronic condition manifested by variable constriction and swelling of the breathing tubes and airways and triggered by various factors, such as cold air or pollens.

Swelling of the airway wall and tightening of the muscles around the airway results in the narrowing of the breathing tubes (*bronchi* and *bronchioles*). Wheeze, chest tightness, breathlessness and cough are classic symptoms of asthma.

The swelling may produce an obstruction of the breathing tubes or airways, similar to COPD. Some people have both COPD and asthma.

Asthma is often believed to be a disease that affects children and young adults. However, asthma can occur in all age groups.

During an asthma attack, the breathing tubes or airways become inflamed, swollen and blocked with sticky sputum (as shown in the diagram below). This makes breathing more difficult.



Excessive sputum narrows the airways

COPD and Asthma

Because asthma and COPD have similar symptoms, it may be difficult to distinguish between the two conditions. We know that many people with COPD may have asthma as well, especially those who are aged over 55 years. We also know that many older Australians being treated for asthma, in fact have COPD.

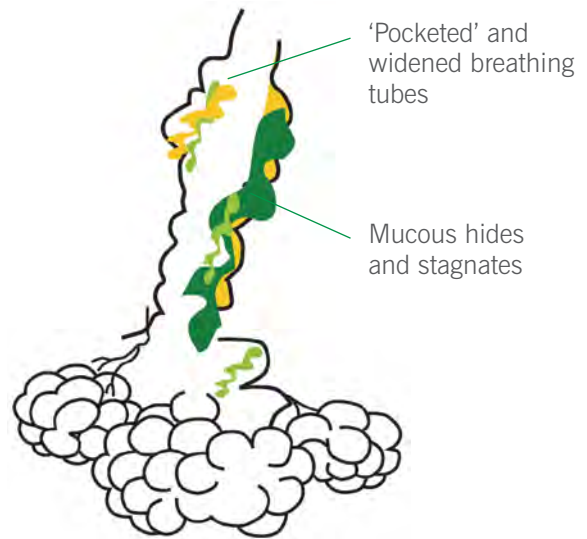
Asthma and COPD have different causes, affect the body differently and some of the treatments are different. It is important, therefore, to determine if you have asthma, COPD or both. The best way to do this is by having your doctor perform a lung function test (spirometry). See chapter 4 “Lung function tests”, for further information.

What is bronchiectasis?

Bronchiectasis is a lung condition involving the destruction of the airways or ‘breathing tubes’ inner lining and widening or dilatation of the breathing tubes (*bronchi* and *bronchioles*).

Bronchiectasis is not caused by cigarette smoking and is usually caused by a previous severe infection of the lungs.

Bronchiectasis is characterised by repeated episodes of acute bronchial or airway infection with increased coughing and sputum production. This alternates with periods of chronic infection and mild coughing.



Bronchiectasis

In bronchiectasis, sputum becomes difficult to clear. Sputum can be trapped in ‘pockets’ within the breathing tubes, which can lead to further infections and damage to the breathing tubes or airways.

Sputum is often white. If it changes to a different colour such as yellow, brown or green, it usually means there is an infection. Sometimes people with bronchiectasis will have discoloured sputum even when they are well.

What is interstitial lung disease?

Interstitial lung disease refers to a group of lung conditions, including pulmonary fibrosis, in which the lungs harden and stiffen (become fibrosed or scarred).

With interstitial lung disease, the walls of the air sacs (*alveoli*) thicken, which reduces the transfer of oxygen (or other gases) to and from the blood.

Interstitial lung disease may be caused by immune conditions, asbestosis, exposure to chemicals or irritants, or have no known traceable cause (idiopathic).

Lung function tests

This chapter will help you to understand:

- Why lung function tests are important in the diagnosis and treatment of COPD.
- What lung function tests are.

Why are lung function tests important in the diagnosis and treatment of COPD?

Lung function tests assist in the diagnosis and management of COPD. The tests measure how well, and how much air, you breathe in and out of your lungs. Lung function tests can also show how well oxygen enters your body, and how much air you have in your lungs. The tests used are spirometry, gas transfer measurements and lung volume measurements.

What are lung function tests?

What is spirometry?

Spirometry is the most commonly used test. It is vital to confirm the diagnosis of COPD by spirometry. This test measures the amount of air you are able to breathe in and out, and how quickly you are able to breathe air out. Typically, if you have COPD, you will take longer to breathe all of your air out.

Spirometry is done by breathing into a machine called a spirometer. You will be asked to take your biggest breath in and to breathe all the air out as fast as you can into the machine. This needs to be done several times and your best result is recorded. It can take up to 20 minutes to complete the tests. Spirometry is often repeated after you have taken some breathing medicines. This is done to find out if your lung function improves with these medicines.

Spirometry will be used to monitor your COPD and to check how well your treatment is working.



Spirometry is vital to confirm a diagnosis of COPD

What should I know before taking the spirometry test?

- You may be asked to **not** take your breathing medicines on the day of the test. However, if you feel really breathless, take your breathing medicines and let the person conducting your test know when you used your breathing medicines.
- As effort is required to do this test, you may get tired. This is not unusual.
- The person conducting the spirometry test will give you instructions on how to do the test. If you do not understand them, ask for the instructions to be repeated or for a demonstration on how the test should be undertaken.
- You can sometimes become light-headed during the test. If this happens, stop breathing into the machine and let the person conducting your test know.
- To get the best results, you will be asked to do the test several times.
- Breathing test results vary according to a person's age, height, whether they are male or female, and their ethnic background.

The results of these breathing tests allow your lung function to be compared with people who are similar to you, but who do not have lung conditions.

Your breathing test results can be used to classify the severity of your lung condition. Different measurements are taken to assess your lung function.

The most common measures are:

1. **Forced Expiratory Volume in one second (FEV₁).** This is the maximum amount of air that can be expelled from the lungs during the first second of breathing out following a maximal breath in.
2. **Vital Capacity (VC).** This is the maximum amount of air that can be expelled from the lungs while breathing out following a maximal breath in.
3. **Forced Vital Capacity (FVC).** This is the maximum amount of air that can be expelled from the lungs while breathing out forcefully. VC and FVC are equal in a normal lung but can differ in patients who have a chronic lung condition.

4. **FEV₁/FVC.** This measures how much air is blown out in the first second proportional to the total amount blown out of the lung. So it shows how quickly the lungs can be emptied. People with healthy lungs can usually blow out 70% to 90% of their air in the first second.



Spirometry measures how quickly you empty your lungs

What is a gas transfer measurement?

The gas transfer measurement is a test that measures how well oxygen in the air moves from your lungs across the air sacs (*alveoli*) and into your blood stream, and thus to your vital organs.

This test is done by breathing into a mouthpiece connected to a machine.

You will be asked to breathe out as much as you can, to take a large breath in, and to hold your breath for 10 seconds before breathing back into the machine. To get the best results, you will be asked to repeat the test.

This test will take about 15 minutes to complete.

Typically, if you have severe COPD, your results will be low when compared with people who are similar to you, but who do not have lung conditions.

What should I know before taking the gas transfer measurement test?

- If you are on oxygen, you will be asked to take the oxygen off for a few minutes before the test.

What is a lung volume measurement?

The lung volume measurement is a test that measures the amount of air in your lungs. There are three measurements, which are taken:

- At the end of a normal breath.
- When you have taken in a deep breath.
- When you have blown out all the air.

No matter how hard you try, when you have blown out all the air, there is still some air left in your lungs. It is this amount of air that is left in the lungs that is measured.

Lung volumes are measured in a machine called a body plethysmograph, which is like a box with glass walls. This test is done in a box because very small pressure changes need to be measured while you are breathing.

During the test, you will sit in the box with the door closed and breathe through a mouthpiece attached to the machine.

You will be instructed to breathe normally through the mouthpiece. However, every now and then, you will be asked to breathe against a blockage and to also breathe all the air out and then take a large breath in. The test will take approximately 10 minutes to complete.

Typically, if you have COPD, your lungs will be a lot bigger than normal because of the amount of air trapped in your lungs (*hyperinflation*).

What should I know before taking the lung volume measurement test?

- If you are on oxygen, usually you will be asked to come off the oxygen during the test.
- If you suffer from claustrophobia in small spaces, let the operator know. They may ask you to attempt the test as most people can do the test even if they have claustrophobia.



Lung volume measurement measures how much air is in your lungs

Your role in managing your chronic obstructive pulmonary disease

This chapter will help you to understand:

- The important role you have in managing your COPD.
- How to develop and get the most from your management plan.
- How to work with your health care team.

What is the important role you have in managing your COPD?

Chronic conditions are becoming one of the greatest health challenges worldwide. For people living with a chronic condition, life can be a daily struggle.

Many people who are first diagnosed with COPD report feeling confused and worried. Others say that they are relieved to have an explanation for their breathlessness and other symptoms.

We do know that COPD can seriously affect every part of your life, particularly as the disease progresses. Simple activities you once took for granted, such as taking a walk or getting dressed can become increasingly difficult. Exacerbations or flare ups (when you have an acute worsening of your symptoms) can further affect your quality of life.

The good news, however, is that there is a lot you can do to slow down the worsening of your symptoms, improve your fitness and prevent flare ups.

This book, *Better Living with COPD: A Patient Guide*, is written to assist you through the steps you can take to help yourself. Recent studies show that positive results can be achieved by people with chronic lung conditions, such as COPD, who are involved in managing their own condition. People actively involved have reported 'feeling less breathless', 'feeling more in control of things' and requiring fewer visits to the doctor or hospital.

People that are actively involved in managing their COPD feel less breathless and more in control.

Effective management of COPD is based on a partnership between you, your carer and family, and your health care team. The following list is based on the Flinders Program, Flinders Human Behaviour and Research Unit, Flinders University, Adelaide, SA. You can take an active role in this partnership by:

- Knowing as much as you can about COPD, including your diagnosis and problems associated with your diagnosis.
- Being actively involved in decision making and the development of a management plan with your health care professional. This includes a written COPD Action Plan to help recognise when you are getting sick and what you can do about it. Developing a written COPD Action Plan is discussed in more detail in chapter 9.
- Developing and following a management plan agreed between you and your health care team that includes your medicines as well as other important activities such as diet and exercise.



- Monitoring your symptoms and taking action to reduce the impact of these symptoms. A sample symptom diary is discussed in more detail in chapter 9.
- Managing the impact that COPD has on your physical, emotional and social life.
- Adopting lifestyle behaviours that promote health, such as eating a healthy diet, getting regular exercise and quitting smoking if you are a smoker.
- Using support services that are made available to you.

How do you develop and get the most from your management plan?

When you have a chronic lung condition, you may experience difficulty managing all your treatments day after day. Support from your health care team, family and support groups can help you to stay motivated and look after yourself.

The following are some tips that others have used to help them set goals and stick to them.

- Set realistic goals that are important to you.
- Write your goals down and let your health care team, family and friends know what they are so they can support you to achieve them.
- Reward yourself when you have done well.
- Simplify your life as much as you can.
- Be kind to yourself.
- Seek support from family, friends and others.
- Locate your nearest support group by contacting Lung Foundation Australia (phone: 1800 654 301). Others have found the support from others in a similar situation very helpful.
- Enrol in pulmonary rehabilitation and once, completed, maintain a regular exercise routine.
- Ask a family member or friend to participate in your exercise and walking program, or join a local exercise group such as Lungs in Action. Lung Foundation Australia can give you the contact details of a group close to you.

COPD-X SELF-MANAGEMENT CHECKLIST

The following checklist is a useful tool to use when you develop a management plan with your health care team. Later chapters of this patient guide provide more detail about all of the important steps that might be included in your management plan.

- ⇒ **C: CONFIRM DIAGNOSIS**
- ⇒ **O: OPTIMISE FUNCTION**
- ⇒ **P: PREVENT
DETERIORATION**
- ⇒ **D: DEVELOP SUPPORT
NETWORK AND
SELF-MANAGEMENT PLAN**
- ⇒ **X: MANAGE EXACERBATIONS**

The guidelines that are used by health professionals in Australia to manage COPD are called the COPD-X Plan. COPD-X is a good memory tool to remember the things that need to be done to manage your COPD well. In this booklet we have provided you with a checklist using this same memory tool. It is different from the one your doctor uses, but essentially the important steps are the same. Using the same checklist or tool as your health care team can help you and your team communicate with each other better.

C: CONFIRM DIAGNOSIS

By now your doctor will have informed you that you have COPD.

To confirm your diagnosis and to assess the severity of your COPD it is important that you have a breathing test performed (called spirometry). You should also have your spirometry checked regularly to monitor the progress of your COPD. You may do this at the GP's surgery, at a specialist appointment or in a lung function laboratory.

- I have had a Spirometry breathing test

O: OPTIMISE FUNCTION

To improve your condition your doctor will prescribe treatments. These treatments may include inhaled medicines (puffers), exercises or 'Pulmonary Rehabilitation' and treatments for other common medical conditions that frequently complicate COPD eg. osteoporosis. It is very important that you use your medicines correctly and as prescribed and actively participate in physical activity.

- I understand my medicines and what each is doing for me
- I have had my inhaler technique assessed (regularly) and learnt how and when to use my medicines properly
- I have been referred to a Pulmonary Rehabilitation group
- I regularly exercise
- I have discussed my other medical problems with my doctor and other members of the COPD team
- I have had regular health checks with my doctor to monitor my signs and symptoms



P: PREVENT DETERIORATION

COPD is a progressive disease. However, there are a number of things you can do to prevent your COPD from getting worse. The most important of these is to stop smoking if you have not already done so. In addition to this you should ensure you get yearly immunisations.

- I have successfully stopped smoking

If you are a current smoker:

- I have discussed stopping with a member of my COPD team
- I know how to start a quit plan
- I am aware of the medicines that can help me stop smoking
- I have had my yearly flu immunisations
- I have had my pneumococcal immunisations

D: DEVELOP SUPPORT NETWORK AND SELF-MANAGEMENT PLAN

Self-management support involves education by health care staff to assist you in increasing your skills and confidence in managing your COPD. Members of the health care team including your specialist, GP, nurse, physiotherapist or pharmacist are there to help you become a good self-manager.

- I have developed supportive partnerships with my health care team
- My health care team and I have developed a written management plan to assist me in managing my health better

X: MANAGE EXACERBATIONS (FLARE UPS)

All people with COPD are at risk of exacerbations or flare ups of their condition. A very important goal of your COPD management is to prevent flare ups or if they do occur treat them early to prevent them from getting worse. A written COPD Action Plan can help you identify flare ups and provides you with instructions about how to manage them at an early stage of worsening illness.

- My doctor and I have developed a written COPD Action Plan
- I am aware of the signs and symptoms of a flare up
- I know how to increase my treatment during a flare up
- I have medicines or prescriptions at home to start my Action Plan
- I know how long to increase my treatment during a flare up
- I know when to call for assistance (ambulance or hospital)

Using this checklist can help you and your health care team communicate about how you can achieve your goals.

How do you work with your health care team?

Your doctor looks after your health together with a range of other health care professionals, such as your nurse, pharmacist or physiotherapist. Good communication with all the members of your health care team will help you to look after your health. It is easy to get flustered or confused when talking to a doctor, especially if he or she uses words or terms that you are not familiar with. However, it is important that you understand exactly what they are saying. It is also important that your doctor understands what is important to you.

Your COPD may also change over time. As different symptoms occur, you will need to recognise these changes and talk to your health care team about adapting to these changes.

The following are some tips you might find useful when you are visiting your doctor.

- Make appointments with the same doctor, except in an urgent situation or when your normal doctor is not available.
- Make a list of questions and concerns before your visit. List these in order of priority.
- If you have many questions, ask for a longer appointment or schedule a second visit.
- Show your list to your doctor and decide together what you will discuss during this visit.
- Do not avoid asking questions because you are embarrassed or uncomfortable. Your doctor is there to help you.
- Bring a friend or family member for support.
- If you feel you do not fully understand what your doctor is saying, ask for further explanation.
- Ask your doctor to write answers down for you to refer to again.
- Find out the best way to contact your doctor in case you have additional questions or if you are concerned about symptoms or suspect a flare up.
- Let your doctor know if you have concerns over the costs of your treatment. They can help you find the best solution.

Lung Foundation Australia has developed a helpful fact sheet called, "Talking to your doctor about COPD". It can be found at www.lungfoundation.com.au or call 1800 654 301.

In summary

Learning to live well with a chronic condition is possible. Coping with a chronic condition involves skills training, learning to manage a number of symptoms, and consciously assessing and making lifestyle changes. Experience has shown that those who develop a management plan with their health care team and follow it can live better with COPD.

Better Living with Your Lung Disease – DVD Series

Lung Foundation Australia has developed a 10 part educational DVD series for patients and carers. The DVD series is called Better Living with Your Lung Disease. All ten topics have a self-management focus, with an objective to increase the knowledge and confidence of people living with lung disease to enable them to better manage their condition, its symptoms and their overall wellbeing. Visit the Lung Foundation Australis website for more detail; www.lungfoundation.com.au/patient-support/living-with-a-lung-condition/self-management/



Stopping smoking and preventing a relapse

This chapter will help you to understand:

- Why it is important to stop smoking.
- Why you shouldn't use nicotine to cope with stress.
- What nicotine addiction is.
- The options available to help you stop smoking.

Why is it important to stop smoking?

Many people with COPD have already been able to stop smoking. If that is you, congratulations!

Stopping smoking is important because it is the single most important step in slowing the progression of COPD.

Tobacco smoking is responsible for over 19,000 deaths in Australia each year and is widely regarded as the most common preventable cause of chronic conditions.

Smoking is the major cause of COPD.

Quitting smoking has the added benefit of protecting those around you from exposure to second hand smoke. There is an established link between exposure to second hand smoke and the risk of developing lung disease such as COPD, asthma and lung cancer.

What is nicotine addiction?

Nicotine addiction is now recognised as a medical condition, rather than a bad habit.

As such, people who were once heavily addicted to nicotine have the potential to relapse to this disease-like state and become a smoker again.

People who stop smoking still have the receptors in their brains that were once 'hooked on' nicotine.

These receptors lie dormant, waiting to be turned on again by just one cigarette. If these receptors are turned on again, the addiction cycle can start again.

As a result, people who relapse and make another attempt to stop smoking can, once again, experience the unpleasant symptoms of nicotine withdrawal. These symptoms include strong cravings or urges to smoke, anxiety, agitation and depression.

Although many ex-smokers report being able to remember how much they enjoyed smoking, the actual physical addiction to nicotine is no longer active. Fortunately, just having these thoughts doesn't mean you will have cravings or urges to smoke.

The important message for many ex-smokers is that **stopping smoking is a lifelong process**, rather than an isolated event. For the majority of smokers who were once heavily nicotine-dependent, the potential for relapse continues to be a lifelong possibility.

Unfortunately, no scientifically proven method to prevent relapse currently exists. A significant number of ex-smokers relapse even after they have not smoked for more than one year.

Don't be tempted to try 'just one cigarette' to see if you still like smoking. Most ex-smokers will still like smoking if they try it. There is a high risk that 'just one' cigarette could cause you to start smoking again.

Why shouldn't you use nicotine to cope with stress?

Stressful events can cause ex-smokers to start smoking again. We are all different and some of us will require assistance, counselling or support to help cope with life's difficulties. These difficulties can include the loss of a loved one, anxiety regarding family members, financial stress or sometimes stress for no particular reason.

The nicotine delivered in tobacco smoke can act like an anti-depressant and anti-anxiety drug. When people return to smoking after a stressful event, they are either deliberately or inadvertently using nicotine as a medicine. However, the carbon monoxide, tar and cocktail of chemicals that are also contained in the tobacco smoke continue to damage the person's lungs and entire body.

If you are having difficulty coping with a stressful event, seek professional assistance from your GP, who can make referrals to counsellors or psychologists. The option of prescribed anti-depressant or anti-anxiety medicines can also be discussed.

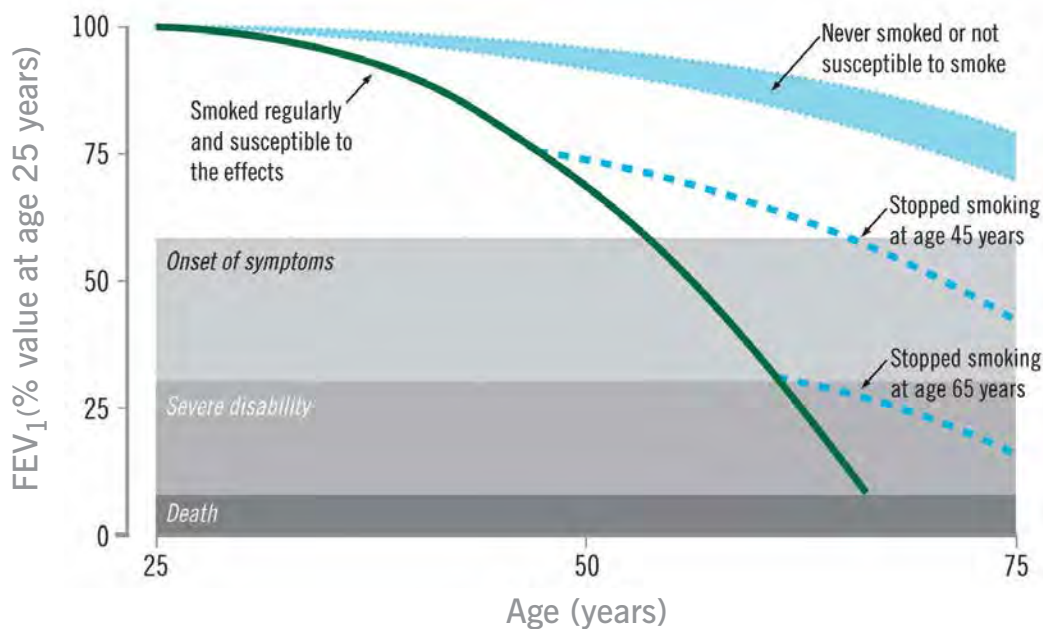
Stopping smoking is the best action you can take that can slow down the progression of COPD. Stopping smoking is a lifelong process.

What options are available to help you stop smoking?

As mentioned previously, stopping smoking is the single most important treatment for people who have COPD. There is no better time than now to seek help with your nicotine addiction.

Smokers who have COPD have even more reason to quit. Although lung function declines gradually with age, this process is accelerated by smoking. A 45-year-old smoker who stops smoking now will experience a less rapid decline in their lung function and ability to do activities than if they continued to smoke until 65 years of age. This example is illustrated in the following diagram.

Smoking causes lung function to worsen at a faster rate



Quitting smoking at any age is beneficial to your health

Adapted from Fletcher C. Peto R, Br Med J 1977; 1:1645-8.

There is plenty of information available that describes the damaging health effects of cigarette smoking. However, this information is not always enough to prompt cigarette smokers to stop smoking. For people who have COPD, smoking is no longer just a risk factor for chronic conditions; the chronic condition is already a reality.

Smokers who have COPD and who are motivated to stop smoking have a number of options available to help them stop smoking. These options include the following:

1. **Cold turkey** – Going cold turkey (stopping immediately without any support) is difficult. Evidence shows that the best results are achieved when medicines are used in combination with counselling and support.
2. **Nicotine Replacement Therapy (NRT)** – NRT is a medicine that can help smokers stop smoking. It provides the body with a small amount of nicotine without the toxic chemicals received by smoking a cigarette. If you are thinking about using NRT, you may wish to consider the following points:

- People often report being worried about some of the precautions and warnings associated with the use of NRT that are contained in the product information. The risks, however are small.
- You should know that the nicotine in NRT is provided in a very small dose and is delivered very slowly to the body. Nicotine is the least harmful part of a cigarette.
- All the warnings about heart, lung, vascular disease and cancer contained on cigarette packets are related to the detrimental effects of carbon monoxide, tar and the lethal chemicals contained within cigarettes. Nicotine is a drug of addiction and not a major cause of physical disease.
- You should be aware that any potential side effects from the use of NRT are outweighed by the very real dangers of continued cigarette smoking.
- The precautions and warnings contained in the product information of NRT packages have recently been amended to reinforce that it is always more dangerous to keep smoking than it is to use NRT.



