

Emphysema and COPD

Chronic obstructive pulmonary disease (COPD) is a serious long-term lung condition that limits airflow causing shortness of breath.¹ It worsens over time and is largely not reversible.² Smoking is the main cause of COPD.^{3,4}

COPD includes these diseases:

- emphysema
- obstruction of the small airways.^{1,4}

Chronic bronchitis also commonly co-occurs with COPD.¹

What is emphysema?

Emphysema, or 'lung rot', is a disease that destroys the walls of the tiny air sacs in your lungs slowly over many years. These air sacs—called alveoli—allow oxygen to pass into your blood and remove carbon dioxide from your body. When the walls of the alveoli are destroyed, it reduces the amount of lung tissue that oxygen can pass through. The tiny airways that lead to the alveoli can also collapse due to damage from smoking. This decreases the amount of oxygen transferred to your blood. Your lungs cannot repair this damage.⁵⁻⁷

The irritants in tobacco smoke also slowly destroy the normal lung structure. Your lungs become less elastic, making it harder to breathe in and out.^{1,4}

The main symptom of emphysema is a feeling of breathlessness that gradually becomes more severe over the years.⁶ The damage to your lungs occurs for many years before the effects are felt. While it does not result in as many deaths as lung cancer, it is a very disabling disease.^{6,8}

Almost all cases of emphysema are from cigarette smoking and it mainly affects older people who have smoked for many years. Most life-time smokers of around twenty cigarettes per day have some degree of emphysema.^{5,9} About 40% of heavy smokers develop substantial lung destruction.⁴

What is obstruction of the small airways?

Small airways obstruction is a disease that occurs when your lungs become inflamed from cigarette smoke. It results in the narrowing of your lungs' small airways (small bronchi and bronchioles) that lead to your air sacs. At the same time, mucus collects in your small airways, further limiting the air flow to your air sacs.¹ The main symptom is breathlessness, as your small airways are less able to increase the flow of air when you need it, for example, when walking up stairs.⁴

What is chronic bronchitis?

Chronic bronchitis is defined as coughing with phlegm (mucus) that occurs for three months in each of two successive years.¹ Your lungs become inflamed and produce extra mucus in the large and small bronchial airways in response to constant irritation by tobacco smoke.^{1, 4} People with chronic bronchitis are more likely to have lung infections.^{1, 10}

Chronic bronchitis often co-occurs with COPD. Chronic bronchitis doesn't always affect air flow, but it can if the inflammation spreads into your smaller airways.¹ If you have COPD, chronic bronchitis can worsen the disease and increase your risk of hospitalization.¹

How does smoking cause COPD?

Your lungs have a set of defences to deal with particles you breathe in every day, such as dust, viruses or bacteria. Cigarette smoke contains many chemicals that weaken or overwhelm these defences and also cause direct damage to lung tissue.¹

Smoking interferes with your body's method of cleaning out your lungs. Cigarette smoke causes the overproduction of mucus and harm the cilia—tiny hair-like structures that line the airways and clean out dust and dirt.⁵ This means it takes longer to clear mucus and toxic substances from your lungs, increasing your risk of infection.¹

Smoking affects your immune system, causing your lungs to become inflamed.^{1, 4, 11} Your immune system is less able to sense and defend against viruses and bacteria.^{12, 13} Chemicals in tobacco smoke damage the lung cells lining your airways, and that also causes inflammation.^{1, 4, 13} All smokers have inflammation in their lungs.^{4, 7}

COPD gets worse over time

COPD causes shortness of breath that gradually worsens over the years as smoking continues. At first, you may only notice a slight shortness of breath every morning and evening. Then a short walk may be enough to produce breathlessness and wheezing. With further damage, breathing may become a major effort. By the time you feel short of breath, the lungs are already damaged.⁶

COPD is a slow, progressive disease and commonly causes years of sickness and suffering. Patients with COPD are vulnerable to heart and lung failure and other potentially fatal conditions.^{6, 14} The effects of COPD can be more severe in people who have an underlying lung disease, such as asthma.¹²

The damage to lung tissue in COPD is permanent and irreversible. However, doctors can help by prescribing treatment to make life more comfortable for patients with the disease.²

What happens when I quit smoking?

The most important way to prevent and treat COPD is to stop smoking.^{2, 11}

Lung function is measured by how much air you can breathe out during a forced breath.^{1, 4} All adults lose lung function as they age – this is known as age-related lung function decline. But this process occurs earlier and faster among smokers, with some smokers more badly affected than others.^{4, 12} COPD is diagnosed after a significant loss of lung function that can't be reversed.^{1, 4, 12}

The benefits of quitting generally depend on how many cigarettes you smoke, how long you've smoked, and whether you already have COPD. These are the typical benefits of stopping smoking.

- If you don't have COPD, your rate of lung function decline slows down to that seen in people who have never smoked within five years of stopping smoking. However, you will not regain the lung function you have already lost. If you quit before the age of 40, you are not likely to develop COPD.⁷
- If you have mild to moderate COPD, your lung function is likely to improve in the year after you stop smoking. Thereafter, age-related decline in lung function is less than half of that seen in continuing smokers. Quitting prevents or delays the development of severe COPD.⁷
- If you have severe COPD, quitting reduces your rate of lung function decline and you are less likely to be hospitalized due to COPD than a continuing smoker.⁷
- After you quit, your risk of death from COPD is lower compared to those who continue to smoke.^{1, 7}
- Stopping smoking completely is essential. Cutting down the number of cigarettes you smoke per day does *not* reduce your more rapid loss of lung function.¹⁵

Short term benefits

- Within a week of quitting, your cilia may start to recover.¹⁶ For a majority of smokers, stopping smoking improves the lung's cleaning systems after three months.^{17, 18}
- If you quit before developing COPD, your small airways improve after a week and this continues over the following year.^{19, 20} After a year, the inflammation in your lungs may have also decreased.²¹
- Symptoms of chronic bronchitis, such as cough and wheeze, decrease by one to two months after stopping smoking.^{7, 22} Phlegm decreases within a few months. The likelihood of cough and phlegm returns to the level of never smokers within five years.⁷

The earlier you quit smoking, the better for your health.

Who can I talk to about stopping smoking?

- Your **doctor** is an important source of information, particularly if you have an illness, or you are taking any other medicines.
- Your **pharmacist** can give you advice about stopping smoking.
- **Quitline 13 7848**: The Quitline is a friendly, confidential telephone service. Your Quitline counsellor is trained to listen carefully and provide practical advice just for you. You can call the Quitline for the usual cost of a local call from your phone or ask us to call you at no cost (Quitline callback). Talking with a Quitline counsellor can increase your chance of stopping smoking successfully.^{23, 24}

Online resources to help you quit

Quit website www.quit.org.au. Build your personal quit plan with easy-to-find information suited to you. You'll find tips, distractions, a cost calculator and stories from ex-smokers.

QuitCoach www.quitcoach.org.au. QuitCoach is a free web-based computer program that asks you questions and helps you quit by giving free personal advice tailored to your needs.

QuitTxt provides regular SMS messages including tips and encouragement to help you keep on track throughout your quit attempt. To begin, all you need to do is register and complete a brief questionnaire at www.quit.org.au/quittxt.

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