Other tests

There other tests your health care professional may recommend. These include:

- a hypoxic challenge test
- an airway provocation test
- imaging scans

**Hypoxic challenge (fitness-to-fly) test**

**What is it?**

This test simulates the reduced levels of oxygen in the air that you would normally experience during a flight. It’s sometimes called a **fitness-to-fly-test** though it only covers the question of whether oxygen is needed.

**What’s it used for?**

If you live with a long-term lung condition, your oxygen levels may be lower than normal. During a flight, the oxygen level in the air is around 15%, compared to 21% at sea level. The results will help your health care professional decide if you will need extra oxygen if you fly.

**What happens during the test?**

While you’re sitting down, you’ll breathe a low oxygen mixture using a facemask. Your oxygen levels and heart rate will be monitored. At the end of the test, a small blood sample may be taken from your earlobe or your wrist.

If your oxygen levels decrease during the test, your health care professional will add extra oxygen to see if your oxygen levels go back to normal.

**What will the results look like?**

At the end of the test, your doctor can make a decision about your need for oxygen during flight. If during the test your oxygen decreases even after adding extra oxygen, it may be unsafe for you to fly. If your health care professional was able to bring your oxygen to a stable level, they’ll know the amount of extra oxygen you need to be able to fly safely.
Airway provocation tests

What is it?

An airway provocation test measures how sensitive your breathing tubes are to medication that is known to irritate your airways.

What’s it used for?

It may help your health care professional to understand if your current symptoms are caused by sensitive airways. If your airways are more reactive than normal this may suggest asthma.

What happens during the test?

During the test you will do a few simple breathing tests to make sure the effects of the irritable medication given to you are closely monitored.

There are different types of provocative agents. You may be asked to inhale a mist of the medication. This will be increased gradually until your lung function decreases or the last dose is given.

What will the results look like?

If your breathing gets worse quickly, this suggests your airways are very sensitive and react easily to the medication. Your doctor can then decide what kind of treatment is best for you.

Imaging scans

You may be offered a scan so your health care professional can see an image of your lungs and airways:

- **chest X-ray**: a painless procedure that uses X-rays to take pictures of the inside of your chest
- **CT scan**: a CT, or computerised tomography, scan uses X-rays to build a three-dimensional picture of the inside of your body. You will pass through a doughnut-shaped scanner while lying on a flat bed. You will be given an injection in your hand, and the machine will take pictures of your chest and stomach area. The injection contains iodine, so make sure you tell the hospital staff if you are allergic. The scan itself is usually done while you hold a single breath and only takes 10–15 seconds.
- **PET scan**: a PET, or positron emission tomography, scan measures the activity of cells in different parts of your body. The scan creates detailed three-dimensional images of the inside of your body. PET scanners have a flat bed with a large, circular scanner at one end. Before a scan, you'll be injected with a slightly radioactive substance, which can be detected by the scanner. You will be asked to lie down on the table which will slide into the PET scanner. The scan is painless and takes around 30–60 minutes.
- **V/Q scan**: A ventilation-perfusion scan is also called a V/Q scan. It looks at the flow of air and blood in your lungs. You will be asked to breathe in a slightly radioactive gas and you will be given an injection of slightly radioactive material. The scan looks for parts of your lungs that have air in them but no blood supply, which may be the result of a pulmonary embolism.
Looking inside your lungs

If your doctor wants to know more about the inside of your lungs, they might do further tests. These tests help them to diagnose conditions such as lung cancer and mesothelioma.

A bronchoscopy looks at the inside of your airways. A narrow tube is inserted through your nose or mouth, down into your lungs. The tube has a camera on the end so the doctor can see inside your lungs. Your doctor might flush some water through the tubing, to remove cells for laboratory tests. You may be sedated for this test and your throat will be numbed first with a local anaesthetic.

They might want to remove a small piece of tissue or some cells for testing. This is called a biopsy. There are several different types of biopsy. Sometimes a scan or ultrasound is used to help your doctor guide a biopsy needle to the exact area, such as for a CT-guided lung biopsy. A needle is inserted through your skin into your lung using a CT-scan as a guide. You’ll be given a local anaesthetic so the procedure is as comfortable as possible.

A video-assisted thoracoscopic or VATS involves surgery under a general anaesthetic to get a larger piece of lung tissue. A surgeon makes keyhole incisions in your chest to remove tissue samples from your lungs. You’ll stay in hospital for a few days for this test.

More information on having tests

Breathing keeps us alive. It provides the oxygen that our bodies need and removes carbon dioxide, the waste gas that we produce. If you have problems with your breathing, your health care professional may suggest taking one or more tests. These can help to work out:

- if your lungs are working normally, or if there is a problem
- if there is a problem, what type of problem it is
- if there is a problem, how severe is it

Highly-trained health care professionals will run your tests. They will make sure the equipment gives an accurate result and that it is hygienic to use, for example by using a separate, disposable mouthpiece for each person.

Remember:

- The results of tests can be used together with your medical history, symptoms and examination results as well as X-rays and scans to help guide your treatment.
- Different people may need more or less complicated tests. Sometimes the tests need to be done only once to see what the problem is. Sometimes they are repeated to monitor changes over time or response to treatment.
- When you get your results, ask your health care professional to explain them to you. Keep asking questions until you understand what your results mean.
Preparing for your test

When you’re going for a test, you may get a leaflet or an appointment letter with specific instructions. Read them carefully before your test. For some tests, you may be asked:

- to wear loose-fitting clothing, or suitable shoes for a walking test
- to stop smoking for 24 hours before the test (if you smoke, this can alter the results of some tests)
- to avoid eating for some hours before
- to avoid drinking alcohol and caffeinated drinks (like coffee, tea, cola or energy drinks) for some hours before
- not to take your medication for some hours before
- to bring along your medication, such as inhalers

If you’re unsure how to prepare, get in touch with the person who made the appointment for you.

If you've had a chest infection or a flare-up of symptoms and taken drugs such as steroids or antibiotics to treat it, this may affect your test results. If your test appointment is within 4–6 weeks of this, check with your health care professional about going ahead. Remember to tell whoever does your test about your recent chest infection and the drugs used to treat it.

Questions about your test

This information gives general information about breathing and other tests. But you may have more detailed questions. We’ve suggested some questions you could ask when your health care professional suggests you have some tests done or at the test appointment itself:

- What is the test for?
- Who will carry out the test, and where?
- What will happen during the test and how long does it take?
- Do I need to prepare for the test?
- Will there be any side effects and how long will they last?
- How and when will I get the results?