The best quitting results are achieved when medicines are used in combination with counselling and support.

- NRT is safe to use in combination, for example with a patch or oral product such as nicotine gum, lozengers or inhalers. An NRT patch is used as base therapy and any form of oral NRT is used to “treat” craving/urges through the day. Smokers need to have the confidence to use enough NRT to “treat” their cravings. Remember, from very early on, smokers have learnt to be experts at satisfying their cravings by getting enough nicotine by the way they smoke. The NRT patch releases nicotine slowly and can be combined with other forms of fast release nicotine to deal with cravings such as gum, lozenges and spray. Make sure you are getting enough NRT!
- NRT is safe to use while still smoking. In fact it has been shown that a smoker receives fewer poisons from a cigarette if NRT is being used and at the same time can make a cigarette less enjoyable/less rewarding to the brain. Therefore, there is no need to quit on the same day that you start using NRT.
- Using NRT is the safest way to reduce smoking before quitting and has been shown to help people who at first were not ready to quit.
- Speak to your pharmacist or health care professional about how to use NRT.
- Since February 2011, NRT patches have been available on prescription subsidised on the PBS for 3 months per calendar year. It also continues to be available for purchase over the counter without a prescription.

3. Medicines that work on brain nicotine receptors

There are medicines that work on brain receptors that are available as prescription medicines. These have been specifically designed to help smokers stop smoking and have good success rates. You may wish to discuss with your GP your suitability for these types of medicines.

The most widely known drug in this category is Varenicline or Champix® which is available by prescription on the PBS. Champix® is a tablet prescribed for 12 weeks and if a smoker quits it is available for a further 12 weeks immediately following the first course. This is in an attempt to “keep the brain’s nicotine receptors asleep”.

Another medicine in this category available on the PBS is Bupropion or Zyban®. It is also a tablet which works on the brain’s receptors and has been used as a smoking cessation medicine for many years. In the past there were some myths in the media about Zyban® being unsafe, however, these are untrue. This treatment is an effective option for smokers wishing to quit. It is not suitable for people who are taking anti-depressant medicine or who have a history of seizures.

Speak to your doctor about whether any of these options are suitable for you.

4. Stop smoking clinic programs – Participating in a clinic program can give you the advice and support required to help you stop smoking. These

programs are particularly helpful for people who have established disease conditions, such as COPD. These programs can help people make the appropriate behavioural or environmental changes that are required to stop smoking. Studies have shown that clinics that offer professional behavioural support and advice on effective NRT use can help people stop smoking. Quit rates are highest in people who combine counselling support and take smoking cessation medicine.

There is no time like now to quit smoking! Please ask for a referral to a clinic or a smoking counsellor who can help you stop smoking and don’t give up giving up!

Preventing a relapse

Unfortunately there is no clear evidence that supports any method of staying smoke free once you have quit.

The best defence is the knowledge that smoking cessation is a journey and not a single event. Nicotine receptors in the brain can be switched off during the quitting process, but as little as a few puffs of a cigarette, months or years later will switch them back on. When this occurs most people will find themselves addicted smokers again.

For support to quit smoking, call the National Smoking Quitline on 13 78 48.

What are e-cigarettes?

Electronic cigarettes (e-cigarettes) are battery powered, cigarette-shaped devices that are designed to produce a heated nicotine vapour to be inhaled. The refillable cartridges of concentrated liquid often contain nicotine and can also be flavoured. Currently in Australia, there is no regulatory framework to monitor quality control of the device or the liquid contents.

Are e-cigarettes healthier than normal cigarettes?

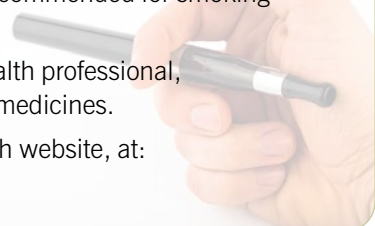
Vapour inhaled from an e-cigarette does contain nicotine which is still addictive. There are also other risks including potential technical and safety issues and the unknown effects of long-term use. The inhalation of any foreign, non-prescribed substance into your lungs is discouraged. The best thing is to quit smoking rather than try this option.

Are e-cigarettes recommended for smoking cessation?

At this point, there is not enough evidence to demonstrate the effectiveness of e-cigarettes as an aid to quit smoking and staying smoke free. Therefore currently e-cigarettes are not recommended for smoking cessation. Retail sale for this purpose is banned in Australia.

The most effective way to quit smoking is to get ongoing support from a health professional, using a combination of counselling, nicotine replacement therapy or other medicines.

To find out more about e-cigarettes, please refer to the Department of Health website, at: www.tga.gov.au/community-qa/electronic-cigarettes#supplying



Knowing your medicine

This chapter will help you to understand:

- Why medicines are used in the management and treatment of COPD.
- What the categories of medicines are.
- What the uses, effects and side effects of your medicines are.

Why are medicines used in the management and treatment of COPD?

To improve or manage your COPD symptoms, your doctor may have prescribed various medicines. Although medicines cannot cure COPD, when used as prescribed, they can go a long way towards reducing your symptoms and preventing flare ups. As each person's health is different, each person may be prescribed different medicines at different doses – your medicine program is tailored especially for you.

For each different medicine that you are prescribed, make sure you understand:

- What the medicine is for.
- How the medicine works.
- How to take the medicine.
- How long the effects of the medicine last.
- What the possible side effects of the medicine are and how you can avoid them.
- If the medicine will cause problems with your other medicines.

If you are confused or unsure about any of the information provided in relation to these points, you should ask your doctor, respiratory nurse or pharmacist to explain. You should be confident and informed about your own condition, including the medicine you use. Although each medicine may

cause side effects, it is important to remember that only a small number of people using that medicine will develop side effects.

As respiratory medicines target the lungs, most COPD medicines are inhaled using special inhaler devices so that the medicine is delivered directly to the lungs. Correct technique is important in delivering your medicine effectively. To ensure you are receiving the full benefits from your medicine, have your inhaler technique checked regularly by your doctor, pharmacist or respiratory nurse.



Categories of COPD Medicines

As the severity and symptoms of your COPD increase, your doctor may prescribe additional medicines. Increasing symptoms include more breathlessness, cough and sputum. As severity increases the frequency of flare ups or infections increase.

Reliever Medicines

For quick relief of breathlessness. Also called rescue medicine.

Maintenance Medicines

For regular, long term use to control symptoms and to help prevent flare ups.

Flare up Medicines

For short term use during a flare up of COPD.

Immunisations: Annual influenza vaccine and pneumococcal vaccine according to Immunization Handbook.

What are the types of medicines?

There are three main categories or groups of medicines you may be prescribed (see diagram above). You will notice that some of your medicines may fit into more than one of these categories depending on your situation:

1. **Reliever medicines** – for quick relief of increasing symptoms of breathlessness.
2. **Maintenance medicines** – for long term regular use to control your symptoms and to help prevent flare ups.
3. **Flare up medicines** – for short term use during an acute flare up of your COPD symptoms.

When you are initially diagnosed with COPD, your doctor may start you on a reliever medicine and then, if the severity of your disease progresses and your symptoms worsen or you experience more frequent flare ups, your doctor may prescribe additional medicines. Some patients find themselves on three different medicines, each with its own inhaler. This

is normal, however, it is important that you understand the role of each of your medicines and you take them properly.

The majority of medicines for people who have COPD are listed on the Pharmaceutical Benefits Scheme (PBS) and require prescriptions from a doctor. However, Asmol[®], Airomir[®], Atrovent[®] Ventolin[®] and Bricanyl[®] are available over the counter without a prescription, but will cost more than through the PBS.

All medicines come with Consumer Medicine Information. Ask the dispensing pharmacist if you have any concerns or don't understand what is included in the information.

What are the uses, effects and side effects of your medicines?

Reliever medicines

Reliever medicines should be used for symptom relief as a rescue medicine for the relief of breathlessness. They work by relaxing the muscles around the breathing tubes or airways. This helps to open up the breathing tubes or airways which reduces the obstruction and allows air to flow out of and into the lungs when you breathe – easing your feeling of breathlessness and increasing your ability to exercise. Relievers often work within minutes of inhalation and their effects last for several hours (they are called short-acting because they last for this short duration).

There are two types of medicines: short-acting beta₂-agonists (SABA) and short-acting muscarinic antagonists (anticholinergics)(SAMA).

1. Short-acting beta₂-agonists (SABA)



Bricanyl[®] *Ventolin*[®] *Asmol*[®] *Airomir*[™]

- > Terbutaline (*Bricanyl*[®]) given by a Turbuhaler and sometimes by a nebuliser.
- > Salbutamol (*Asmol*[®], *Airomir*[™], *Ventolin*[®]) given by a spacer and puffer and sometimes a nebuliser.

Use

- Always carry a short-acting reliever with you for unexpected situations or when doing exercise such as attending a pulmonary rehabilitation program.
- If you are using the reliever more frequently and your condition is getting worse, you should see your GP as you may require a longer lasting inhaler.

Effects

- Lasts for up to four hours.
- Works within minutes to relieve symptoms.
- Can be taken prior to exercise if needed.

2. Short-acting muscarinic antagonists (anticholinergic) (SAMA)



Atrovent[®]

- > Ipratropium bromide (*Atrovent*[®])

Use

- Has a slower onset than short-acting beta₂-agonists, but it lasts longer.

Effects

- Relaxes smooth muscles in your lungs and opens up breathing tubes or airways in a different way compared with beta₂-agonists.
- It helps improve quality of life and breathlessness.
- Lasts for up to six hours.

Side effects

- Dry mouth, urinary retention and blurred vision.
- Has been shown to increase risk of heart problems.
- Should NOT be used in conjunction with any muscarinic antagonists, i.e. any medicines with a LAMA.

Maintenance medicines

Maintenance inhalers are long-acting bronchodilators which open up the breathing tubes (also known as airways or bronchi) by relaxing the muscles around them. Maintenance bronchodilators may take a little longer than relievers to start working, but once you have taken them, their effects last for much longer, for 12 to 24 hours depending on the medicine.

Maintenance medicines - long-acting muscarinic antagonists (LAMA) and long-acting beta₂-agonists (LABA) - help to reduce your COPD symptoms in the long term and can help to prevent flare ups.

You can be prescribed one type of long-acting bronchodilator alone, or may receive a combination of two types.

1. Long-acting muscarinic antagonists (LAMA)



- > tiotropium (Spiriva[®])
- > glycopyrronium (Seebri[®])
- > umeclidinium (Incruse[®])
- > aclidinium (Bretaris[®])

Use

- Do not use to treat an acute situation (use a short-acting reliever instead).
- Spiriva[®] - Inhale once a day
- Seebri[®] - Inhale once a day
- Incruse[®] - Inhale once a day
- Bretaris[®] - Inhale twice a day
- Should not be used in conjunction with Atrovent[®].

Effects

- Relaxes smooth muscles in your lungs and opens the breathing tubes or airways.
- Lasts for up to 12 or 24 hours, depending on the inhaler.
- Improves your lung function which can improve your quality of life.
- Helps to prevent flare ups.

Side effects

- Dry mouth, urinary retention and blurred vision.
- Use with caution if you have a prostate problem.
- Narrow angle glaucoma.

2. Long-acting beta₂-agonists (LABA)



- > indacaterol (Onbrez[®])
- > formoterol (eformoterol) (Oxis[®], Foradil[®])
- > salmeterol (Serevent[®])

Use

- Do not use to treat an acute situation (use a short-acting reliever instead).
- Onbrez[®] - Inhale once a day
- Oxis[®] or Foradil[®] - Inhale twice a day
- Serevent[®] - Inhale twice a day

Effects

- Relaxes smooth muscles in your lungs.
- Improves your lung function which can improve your quality of life.
- Lasts for up to 12 or 24 hours, depending on the inhaler.

Side effects

- Tremor, headache and a rapid heartbeat.

3. Theophylline (Nuelin®)

Use

- Use twice (daily).
- For use in severe COPD with frequent flare ups.
- Is less often used because of the potential for more significant side effects.
- Regular blood tests may be required.
- Take with food.

Effects

- Theophylline relaxes the muscles that tighten or constrict in the airways and reduces inflammation in the breathing tubes or airways.
- The long acting slow release (SR) form of theophylline works for 12 hours and is taken twice a day.

Side effects

Theophylline can cause more frequent side effects and therefore is prescribed less often than other bronchodilators. If you have been prescribed theophylline, your doctor may wish to monitor you more closely.

- Tremor, nervousness, light-headedness, nausea and vomiting.

4. Dual bronchodilators (LAMA/LABA)

- > indacaterol/glycopyrronium (Ultibro®)
- > tiotropium/olodaterol (Spiolto®)
- > umeclidinium/vilanterol (Anoro®)
- > aclidinium/formoterol (eformoterol) (Brimica®)

Use

- Should not be used with other medicines containing a LABA and/or LAMA.
- Ultibro® - Inhale once a day.
- Spiolto® - Inhale once a day.
- Anoro® - Inhale once a day.
- Brimica® - Inhale twice a day.

Effects

- Relaxes smooth muscles in your lungs and opens the breathing tubes or airways.
- Lasts for up to 12 or 24 hours, depending on the inhaler.
- Improves your lung function which can improve your quality of life.
- Helps to prevent flare ups.

Side effects

- Dry mouth, urinary retention and blurred vision.
- Use with caution if you have a prostate problem.
- Glaucoma.



Ultibro Breezhaler®



Spiolto Respimat®



Anoro Ellipta®



Brimica Genuair®

Maintenance medicines continued

Maintenance inhalers that contain corticosteroids (sometimes referred to as steroids) are effective in COPD as anti-inflammatory medicines, and are different from anabolic steroids. In more severe COPD, these medicines help to reduce the number of flare ups people may experience by reducing inflammation which causes swelling and sputum production in the breathing tubes or airways. They are especially important to use if you also have asthma as they specifically treat the type of inflammation or swelling that commonly occurs in asthma. Inhaled corticosteroids must be taken regularly every day to be effective. It may take up to a few weeks for you to start noticing their effect. So, it is important for you to keep taking them to have an impact on your symptoms.

1. Inhaled corticosteroids (ICS)

These inhalers on their own are not used for people with COPD. They are used for asthma and for those people that have both asthma and COPD.



*Flixotide[®] MDI *Flixotide[®] Accuhaler[®] *QVAR[®] MDI



*Pulmicort[®] Turbuhaler[®]



*Alvesco[®] MDI

- > Beclomethasone (QVAR[®]) - it is recommended that this is used with a spacer.
- > Budesonide (Pulmicort[®]) - is given by a Turbuhaler[®].
- > Fluticasone (Flixotide[®]) - is often given as a puffer to use with a spacer or it may be given by an Accuhaler[®].
- > Ciclesonide (Alvesco[®]) - it is recommended that this is used with a spacer

Use

- Inhaled once or twice a day, depending on the inhaler.
- Must be used regularly to be effective.

Effects

- Reduces swelling and the amount of sputum in the breathing tubes or airways.
- May take a few weeks for you to notice its effect.

Side effects

- A sore mouth and throat caused by a thrush infection or hoarseness of the voice are the most common side effects. To avoid these effects, use a spacer when using a metered dose aerosol (puffer), and rinse your mouth, gargle and spit after each dose.

2. Inhaled corticosteroid/ long-acting beta₂-agonist (ICS/LABA) combination medicines

Inhaled corticosteroids (anti-inflammatory effect) can be combined with a long-acting beta₂-agonist (bronchodilator) in one inhaler. These are usually prescribed for people with moderate to severe COPD who have had two or more flare ups over the previous year.



Breo[®] Ellipta[®] Symbicort[®] Turbuhaler[®] Symbicort[®] Rapihaler[™]



Seretide[®] Accuhaler[®] Seretide[®] MDI

Combining medicines like this can help to reduce the number of flare ups which in turn improves lung function and overall health. In addition, combined medicines are easier to use since they are available in one inhaler for two different medicines.

Combination inhalers include:

- i. budesonide and formoterol (eformoterol) (Symbicort[®] delivered by Turbuhaler[™] or Rapihaler[™]) - Inhale twice a day
- ii. fluticasone propionate and salmeterol (Seretide[®]) delivered via Accuhaler[™] or via a puffer and spacer – Inhale twice a day.
- iii. fluticasone furoate and vilanterol - Breo[®] Ellipta[®] - Inhale once a day.
- iv. fluticasone propionate/formoterol (Flutiform[™]) - only indicated for asthma (or asthma/COPD)

Use

- Designed to improve patient adherence with two medicines in one inhaler.
- Improves quality of life, improves lung function, and prevents flare ups.
- The use of long-acting beta₂-agonists therapy (formoterol (eformoterol), salmeterol or indacaterol) should be stopped once combination therapy is started.

Flare up medicines

These medicines are used when your symptoms start to worsen and you are experiencing a flare up. These medicines should be taken as detailed in your COPD Action Plan and will help you to reduce the severity of your flare up.

Effects and side effects

- Refer to individual medicines.

1. Antibiotics

- Antibiotics are used to treat flare ups when sputum colour, volume and texture change.
- The antibiotics chosen will depend on your allergy status or cause of infection.
- Follow the instructions when taking antibiotics. You may need to take the antibiotic on an empty stomach or with food.
- You must complete the full course of your prescribed antibiotics.

2. Corticosteroids (oral steroids)

If oral steroids are part of your COPD Action Plan, do not delay starting prednisone or prednisolone at the onset of a flare up because you are concerned about the side effects of this medicine. Short term use of the oral steroids should only have minimal side effects, unless very frequent courses are required. Ensure that you have a prescription at home for use when symptoms of a flare up appear.

- > Prednisone (Sone®, Panafcort®)
- > Prednisolone (Solone®, Panafcortelone®)

Use

Short term use of oral steroids

- To manage flare ups of COPD.
- Use doses as prescribed.
- If it is prescribed as a daily dose take it in the morning with food.

- If you have been taking this treatment for more than two weeks, do not stop treatment suddenly unless advised by your doctor as patients on longer courses of oral steroid tablets may need to be weaned slowly. If you have been taking the oral steroid for two weeks or less, you do not need to taper the medicine.

Caution should be exercised in relation to long term use of oral steroids.

Effects

- Reduces the inflammation in the breathing tubes or airways.

Side effects

- Difficulty in sleeping, weight gain, bruising easily, osteoporosis, muscle wasting, diabetes, hypertension (high blood pressure), mood disturbance and glaucoma. The risk of side effects increase with long term use.

3. Mucolytics

- > Bromhexine (Bisolvon®)

Use

- Drinking enough water is essential before starting treatment.
- Available in tablet or liquid form.

Effects

- Reduces the stickiness of sputum.

Side effects

- Nausea, diarrhoea and bronchospasm (tightening of breathing tubes or airways).

Immunisations

1. Influenza vaccine

A yearly influenza vaccine has been shown to reduce risk of death and hospital admissions.

2. Pneumococcal vaccine

Immunisation against pneumonia (PneumoVax® 23) is recommended for people at high risk of serious pneumococcal infection, such as COPD. This should be given no more than five yearly. After two immunisations (over 5 years apart), you should discuss with your doctor whether further immunisations should be given.

Using your inhaler devices

This chapter will help you to understand:

- How inhaler devices work.
- How to correctly use each inhaler.
- When the inhalation devices are empty.
- How to clean and care for the inhaler devices.

Using inhaler devices is an important skill

Using an inhaler is a skill. It is easier if someone shows you the best way to use your new inhaler and helps you to practice to get the technique right. Also, the way you use your device may change over time and you might not be getting the full dose of medicine. Your inhaler type may have been changed or extra medicines added that can complicate your treatment. The more device types you are using, the greater the chance you have of using them incorrectly. If you are using more than two device types, talk to your doctor about reducing the number of device types. This can often be done without changing the type of medicine.

Your doctor, nurse, pharmacist or pulmonary rehabilitation team can help you with your inhaler device technique.

All inhaled medicines must be breathed deeply into the lungs where they do their work in the airways.

It is best to be sitting upright or standing when you use your inhalers.

Take your puffers with you when you see your doctor, nurse or pharmacist and ask them to check your technique.

Store in a dry place below 30 degrees Celsius, away from direct heat or sunlight.

The inhalation devices covered in this chapter include:

1. Puffer (or metered dose inhaler) and spacer
2. Puffer – includes Rapihaler™
3. Breezhaler®
4. Handihaler®
5. Genuair®
6. Turbuhaler®
7. Ellipta®
8. Accuhaler®
9. Respimat®
10. Autohaler®
11. Nebuliser®

Puffer (or metered dose inhalers)

A puffer is also known as a metered dose inhaler, or an aerosol.

How to use the Puffer (or metered dose inhaler)

1. Remove cap.
2. Hold inhaler upright and shake well.
3. Breathe out gently away from mouthpiece.
4. Put mouthpiece between teeth and seal with lips.
5. Start to breathe in slowly through your mouth and press canister down firmly once to fire the puffer.
6. Continue to breathe in slowly and deeply. Hold breath for up to 10 seconds.
7. While holding breath, remove inhaler from mouth.
8. Breathe out gently away from the device.
9. For next dose, wait 1 minute and repeat steps 2-8.
10. Replace cap.



Important things to know and do

- Puffers store medicine under pressure in the canister. When fired, a mist sprays out very quickly. You must fire it just after you start to breathe in for it to work well.
- Even with perfect timing, only some of the medicine gets breathed into the lungs. Most (up to 80%) stays in your mouth and throat. The medicine has a better chance of getting into your lungs if a spacer is used.
- To prime a new puffer shake it well and spray into the air. Repeat.
- Some puffers show the number of doses left. For others, hold the canister on its side and move it gently end to end. The weight and the amount of fluid sloshing inside gives a general idea (nearly full, half empty, nearly empty). When no fluid is felt, the puffer is empty, even if some spray still comes out.
- Clean the blue puffer weekly by removing the canister (do not wash the metal canister) and rinsing the case under warm running water. Shake off excess water and dry well. With other puffers just wipe clean with a dry tissue.
- When putting the puffer back together, ensure that the metal canister fits securely into the plastic case.
- Check the expiry date before use.



Cleaning the metered dose inhaler case

Haleraid®

Haleraids are handles that fit over some puffers and make them easier to fire. This may be an option if you have difficulty using the puffer due to weak or painful hands.

You can buy a Haleraid® from independent living centres or pharmacies, and they come in two sizes.



Haleraid®

Puffer and spacer

Puffers (also known as a metered dose inhaler or an aerosol) may be used with a spacer, which is a small or large volume holding chamber.



Using a spacer with your puffer can increase the amount of medicine that reaches your lungs

How to use the puffer with spacer

1. Remove cap.
 2. Hold inhaler upright and shake well.
 3. Put puffer in end of spacer.
 4. Put mouthpiece between teeth and seal with lips.
 5. Hold spacer level and breathe out gently through it.
 6. Press canister down firmly once to fire the puffer.
 7. Breathe in slowly and deeply. Hold breath for up to 10 seconds.
 8. While holding breath, remove spacer from mouth.
 9. Breathe out gently away from the device.
 10. For next dose, wait 1 minute and repeat steps 2-8.
 11. Remove puffer from spacer and replace cap.
- If unable to breathe deeply, breathe in and out 4 times.

Important things to know and do

- Spacers hold the medicine fired from a puffer so you can breathe it in slowly and deeply.
- Spacers have a one way valve that stops air being breathed into the spacer while it is in your mouth.
- Using a spacer with a puffer allows more medicine to get deeper into the lungs and less stays in your throat. It is estimated that with a spacer 40% of dose gets deeper into the lungs, while without its only 10% of the dose.

- A spacer can prevent throat irritation by reducing the amount of medicine sitting in your mouth or throat. Again it is estimated that with a spacer 10% stays in your throat, while without its closer to 80%.
- You may not taste the medicine as much or feel it hit the back of your throat as more is getting to your lungs.
- When used correctly, a puffer with spacer is as effective as using a nebuliser. It's also cheaper, easier to clean, quicker, portable and doesn't need electricity.
- Always rinse mouth, gargle and brush teeth after using maintenance medicines to avoid dry mouth or oral thrush.
- A spacer must be cleaned before its first use and regularly from then on. Steps for cleaning a spacer are:
 1. Pull spacer apart where possible
 2. Wash in warm soapy water (detergent) once every 2-4 weeks.
 3. After washing, Allow the spacer to drip dry. DO NOT rinse the spacer DO NOT dry the spacer with a cloth DO NOT put the spacer in a dishwasher.
- Don't store your puffer inside your spacer. This may cause scratching and reduce the effectiveness of the spacer.
- Check spacer for damage and replace if needed.



Small volume spacer with puffer

Breezhaler®

How to use the Breezhaler®

1. Remove cap. Open inhaler (tilt mouthpiece back).
2. Put new capsule into bottom of chamber.
3. Close mouthpiece until it clicks.
4. Press and release side buttons to pierce capsule.
5. Breathe out gently away from mouthpiece.
6. Put mouthpiece between teeth and seal with lips.
7. Breathe in strongly and deeply (capsule vibrates) and hold breath up to 10 seconds.
8. While holding breath, remove inhaler from mouth.
9. Breathe out gently away from mouthpiece.
10. Repeat steps 5 to 9.
11. Open device, discard capsule and replace cap.



Important things to know and do

- The capsule contains the medicine as dry powder.
- Pressing the buttons pierces (or puts holes in) the capsule. Releasing the button, leaves the holes open.
- Don't breathe into the device or get it wet as moisture can effect the release of the dry powder.
- The medicine is drawn from the capsule in the device and breathed deeply into your lungs.
- You will hear a rattling sound when you breathe in and may feel and taste the medicine in your mouth.
 - If you don't hear the rattling sound, the capsule is not sitting in the hole correctly. Tap the gently on a table to get the capsule to settle into the hole and inhale again.
 - You may experience a sweet taste as the medicine goes into your lungs.
 - Some people briefly cough soon after inhaling the medicine. If you do, don't worry, as long as the capsule is empty you will have received the full dose.
 - Do not store capsules in the inhaler. Always replace dust cap. Keep capsules dry.
- Only use with Onbrez, Seebri or Ultibro capsules.
- Clean your inhaler once a week.
 - Wipe the mouthpiece inside and outside to remove any powder with a clean, dry, lint-free cloth.
 - Do not take the inhaler apart.

HandiHaler®

How to use the HandiHaler™

1. Open cap and mouthpiece.
2. Remove new capsule from pack. Place in chamber.
3. Close mouthpiece until it clicks
4. Press and release green button to pierce capsule.
5. Breathe out gently away from mouthpiece
6. Put mouthpiece between teeth and seal with lips.
7. Breathe in slowly and deeply (capsule will vibrate) and hold breath (up to 10 seconds).
8. While holding breath, remove inhaler from mouth.
9. Breathe out gently away from mouthpiece.
10. Repeat steps 5 to 9.
11. Open mouthpiece, discard capsule and close cap.



Important things to know and do

- The capsule contains the medicine as a dry powder.
- There is only a small amount of powder in each capsule - about the size of a match head
- When loaded inside the inhaler the capsule (containing the medicine) is pierced, allowing the medicine to be inhaled.
- Pressing the green button pierces (or puts holes) the capsule. Releasing the button, leaves the holes open.
- Don't breathe into the device or get it wet. Breathing into the device adds moisture and this can effect the release of the dry powder
- The medicine is drawn out of the capsule and breathed deeply into your lungs.
- You will hear a rattling sound when you breathe in and may feel or taste the medicine in your mouth.
- Always replace dust cap. Keep capsules dry.
- Only use Spiriva capsules in the HandiHaler.
- Clean HandiHaler once a month just after using it:
 - Open the dust cap and mouthpiece.
 - Open the base by lifting the green button up.
 - Rinse the whole HandiHaler with warm water.
 - Dry well. Leave open to air dry for 24 hours. Ensure that it is completely dry before the next dose.
 - Replace inhaler yearly.

Genuair®



How to use the Genuair®

1. Remove cap. Check dose counter.
2. Keep Genuair horizontal with button facing up.
3. Press button down and release it to load dose. The window will show green when dose is loaded.
4. Breathe out gently away from mouthpiece.
5. Put mouthpiece between teeth and seal with lips.
6. Breathe in strongly and deeply. Keep breathing in for the full breath even after you have heard the click to be sure you get the full dose. Hold breath for up to 10 seconds.
7. While holding breath, remove inhaler from mouth. Breathe out slowly away from the device.
8. Check window is red (dose was taken). If still green, repeat steps 4-6 with a deeper and slightly faster breath in. Recheck window.
9. Replace cap.

Important things to know and do

- Genuair contains the medicine as a dry powder.
- It loads by gravity so keep it horizontal to load.
- Only 1 puff / dose can be loaded at a time.
- When you breathe in strongly and deeply, a valve opens (“click”) and the powder is drawn from the inhaler and deeply into your lungs.
- The indicator shows red if the dose has been taken.
- If it is green after you have breathed in, try again with deeper and slightly faster breath in. If still not working, discuss with your doctor, pharmacist or nurse as soon as possible to find a solution.
- The inhaler counts down the number of doses left in units of 10. When it is empty, the button locks and cannot be pressed down.
- Wipe mouthpiece with a tissue to clean. Keep dry.
- Don't breathe into the device or get it wet as the moisture can effect the release of the dry powder.

Turbuhaler®

How to use the Turbuhaler®

1. Unscrew and remove cap. Check dose counter.
2. Hold inhaler upright and twist the base around and back (a click is heard) to load a dose.
3. Hold device by base so air vent is not blocked.
4. Breathe out gently away from mouthpiece.
5. Put mouthpiece between teeth and seal lips.
6. Breathe in strongly and deeply. Hold breath up to 10 seconds.
7. While holding breath, remove inhaler from mouth.
8. Breathe out gently away from mouthpiece.
9. For extra dose: repeat steps 2 to 8.
10. Replace cap.



Important things to know and do

- Device contains dry powder. Don't get inhaler wet or breathe into it. Always replace cap.
- Turbuhaler loads by gravity so hold it upright to load.
- Only 1 puff / dose can be loaded at a time.
- The medicine is drawn out of the inhaler and breathed deeply into your lungs. You may not feel or taste anything.
- Keep fingers clear of air vents as you breathe in dose.
- The Turbuhaler counts the doses left. A red line appears in top of window (20 doses left) and moves to the bottom of the window when empty. The Symbicort (device with red base) shows the number of doses left.
- The sound you hear if you shake the device (even when empty) is a drying agent and not medicine.
- Always rinse mouth, gargle and brush teeth after using maintenance medicines to avoid dry mouth or thrush.
- Wipe mouthpiece with a dry tissue to clean.

Ellipta®



How to use the Ellipta®

1. Check dose counter.
2. Slide the cover down until you hear a click (do not shake the inhaler).
3. Breathe out gently away from the mouthpiece.
4. Put mouthpiece between teeth and seal with lips. Do not block the air vent with your fingers.
5. Breathe in strongly and deeply. Hold breath for up to 10 seconds.
6. While holding breath, remove inhaler from mouth.
7. Breathe out gently, away from the inhaler.
8. Close cover.

Important things to know and do

- Ellipta contains medicine as a dry powder. Don't breathe into device or get it wet. Always close cover after use.
- Only 1 puff / dose can be loaded at a time.
- The medicine is breathed directly from the inhaler and deeply into your lungs.
- Keep fingers clear of air vents when taking dose.
- The inhaler shows the number of doses left in device.
- Wipe mouthpiece with a tissue to clean if needed.

Accuhaler™

How to use the Accuhaler™

1. Check dose counter.
2. Hold in one hand. Put other thumb in grip and open cover until it clicks.
3. Holding horizontally, load dose by sliding lever until it clicks.
4. Breathe out gently, away from mouthpiece
5. Put mouthpiece between teeth and seal with lips, keep inhaler horizontal.
6. Breath in strongly and deeply. Hold breath for up to 10 seconds.
7. While holding breath remove inhaler from mouth
8. Breathe out gently, away from the inhaler.
9. Close cover to click shut.



Important things to know and do

- Device contains dry powder. Don't get inhaler wet or breathe into it. Always replace cap.
- Only 1 puff / dose can be loaded at a time.
- The medicine is breathed directly from the Accuhaler and deeply into your lungs.
- The inhaler shows the doses remaining (near thumb grip). It is empty when the dose counter on the top indicates zero. The last five doses will appear in red.
- Always rinse mouth, gargle and brush teeth after using maintenance medicines to avoid dry mouth or thrush.
- Wipe mouthpiece with a dry tissue to clean if needed.

Inhaler device videos

The Lung Foundation Australia has developed videos to demonstrate how to use each inhaler. To view head to the website, www.lungfoundation.com.au/patient-support/copd/inhaler-technique-fact-sheets/



Respimat®

How to use the Respimat®

1. Hold device upright with the cap closed.
2. Turn clear base in direction of arrow until it clicks. (half-a-turn)
3. Open cap fully.
4. Breathe out gently away from mouthpiece.
5. Put inhaler between teeth and seal with lips.
6. As you start to breathe in slowly through your mouth, press grey button to release a dose.
7. Continue to breathe in slowly and deeply. Hold breath for up to 10 seconds.
8. Gentle breathe out away from device.
9. For second puff, repeat steps 1 to 9.



Important things to know and do

- Turning the base loads the next dose.
- When fired, a soft mist is released to be breathed deeply into the lungs.
- Red arrow points to number of doses left. Respimat device will lock when empty.
- Each new Respimat must be prepared before it is first used.
 - a) Keep cap closed. Press in grey safety catch (where clear and grey sections join). Pull off clear base.
 - b) Insert narrow end of metal cartridge. Gentle push down on bench or table until in place (1 cm sticks out).
 - c) Push clear base (with slot lined up) back onto inhaler.
 - d) Turn base in direction of arrow until it clicks. Open cap Point at ground and press grey button. Close cap.
 - e) Repeat step (d) until mist is seen when pressing button.
 - f) Then repeat three more times. Device is now primed.



Putting the cartridge in the Respimat®

Autohaler™

How to use the Autohaler™

1. Remove cap. Hold inhaler upright and shake well.
2. Push lever up to load dose.
3. Breathe out gently away from mouthpiece.
4. Put inhaler between teeth and seal with lips.
5. Breathe in slowly and deeply and hold breath up to 10 seconds.
6. While holding breath, remove inhaler from mouth.
7. Breathe out gently away from mouthpiece.
8. Push lever down.
9. If an extra dose is needed, repeat steps 2 to 10
10. Replace cap.



Important things to know and do

- Autohaler stores medicine under pressure in canister. Once loaded, breathing in fires the device.
- The inhaler is primed before use by lifting the pressure lever (the grey lever), which expels the medicine into a staging chamber.
- Keep fingers clear of air vents when taking dose.
- You will hear a “click and a “whoosh” sound as you breathe in deeply for 5 seconds.
- You will feel the medicine hit your throat and taste it.
- Autohaler cannot be used with a spacer.
- The inhaler is empty when you do not hear any medicine being delivered. To test if it is empty, lift the lever, slide the lever on the bottom of the inhaler across; if the inhaler does not fire, it is empty.
- Always rinse mouth, gargle and brush teeth after using maintenance medicine to avoid oral thrush.
- Airomir®, delivered via Autohaler™, should be washed weekly. After removing the canister, and placing it aside to keep dry, wash the mouthpiece and cap under warm running water for 30 seconds. Allow to air dry.
- QVAR® delivered via Autohaler™ should NOT be washed. Dry wipe at least weekly; do NOT wash the inhaler or get it wet.

Nebuliser

Very few people with COPD or asthma ever need to use a nebuliser at home. This is because a puffer with spacer or some of the other inhaler devices are equally effective in getting the medicine deeply into your lungs.

How does the nebuliser work?

In some specific cases, nebulised medicine may be prescribed.

In a nebuliser, pressurised air is pumped through liquid in the nebuliser bowl to form a fine mist that is inhaled through a face mask or mouthpiece. The pump is usually driven by electricity; some pumps may be driven by a battery or 12 volt car batteries.



Nebuliser Machine

How to use the nebuliser

1. Screw top off nebuliser bowl and stand it up.
2. Twist top off nebule. Squeeze into nebuliser bowl.
3. Keep bowl upright and screw on the top.
4. Attach hose to base of nebuliser bowl and mask or mouthpiece to the top.
5. Place mouthpiece between teeth or mask on face ensuring a close fit.
6. Turn nebuliser pump on. Breathe normally by mouth during the treatment.
7. Once its starts to splutter (usually after 5 to 8 minutes), tap the bowl a few times. After another minute the dose is complete.
8. Switch the machine off when finished.
9. Clean nebuliser bowl and store dry.

Correct cleaning of your nebuliser will reduce the risk of chest infections.

Important things to know and do

- Each dose should nebulise in less than 8-10 minutes. If it takes longer, mists poorly or the mask and your face feel wet when nebulising, try using a new bowl. If still doing it, have the pump serviced.
- Pumps that are old or not serviced, and old nebuliser bowls are not able to make this very fine mist and do not get the medicine to your lungs effectively.
- After each use - Rinse bowl and mouthpiece / mask. Ensure that the nebuliser parts are completely dry before storage.
- Clean the nebuliser bowl and mouthpiece and facemask weekly by soaking in half vinegar and water for 1 hour. Rinse and allow to air dry.
- Don't wash the hose. Replace it if discoloured or mouldy.
- Replace your nebuliser tubing, bowl and face mask or mouthpiece every three months.
- Nebuliser bowls have a limited life span. Check the manufacturer's manual for the expected life span of your bowl. Inspect the nebuliser bowl and tubing for cracks, and replace.
- The filter on the nebuliser pump needs to be replaced regularly (see the manufacturer's manual for how often).
- If nebulising Atrovent™ or Pulmicort™, the use of a mouthpiece is preferable. If you do not use a mouth piece, the use of eye protection is advisable.
- Ensure you rinse your mouth and face afterwards.

Nebuliser bowls have a limited life span. Check manufacturer's manual for expected life span.

**C.O.P.E. - COPD.
Online. Patient. Education.**

The C.O.P.E. program has been developed to enable patients who do not have access to a pulmonary rehabilitation program to be able to undertake the educational component of pulmonary rehabilitation from the comfort of their own home. This easy to use, interactive and informative program can also be used to complement a pulmonary rehabilitation program or simply as a reference point for information on living with a lung disease.

<http://www.cope.lungfoundation.com.au/>



Preventing and managing a flare up

This chapter will help you to understand:

- What an exacerbation or flare up is.
- How to monitor your symptoms and avoid having a flare up.
- What to do when you become sick.
- How to develop and use a written COPD Action Plan to manage a flare up.

What is an exacerbation or flare up?

All people with COPD are at risk of having an exacerbation or flare up.

A flare up is what happens when your COPD gets worse. Flare ups can become serious and you may even need to go to hospital. It is important for you to understand how to avoid having a flare up, what the signs and symptoms of a flare up are, and how you can minimise their impact.

Some of the typical signs and symptoms of a flare up are one or more of the following:

- More wheezy or breathless than usual.
- More coughing.
- More sputum than usual.
- A change of colour in your sputum.
- Loss of appetite or sleep.
- Less energy for your usual activities.
- Taking more of your reliever medicine than normal.

COPD Action Plans aim to help you recognise a flare up earlier and provide instructions on how to act to reduce the severity and duration of your illness.

How can you monitor your symptoms and avoid having a flare up?

There are several possible triggers that can cause a flare up. Some people are particularly susceptible to certain ones. These triggers include:

- Respiratory infections, such as a cold or the flu.
- Smoke.
- Pollutants such as dust, wood smoke or smog.
- Other unknown causes account for about one third of all flare ups.

There are things you can do to avoid having a flare up:

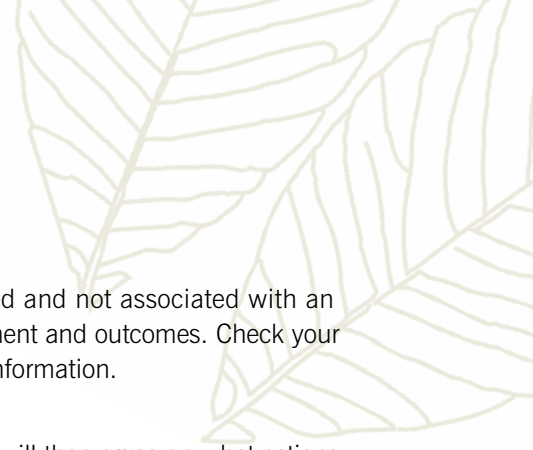
- Develop a written COPD Action Plan with your doctor and know how to use it.
- Learn what the triggers are that make your COPD worse and how to avoid them.
 - Stay inside on particularly cold or hot days if possible.
 - Avoid second hand smoke.
 - Avoid strong cleaning products or strong perfume.
- Make sure you get the flu immunisation every year.
- Make sure that you are immunised to protect you from pneumonia.
- Take your medicines regularly and as prescribed by your doctor.

COPD Symptom Diary

The common symptoms of COPD are shortness of breath, persistent cough, coughing up sputum, and wheezing. Use this diary to track your symptoms on a daily basis. Take this table when you go to visit your doctor. This will help to manage your COPD.

Date	Symptoms <i>(shortness of breath, persistent cough, coughing up sputum, wheezing)</i>	How often? <i>(3 times a day)</i>	Better / worse / more frequent than normal?	When? <i>(day, night, at rest?)</i>	Comments
21/03/12	Shortness of breath	4 times a day	Worse than normal	All of the above	I am not usually breathless.

Example



- Maintain good hand hygiene.
- Avoid people with colds and flu.
- Take good care of yourself by eating healthy foods, exercising and getting enough sleep.
- Keep track of your daily symptoms so that you can recognise quickly when you are starting to become unwell a sample symptom diary is provided on page 37.

The symptom diary can be used to capture information about your symptoms such as cough, sputum and shortness of breath. Some people find a diary like this one helps them to recognise when their symptoms change.

What can you do when you become sick?

When you start to become sick it is important that you act quickly. The quicker you act, the less likely it is that you will end up in hospital.

- Follow the instructions on your written COPD Action Plan.
- Reduce your activity level.
- Clear sputum with the cough and huff technique.
- Practice controlled breathing and relaxation techniques.
- Eat small amounts of nourishing food.
- Drink extra fluids.
- Use additional medicine as planned by your doctor.
- Contact your doctor if flare up becomes severe.

How can you develop and use a written COPD Action Plan?

To be successful it is essential that you plan it together with your doctor. Nursing and allied health staff can start the development of the plan, however decisions about medicine changes must be made by a doctor or an appropriately qualified nurse practitioner.

COPD Action Plans work best when they are checked, updated and reinforced regularly. This should occur each six months or after each flare up.

Step 1

Talk to your doctor about developing a COPD Action Plan. When developing the plan with your doctor, you will discuss what happened with previous flare ups. You will need to identify the lead up signs and symptoms you experienced (consider the events that

were both associated and not associated with an infection), the treatment and outcomes. Check your symptom diary for information.

Step 2

You and your doctor will then agree on what actions you should take to manage your COPD whilst you are stable but also during a moderate flare up and a severe flare up.

Your stable section will include your “usual daily medicines” and may include other information about your care, i.e. contact details for your doctor, oxygen use and lung function readings.

Step 3

Mild to moderate flare up “What to do when unwell/ having a moderate flare up”.

You and your doctor agree on treatment directions for management of a moderate flare up. This will include details about increasing your reliever dose, the frequency and the delivery method. You may also get directions on starting a course of steroid tablets and / or an antibiotic if signs of an infection are present.

You and your doctor will then agree on the point that you will need to seek urgent medical treatment in the case your flare up becomes severe. It will be extremely important to recognise when to seek urgent treatment and what you can do whilst waiting for help to arrive. Your Action Plan will provide you with these instructions.

Step 4

Your doctor will need to provide or arrange for prescriptions for extra medicines to use with the COPD Action Plan (eg. steroid tablets or antibiotics to keep at home with your COPD Action Plan).

Step 5

Don't forget to get your doctor to sign and date the plan to ensure it is up to date.

Step 6

Ask your doctor, nurse or health care person to explain the COPD Action Plan to you and to your carer regularly including all the signs to watch for and actions to take.

Step 7

Keep your plan somewhere visible at home (eg. on the fridge). Remember to always bring your COPD Action Plan to your clinic, doctor appointments and admissions to hospital.

There are several types of Action Plans for COPD. We provide two of these below. It doesn't really matter which Action Plan you use. It is just important that you use one!

A copy of the Queensland Health COPD Action Plan can be downloaded from the following website: www.health.qld.gov.au/caru/networks/docs/srcn-copd-actpln.pdf

A copy of Lung Foundation Australia 'COPD Action Plan' can be downloaded from the following website: www.lungfoundation.com.au/health-professionals/clinical-resources/copd/copd-action-plan/ or can be obtained by calling 1800 654 301.

The image shows a Queensland Health COPD Action Plan form. It includes a header with the Queensland Government logo and the title 'COPD Action Plan'. Below the header, there are fields for patient identification (URN, Family name, Given name, Address, Date of birth) and sex (Male/Female). The main body of the form is divided into several sections: 'Staying well with COPD' (with 'It is useful to know' and 'What to do to stay well'), 'Regular inhaled medication' (with 'Quick reliever', 'Slow reliever', 'Preventer/combination', and 'Home oxygen'), 'Signs of a flare up', 'Compared to usual symptoms I have more', 'What to do in a flare up' (with numbered steps 1-5), 'Plan endorsed by Dr', 'Explained to patient by', and 'Danger signs and what to do if any of these occur'. The form also includes a section for 'Please ask your doctor to review this Plan close to this date' and a 'Patient signature' field.

The image shows a Lung Foundation Australia COPD Action Plan form. It features the Lung Foundation Australia logo and the title 'COPD ACTION PLAN (Chronic Obstructive Pulmonary Disease)'. The form includes fields for patient information (Date, Patient Name, Date of Birth, GP Name, GP Phone, Health Worker Name, Health Worker Phone) and a section for 'Feeling your usual self' with a table for recording medication use. It also has sections for 'Feeling harder to breathe/Feeling sick' and 'Not feeling good (trouble breathing and/or wheezing)', each with tables for recording symptoms and medication. The form includes a 'What you do to stay well' section, a 'Flare Up Medicines' section with images of various inhalers and nebulizers, and a 'RESOURCES' section. The form is designed to be a practical tool for patients to track their symptoms and medication use.

Queensland Health COPD Action Plan

Lung Foundation Australia COPD Action Plan

Introduction to pulmonary rehabilitation

This chapter will help you to understand:

- What pulmonary rehabilitation is.
- How pulmonary rehabilitation will help you.
- What pulmonary rehabilitation involves.
- How to enrol in a pulmonary rehabilitation program.
- What happens after you finish a pulmonary rehabilitation program.

What is pulmonary rehabilitation?

Pulmonary rehabilitation is a program of group exercises and education classes. These exercises and education classes will teach you about your lungs, how to exercise, how to undertake activities with less shortness of breath and how to live better with your lung condition.

Pulmonary rehabilitation programs involve patient assessment, exercise training, education, nutritional intervention and psychosocial support.

Pulmonary rehabilitation involves a team approach with the participants working closely with their doctors, respiratory nurses, physiotherapists and other allied health team members.



At pulmonary rehabilitation you will be given an individualised exercise program

Pulmonary rehabilitation programs have been shown to help people breathe easier, improve their quality of life and stay out of hospital. After completing pulmonary rehabilitation, many patients find they can resume activities that they had previously given up.

How will pulmonary rehabilitation help you?

The education part of pulmonary rehabilitation programs cover many topics including:

- Information about your lungs.
- How your medicines work.
- When to call your health care professional and the importance of having an up to date COPD Action Plan.
- How to keep yourself from being hospitalised.

You may also be encouraged to access the educational part of pulmonary rehabilitation via C.O.P.E. (COPD. ONLINE.PATIENT.EDUCATION). This can be accessed online at www.cope.lungfoundation.com.au



During a pulmonary rehabilitation program, you will meet other people who have COPD or other breathing problems. The program gives you the opportunity to learn how others live with COPD and to share your experiences.

The exercise classes in pulmonary rehabilitation programs involve exercises using both your arms and your legs and will help you to be more active and improve your fitness. Many people report experiencing fewer symptoms after participating in pulmonary rehabilitation which helps them in their daily activities.

What does pulmonary rehabilitation involve?

A pulmonary rehabilitation program typically runs for eight weeks with two sessions per week. Each session will usually involve a group education session (for example, lectures, demonstrations or discussions) followed by supervised exercise.

At the start of the pulmonary rehabilitation program, your medical history will be obtained and your fitness level will be assessed, usually by doing a walking test. From this assessment, an exercise program will be set for you at your fitness level. Another assessment will be completed at the end of the program.

How do you enrol in a pulmonary rehabilitation program?

The criteria to enrol in a pulmonary rehabilitation program will vary among centres. Some pulmonary rehabilitation programs will require a doctor's

referral, whereas others will allow you to enrol yourself. Some programs may have restrictions on who can be referred.

You should discuss the benefits of enrolling in a pulmonary rehabilitation program with your specialist, GP, physiotherapist, accredited exercise physiologist or respiratory nurse.

To find out more information about pulmonary rehabilitation, or where your nearest pulmonary rehabilitation program is located, contact Lung Foundation Australia (phone: 1800 654 301, or www.lungfoundation.com.au).

What happens after you finish a pulmonary rehabilitation program?

What you learn and practice during a pulmonary rehabilitation program should carry over into your daily life after the program finishes. To maintain the benefits you have achieved, it is very important that you continue with your exercise program. Many pulmonary rehabilitation programs offer a maintenance program so that you can continue to exercise with others. Participants who have completed pulmonary rehabilitation can also access ongoing exercise in the community through the Lung Foundation Australia's Lungs in Action programs (contact Lung Foundation Australia phone: 1800 654 301, or www.lungfoundation.com.au).



Exercise and physical activity

This chapter will help you to understand:

- Why it is important to maintain or improve your fitness.
- How you can benefit from exercise and physical activity.
- What the recommended guidelines for exercise are.
- What to do if you are unwell.
- How you can maintain your fitness level.

Why is it important to maintain or improve your fitness?

People who have chronic lung conditions are often less active, can have reduced fitness and reduced muscle strength. By exercising regularly, a person's fitness and muscle strength can be maintained or improved.

People who have chronic lung conditions and who exercise regularly, such as by walking or cycling for more than two hours per week, can improve their health. As a result, they will feel better, keep well and are more likely to stay out of hospital.

How can you benefit from exercise and physical activity?

Exercise will help to:

- Make your heart stronger and healthier.
- Improve your arm, body and leg muscle strength.
- Improve your breathing.
- Clear sputum from your lungs.
- Reduce your breathlessness during daily activities.
- Increase the number of activities that you are able to do each day or each week.

- Improve your balance.
- Improve your mood and make you feel more in control.
- Make you more independent.
- Assist your weight control.
- Improve and maintain your bone density.

The benefits from pulmonary rehabilitation, such as improvements in exercise performance or quality of life, have been shown to decline gradually over 12 to 18 months after completing these programs.

Therefore, to maintain the health benefits of pulmonary rehabilitation, it is very important to keep exercising. If your exercise program stops, you lose fitness and muscle strength very quickly.

Talk to your doctor, physiotherapist, accredited exercise physiologist or Lung Foundation Australia about local programs available to you to help maintain your exercise program, such as the Lungs in Action classes.

People who exercise regularly can reduce their need for hospital admission.

What are the recommended guidelines for exercise?

What is involved in an exercise program?

An exercise program should include:

1. **An aerobic program**, which involves a **walking program** as this is the most relevant exercise for daily living. Other types of aerobic exercise can include cycling, riding an exercise bike or even using a rowing machine. You could use these exercises to add variety to your program or when you have difficulties with walking.
2. **A strength training program**, which will keep your muscles strong and prevent some of the effects of having a chronic lung condition. Strength training should include exercises for your arms, torso and legs.
3. **A stretching program** may be recommended to you, to help maintain your flexibility.

Exercise guidelines

- Exercise regularly – aim for 4 to 5 sessions per week.
- Aim to exercise for at least 20 to 30 minutes per session.
- Aim for moderate intensity.
- Wear comfortable clothing and footwear.
- Ensure you drink enough fluids while exercising.

What if I am on oxygen?

If you have low oxygen levels in the blood and are prescribed oxygen therapy, then when you exert yourself, wearing oxygen can help you tolerate the exercise more easily.

Always talk with your medical team for advice on the appropriate amount of oxygen for exercise and everyday activities.

When exercising, be careful to avoid tripping and falling on your oxygen tubing.

Never turn your oxygen up higher than prescribed for exercising unless you have discussed this with your doctor or physiotherapist first.

General precautions

- Avoid strenuous exercise if you have a fever, an infection or the common cold.
- Restart your program at a lower intensity if your exercise routine is interrupted.
- Do not exercise immediately after a big meal.
- Do not exercise in extreme heat or cold. Take your bronchodilators (inhaled reliever medicine that open the breathing tubes or airways) before exercising.
- Use recovery positions to reduce breathlessness.

Getting started with your exercise program

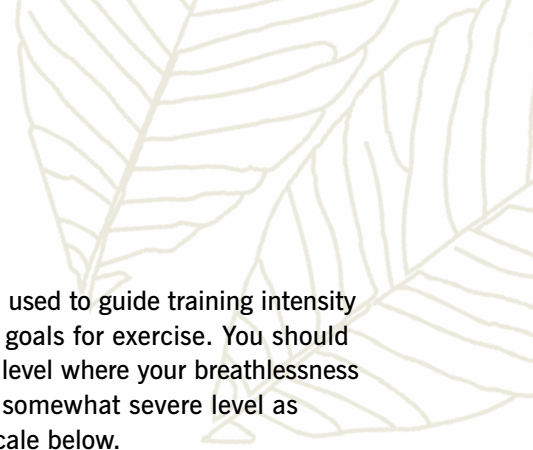
Your health professional will advise whether it would be better for you to exercise using an interval program or to exercise continuously.

For example, an interval program might be: walk for one to two minutes, rest for one minute and then walk again. You may need to repeat this interval many times to achieve at least 20 minutes of total walking time.

Interval exercise programs have many advantages. These include helping you to tolerate your exercise routine better as well as enabling you to exercise at a higher intensity, which should give you a greater improvement in your fitness.



An exercise program is an important part of your management of your respiratory condition



How often should you exercise?

Exercise should be part of your weekly routine, and you should plan enough time to fit this into your week.

You should exercise for a minimum of 4 to 5 days per week. Anything less will not allow you to gain health benefits or improve your fitness.

How hard should you exercise?

When attending your pulmonary rehabilitation program, your physiotherapist will assess your exercise tolerance at the start of the program. From this assessment, you will be prescribed a program at the right level for you.

There are many ways to prescribe a training intensity for your exercise program:

1. **Your level of breathlessness** can be measured during an activity and rated against the Borg or modified Borg scale (see the following diagram). The highlighted section is the target training intensity.
2. **Your physiotherapist** can set you an **exercise program** at 60% to 80% of an exercise test. The exercise test, such as a six minute walking test or shuttle walking test, may have been undertaken at the start of your program.
3. **Exercising at a percentage**, such as 60% to 80%, of **your maximum heart rate**. This method is generally not the best way to measure training intensity for people who have lung conditions as usually they are limited by their breathlessness.

These scales can be used to guide training intensity and to set personal goals for exercise. You should aim to exercise to a level where your breathlessness is at a moderate to somewhat severe level as highlighted in the scale below.

Modified Borg scale		Borg scale	
		6	
		7	Very very slightly
		8	
0	Not short of breath	9	Very slightly
0.5	Very very slightly	10	
1	Very slightly	11	Light
2	Slightly	12	
3	Moderately	13	Somewhat hard
4	Somewhat severe	14	
5	Severe	15	Hard
6		16	
7	Very severe	17	Very hard
8		18	
9	Very very severe	19	Very very hard
10	Maximal	20	

Adapted from: Borg G. Perceived exertion as an indicator of somatic stress. Scand J Rehab Med. 1970;2:92-9; Borg G. Psychophysical bases of perceived exertion. Med Sci Sports Exer. 1982;14:377-81; Mahler D. The measurement of dyspnoea during exercise in patients with lung disease. Chest. 1992;101:242-7

Danger signs

If you experience any of the following symptoms when you are exercising, stop and rest immediately:

- Nausea.
- Chest pain.
- Dizziness or feeling faint.
- Extreme shortness of breath.
- Excessive wheezing.
- Coughing up blood.

NB. These symptoms are not normal and should prompt you to seek medical attention.

What are some other activities that you can choose?

If you are bored with walking or are looking for variety, you can always consider other alternatives that might interest you. You might like to consider gardening, bush walking, dancing, Tai Chi, playing golf, lawn bowls and water-based exercise.

Note: Those with heart failure should always discuss exercise options with their health care team.

What if you are unwell?

If you find it hard to do your usual exercise program, this can be an early warning sign that you are becoming ill.

When you are unwell, your body is working harder to fight off the infection, and your breathing may become more difficult. Therefore, you should not be exercising as hard as you would normally.

Why do you lose your fitness when you are unwell?

People who have COPD and who are unwell or have a flare up of their symptoms:

- Are less active in their day and spend more time sitting or lying down, and less time standing and walking than they would normally do.
- Lose muscle strength and conditioning as a result of this inactivity.

After an illness, you can take several months to regain your fitness level and muscle strength. This is true of all people who experience an illness and subsequent loss of fitness. But it is particularly true for those with COPD.

It is important for you to resume an exercise program promptly following a flare up.

What should you do to prevent losing your fitness after a flare up?

The severity of a flare up will affect the exercise level you are able to do.

Generally, the aim is not to exercise as hard as usual. Instead, you could:

- Walk at a slower speed (that you can tolerate) and use more rest breaks.
- Ride an exercise bike rather than going for a walk. You are moving less body weight while riding an exercise bike; therefore, it should be easier to do.
- Do a strength training program for your arm and leg muscles.

It is important for you to resume an exercise program promptly following a flare up.

How can you maintain your fitness?

As discussed earlier, maintaining your physical fitness has been shown to improve your health.

By completing a pulmonary rehabilitation program, you should have established an exercise routine that is suitable for you. Once you have completed your pulmonary rehabilitation, it is important to continue with your exercise routine.

There are a variety of options available that can assist you in maintaining your fitness, including:

1. **Enrolling in a maintenance exercise program** following the completion of your pulmonary rehabilitation program. For information on a maintenance exercise program, such as Lung Foundation Australia's Lungs in Action classes, contact: Lung Foundation Australia (phone: 1800 654 301, or www.lungfoundation.com.au).
2. **Joining a community-based walking group.**
These walking groups are based at your local parks or shopping centres. For further information regarding the walking groups available in your area, contact your local council, your local shopping centre or Lung Foundation Australia (phone: 1800 654 301, or www.lungfoundation.com.au).
3. **Joining a local gym or community group.**
This can provide you with some support while you continue to exercise regularly.
4. **Exercising regularly with someone else.**
This is another simple way to commit to maintaining your fitness. This option can work quite well, providing the individuals have similar exercise goals.
5. **Participating in a home exercise program.** Some people may prefer to exercise on their own.
A **home exercise program** can be effective if you make this part of your daily routine. Using an exercise recording sheet or an exercise diary can help to make this a regular commitment, see the following aerobic exercise recording sheet and strength training sheet.



Examples of a stretching program

Stretching may be a recommended part of your program. Stretching should be performed a few times each week. A stretching program is usually recommended to be performed after other exercises. The following are some examples of stretches that your health professional may advise.



1. Side neck stretch

- Slowly tilt head towards one shoulder
- Hold for 10 seconds
- Repeat two to three times
- Repeat toward other shoulder

4. Shoulder stretch

- Gently pull on your elbow with your other hand until a stretch is felt in the shoulder
- Hold for 20 seconds
- Repeat two to three times



2. Shoulder rotation

- Place hands on your shoulders as shown
- Slowly make forwards and backwards circles with your elbows
- Repeat five times each way



5. Triceps stretch

- Gently pull on raised elbow until a stretch is felt in the arm
- Hold for 20 seconds
- Repeat two to three times



3. Thoracic stretch

- Hold hands behind your back as shown
- Move your hands away from your back
- Hold for 20 seconds
- Repeat two to three times



6. Side stretch

- Reach one arm straight over your head
- Lean to that side as far as is comfortable
- Hold for 20 seconds
- Repeat two to three times



7. Quadriceps stretch

- Pull your foot towards your buttock until a stretch is felt in the front of your thigh
- Hold for 20 seconds
- Repeat two to three times



8. Hamstring stretch

- Place your foot on a block
- Slowly lean forwards until you feel a stretch in the back of your thigh
- Hold for 20 seconds
- Repeat two to three times



9. Calf stretch

- Place hands on a wall or a bench
- Slowly lean forwards until you feel a stretch in the back of your calf
- Hold for 20 seconds
- Repeat two to three times

Balance retraining

As you get older, your balance may be affected. As a result, you may find it useful to do some balance retraining exercises.

Please discuss balance retraining with your physiotherapist as they can give you exercises that are appropriate to strengthen your balance.

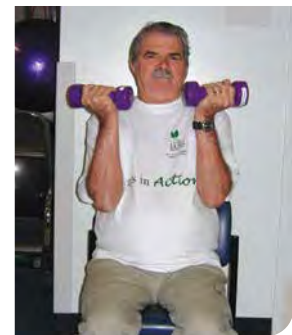
Strength training program

Skeletal muscle weakness is present in people with COPD and this weakness can affect lower and upper limb strength. Strengthening these muscles is important as these muscles are used on an everyday basis. The following are some examples of strength exercises that you may be advised to complete. Please discuss with your physiotherapist or exercise physiologist about a suitable program for you to do.

- Aim to do three sessions per week of the following strengthening exercises.
- Aim to achieve muscle fatigue between 6 and 10 repetitions. If you have not achieved muscle fatigue after 10 repetitions, then you may need to either add arm or leg weights to the exercise or increase the weight of the arm or leg weights.
- If you find doing all the exercises at each session is too much, you can split the exercises in half and do them on alternate days. For example:
 - Day 1: You may choose to do the bicep curl, wall push up or bench press, lateral pull down, leg press or squat, and step ups.
 - Day 2: You may choose to do the shoulder press, sit to stand, standing row or seated row and lunge.

1. Biceps curl

- Hold the arm weight at your side
- Curl arm towards your shoulder
- Do 6 to 10 repetitions for each arm
- Do one to three sets
- If too difficult, alternate arms





2. Shoulder press

- From the start position (sitting or standing), press the arm weight upwards to straight arms
- Do 6 to 10 repetitions
- Do one to three sets
- Avoid this exercise if you have shoulder problems



5. Standing row

- Lean forward onto a chair or bench
- From the start position, lift the arm weight up to your chest
- Do 6 to 10 repetitions
- Do one to three sets



3. Wall push up

- From the start position, lean into the wall then push up away from wall
- Do 6 to 10 repetitions
- Do one to three sets
- To progress, move feet away from the wall



6. Seated row

- From the start position and while keeping your back upright, pull your arms to your chest
- Do 6 to 10 repetitions
- Do one to three sets



4. Bench press

- From the start position, press the arm weight upwards to straight arms
- Do 6 to 10 repetitions
- Do one to three sets



7. Lateral pull down

- Lean back slightly
- Pull bar down towards the front of your chest
- Do 6 to 10 repetitions
- Do one to three sets





8. Sit to stand

- Sit on the edge of your chair
- Stand upright
- Do 6 to 10 repetitions
- Do one to three sets
- Progress to not using your arms

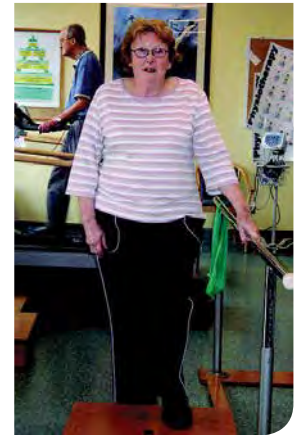
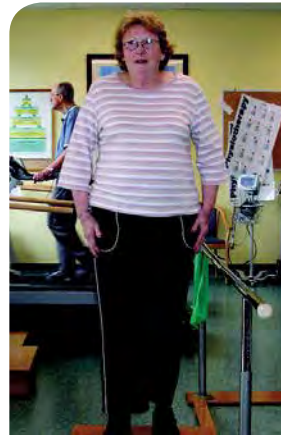


9. Squat

- Stand with your legs shoulder width apart
- Lower your body as if you are sitting on a seat
- Do not bend your knees beyond 90 degrees
- Do 6 to 10 repetitions
- Do one to three sets
- To progress, hold hand weights and repeat exercise

11. Step ups

- This activity can be either a strength or an aerobic exercise.
- For strength:
 - Do 6 to 10 repetitions
 - Do one to three sets
 - To progress hold hand weights and repeat exercise
- For aerobic:
 - Do a 30 second set of step ups, then rest for one minute
 - Repeat 5 to 10 times depending upon your fitness



10. Leg press

- From the start position, press legs forward until knees are straight
- Do 6 to 10 repetitions
- Do one to three sets



12. Lunge

- Stand with a wide stride
- Bend both legs until forward thigh is parallel with the ground
- Do 6 to 10 repetitions
- Do one to three sets
- To progress, hold hand weights and repeat exercise

Breathlessness, breathing control and energy conservation

This chapter will help you to understand:

- What the causes of breathlessness are.
- How to better control or reduce your breathlessness.
- Why energy conservation is important.
- How you can conserve your energy.

What are the causes of breathlessness?

Who becomes breathless?

Breathlessness (or dyspnoea) is common in people with lung or heart conditions, as well as in people who are overweight or unfit.

People who are overweight or unfit will have to work harder during everyday activities and, as a result, will fatigue more quickly.

As people get older, their lung function declines owing to changes in their lungs, their chest wall and the strength of their breathing muscles. These changes contribute to older people becoming more breathless when performing activities.

Those with lung diseases like COPD will experience breathlessness as the disease affects the breathing tubes or airways and the lungs. The feelings of breathlessness may increase as the disease progresses.

How do people feel about their breathlessness?

In mild forms of lung disease, breathlessness may occur when walking up hills or stairs. As the disease becomes more severe, breathlessness can occur on minimal exertion such as when walking slowly along flat ground or even at rest.

Daily activities become more difficult as the lung condition gets worse. It is not surprising that people

who have COPD can become frustrated, anxious and depressed. These emotions can make breathing problems worse.

Importantly, for people who have lung conditions, such as COPD, there are things they can do to make life easier. It is important not to stop doing things altogether but to try to stay as active as possible.

When do you notice your breathing change?

We are not usually aware of our breathing, but there are times when we do become aware.

The breathing centre in the brain is constantly receiving signals from your body about the amount of oxygen that is needed.

The oxygen requirements of your body will depend on many factors, such as:

1. **The severity** of your lung condition and the ability of oxygen to pass through your lungs into your blood stream for use by the body.
2. **The level of activity** you are currently doing will affect the amount of oxygen your body will need. For instance, when you are resting quietly, the oxygen demand is less than when performing strenuous activities, such as walking up stairs or hills.
3. **Your fitness or conditioning** will also affect your oxygen requirements during an activity. A person

with a better fitness level will generally be more efficient in moving oxygen around their body, and their muscles will require less oxygen to do the same activity than a person who is unfit.

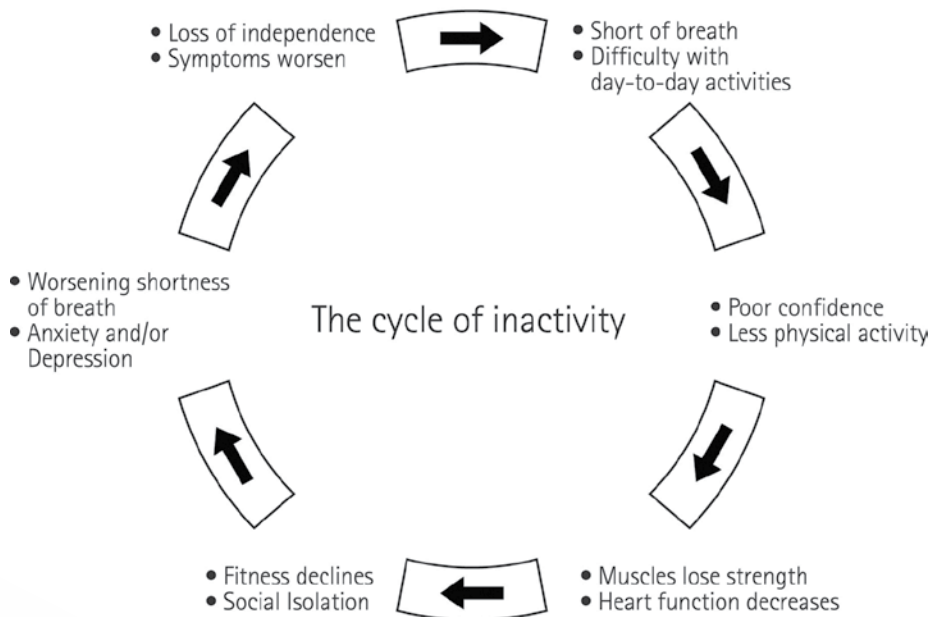


4. **Stress or anxiety**, or a low mood, can affect your breathing rate and make you focus on your breathlessness and more aware of your breathing.
5. **If you are unwell** more effort is required to breathe.

COPD and breathlessness

COPD affects both the lungs and the body. As a result, breathlessness can be caused by a combination of reasons:

1. In COPD, **the lungs lose their natural elasticity** as they become damaged and over-expanded. This can make it harder for someone who has COPD to breathe air out fully.
2. As a result of being unable to breathe air out fully, the 'trapped' air leads to an over-expansion of the lungs. This is often called a barrel chest (hyperinflation). Hyperinflation changes the way your muscles and chest wall work. The breathing muscles of a person who is hyperinflated will have to work harder and as a result, will fatigue more quickly. Other muscle groups can be used to help people breathe; these muscles are known as **accessory muscles**. The neck muscles are an example of these accessory muscles.
3. The muscles used for breathing, like all muscles in the body, require oxygen to be able to work. A person who has COPD may have a **higher oxygen requirement** just to continue breathing.
4. **The narrowing or swelling of the breathing tubes or airways**, in combination with producing larger amounts of sputum, can restrict the flow of air in



The cycle of inactivity

and out of the lungs. Airway clearance techniques can help to keep the breathing tubes or airways clearer and assist in making breathing easier (see chapter 13).

5. When you are living with COPD, you may be unable to continue your normal level of activity, which can result in a cycle of inactivity (see the previous diagram). Frequently, this will lead you to reduce your physical activities, causing you to become unfit or poorly conditioned. Being **unfit or poorly conditioned** makes your movements less efficient and requires greater effort to complete everyday activities.
6. People who have COPD often experience **increased anxiety** about becoming breathless or short of breath. This anxiety can lead to a fear of undertaking activities.

In summary, people with COPD need to work harder than others to breathe.

How do you better control or reduce your breathlessness?

There are many treatment options and management strategies that can help you control or reduce your breathlessness.

1. Medicine

Using your reliever and maintenance medicine can assist in controlling breathlessness. It is important that medicines are used correctly to ensure their effectiveness.

For more details on medicines and inhaler devices, refer to chapter 7 'Knowing your medicine' and chapter 8 'Using your inhaler devices'.

2. Improve your fitness

Better fitness levels or improved tolerance to exercise will enable a decrease in the effort required to perform everyday activities.

3. Pace yourself

This is a very important skill and is often overlooked. If you have breathing problems and are noticing that you are more short of breath than previously, you will need to slow down to get your tasks done.

If you rush and try to beat the shortness of breath, you will spend longer trying to catch your breath. If you go slowly and pace yourself, you will go a lot further before needing a rest. For example:

- While walking, try to establish a pattern of breathing that matches your steps and that you can maintain easily. For example, you may breathe with every step or over a number of steps depending on your level of breathlessness and fitness.
- If you change your pace of walking, you will need to adjust your breathing pattern.
- Before you begin climbing stairs or walking up hills, it is important to gain breathing control.
- Do not hold your breath and rush through the task to 'get it over with' as this will only make you more short of breath.
- Aim to find a rate of breathing that matches your effort. If you find an activity too hard to do, simply stop and recover before restarting the activity at a slower pace.

4. Recovery positions

Good posture is very important. The more you slump, the more you squash your lungs and stomach, and the harder it is to breathe.

Try taking a deep breath while slumped. Now try again while standing or sitting fully upright with a tall spine. Can you notice a difference?

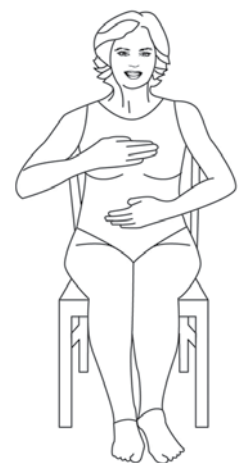
A comfortable recovery position is important. Typically, recovery positions are upright with your arms supported. Common examples of recovery positions are shown in the images on the following page.

5. Relaxed breathing and control

People who have COPD have more difficulty breathing out fully. The body's normal reaction when breathlessness occurs is to breathe faster and shallower. However, fast and shallow breathing is not an effective way to regain control of your breathing.

You could practice relaxed breathing any time you are trying to catch your breath. For example, relaxed breathing may be useful after coughing or exercising.

Aim to breathe out slowly and without force. As you breathe out, let your shoulders and neck muscles



Relaxed breathing technique



Resting against a sign



Resting against a tree

relax. Most of your breathing should occur by the lower ribcage expanding and relaxing, rather than in the upper chest.

By breathing out fully, you will be able to breathe in better. You may find it useful to practice relaxed breathing when you are at rest so that you are familiar with the technique.

To practice relaxed breathing, place one hand on your chest and one hand on your stomach at the level of your navel while sitting. When you take a deep breath in, the hand on your stomach, rather than the hand on your chest, should move first. Practice breathing so that the hand on your stomach moves first.

6. Prolonged expiration breathing

The purpose of prolonged expiration breathing is to try to reduce the amount of air trapped in the lungs and reduce airway collapse by prolonged breathing out (unforced expiration). Breathing out should take longer than breathing in.

Breathing out through pursed lips is an example of this technique. Pursed lips (lips that are closer together than usual, as if you were whistling or kissing somebody) create a smaller opening for the air to flow through.

7. Manage your anxiety

Learning how to manage or control your anxiety, or situations that cause your anxiety, can assist your breathing control (see chapter 18 'Managing stress, anxiety and depression').



Why do you need energy conservation?

With lung disease, the body is no longer as efficient in meeting the body's demand for oxygen.

When the body receives less oxygen, energy supplies become limited. This can cause fatigue, shortness of breath and possible anxiety or panic with everyday activities.

By learning to conserve energy with everyday tasks, you will be able to perform many activities with less effort and less shortness of breath.

Along with exercise, keeping active in normal daily activities is an important part of maintaining your fitness.

Before stopping an activity, consider whether you could make it easier by using the following energy saving techniques.

By learning to conserve energy with everyday tasks, you will be able to perform many activities with less effort and less shortness of breath.



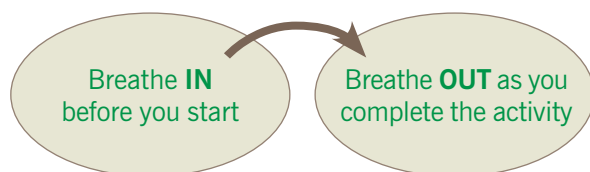
1. Control and coordinate your breathing with daily activities

People with lung disease use more energy simply to breathe. Therefore, it is important to coordinate your breathing with all activities. Even the simplest tasks use energy.

Standing Up: Breathe in before you move. Breathe out as you rise up from your seat.

Lifting an object above your head: Breathe in before you lift. Breathe out as you lift your arms above you.

Putting on shoes: Breathe in before you move. Breathe out as you bend down to put on your shoe.



- If you go slowly and pace yourself, you will go a lot further before needing a rest. If you rush and try to beat the shortness of breath, you will spend longer trying to catch your breath.
- When you are feeling short of breath, use recovery positions to help regain control of your breathing.

2. Reduce strenuous movements

Keep your arms and body close to the activity you are performing:

- Carry objects close to your body.
- Organise equipment or food to be within easy reach.
- Keep most activities between waist and shoulder level:
 - Store commonly used items on middle shelves between your waist and shoulders.
 - Work at benches that are at waist height.
 - Use long handled equipment (for example, long handled reachers, long handled pruning shears, a broom, a dressing stick, a sock aid and a bathing brush).

Bring your feet to you (for example, rest your foot on your knee to towel dry, put on socks, and tie up your laces).

Avoid heavy lifting:

- Use trolleys; push rather than pull; slide rather than lift.
- Let your bigger muscles do the work – squat with your legs, avoid bending your back.
- Ask for help.
- Divide the load eg. groceries, half fill the kettle.

3. Sit when possible to perform activities

- Standing uses more energy than sitting.
- When possible, consider sitting while ironing, washing dishes, showering, chopping vegetables, gardening, making a phone call or working in the shed.
- Keep a high stool or chair for you to use in your kitchen or at your work bench.

4. Take frequent rest breaks

Continuing to work until you are out of breath may then take you longer to recover. So take regular breaks to rest and recover while working. Don't wait until you need a break.

5. Plan and prepare before you perform tasks

- High expectations can lead to frustration, so be patient with yourself and set achievable goals.
- Challenge old habits. Ask yourself *'Is it essential that this task be performed in the usual way?'*
- Plan for rest breaks and interruptions.
- Break jobs into smaller steps. For example, rather than cut the entire lawn in one go, do it in two or three goes.
- Prepare and prioritise.
- Use a diary or calendar to plan daily, weekly and monthly tasks.
- Put items where they can be found easily and quickly.
- Keep most frequently used items between waist and shoulder level.
- Use equipment that makes the job easier, eg. light weight crockery, long handled reachers, long-handled garden equipment, stools, trolleys, velcro shoes, buttonless shirts and clothes that don't need ironing.

6. Pace yourself:

- Use slow, rhythmic movements.
- Alternate light and heavy activities
- Spread heavier tasks throughout the day, week and month.
- Learn to ask for help, or get someone else to do the task, such as family members, community services, neighbours, volunteers or friends. Asking for help does not mean you are dependent, it means you are using your energy to its best advantage.

7. Avoid extremes of temperature

Hot or cold environments place greater demand on the body which may increase feelings of breathlessness, fatigue, discomfort and anxiety.

- Avoid strenuous tasks, particularly in hot weather.

- Where possible, control the temperature in your environment.
- Use fans, air conditioners, heaters.
- Avoid extremes in temperature.
- Reduce steam – open doors, windows.

8. Avoid activity after a meal

Avoid strenuous activity after meals.

9. Relax

- When you feel worried, anxious or uptight your body uses a greater amount of energy. This can add to feelings of being tired or breathless.
- Relaxation can help restore energy.
- Concentrate on relaxing your muscles and slowing down your breathing.

When breathlessness or fatigue limits your ability to commence, continue or complete an activity remember to **PLAN, PREPARE, PACE and PAUSE**

PLAN how you will carry out the task.

PREPARE all the items you will need to complete the task.

PACE yourself and slow down during the task.

PAUSE and rest whenever needed.



Airway clearance: keeping your lungs clear

This chapter will help you to understand:

- What the role and function of sputum in lung conditions is.
- Why it is important to keep your lungs clear.
- When you should use airway clearance techniques.
- What the airway clearance techniques are.

What is the role and function of sputum in lung conditions?

The lungs provide protection against foreign particles entering the body by trapping unwanted particles in the mucous lining of the breathing tubes or airways.

Your secretions can be cleared from the lungs by coughing, breathing out and the movement of tiny hairs called cilia. These tiny hairs line the breathing tubes (*bronchi* and *bronchioles*) and move like a wave to help move the mucous and unwanted particles up to the mouth where they can be cleared.

The function of the tiny hairs (*cilia*) can be affected by smoke, oxygen therapy, alcohol and dehydration.

If you have a lung condition or a chest infection, the breathing tubes can become more swollen or inflamed. As a result, the breathing tubes or airways can produce thicker and stickier mucous secretions called sputum or phlegm.

Why is it important to keep your lungs clear?

Repeated chest infections have been shown to contribute to worsening in lung function. If sputum is not cleared from the lungs, it can cause ongoing inflammation, which can lead to further lung damage.

In some lung conditions, the ability to clear these secretions can be more difficult, resulting in:

- More coughing, which increases your fatigue and can make you more breathless.
- Narrowing of the breathing tubes or airways, and tightness of the chest which can make breathing harder.

What can I do to help?

The best things you can do to help keep your lungs clear are:

- Keep you fluids up to ensure adequate hydration
- Stop smoking
- Control alcohol intake
- Exercise regularly
- Use your prescribed inhaler medicine correctly
- Use of airway clearance techniques

When should you use airway clearance techniques?

When to use airway clearance techniques will depend greatly on your individual needs. For example:

- Many people who have chronic lung conditions produce very little or no sputum. These people

generally do not need to do any regular airway clearance techniques.

- Some people who have chronic lung conditions develop a moist cough when they have an infection. These people may need to do a few simple airway clearance techniques when this occurs.
- A small number of people who have chronic lung conditions and who cough up sputum every day may need to use an airway clearance technique regularly.

Consultation with a respiratory physiotherapist is highly recommended to develop your daily airway clearance routine, and the routine should be regularly reviewed at least every 12 months.

What are the airway clearance techniques?

There are a variety of airway clearance techniques. If you regularly produce sputum, then you should discuss your airway clearance needs with your respiratory physiotherapist. They will assist you to find a technique that works best for you. Some of these may include:

- Independent breathing techniques, such as Active Cycle of Breathing Techniques and Autogenic Drainage.
- Respiratory devices, such as positive expiratory pressure devices and oscillatory positive expiratory pressure devices. There are many brands approved for use on the Australian market – your respiratory physiotherapist will be able to advise on features of devices.
- All airway clearance treatment regimes should include effective huffing and coughing to clear secretions.
- 'Hands on' techniques, such as percussion and expiratory vibrations to the chest wall.

Huffing

In most instances a huff uses a medium volume breath in, followed by a forceful expiration (breath out) that helps to move sputum towards the mouth so it can be cleared. This is particularly useful if the airway tends to collapse with coughing. If a wheeze is heard on the breath out then the expiration is too forced and you may need to breathe out slower. The wheeze represents airway closure and may cause sputum not to be cleared as effectively.

Coughing

Coughing is an effective way to remove secretions. However coughing should be done with minimum of effort.

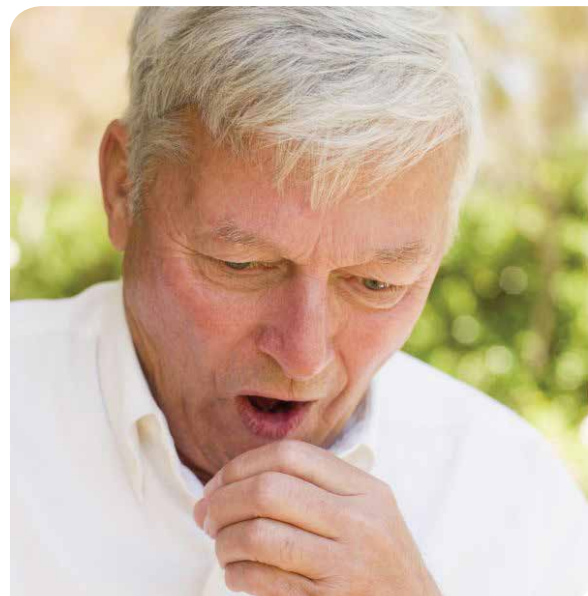
How to cough effectively

- Take a slow relaxed deep breath in.
- Hold the breath for a second – to allow pressure to increase in the lungs.
- Then force the air out. You will feel the abdominal muscles tighten to provide the force to expel the air. Try to avoid a coughing 'fit' by allowing one or two coughs on the breath out.

If you regularly produce sputum, airway clearance techniques will help you get rid of sputum build-up.

Your lung symptoms may change over time and this is important to remember. As a result of changes in your lung symptoms, your airway clearance routine may also need to be modified. For example:

- Your breathing tubes or airways may become 'tight' and you may become more breathless as a result. If this occurs, your airway clearance technique may be changed to decrease the work of your breathing.
- If you develop a chest infection in which you begin to produce larger quantities of sputum, you may be referred to a physiotherapist who may commence an airway clearance regime with you.



Home oxygen therapy

This chapter will help you to understand:

- When you need home oxygen.
- What the benefits of using home oxygen are.
- What equipment you will need to use home oxygen.
- Who can help cover the cost of home oxygen.

Oxygen therapy

Oxygen therapy is prescribed for many people with chronic lung disease who have low blood oxygen levels. The body can tolerate low levels of oxygen for short periods of time, but low levels of oxygen for long periods of time can cause problems to your vital organs. Home oxygen therapy helps return your blood oxygen levels to normal, thus reducing the damage to your vital organs.

Oxygen therapy is usually prescribed to prolong life and it may also improve the quality of life of the user. While the use of oxygen *MAY* relieve shortness of breath, in many cases it does not.



When do you need home oxygen?

Most people with lung conditions feel breathless at times. Feeling short of breath is caused mainly by the extra work of breathing.

Important considerations

- You can feel breathless even with normal oxygen levels in the blood.
- Not everyone with a chronic lung condition needs oxygen at home.
- Tests are needed so your doctor can tell if you need home oxygen.
- Home oxygen is prescribed at a flow rate and for a minimum number of hours per day.
- You only get the full benefit if you use home oxygen as prescribed. Using your oxygen as prescribed, and not just when you feel you need it, is very important.
- Using oxygen when it isn't prescribed can be harmful.

Breathlessness

You have probably learned by now that long term lung conditions, such as chronic obstructive pulmonary disease (COPD), bronchiectasis and pulmonary fibrosis, cause breathlessness. People often think that when they feel breathless, it is because they are not getting enough oxygen into their body.

For most people who have chronic lung conditions, breathlessness mainly occurs because it is harder to breathe the air in and out.

This is called the 'work of breathing'. Breathing air in and out requires more work if the lungs are 'too full' (hyperinflated) or are stiff, or if the breathing tubes or airways are narrow. This is why it is important to learn different breathing techniques to help control your breathlessness.

You may have already found that these techniques help when you get out of breath.

Low oxygen levels in the blood

Some people with severe lung conditions have lower levels of oxygen in their blood, either all the time or only when they are sleeping or exercising.

Home oxygen is only prescribed when the blood oxygen level is low. If your blood oxygen level is very low, this means not enough oxygen is being delivered to your vital organs via the blood. In this case, there are benefits of using oxygen at home in the long term.

How do you (and your doctor) know you need home oxygen?

To determine if you need home oxygen, your doctor can order a blood sample to be taken from an artery (usually at your wrist) while you are resting. You'll probably remember if you've had one of these blood samples taken as it hurts more than a normal blood sample. They may also arrange to test your oxygen level by placing a probe on your finger while you are sleeping or walking.



Oxygen therapy is prescribed for patients who have low levels of oxygen in their blood. It is not prescribed to relieve breathlessness. While oxygen therapy MAY relieve breathlessness, in many cases it does not.

What are the benefits of using home oxygen?

A common home oxygen prescription is to use oxygen, set at a flow rate of two litres per minute, for at least 18 hours each day.

Most people notice some improvement when they start using oxygen at home. You may notice that you:

- Feel more refreshed on waking.
- Feel less breathless performing activities, such as showering and walking.
- Are able to think more clearly.
- Have more energy.

People who have severe COPD and very low oxygen levels have been found to live longer if they use oxygen for at least 18 hours every day.

When to use home oxygen

Once you know your prescription, it is useful to work out when you will use your oxygen to make sure that you get at least the minimum hours each day. Wearing oxygen from late afternoon (5 pm), through the evening and overnight while sleeping until the morning (7 am) takes care of 14 hours. In this example, you would need to wear the oxygen for at least an additional four hours during the day to reach at least 18 hours.

Keeping active, even though you may be on oxygen, is important.

Fitting the oxygen in around your weekly routine is important to ensure that wearing oxygen disrupts your life as little as possible. Some people only need oxygen while sleeping, because their oxygen level is okay during the day. Others need to wear oxygen all the time and need to plan their activities to include oxygen.



What equipment do you need to use home oxygen?

An oxygen concentrator is the most common method of giving oxygen. The concentrator is an electronic pump that filters out nitrogen from the air (which is a mixture of oxygen and nitrogen) that we breathe. The concentrator supplies oxygen through long tubing connected to nasal prongs.

Another method of delivering oxygen is via small cylinders. Small oxygen cylinders weigh about five kilograms, come with trolleys or carry bags and can be used when away from home. These cylinders, which need to be refilled when empty, are best used with oxygen conservers that make the cylinders last longer. Check with your local oxygen provider to confirm which oxygen conservers are available in your area. Portable oxygen concentrators are also available.

Who can help cover the cost of home oxygen?

Currently, each state has different arrangements for funding oxygen equipment for use in the home. Discuss with your health professional about the financial support that may be available for your home oxygen, for example electricity rebates.

Lung Foundation Australia has an information booklet called “Home Oxygen”. It covers many aspects of living with home oxygen therapy, such as:

- How home oxygen therapy works.
- The equipment that is used.
- Practical tips others have found helpful.
- The answers to some commonly asked questions.

To get a copy of “Home Oxygen”, visit www.lungfoundation.com.au or call 1800 654 301.

If you are prescribed home oxygen therapy, register with your electricity supplier to ensure you are identified with them as a priority in the event electricity supply is interrupted.

Healthy eating

This chapter will help you to understand:

- Why healthy eating is important for people who have lung conditions.
- What healthy eating is for those who are underweight.
- What healthy eating is for those who are overweight.
- How to identify potential nutrition issues common in lung conditions and how to manage these.
- What you can do if you are too tired to shop, cook or eat.

Why is healthy eating important for people who have lung conditions?

If you have a lung condition, a healthy diet is important because of:

- Increased energy needs. Studies have shown that people who have chronic lung conditions use 25% to 50% more energy than healthy people due to the increased work of breathing and fighting chest infections.
- Poor appetite, or for some people on steroids, a bigger appetite.
- Increased need for certain vitamins, minerals and antioxidants.
- A lack of energy to shop, cook and eat meals. Malnutrition adversely affects lung structure, respiratory muscle strength and endurance. If you are overweight, you are likely to become more short of breath during activities, such as walking up stairs or carrying the groceries. Carrying additional body weight increases the risk of high blood pressure, high cholesterol and diabetes.

Food provides your body with energy, including the energy to breathe. You need more energy to breathe than a healthy person.

What effect does your body weight have on your COPD?

- If you are underweight, you may become weak and tired more often, which in turn makes it more difficult to do your usual activities, such as shopping, cooking or even eating. Being underweight may also increase your risk of getting infections.
- Being overweight can increase your symptoms, mainly breathlessness, and as such makes it hard for you to do your everyday activities, like walking up stairs or carrying the groceries. If you are very overweight it may also impact on your lung function. We also know that excess weight can increase your risk of high blood pressure, diabetes and high cholesterol.

What is healthy eating?

The Australian Dietary Guidelines helps people to choose wisely from a wide range of foods and drinks. A selection of servings from each of the five food groups each day will help to provide the energy, vitamins and minerals your body needs to maintain good health.

It is recommended that you enjoy a wide variety of nutritious foods from each of these five core food groups every day:

1. Vegetables and Legumes: Plenty of vegetables of different types and colours, including legumes/beans
2. Fruit
3. Grain (cereal) foods: Mostly wholegrain and/or high fibre cereal varieties, such as breads, cereals, rice, pasta, noodles, polenta, couscous, bulgur, oats, quinoa and barley
4. Meat, Poultry, Fish, Eggs and Nuts: Lean meats and poultry, fish, eggs, tofu, nuts and seeds and legumes/beans

5. Milk, yoghurt, cheese and/or their alternatives: Mostly reduced fat

And drink plenty of water.

(Refer to www.eatforhealth.gov.au for more detail).

The recommended number of servings for each food group is given in the following table.

As well as eating a varied and balanced diet, it is important to drink adequate amounts of water and/or other fluids. The amount of water we need varies depending on individual factors including diet, climate and your level of activity. Aim to drink two litres of water and/or fluids per day, unless you have been advised by your doctor or health professional to limit your fluid intake.

Australian Guide to Healthy Eating

Enjoy a wide variety of nutritious foods from these five food groups every day.
Drink plenty of water.



Use small amounts



Only sometimes and in small amounts



Australian Government. National Health and Medical Research Council. Department of Health and Ageing. Australian Dietary Guidelines 2013. Available from: <http://www.eatforhealth.gov.au/>

Food group	Recommended number of serves per day for adults			One serve equals	
	19 - 50yrs	51 - 70yrs	70+yrs		
Grain (cereal) foods	3 to 6*	6	4	4.5	1 slice (40g) of bread or ½ medium (40g) roll or flat bread or ½ cup (75-120g) cooked rice, pasta, noodles, barley, buckwheat, semolina, polenta, bulgar or quinoa or ½ cup (120g) cooked porridge or 2/3 cup (30g) wheat cereal flakes or 1/4 cup (30g) muesli or 3 (35g) crispbreads or 1 (60g) crumpet or 1 small (35g) English muffin or scone
		6	4	3	
Vegetables and legumes	5 to 6*	6	5.5	5	½ cup cooked green or orange vegetables (for example, broccoli, spinach, carrots, pumpkin) or ½ cup cooked dried or canned beans, peas or lentils or 1 cup green leafy or raw salad vegetables or ½ cup sweet corn or ½ medium potato or other starchy vegetables (sweet potato, taro or cassava) or 1 medium tomato
		5	5	5	
Fruit		2			1 medium piece of fruit (for example, an apple, banana, orange or pear) or 2 small apricots, kiwi fruits or plums or 1 cup diced or canned fruit (no added sugar) Or only occasionally: 125ml (½ cup) fruit juice (no added sugar) or 30g dried fruit (for example, 4 dried apricot halves, 1½ tablespoons of sultanas)
Milk, yoghurt, cheese and/or alternatives		2.5	2.5	3.5	1 cup (250ml) fresh, UHT long life, reconstituted powdered milk or buttermilk or ½ cup (120ml) evaporated milk or 2 slices (40g) or 4 x 3 x 2cm cube (40g) of hard cheese, such as cheddar or ½ cup (120g) ricotta cheese or ¾ cup (200g) yoghurt or 1 cup (250ml) soy, rice or other cereal drink with at least 100mg of added calcium per 100ml
		2.5	4	4	
Meat, poultry, fish, eggs, tofu, nuts and seeds and legumes	2-3*	3	2.5	2.5	65g cooked lean red meats such as beef, lamb, veal, pork, goat or kangaroo (about 90-100g raw) or 80g cooked lean poultry such as chicken, turkey (100g raw) or 100g cooked fish fillet (about 115g raw) or one small can of fish or 2 large (120g) eggs or 1 cup (150g) cooked or canned legumes/beans such as lentils, chick peas or split peas or 170g tofu or 30g nuts, seeds, peanut or almond butter or tahini or other nut or seed paste
		2.5	2	2	

■ Male □ Female

*Number of serves is dependent on age, gender, height, weight and physical activity levels, and also whether you are pregnant or breastfeeding. Visit www.eatforhealth.gov.au for more information.

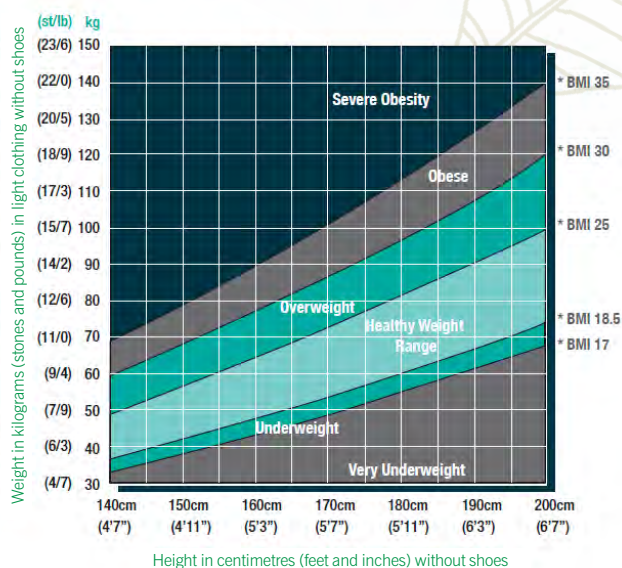
What are the common potential nutritional issues in lung conditions and how can you manage them?

What is a healthy body weight for me?

You can use the following graph to work out your Body Mass Index (BMI), which will indicate whether you are underweight, overweight or within your healthy weight range. To work out your BMI, find your weight (in kilograms) along the left side of the graph and your height (in centimetres) along the bottom, then find where the two lines join in the graph. Please note that this graph is for the general population. The recommended “healthy weight” BMI ranges for people with COPD can be a little different to the general population therefore it is best to seek health professional advice.

A waist measurement is another way for adults to measure their weight-related health risk. A waist measurement that is higher than 94cm for men and higher than 80cm for women can increase the risk of chronic diseases, especially if your BMI is also high.

Aim for a healthy weight: BMI Chart for Adults



$$\text{* Body Mass Index (BMI)} = \frac{\text{Weight (kg)}}{\text{Height}^2 \text{ (metres)}}$$

Australian Government. National Health and Medical Research Council. Department of Health and Ageing. Australian Dietary Guidelines 2013. Available from: <http://www.eatforhealth.gov.au/>



What if you are underweight?

If you are underweight, your body has less energy and nutrient stores to help it do its work.

Being underweight can cause your muscles to become weak. The respiratory muscles that help you to breathe can also be affected.

Being underweight can have a negative impact on your lung function, impair your exercise tolerance and increase your risk of infection.

What can you do about being underweight?

Eating foods that are high in protein and energy will help you to improve your nutrition and regain lost weight and muscle. Following are some tips to improve your nutritional status:

- Eat a healthy, balanced diet. Ensure you have a good intake of protein-rich foods, such as eggs, dairy products, beans, meat, fish and poultry.
- Eat more often. Aim for 6 smaller meals rather than 3 big meals a day, which may be too filling.
- Eat more nourishing snacks. Ideas include milk and milk drinks; yoghurt, custard, ice-cream; dried fruit and nuts; cheese and crackers; hard boiled eggs; crumpets, muffins, pikelets or scones with jam, honey, syrup, margarine and cream; cakes and biscuits; sandwiches; or dips made with cream cheese, beans or sour cream with crackers/crisps.
- Fortify foods with extras such as cream, margarine, cheese, milk powder or oils to ensure they are energy dense.
- Enrich or “fortify” milk by adding 1 heaped tablespoon of full cream or skim milk powder to every cup of milk. Use enriched milk on cereals, in milkshakes, in soups, in desserts, in mashed potato, in cake batters and whenever else you normally use milk.
- Keep ready-to-eat meals and snacks handy for times when you don’t feel like preparing food (e.g. tinned soups, frozen meals, yoghurt, cheese and crackers, canned fish/baked beans/legumes, dried fruit and nuts).
- Fry meat, fish, chicken and vegetables in vegetable oils (for example, olive oil or canola oil).
- Drink fluids that provide your body with energy such as milk, juice, cordial or soft drink.

Sample meal plan if you are underweight

Breakfast

- A bowl of cereal with enriched milk and sugar
- and
- Toast spread with margarine and peanut butter/jam/honey and
- A glass of fruit juice

Morning tea

- A tub of yoghurt (200g)
- or
- A nutritious drink, such as a fruit smoothie, Nestlé MILO® or Sustagen®

Lunch

- A sandwich, two slices of bread, margarine, ham, turkey or egg, cheese and salad
- or
- A tin of tuna stirred through one cup of cooked pasta with added cheese and cream
- and
- A dessert, such as canned fruit and custard

Afternoon tea

- Cheese and crackers
- or
- A nutritious drink, such as a fruit smoothie Nestlé MILO® or Sustagen®

Dinner

- A hot meal, such as quiche, casserole, stew
- or
- fish with white sauce
- Well cooked vegetables, such as mashed potato or pumpkin with enriched milk and/or margarine, and cauliflower or broccoli with cheese sauce
- and
- A dessert, such as custard or ice cream

Supper

- A nutritious drink, such as fortified milk with Nestlé MILO® or Sustagen®

If you have concerns regarding your weight speak with your general practitioner and/or ask to be referred to a dietitian.

What if you are in the obese BMI range?

Carrying too much weight can increase your breathlessness and make it hard for you to do normal activities.

Weight gain can be related to an increased appetite and/or fluid retention as a side effect of the medicine, prednisolone.

Obesity can increase your risk of high blood pressure, diabetes and high cholesterol.

What can you do if your BMI > 30?

If you need to lose weight try the following hints:

- Choose foods from each of the five food groups every day.
- Eat a balanced diet that is low in fat, salt, sugar and alcohol, and high in fibre. Use small amounts of added fat (for example, margarine or oil) in your cooking. Use herbs and spices to add flavour and reduce the need to add fats and salt.
- Make sure you include protein-rich foods every day such as lean meats, fish, chicken, eggs, dairy products and legumes.
- Trim visible fat from meat and remove the skin from chicken before you cook.
- Eat less fried and deep fried foods.
- Use low-fat cooking methods, such as grilling, barbecuing, steaming, microwaving, boiling, oven baking and stir frying.
- Choose low-fat or reduced fat dairy products.
- Watch your portion sizes. Use 'The Australian Dietary Guidelines' as a guide for portion sizes.
- Drink plenty of water (approximately two litres) every day unless you have been advised by your doctor to limit your fluid intake. Try to limit drinking those fluids with added sugars, such as soft drinks and cordials, fruit drinks, vitamin waters, energy and sports drinks, as they can increase risk of weight gain.
- Increasing your physical activity is an important way to help you lose excess weight. Your physiotherapist will talk to you about a specific exercise program tailored to assist your weight loss in conjunction with healthy eating.

Sample meal plan if you are overweight

Breakfast

- A bowl of high fibre cereal (e.g. All Bran® mixed with untoasted muesli) with a glass of low fat milk and a piece of fresh fruit, such as a banana, apple, orange or two apricots

or

- 2 poached eggs on 1 slice multigrain bread with a glass of milk

Morning tea

- A piece of fresh fruit, such as a banana, apple, orange or two apricots

Lunch

- Two slices of wholegrain bread with 65-80g of lean ham or turkey and salad, limit spread/thin spread or
- A tin of tuna stirred through one cup of cooked pasta with a side salad

or

- A small tin of baked beans on two slices of wholegrain toast

Afternoon tea

- A tub of low-fat yoghurt (200g)

Dinner

- 100-150g of grilled fish with mashed potato, peas and carrots

or

- 65-125g lean red meat that has been stir fried, steamed or grilled, or cooked in a curry, stew or bolognaise or other tomato-based pasta sauce with a variety of vegetables with ½ cup of pasta, rice or potato

What if you are too tired to shop, cook or eat?

When you are tired or unwell, it can be difficult to make sure you are eating enough. However, this is usually the time when good nutrition is most important.

To help, try some of these tips:

- Remember to have a rest before meals.
- Eat slowly and chew foods well.
- Breathe evenly while chewing and sit quietly for 30 minutes after eating.
- Stop eating if you need to. Relax and take a few deep breaths before continuing to eat.
- Eat meals when your symptoms are best controlled.
- Try having five or six smaller meals or snacks rather than three large meals per day.
- Make all meals and snacks as nourishing as possible – make every mouthful count.
- Consider using a home delivered meal service
- If nauseated, try cold meals instead of hot.
- Softer foods are often better tolerated (e.g. stews, mashed vegetables, mince or scrambled eggs).
- Never miss a meal. Try a smaller snack or nourishing drink if you can't face a big meal.
- Prepare extra meals when you are feeling good and freeze for later use.
- If you have been prescribed oxygen, you could use this while eating your meal.
- Stock up the kitchen with healthy convenience meals for the times you are not feeling great. Bottled, frozen and tinned foods can be nutritious (remember to read the labels to see if it is a healthy food option). They are also easy to prepare and easy to stock up on when you are feeling well.

If you need more advice see an Accredited Practising Dietitian. Visit www.daa.asn.au for more information.

Simple to prepare meals

- Scrambled eggs on toast
- Baked beans or tinned spaghetti on toast
- Tinned soup with toast
- Frozen pre-prepared meal
- Peanut butter or avocado on toast
- Sandwich with meat, cheese, fish or egg and salad filling
- Rice sachet with flavoured tinned tuna/ canned beans and steamed frozen vegetables
- Frozen quiche with a side of steamed vegetables

Nutritious snacks

- Yoghurt (¾ cup)
- Custard
- Dried fruit (30g, e.g. 1½ tablespoons sultanas)
- Nuts (30g)
- Cheese and crackers (2 slices, 2 crackers)
- Raisin toast or fruit buns (1 slice)
- Milk drinks Nestlé MILO®, Ovaltine or fruit smoothies



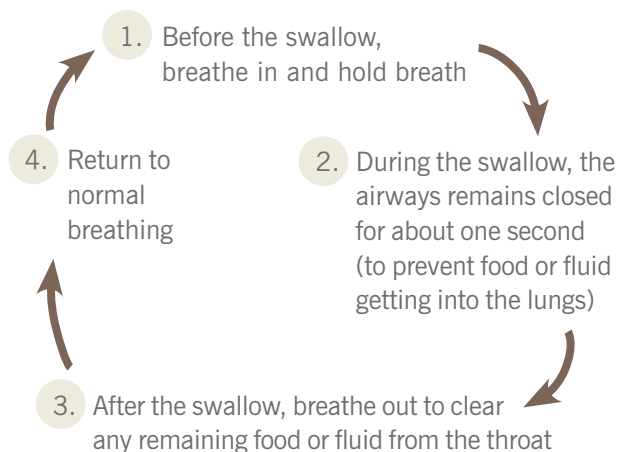
Chronic obstructive pulmonary disease and swallowing

This chapter will help you to understand:

- How swallowing and breathing are related.
- How breathing and swallowing are affected by chronic obstructive pulmonary disease (COPD).
- What the consequences of swallowing problems are.
- How you can tell if you are experiencing swallowing problems.
- How a speech pathologist can help you with swallowing problems.
- What strategies you can use to help manage swallowing problems.

How are swallowing and breathing related?

Swallowing is a highly complex process involving the coordination of more than 26 muscles and six nerves. For this process to occur smoothly, the body must also co-ordinate the breathing cycle during the swallow. Swallowing interrupts breathing. At the exact moment you swallow, you must momentarily hold your breath to close the airway. Closing the airway prevents any food or fluid from entering the lungs. The normal swallow–breathing cycle (shown in steps 1 to 4 in the following diagram) should only take a few seconds to complete.



How are breathing and swallowing affected by COPD?

How does COPD affect your breathing?

Details of how COPD can affect your breathing are provided in other sections of this Patient Guide (see chapter 12 'Breathlessness, breathing control and energy conservation'). Basically, COPD can cause you to breathe faster, which means that your breathing muscles can become tired and weak. Your coughing reflex can also become weak. As breathing and swallowing are related, a weak cough reflex can cause problems with swallowing.

How does COPD affect your swallowing?

Swallowing and breathing are related. Many people with breathing problems also experience difficulty co-ordinating breathing and swallowing while eating and drinking.

During mealtimes, you may use the swallow–breathing cycle more than 100 times. People who have COPD often become short of breath during mealtimes because of the breath-holding that occurs during the swallowing–breathing cycle. The more short of breath you become, the more likely you will find it difficult to co-ordinate your breathing and swallowing.

Swallowing problems (called *dysphagia*) can occur because the need for oxygen will always overrule the need to protect the lungs from food or fluids.

What are the consequences of a swallowing problem?

Swallowing problems and aspiration

If breathing timing is even slightly changed during swallowing, the airway may not be fully closed and food or fluid may be breathed into the lungs. This is called aspiration and may lead to chest infections or pneumonia.

Normally, when food or fluid 'goes down the wrong way' (*aspirated*), you automatically cough up the food or drink. As people who have COPD often have a weakened cough reflex, they may not be able to clear all the food or fluid out of their breathing tubes or airways.

Aspiration is a symptom of swallowing problems. The extent of the swallowing problems can change over time, and may depend on how bad your breathing problems are at the time (and other medical factors).

As many as 20% to 40% of people who have COPD experience aspiration (particularly during a flare up).



Swallowing problems are often under-diagnosed in people who have COPD because silent aspiration can be difficult to detect.

Swallowing problems and nutrition

As you are using more energy to maintain your breathing during chewing and swallowing, eating and drinking can become more tiring. As a result, you may take longer to complete your meals and you may eat and drink less. Eating and drinking less could cause you to miss out on important nutrients and lose weight.

How can you tell if you are experiencing swallowing problems?

Read the following two lists of the common signs of swallowing problems. Tick the box next to any sign that you experience when eating and drinking:

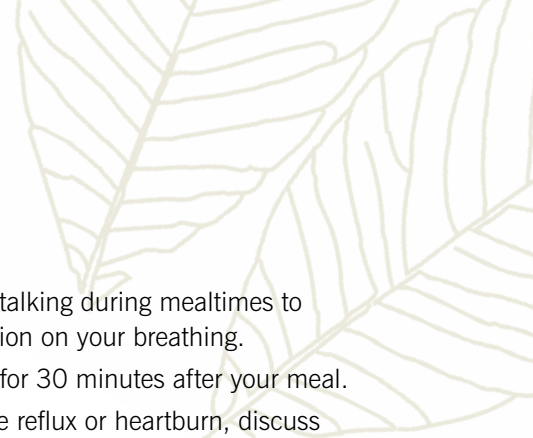
List 1

- Coughing or choking after swallowing food or drinks.
- Increased shortness of breath during meals.
- Wet or 'gurgly' voice after swallowing.
- Feeling like food is getting stuck in the throat.
- Difficulty chewing foods.
- Taking longer to start a swallow.

List 2

- Food or drink going into your nose.
- Food or drink remaining in the mouth after swallowing.
- Reflux or regurgitation.
- Taking much longer to finish meals.
- Getting more fatigued after eating and drinking.
- Unexplained weight loss.
- Unexplained temperatures or changes in sputum colour.

If you ticked two to three items (particularly those in List 1), or are concerned about your swallowing, ask your GP (or respiratory specialist) to refer you to a speech pathologist who can assess your swallowing.



How can speech pathologists help you with swallowing problems?

Speech pathologists are trained to assess, diagnose and treat swallowing and communication problems. They can:

- Assess your current swallowing function and determine the cause of your swallowing problem.
- Recommend appropriate foods and fluids, as well as strategies to improve swallowing safety.
- Start you on swallowing therapy, if appropriate.
- Identify the need for further investigations.
- Liaise with other health care professionals.

If you are experiencing swallowing problems, a speech pathologist can give you specific advice to help you eat and drink safely.

What strategies can you use to help manage swallowing problems?

Even if you are not experiencing swallowing problems, you should be aware that there are a number of strategies that can be used to protect the lungs. This knowledge could help you if you do encounter swallowing problems (for example, if you have a flare up). These strategies include:

- Try not to eat or drink when you are breathless.
- Always sit upright in a supported chair when you are eating and drinking.
- Eat slowly and take small mouthfuls.
- Select foods that are soft and easy to chew, or add sauce or gravy to moisten foods.
- If worn at home, oxygen prongs should not be removed during meals.
- Have smaller, more frequent meals, and take a break during your meal if you become too short of breath.
- Try to breathe out immediately after you swallow to help clear any food or fluid left in your throat.
- Alternate between sips of fluids and solids.
- Try swallowing twice per mouthful.

- Try to minimise talking during mealtimes to reduce the exertion on your breathing.
- Remain upright for 30 minutes after your meal.
- If you experience reflux or heartburn, discuss anti-reflux medication with your GP.

Managing swallowing problems due to dry mouth

People who have COPD often experience dry mouth. Dry mouth can be related to oxygen use (via a mask or nasal prongs), mouth breathing or medicines. Having a dry mouth is uncomfortable, can increase the risk of dental problems and can cause swallowing problems. To reduce dry mouth symptoms:

- Sip fluids frequently throughout the day.
- Always rinse and gargle after taking your medicine or inhalers.
- Use artificial saliva products, available at your local pharmacy, or other oral lubricants (for example, grape seed oil flavoured with peppermint essence).
- Suck sugar free lollies or chew gum.
- Avoid medicated lozenges or alcohol-based mouthwashes.
- Reduce your intake of caffeine, alcohol and spicy foods, and avoid smoking.
- Regularly brush your teeth and gums (or clean your dentures) to reduce bacteria build up in your mouth.
- Have regular dental check-ups.
- Talk to your GP about reviewing the medicine you are taking.

If you are experiencing difficulties with swallowing medicine, speak with your GP or pharmacist as they may be able to suggest ways to assist.

Chronic obstructive pulmonary disease and other related conditions

This chapter will help you to understand:

- What incontinence is.
- What obstructive sleep apnoea is.
- What osteoporosis is.

What is incontinence?

Why do you need to know about incontinence?

Incontinence and other complaints of a weak pelvic floor are common for many people who have chronic obstructive pulmonary disease (COPD) and other chronic lung conditions.

What is the pelvic floor?

The pelvic floor is made up of layers of muscle and other tissues.

The pelvic floor holds up and supports the organs in the pelvis including the bladder, the bowel, the uterus (or womb) in women and the prostate in men.

The pelvic floor helps to control bladder and bowel function. When the pelvic floor muscles contract, they contribute to the functional control of the bladder, the bowel and the uterus during daily activities. Coughing and sneezing cause increased pressure on the pelvic floor muscles.

Contraction of the pelvic floor muscles is important in preventing urgency (the urgent need to go to the toilet), constipation and incontinence (the leakage of urine or faeces). The pelvic floor muscles also contribute to good posture. The pelvic floor muscles can be weak from:

- Chronic coughing.
- Pregnancy and childbirth.

- Continual straining to empty bowels (constipation).
- Heavy lifting.
- Growing older
- Being overweight.
- Being unfit.
- Changes in hormone levels at menopause.

What are the symptoms of a weak pelvic floor?

If you suffer from any of the following complaints, you may have a weak pelvic floor:

- Urgency: a sudden and urgent need to go to the toilet and an inability to 'hold on'.
- Incontinence: a leakage of urine or faeces from the bladder or bowel.
- Stress incontinence: a small leakage of the urine from the bladder when the pelvic floor is stressed by activity, such as coughing, laughing, sneezing, straining or lifting, jumping, running or doing exercise.
- Constipation or straining: the inability to empty without great effort.
- Frequency: a need to go to the toilet frequently, which indicates an inability to 'hold on'.
- Other symptoms: such as vaginal flatus (wind) or inability to keep tampons in.

What can you do to strengthen your pelvic floor?

A weak pelvic floor cannot do its job properly. Research has shown that the pelvic floor responds to regular exercise. In fact, the sooner you start pelvic floor exercises, the better your chance of preventing or overcoming many of the problems associated with a weak pelvic floor.

If you experience stress incontinence, contracting the pelvic floor before any activity (for example, coughing, sneezing, lifting or jumping) that will increase pressure to the pelvic floor can help to protect you against leakage. Practise this technique regularly to ensure that it becomes a lifelong habit.

What are good bladder and bowel habits?

Going to the toilet between four and six times a day and no more than twice at night is normal.

Some simple steps to keep your bladder and bowel healthy are:

- Try to drink at least six to eight cups (one and a half litres) of fluid a day (unless advised otherwise by your doctor).
- Limit the amount of caffeine (for example, coffee, cola and tea) and alcohol you drink as these drinks irritate the bladder.
- Try to go to the toilet only when your bladder is full and you need to go (emptying your bladder before going to bed is fine).
- Take your time when urinating so that your bladder can empty completely.
- Keep your bowels regular and avoid constipation.
- Do not strain when using your bowels.
- Keep your pelvic floor muscles in good condition.

How to do pelvic floor exercises

How to tighten your pelvic floor muscles

- Sit or lie comfortably with the muscles of your thighs, buttocks and abdomen relaxed.
- Tighten (and then relax) the ring of muscles around your back passage (anus) as if you are trying to control diarrhoea or wind. Practise this movement until you are able to exercise the correct muscles.
- When you are passing urine, try to stop the flow midstream and then re-start it. This should only

be performed occasionally, as this action may interfere with your normal bladder emptying.

How to do your pelvic floor routine

- **For men:** tighten and draw in strongly the muscles around your rectum (back passage) and urethra (urine tube) all at once, trying to hold them up inside. Hold this contraction as you count to five and then relax. You should have a feeling of letting go as you relax. Rest for at least 10 seconds and repeat. Aim to do 10 contractions.
- **For women:** tighten and draw in gently the muscles around your rectum (back passage), vagina and urethra all at once, trying to hold them up inside. Hold this contraction as you count to five and then relax. You should have a feeling of letting go as you relax. Rest for at least 10 seconds and repeat. Aim to do 10 contractions.
- When doing these exercises:
 - Do not hold your breath.
 - Do not push down; squeeze and lift up.
 - Do not tighten your buttocks or thighs.

What else do you need to know?

- Strengthening the pelvic floor muscles takes time. If you have very weak muscles initially, they will fatigue easily. Don't give up. These exercises do work if done regularly.
- These exercises should be done regularly and you can add them into your daily routine, such as after going to the toilet, when having a drink or when lying in bed.
- A position that enhances pelvic floor function should be chosen if you regularly perform airway clearance techniques. When sitting, this is achieved with feet flat on the floor, your hips at 90 degrees and your lumbar spine in neutral or straight (not slumped). Ensure you contract the pelvic floor muscles before huffing and coughing.
- For more information, please contact your doctor, physiotherapist or continence advisor, or contact the National Continence Helpline (phone: 1800 330 066). There are specialist health care professionals that deal with the problem of incontinence.

What is obstructive sleep apnoea?

Why do you need to know about obstructive sleep apnoea?

Obstructive sleep apnoea (OSA) and other breathing conditions are common for many people who have COPD and other chronic lung conditions.

What is Obstructive Sleep Apnoea?

People who suffer from OSA reduce or stop their breathing for short periods while sleeping. This can happen many times during the night. These breathing stoppages or apnoeas interrupt sleep which results in poor sleep quality with excessive sleepiness during the day. Because these events occur during sleep, a person suffering from OSA is usually unaware of them and is often the last one to know what is happening.

In OSA, the apnoeas can last for ten or more seconds and the cycle of apnoeas and broken sleep is repeated hundreds of times per night in severe cases. Most sufferers are unaware of their disrupted sleep but awaken unrefreshed, feeling tired and needing more sleep.

What are the symptoms of OSA?

A person with OSA may not be aware of the many arousals from deep sleep caused by their condition. Symptoms of OSA include:

- A perception of poor quality sleep despite long periods of time spent in bed.
- Difficulty maintaining concentration during the day.
- Poor memory.
- Excessive daytime sleepiness.

Other symptoms of OSA include:

- Morning headache.
- Depression.
- Short temper.
- Grumpiness.
- Personality change.
- Loss of interest in sex.
- Impotence in males.

What other problems can develop from OSA?

Untreated, OSA can be a contributing risk factor for high blood pressure, heart attack, heart failure, and stroke. All these conditions occur more frequently in people with OSA.

OSA-associated poor concentration and daytime sleepiness have been associated with an increased risk of accidents in the workplace and on the road.

How is OSA assessed?

In a person suspected of having OSA, their doctor will need to ask questions about waking and sleeping habits. Reports from the sleeping partner or other household members about any apnoeas are extremely helpful.

Referral to a sleep disorders specialist and an overnight sleep study will assist with the diagnosis of OSA and measurement of its severity.

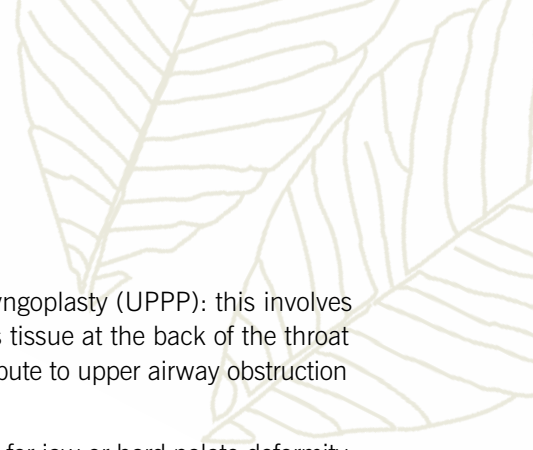
How is OSA treated?

The chosen form of treatment depends on the severity of OSA and patient factors.

General guidelines

- In an overweight person, weight loss is an important part of treatment. Even a small weight loss can lead to improvement in symptoms of OSA.
- Avoiding alcohol up to two hours before going to sleep and not using any sleeping tablets or tranquillisers can also help.
- Nasal obstruction may respond to nasal decongestant sprays and smoking cessation.
- For people whose sleep apnoea is worsened by lying on their back, positioning devices such as special pillows, rubber wedges and tennis balls attached to pyjama backs encourage sleep in other positions but are of limited value in very severe OSA.

Obstructive sleep apnoea (OSA) and other breathing conditions are common for many people who have COPD and other chronic lung conditions.



Specific treatments

Continuous positive airway pressure (CPAP)

A CPAP pump is the most common treatment for OSA and is very effective in many cases. A CPAP pump delivers air to the upper breathing tubes or airways via a plastic tube attached to a close-fitting nose mask.



3. Uvulopalatopharyngoplasty (UPPP): this involves removal of excess tissue at the back of the throat which may contribute to upper airway obstruction during sleep.
4. Corrective surgery for jaw or hard palate deformity: in a very few people with OSA, major surgery to re-align the bony structures of the lower and mid-face may be helpful.

Untreated obstructive sleep apnoea can be a contributing risk factor for a number of other health problems.

Other non-surgical treatments

- Individually designed oral appliances or mouth splints made by dentists may help people with snoring or apnoea.
- Tongue retainer devices may be useful in those who no longer have their own teeth.
- Specially designed 'mouth plates' may help people who have a narrow maxilla.

Surgery

Surgery to the upper airway may ease some of the structural problems that contribute to airway blockage during sleep. These operations include:

1. Removal of tonsils and adenoids: this is far more common in children than adults and can have excellent results.
2. Nasal surgery to improve nasal airflow. Such operations improve nasal airflow and enable nasal CPAP to work more efficiently.

What is osteoporosis?

Osteoporosis is a condition of low bone density, where your bones become thin and break more easily. Referred to as a 'silent disease' where often no symptoms are present and for many, a fracture (broken bones) is the first sign of osteoporosis.

Common sites for osteoporotic fractures are the spine, hip, wrist, and ribs. Hip fractures are common in people over 75 years.

How common is Osteoporosis?

Over 2 million Australians have osteoporosis.

Fractures due to osteoporosis can occur at any age and the risk increases as we get older.

What are the risk factors for developing osteoporosis?

There are a number of risk factors that contribute to osteoporosis seen in people with COPD. These risk factors include:

- Smoking.
- Vitamin D deficiency.
- Low body mass index (BMI).
- Hypogonadism (deficiency in the secretory activity of the ovaries and testis).

- Decreased mobility as the disease progresses.
- Family history.
- Menopause.
- Thin and small body frames.
- Caucasian or Asian.
- Advancing age.

In addition to these risk factors, steroid use in many people with COPD is thought to be a contributing factor in the development of osteoporosis.

How is osteoporosis diagnosed?

A bone density test is a quick test to:

- Measure osteoporosis or osteopenia (where bone density is lower than normal).
- Evaluate response to therapy.
- Predict fractures occurring in the future.

The common sites scanned are the lumbar spine, hip and forearm.

Your doctor may order blood and urine tests along with x-rays to have a closer look at your bone health.

How is osteoporosis treated?

There are a number of medicines available through the Pharmaceutical Benefits Scheme to treat osteoporosis. The medicines work by maintaining or improving bone density and strength. This can reduce the risk of fractures. Lifestyle changes may also be required.

What lifestyle changes can I make?

Lifestyle factors can play a role in reducing age-related bone loss that contributes to osteoporosis risk. These include:

- Adding calcium to your diet if you are deficient.
- Sensible sun exposure.
- Doing weight bearing exercises.
- If you smoke, quit.
- Minimise your alcohol intake (no more than 2 standard drinks per day for women, and no more than 4 for men).

Conclusion

It's important to be aware of any risk factors you may have or if you have had a minor bump resulting in a fracture, you may have osteoporosis. You can receive treatment and/or make changes to your lifestyle that can improve your quality of life.

Further reading and useful resources

www.fractureriskcalculator.com

Osteoporosis Australia: www.osteoporosis.org.au

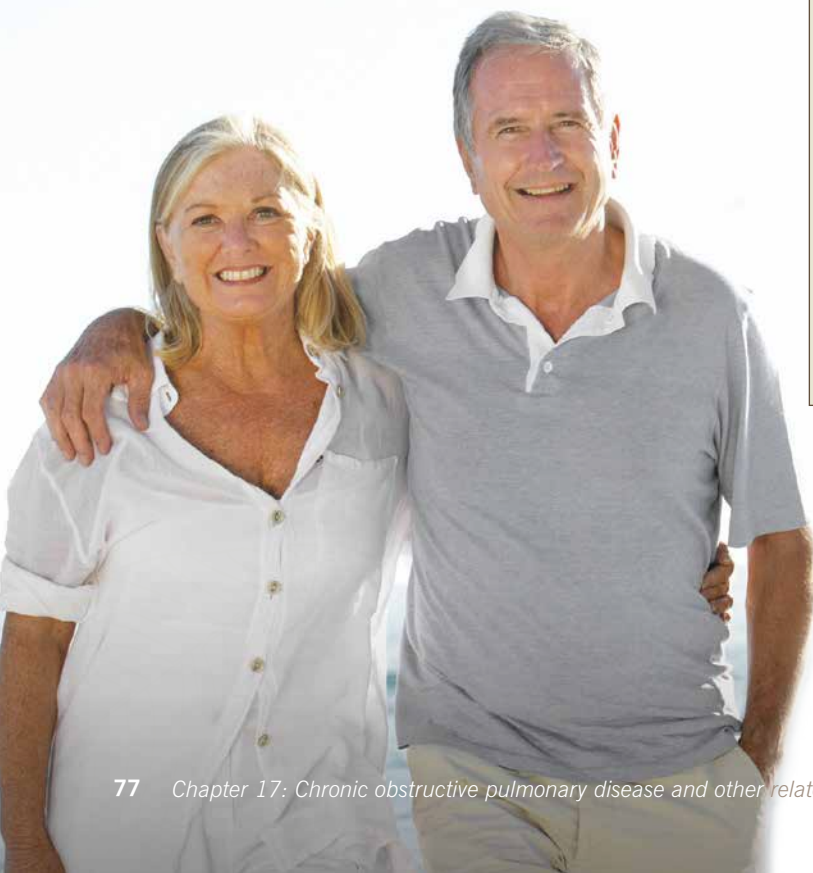
Calcium Counter: www.arthritisvic.org.au

Medicare Items for Chronic Disease Management

There are two types of plans that can be prepared by a GP for Chronic Disease Management:

- GP Management Plan (GPMP); and
- Team Care Arrangements (TCAs).

If you have both a GPMP and TCAs prepared for you by your GP, you may be eligible for Medicare rebates for specific individual allied health services that your GP has identified as part of your care. This could include, but is not limited to, dietitian, occupational therapist, podiatrist, psychologist. The need for these services must be directly related to your chronic medical condition. Speak to your GP for more information.



Managing stress, anxiety and depression

This chapter will help you to understand:

- What the signs of stress are.
- What you can do if you have anxiety.
- Feelings of helplessness.
- What you can do if you have depression.
- How you can reduce stress.
- Why relaxation practice is important.
- How you can reduce the number of crisis events and manage them.

What are the signs of stress?

Research tells us that people with chronic disease who enjoy the best quality of life and fewest complications are those who understand their condition and are actively involved in managing their condition.

Stressors, such as illness, financial concerns or relationship difficulties, could cause:

- Your heart to beat faster.
- The muscles of your arms and legs to tremble or shake.
- Your breathing to change.
- You to start sweating.

In response to stress, some people begin to avoid certain situations or activities. Avoidance can be a problem. Continuing to avoid situations or activities that make you feel anxious can reduce your activity level and social contacts. It can also increase your risk of developing anxiety and interfere with your ability to manage your condition.

What can you do if you have anxiety?

In addition to the stressors related to having COPD, the worry people experience when they have shortness of breath can lead to anxiety problems. Conversely, the anxiety or panic attacks can increase a person's



breathlessness. It can also make it more difficult to function on a daily basis, achieve goals and maintain relationships.

There are effective treatments for anxiety that you can ask your GP or health care team about. Talking to a mental health professional can increase understanding of anxiety and support a person to learn new skills that reduce symptoms.

Medicines such as anti anxiety and anti depressant medicines to reduce physical symptoms and stop racing thoughts can also be very helpful.

What are feelings of helplessness?

The diagnosis of COPD has a significant impact. Everyone with COPD feels helpless to some degree, particularly if experiencing recurring flare ups. However, it is important to remember that these feelings of helplessness are normal and remember that everything you can do to manage your condition helps. The tips on the following page might help you to keep on track.

What can you do if you have depression?

Not surprisingly, severe or ongoing stress can often lead to depression.

When a person is depressed you might notice changes such as withdrawal or lack of enjoyment in activities or not getting things done. A person may experience sadness, irritability, guilt or worthlessness and say things like “it’s all my fault” or “life isn’t worth living”. They may experience physical symptoms including changes in appetite or sleeping more or less than usual.

If these changes occur consistently for a period of two weeks or more the symptoms may be an indication of depression. If you feel that you or someone close to you may be depressed, speak with your medical team about how to access helpful resources in your area.

Treatment for depression can include psychological treatments or anti depressant medicines, or both. It is important to know that anti depressant medicines may take four to six weeks before symptoms improve. Also, some medicines may have unwanted side effects in the short term, such as increased anxiety, nausea or dizziness. People may also experience some difficulty sleeping or sexual difficulties. Most of these symptoms are likely to be short lived but it is important to advise your doctor if they persist or if you are worried about them.

Medicare rebated services are available if a GP refers you to a mental health professional for treatment for anxiety or depression.

Some people with COPD experience depression. If you believe this is you, speak to your doctor about support available to help.



How can you reduce stress?

1. **Establish a routine.** Having a regular routine helps maintain balance and increases your sense of control. In your routine, you should include activities you need to do as well as fun activities that you can look forward to.
2. **Eat well and drink plenty of water.** Your body will perform best when you eat well and drink plenty of water. However, if you have been advised to restrict fluids, you should follow this advice.
3. **Exercise regularly.** Talk with your pulmonary rehabilitation facilitator about the type, frequency and intensity of exercise that is right for you. Find out how to upgrade your exercise program as you improve, and plan regular exercise into your routine. If possible, exercise earlier in the day so as not to disturb your sleep.
4. **Get plenty of sleep.** Establish a regular bedtime. A warm bath, shower or milk drink before bed may improve your sleep. If you can't get to sleep after twenty minutes of being in bed, get out of bed and do a quiet activity until you feel tired.
5. **Limit your use of alcohol and other drugs.** Many people use drugs and alcohol to help manage their stress. For example, some people use alcohol and cigarettes to calm down and other people may use coffee, cola or energy drinks to get themselves going. However, drugs and alcohol can have harmful effects on people and can result in dependence.

6. **Maintain your social network.** People with chronic conditions who have few friends and don't get out much may have worse health outcomes. Getting out and catching up with friends is important and you should plan to do this regularly.
7. **Join a local patient support group.** Contact Lung Foundation Australia to find out about patient support groups near you (phone: 1800 654 301 or website: www.lungfoundation.com.au). If a patient support group has not been established in your area, you may be able to work with Lung Foundation Australia to start one.
8. **Maintain interests and hobbies.** Often people who have chronic conditions let go of interests and hobbies because they believe the effort outweighs the benefits. Participating in enjoyable activities can give life meaning and can help you maintain and enhance your skills and abilities.
9. **Be aware of automatic or unhelpful thinking.** When life is busy or stressful, you may respond to events without stopping to consider your response. Before responding, stop and take some deep breaths, count to 10, or go for a short walk and consider whether you need to respond and how you will respond.
10. **Planning and time management.** People who plan how they will apply the skills they have learnt in pulmonary rehabilitation to their home or work life are more likely to use these skills in their daily lives. Effective time management is essential for maintaining your health, work, social and home life. Spread tasks, or parts of tasks, across several days, and build time into your schedule for unexpected events.
11. **Communicate effectively.** Effective communication includes both speaking and listening. Often when you feel under pressure, you can spend all your time speaking or thinking about what you want to say rather than listening. Take the time to listen to what is being said before responding. Assertive communication requires honest and direct discussion that describes the problem, the effect and the solution.

12. **Practice relaxed breathing.** When stressed, or experiencing strong emotions most people tend to breathe faster and shallower; this type of breathing can lead to a feeling of breathlessness and sometimes panic breathing. People who have COPD can minimise the risk of becoming breathless during times of stress or high emotion, by using the relaxed breathing techniques (see chapter 12).



Why is relaxation practice important?

Scheduling time to relax in your daily or weekly routine is important. Relaxation can be formal, such as guided relaxation practice, or informal, such as watching football or listening to music. Formal relaxation practice helps to:

- Increase your metabolism.
- Slow your heart beat.
- Relax your muscles.
- Slow your breathing.
- Lower your blood pressure.

If you are interested in finding out more about formal relaxation practice, ask your pulmonary rehabilitation co-ordinator for a tip sheet on relaxation. You can also find CDs in bookstores or in your local library or audio downloads on the internet that will guide you through different types of formal relaxation exercises.

How can you reduce the number of crisis events and manage them?

Reducing the number of crisis events

- The chance of crisis events occurring due to ill health should be reduced if you use your medicine and inhalers appropriately, and remember to eat well and exercise regularly.
- The number of crisis events occurring due to injury, muscle strain or physical exhaustion should be reduced if you increase your exercise tolerance and practise your energy conservation skills.
- The number of crisis events occurring due to stress should be reduced if you practise your relaxation techniques and improve your communication and problem solving skills.

Managing crisis events

When a crisis event does occur, and you find yourself getting emotionally upset, you will need to decide what you can do to avoid the situation from becoming worse or how you can reduce the emotional impact

of the event. The following strategies may help you manage crisis events:

- Become aware of your expectations. In the past, if a similar crisis event went from bad to worse, it doesn't mean that the current event will also go from bad to worse.
- Become aware of the language you are using and replace unhelpful thoughts with more helpful thoughts. For example, rather than thinking your weekend was a disaster, recognise that it rained on the weekend and, as a result, you were unable to do what you wanted to do.
- Protect yourself against becoming too stressed by developing a plan to deal with a difficult situation. You can mentally rehearse what you might do or say before a potentially challenging event occurs. You can also review how you managed after the event and create options for how you might handle a similar situation if it happens again.
- Don't forget to practice relaxation techniques and use relaxed breathing (see chapter 12).



Intimacy and COPD

This chapter will help you to understand:

- How you can maintain and improve intimacy and sexual activity

Intimacy and Sexual Activity

Many people who have chronic lung conditions, and their partners, have concerns about the effect of sexual activity on their lungs. Sexual activity is not harmful to your lungs, and resuming intimacy and closeness with your partner can help to decrease feelings of loneliness and isolation.

Your lung disease does not directly affect your sexual ability. However, COPD can have an effect on your physical health, such as becoming more short of breath, and perhaps your emotional health, such as feeling anxious, depressed, or lonely. Physical and emotional factors can affect your sexual ability. The fear of becoming short of breath may lead to avoidance of sexual activity or an inability to maintain sexual arousal.

Medicines, such as bronchodilators and steroids that you take for your lung conditions, have not been documented to cause difficulties with sexual functions. Medicines for blood pressure, diuretics, and anti depressants may affect sexual drive and function. If you experience difficulties that interfere with intimacy, talk with your GP or nurse about medicine effects or the need for increased oxygen during sexual activity.

It is possible to maintain and improve intimate relationships by reducing breathlessness, fatigue, fear and anxiety. Simple considerations include:

Planning for Sexual Activity:

- Incorporate controlled breathing techniques and energy conservation strategies.
- Plan sexual activity when you feel at your best in the day.
- Cough and clear sputum prior to sexual activity.
- Use your reliever puffer before or during sexual activity.
- If you use home oxygen for activities, plan to use the same amount of oxygen during sexual activity.
- Be aware of your symptoms: breathlessness is normal during any demanding activity. If anxiety and fatigue develops, stop and rest briefly.



Pace Yourself:

- Take your time, be relaxed and ensure adequate rests before and during sexual relations.
- Avoid factors that will increase your fatigue, such as heavy meals, alcohol consumption, uncomfortable room temperature and emotional stress.
- Talk to your partner about positions that are more comfortable for you to avoid pressure on the chest and stomach, causing breathlessness.
- Use support from pillows and other furniture.
- Change positions if you become uncomfortable.
- Avoid perfumes, powders and hair sprays that may impact on breathlessness.
- Equally important and less fatiguing forms of intimacy include touch, affection, and physical closeness.

Planning for sexual activity, pacing yourself and communicating with your partner.

Communicate with your Partner:

Communication is a very important part of creating and maintaining emotional intimacy and satisfying sexual relationships with partners. Avoiding talking

about problems may lead to misunderstanding and increase strain in your relationship. It can help to:

- Put your fears on the table. Partners may be less concerned about things that worry us (such as appearance, shortness of breath or technique) than you think.
- Ask about and take time to listen to your partner's thoughts and feelings. It's possible they feel more fear or guilt than you do.
- Use "I" statements when discussing intimacy issues to reduce resistance and create more open communication.
- Be patient and kind with yourself and your partner as you communicate more and explore alternatives.

All intimacy should be for your enjoyment and fun. Laugh and talk about any difficulties either person is experiencing. Be prepared to try different ways to express affection. Tell each other what feels nice. Exploring sensuality and intimacy can open communication and strengthen your relationship.

Pulmonary rehabilitation programs usually provide opportunities to discuss issues related to sexual function, or you can discuss your concerns with your health care professional.



Travel and COPD

This chapter will help you to understand:

- What you need to know about driving safely.
- How you can plan your travel to prevent health problems.
- What you need to know about air travel.
- What you need to know about travelling with oxygen.

What do you need to know about driving safely?

Many people with COPD continue to drive safely. The following are some considerations to ensure your safety and that of others.

- COPD may affect your ability to drive safely, and could result in a crash.
- Drivers who develop a permanent or long term medical condition that may negatively affect their ability to drive safely must report their condition to the Department of Transport as soon as it develops.
- Talk to your doctor about your medical condition and any potential impact this may have on your ability to drive safely. They may provide a medical certificate stating your fitness to drive, or any conditions under which you can drive.
- Low oxygen levels or increased carbon dioxide levels may lead to poor judgement, drowsiness and reduced concentration.
- Driving ability may be affected by severe coughing fits which may lead to loss of consciousness.
- Oxygen therapy can enhance cognitive performance, longevity and wellbeing in those with chronic lung disease. If you have been

prescribed long term oxygen you should clarify with your doctor about using oxygen while driving.

- Make sure the oxygen concentrator or cylinder is secured in the car so that it doesn't pose an additional safety risk in case of a crash.
- Daytime sleepiness, sleep apnoea and other sleep disorders have the potential to impair driving performance and safety and pose a risk of crashing. Consult your doctor and seek advice about precautions when driving.

How can you plan your travel to prevent health problems?

Travel related health problems arise from a variety of factors related to your travel environment eg. holiday destination, types of activities, food and water quality.

Travel related health problems can also arise when a pre-existing medical condition worsens during travel.

Fortunately most travel related problems can be prevented with careful advance planning. Consult your doctor or travel medicine clinic so that a travel plan can be discussed in detail.

Consider the destination and how the following might affect your underlying health condition.

Countries/Regions visited	Air quality	Water and food quality	Planned activities are consistent with usual levels
Type of accommodation and facilities available	Altitude	Accessing health care Any differences in electrical outlets and voltage	Season of travel: hot/cold/humidity
Check for any epidemics	Flexible tickets	Check in early Arrive before darkness	

Other suggestions:

- Take medical documents with you/have your GP liaise ahead with major health centres. Map out phone numbers of medical services.
- Have travel insurance or access to health care.
- Insurance can be difficult for people with chronic disease. Some countries have reciprocal health care with Australia - refer to the following websites:
 - <http://medicareaustralia.gov.au/public/migrants/travelling/index.jsp>
 - <http://www.smarttraveller.gov.au/index.html>
- Take plentiful supply of medicine and health equipment eg. relievers, puffers, oxygen tubing, masks, electrical adaptors, batteries.
- When driving in Australia, the National Public Toilet Map, provides information on where the nearest facility is (www.toiletmap.gov.au).

General Problems Caused by Commercial Travel

- Dryness of air.
- Reduced mobility and potential DVT (blood clots) – those with chronic disease such as COPD would be advised to wear compression sockwear for long flights.
- Proximity to others and risk of infections.
- Long periods of travel can disturb your 24-hour clock – sleeping, eating, taking medicines.
- Stress of navigating busy airports, unknown roads.

Although air travel is safe for the majority of people, people with COPD may be at risk due to the decrease in the concentration of oxygen in humidified air.

Accommodation considerations

- Try to avoid places that cannot provide smoke free restaurants and accommodation.
- If you need portable oxygen, check that your accommodation provider will allow oxygen cylinders to be delivered and stored on their premises.
- Check access to the room. Do you need to climb flights of stairs to get there, or is there a lift?

What do you need to know about air travel?

Although air travel is safe for the majority of people, people with COPD may be at risk due to the decrease in the concentration of oxygen in humidified air.

Some people with COPD may require supplementary oxygen when travelling by air, even though they do not usually need it at home. Your doctor can arrange for a test (High Altitude Simulation Testing) to assess your oxygen requirements when travelling by air.

Preparing for airline travel

- Visit your doctor several weeks or months before travel, to check if you will need oxygen during flight. If you do, check with your airline before you book your flight, as not all airlines provide easy access to oxygen facilities.
- Learn what your oxygen needs will be while flying, and while in terminals. Airlines do not provide oxygen on the ground. Speak with your doctor and other health care team members about arrangements to supply oxygen for each part of the trip. Remember to bring enough batteries and power adaptors, masks, and tubes for use during your trip.

- Most airlines require a Travel Clearance Form (MEDIF form) or a letter from a doctor outlining your condition, approval for air travel, need for oxygen in-flight, specific information of oxygen flow rate. Bring enough copies for all flights.
- Make sure you have adequate supply of your usual medicines for the trip.
- Carry multiple copies of your prescriptions in case luggage is delayed, lost or stolen.
- If prescribed, carry relievers and puffers in your hand luggage.
- Oxygen policies and charges can vary depending on the airline. Make sure you check with the airlines about their requirements and available help for travellers with medical conditions.
- Travellers requiring CPAP may need a letter from their doctor for equipment to travel in cabin as extra hand luggage.
- Discuss risks and management of potential deep vein thrombosis. This may occur as a result of reduced activity during prolonged travel.



Oxygen policies and charges can vary depending on the airline. Make sure you check their requirements and available help for travellers with medical conditions.

What do you need to know about travelling with oxygen?

There are two important considerations:

- How do you safely transport your oxygen supply, whether you have a concentrator or portable cylinders?
- Can you use portable oxygen whilst in transit?

Transporting home concentrators

A home oxygen concentrator is transportable (although heavy) and can normally be taken away with you. It is important to talk to your supplier to make sure it can be removed from the home and if it can be, how to transport it safely. Here are some general guidelines:

- Concentrators must be carried upright. They may be damaged if transported lying flat or on their side.
- If travelling by car, put the concentrator in the boot if possible, or on the back seat restrained by a seatbelt.
- Check with the airline or travel provider to make sure they will allow your portable concentrator on board as hand luggage and ask about the extra cost. It may be cheaper and easier to hire one and have it delivered to where you are staying.

Transporting portable cylinders

- Ask your supplier for instructions on how to safely transport your oxygen cylinders.
- Check with the airline or travel provider to ensure they will allow your cylinders on board as hand luggage. Alternatively arrange to hire cylinders at your destination.
- Portable cylinders should not be taken overseas, as other countries may not be able to fill them.

Using oxygen during your journey

Portable oxygen cylinders

- Many airlines do not allow you to take your own portable oxygen cylinders on board. Instead you may need to hire an aircraft approved oxygen cylinder or arrange in-flight oxygen through the airline.
- If you are using the airline's own in-flight oxygen equipment, they may not allow you to take it off the plane. So, if you have a stop-over on your journey, you will probably need to arrange a different oxygen supply for the time you spend on the ground in between flights. Direct routes are easier for this reason.

Portable concentrators

- Airlines have an approved list of portable concentrators for use on board planes, which can then be used during stop-overs. It is essential to check the airline you are travelling with well in advance.
- You may need to book a seat near an appropriate power source so the concentrator batteries can continue to charge in transit. This is especially important for long journeys.

Lung Foundation Australia has a booklet "Home Oxygen" and a "Fitness to fly" fact sheet that provides more useful information.

Call 1800 654 301 or visit the website, www.lungfoundation.com.au/patient-support/living-with-a-lung-condition/oxygen/.



Community support services

This chapter will help you to understand:

- How you can use community support services.
- Where you can seek or access community support services.
- What a patient support group is.
- What your transport options are.
- What other community support services may be helpful.

How can you use community support services?

- Be an active participant in your care.
- Learn about your lung condition and learn how to manage and adapt to it.
- Benefit from the knowledge and experience of other people who have lung conditions.
- Build your own support network to help manage your health.
- Plan ahead and use available services as you need them.

Where can you seek or access community support services?

1. From your team of **health care professionals**, which may include:
 - A local doctor or respiratory physician.
 - A community pharmacist.
 - A community health centre.
 - Your local council.
 - A nurse, such as a community health or respiratory nurse.
 - Allied health care professionals, such as a physiotherapist, dietician, social worker, psychologist, occupational therapist or speech pathologist.
2. From **Lung Foundation Australia** (phone: 1800 654 301 or website: www.lungfoundation.com.au), which may include:
 - Patient information resources.
 - Information on local pulmonary rehabilitation programs, patient support groups and community exercise programs (maintenance).
3. From your local **Commonwealth Carelink Centre** (phone: 1800 052 222), which provides free information about local community aged care, disability and support services.
4. From the **Commonwealth Respite and Carelink Centre** (phone: 1800 059 059), which provides information and options about respite care and other support services for carers, such as:
 - Respite care in emergency and short term planned care situations.
 - Assistance in locating and booking residential respite.
 - Access to an emergency respite service 24 hours a day.



What is a patient support group?

A patient support group is a group of people who have common interests and needs. Lung Foundation Australia supports a network of support groups for people who have lung conditions, and their carers and family.

What do patient support groups do?

When you join a patient support group, you can expect to benefit from a range of possible activities from social support to special seminars to online support chat rooms.

How you can benefit from a patient support group

Joining a patient support group allows you to:

Discuss the information you have learnt from your doctor and other health care professionals, as sometimes the information is difficult to remember or confusing.

- Access new information on your lung condition.
- Share your experiences in a caring environment.
- Participate in pleasurable social activities.
- Change the way you think about your condition.
- Help your carer to understand your condition.

Have you ever experienced the satisfaction of helping someone else in distress? Sometimes,

focusing our energy on helping others is the best therapy for overcoming our own troubled feelings.

There are people who need your support and friendship.

Who will attend the patient support group?

You will meet ordinary people, from all different working and ethnic backgrounds. They will share with you a common personal interest in managing their lung condition, whether they are a patient or a carer.

Group members will also have a wide variety of social and lifestyle interests.

Where and when do patient support groups meet?

Most groups have regular meetings that are held at a community or neighbourhood centre, or a meeting room at a local hospital. Venues with reasonable transport access are normally chosen.

How much does participating in a patient support group cost?

Membership of a patient support group normally involves a small annual fee and perhaps a gold coin at meetings to cover the costs of membership services, such as postage, photocopying and meetings. These fees are always kept to an absolute minimum.

How do you join a patient support group?

Lung Foundation Australia operates an Australia-wide network of affiliated patient support groups.

To find out about patient support groups in your area, contact Lung Foundation Australia (phone: 1800 654 301, or website: www.lungfoundation.com.au).

What are your transport options?

Options for transport will depend on what transport is available in your local area. Your local council and community health centre will be able to provide details of the transportation services within your community.

Options may include:

- Disability parking permits (for more information, see your GP or occupational therapist).
- A taxi subsidy scheme with reduced taxi fares (for more information, see your GP).
- An ambulance service at reduced cost for transport to and from medical appointments (for more information, talk with your local ambulance service).
- A Home and Community Care Program (for more information, talk with your local community health centre).
- A Patient Transit Scheme that provides financial help for travel and accommodation expenses for people from rural, regional and remote areas in some parts of Australia when travelling to the closest specialist treatment centre. Patients should make arrangements with a means test clerk, social worker or welfare officer at their local hospital before travelling.

What other community support services may be helpful?

1. The **Department of Veterans' Affairs** can provide financial, medical, transport and homecare assistance for those people who have served in the armed services. The assistance available includes the following options:
 - Gold Card. Veterans who have served for their country and who are deemed suitable



for this benefit are eligible for a full range of health care services.

- White Card. Veterans who have served their country are eligible for compensation related to their service in the forces. Australian veterans are eligible for Veterans' Home Care; however, British or other overseas veterans are not eligible for Veterans' Home Care.
- Orange Card. Eligible veterans can access the range of pharmaceutical items available under the Repatriation Pharmaceutical Benefits Scheme.

For more information contact Veterans' Home Care (phone: 1300 550 450).

2. The **Home and Community Care Program** provides government funding for the frail aged and young disabled people, and includes the following services:
 - Medical Aids Subsidy Scheme.
 - Meals on Wheels.
 - Community Agencies (for example, Queensland Health Primary and Community Health Services, Blue Care™, Spiritus and Ozcare).
 - Palliative Care Services.
 - Home Assist Secure (Queensland Government Department of Housing).

- Aged Care Assessment Service.
 - Community Aged Care Packages.
 - Day or Respite Care.
3. The **National Smoking Quitline** (phone: 137 848) provides assistance if you wish to quit smoking.
 4. **Will preparation do it yourself kits** are available for purchase if you wish to prepare a will. Alternatively, speak to a solicitor or a Public Trustee in your state.
 5. **Counselling and information services**, such as:
 - Lifeline (phone: 131 114)
 - Centacare (located in your capital city)
 - Suicide Call Back Service (phone: 1300 659 467)
 - Beyond Blue Info Line (phone: 1300 224 636)
 - The Shed OnLine (www.theshedonline.org.au)
 - Carer's Australia (phone: 1800 242 636)
 - Asthma Foundation Australia (phone: 1800 645 130).
 6. **Financial support services** such as Centrelink Financial Services 13 23 00; Financial Counselling Service 1800 007 007.
 7. **Legal and advocacy support services** contact the Legal Aid Service and Public Trustee Office within your State or Territory.
 8. **Relationship support services** Relationships Australia 1300 364 277 and Mensline 1300 789 978.
 9. **Accommodation support services** contact the Department of Housing within your State or Territory for information and referral to appropriate agencies including Homelessness Information Services. If your issues are related to a private rental property you may wish to contact your local Tenant Advice and Advocacy Service – refer to your local phone directory for your nearest service contact details.



Frequently asked questions

This chapter will help you to understand the following frequently asked questions:

- Should I be immunised for the flu and/or pneumonia?
- What tests can be done to assess my lungs?
- What is Lungs in Action?

Should I be vaccinated for the flu and/or pneumonia?

Unless told otherwise by your doctor (for example, you are allergic to eggs), you should receive immunisations for both the flu and pneumonia.

The flu vaccine is available each year and you should be immunised every year. It has been shown to reduce by 50% serious illness, hospitalisation and death in patients with COPD. As there are no live viruses in the vaccine, you will not get the flu from injection of the vaccine. Like any injection, injection of the flu vaccine may make your arm tender for a short period of time. Other side effects are minor and include mild fever and joint pain.

Immunisation against pneumonia (PneumoVax® 23) is recommended for those at high risk of serious pneumococcal disease, such as those with COPD. This should be given no more than five yearly. After two vaccinations (over 5 years apart), you should discuss with your doctor whether further vaccinations should be given. Like the flu vaccine, there are no live viruses in the pneumonia vaccine; however, injection of the pneumonia vaccine may make your arm tender for a short period of time.

What tests can be done to assess my lungs?

There are many tests that can be done to find out if your health problem is related to your lungs. These tests, and what they are used for, are listed below:

- Respiratory function tests are breathing tests to find out how your lung function compares with people who are similar to you but who do not have lung conditions. Spirometry, gas transfer tests and lung volume measurements may all be done as part of a complete test of pulmonary function or each measurement may be done alone. These tests are discussed in detail in chapter 4 'Lung function tests'.
- Lung function screening tests - these screening tests use a simple hand-held device that will quickly determine whether you are at risk of COPD and therefore would benefit from having a full spirometry test done. These devices (Piko-6 and COPD-6) are used by some general practitioners and pharmacists.
- A chest X-ray takes a picture of your lungs and is a routine test for evaluating COPD. A chest X-ray will show the lungs as well as the heart and several major blood vessels. Chest X-rays are useful if other conditions, such as pneumonia or lung tumours, are suspected.

What other tests may be useful?

- A computed tomography (CT) scan can take many small specialised pictures of the lungs. Although a CT scan is not routinely performed, it can provide more detail than a chest x-ray.
- An arterial blood gases (ABG) test is a blood test that measures how efficient your lungs are at bringing oxygen into the blood and removing carbon dioxide from the blood. As an ABG test requires withdrawing blood from an artery, this test can be more painful than a standard blood test.
- An oximetry test is a way of indirectly measuring oxygen levels in your blood. This test is not painful and is commonly used to measure oxygen saturation, which indicates how much of the oxygen in your body is in red blood cells. However, as this test can be less reliable than ABG, ABGs will be used when a more accurate measure of oxygen levels is required, such as when deciding whether home oxygen is required.
- A sputum test is used to find out what type of infection is in your sputum and which antibiotics would be most effective against that infection.
- Exercise tests are done to stress your heart and lungs. Exercise testing will usually be performed as

a walking test or on an exercise bike. These tests can be done in an exercise laboratory, a gymnasium or on a walking track. In the laboratory, you will usually be asked to breathe through a mouthpiece connected to a machine. This machine measures how much effort it takes you to exercise. You may also be connected to heart and oxygen monitors.

What is Lungs in Action?

Lungs in Action is a community-based exercise class designed specifically for those with COPD or other chronic respiratory conditions. The program is appropriate for people who have completed pulmonary rehabilitation and will help you maintain the gains you achieved in your rehabilitation program. It is also suitable for some people with heart failure. Each Lungs in Action class is developed in conjunction with the pulmonary rehabilitation coordinator.

Many people find that Lungs in Action helps them continue on their exercise program in a supportive and familiar environment.

Ask your pulmonary rehabilitation coordinator if there is a Lungs in Action class associated with their program. Or call Lung Foundation Australia at 1800 654 301.



Resources and support available from Lung Foundation Australia

Lung Foundation Australia is here to help. We are a national charity providing information and support to those affected by lung disease. The following are some of the resources developed for those with COPD. All these resources can be found on our website www.lungfoundation.com.au or can be ordered by calling 1800 654 301.

Resources

COPD – This fact sheet outlines in simple language the most important facts you need to know about COPD.

COPD – The Basics – This resource has been developed for those people who have recently been told by their doctor that they have COPD. It will help you to understand more about COPD and what to expect from living with this condition.

Home Oxygen – This resource has been developed for those people with a chronic lung condition, who have recently been prescribed home oxygen therapy, or may be prescribed it in the near future.

Talking with your Doctor about COPD – This fact sheet gives some tips about how to get the most out of your appointments with your doctor.

COPD Action Plan – Take a copy of a COPD Action Plan with you to your doctor and fill it out together.

Fitness to Fly – Many patients living with lung disease have an increasing yearn to travel and this article will help you to understand the possible risks of air travel and whether you are “fit to fly”.

Pulmonary Rehabilitation Factsheet – This fact sheet outlines the benefits of pulmonary rehabilitation and answers frequently asked questions.

Electronic LungNet News – Published on a quarterly basis, this is a free newsletter which provides useful articles on lung health and a wide range of lung disease.

Lung Foundation Australia also has a large range of educational flyers related to the lungs, lung health and respiratory disease. Visit the website and look under patient educational material.

Patient Support

In addition to the wide range of educational material available to those with lung disease, Lung Foundation Australia provides a range of support services. For further information on how to access this support, please call our Information and Support Centre on 1800 654 301.

All the resources developed by Lung Foundation Australia can be accessed on the website at www.lungfoundation.com.au or by calling 1800 654 301.

Information and Support Centre – Free-call 1800 654 301

The Information and Support Centre can help you to find out more about chronic lung disease and the help that is available to you.

The Centre can be contacted during office hours on weekdays on free-call 1800 654 301 or enquiries@lungfoundation.com.au

Patient Support Groups

Located in all states and territories, Patient Support Groups meet regularly to provide a welcoming, informal environment for those with a lung condition, their families and/or carers. Lung Foundation Australia maintains a list of groups in each state and territory and can link patients up with a group nearby, or, if there is no existing group provide help to start one.

Pulmonary Rehabilitation Programs

Lung Foundation Australia maintains a list of programs in each state and territory, including contact details, any required referral and dates and times of classes.

Education Days

Held annually in capital cities and regional areas these Better Living with Your Lung Disease Patient Seminars provide an opportunity for patients to hear first hand from health professionals about the latest developments in lung health.

Lungs in Action

Lungs in Action is Lung Foundation Australia’s community-based exercise program. Call us to find a program nearest you.



Love Your Lungs club

The ‘Love your lungs’ supporters club is a great way to show people with lung disease how much you care. By joining the club you are helping Lung Foundation Australia drive research, patient support, and health professional programs which help the entire community.

The club is for everyone - patients, families and friends, so become a ‘Love Your Lungs’ member today.

Call 1800 654 301 or visit the website, www.lungfoundation.com.au/supporter-membership



How you can support Lung Foundation Australia

Lung Foundation Australia receives no on-going Government funding to support our core activities and therefore we rely on financial sponsorship and support from individuals, businesses and industry, donations and bequests, as well as our own fundraising events and initiatives. Here are some ways you can help support Lung Foundation Australia:

Become a Financial Member

Make a Donation – A donation to Lung Foundation Australia will assist us to achieve our vision and goals. All donations over \$2 are tax deductible.

Make a Bequest – A very positive and personal commitment by you, which will help us to maintain and expand our lung health programs.

Hold a Fundraiser – If you would like to hold a fundraiser on behalf of Lung Foundation Australia, please let us know. We have lots of tips and tricks to help you along the way.

References

Primary references

American College of Chest Physicians

Website: www.chestnet.org

Lung Foundation Australia

Website: www.lungfoundation.com.au

Lung Foundation Australia and

Australian Physiotherapy Association.

Pulmonary Rehabilitation Toolkit. 2006.

Available from: www.pulmonaryrehab.com.au

Yang IA, Dabscheck E, George J, Jenkins S,

McDonald CF, McDonald V, Smith B, Zwar N.

The COPD-X Plan: Australian and New Zealand

Guidelines for the management of Chronic Obstructive

Pulmonary Disease 2016. Version 2.46, June 2016.

European Respiratory Society

Website: www.ersnet.org

Other references

Austrroads. Assessing fitness to drive for commercial and private vehicle drivers: medical standards for licensing and clinical management guidelines. 2003.

Australian Medicines Handbook.

Available from: www.amh.net.au

Branick, L. Integrating the Principles of Energy

Conservation During Everyday Activities.

Caring Magazine. 2003; Jan:30-31.

British Thoracic Society Standards of Care Committee.

Managing passengers with respiratory disease planning

air travel: British Thoracic Society recommendations. *Thorax* 2002; 57: 289-304.

Continence Foundation of Australia

Website: www.continence.org.au

Ferreira IM, Brooks D, Lacasse Y, Goldstein RS, White J. Nutritional supplementation for stable chronic obstructive pulmonary disease. *Cochrane Database Syst Rev.* 2005; Apr 18 (2):CD000998.

Fletcher C, Peto R. The natural history of chronic airflow obstruction. *Br Med J.* 1977;1:1645-8.

Flinders Self-Management model. Available from:

www.flinders.edu.au/medicine/sites/fhbhru/self-management.cfm

Garcia-Aymerich J, Lange P, Benet M, Schnohr P, Antó J. Regular physical activity reduces hospital admission and mortality in chronic obstructive pulmonary disease: a population based cohort study. *Thorax.* 2006;61:772-8.

Jones et al, *Osteoporosis Int.* 1994; 4: 227-282.

König P. Spacer devices used with metered-dose inhalers. Breakthrough or gimmick? *Chest.* 1985;88(2):276-84.

Matsuyama W, Mitsuyama H, Watanabe M, Oonakahara K, Higashimoto I, Osame M, et al. Effects of omega-3 polyunsaturated fatty acids on inflammatory markers in COPD. *Chest.* 2005;128:3817-27.

National Asthma Council Australia

Website: www.nationalasthma.org.au

Nutrition Education Materials Online. Texture modification soft diet. Available from: www.health.qld.gov.au/nutrition/resources/txt_mod_a.pdf

Nici L, Donner C, Wouters E, Zuwallack R, Ambrosino N, Bourbeau J, et al. American Thoracic Society/European Respiratory Society statement on pulmonary rehabilitation. *Am J Respir Crit Care Med*. 2006;173:1390–413.

No fuss feeding and swallowing centre. Adults: Dry Mouth. Available from: www.nofussfeeding.com.au/adults

Osteoporosis Australia
Website: www.osteoporosis.org.au

Rashbaum, I, Whyte, N. Occupational Therapy in Pulmonary Rehabilitation: Energy Conservation and Work Simplification Techniques. *Physical Medicine and Rehabilitation Clinics of North America*. 1996; 7(2):325-340.

Ries AL, Bauldoff GS, Carlin BW, Casaburi R, Emery CF, Mahler DA, et al. Pulmonary Rehabilitation: Joint ACCP/AACVPR Evidence Based Clinical Practice Guidelines. *Chest*. 2007;131: 4S–42S.

Romieu I, Trenga C. Diet and obstructive lung diseases. *Epidemiol Rev*. 2001;23:268–87.

Ruffin R and Adams R. How to treat. Asthma in the elderly. *Australian Doctor*. 1 April 2005. Available from: www.australiandoctor.com.au/htt/pdf/AD_HTT_025_032_APR01_05.pdf

Shand, D. The assessment of fitness to travel. *Occupational Medicine* 2000; 50 (8):566-571.

Smit HA. Chronic obstructive pulmonary disease, asthma and protective effects of food intake: from hypothesis to evidence? *Respir Res*. 2001;2:261–4.

Velloso, M, Jardim, J. Functionality of patients with chronic obstructive pulmonary disease: energy conservation techniques. *Journal Brazilian Pneumol*. 2006;32(6): 580-6.



Feedback

Queensland Health and Lung Foundation Australia welcome feedback on *Better Living with Chronic Obstructive Pulmonary Disease A Patient Guide*.

This Patient Guide will be reviewed on a regular basis and appropriate changes will be made:

- If scientific evidence supports a change to the advice contained in the Patient Guide.
- According to feedback from patients, carers and managing clinicians who use the Patient Guide.

Feedback can be provided to:

Lung Foundation Australia
PO BOX 1949
Milton QLD 4064
enquiries@lungfoundation.com.au

Disclaimer

The materials presented in this resource are distributed by Queensland Health and Lung Foundation Australia for and on behalf of the Queensland Government and are presented as an information source only. The information is provided solely on the basis that readers will be responsible for making their own assessment of the matters presented herein and are advised to verify all relevant representations, statements and information. The information does not constitute professional advice and should not be relied upon as such. Formal advice from appropriate advisers should be sought in particular matters.

Clinical material published in these pages does not replace clinical judgement. Treatment must be altered if not clinically appropriate.

Queensland Health and Lung Foundation Australia do not accept liability to any person for the information or advice provided in this resource, or incorporated into it by reference or for loss or damages incurred as a result of reliance upon the material contained in this resource.

In no event shall Queensland Health and Lung Foundation Australia be liable (including liability for negligence) for any damages (including without limitation, direct, indirect, punitive, special or consequential) whatsoever arising out of a person's use of, access to or inability to use or access this resource or any other resource linked to this resource.

Better Living with Chronic Obstructive Pulmonary Disease *A Patient Guide* is a funded project of the Statewide Respiratory Network Queensland Health and Lung Foundation Australia, COPD National Program.



LUNG FOUNDATION
AUSTRALIA

"When you can't breathe...nothing else matters"®



Queensland
Government



Scan with your
smartphone
QR reader.

Lung Foundation Australia

PO Box 1949, Milton Queensland, 4064
1800 654 301 | enquiries@lungfoundation.com.au
www.lungfoundation.com.au