



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

Fitness to Fly

More than four billion people travel by air each year and frequently, the question is asked, "Am I fit 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.

What is the environment like in a modern aircraft?

Commercial aircraft can fly at a height of up to 41,000 feet above sea level. It is not possible to survive at this altitude, so outside air is pumped into the cabin to pressurise it. As cabin pressure is lower than the air pressure at sea level, all airlines follow regulations to ensure that the pressure is maintained at a level higher than 75% of sea level pressure. In general, on longer trips and in larger aircraft, the cabin pressure is kept at a higher level than the minimum allowed. On short flights, like Sydney to Melbourne, the aircraft takes a long time to ascend and then soon descends, so the period of low pressure is actually very short and the risks are small for most people.

What is the effect of these lower oxygen levels?

Without being aware of it, healthy passengers increase their breathing rate to combat the lower oxygen on-board aircraft. They will still experience a fall in oxygen saturation of about 5%, but this is usually without symptoms. This fall is often greater in patients with lung problems but, despite this, only a few report difficulties in breathing during their flight. However, patients who have lower oxygen levels, before they even start the flight, will experience sharp falls in oxygen saturation in the aircraft and will sometimes need oxygen in-flight. Any light exercise, such as walking around the cabin, will decrease oxygen levels further, by another 5-10% and the heart rate will rise.

What oxygen levels are considered risky?

The current international guidelines state that if your oxygen saturation is expected to fall below 85% in-flight, a "High Altitude Simulation Test" should be performed to see whether oxygen is required on the flight and if so, how much oxygen is needed¹. This test can be performed in the lung function laboratory of most major hospitals and simulates the low oxygen environment experienced while flying. It measures any drops in oxygen levels while sitting and performing light exercise e.g. standing up or moving around the cabin. This will allow your specialist to see how low your oxygen levels fall and if you will experience the sensations that might occur during a flight – admittedly for only 20 minutes or so. If oxygen levels do fall below 85%, then we recommend a discussion with your specialist about the risks of flying and whether these risks should be minimised with supplemental oxygen in-flight. As most of the emergencies in-flight are related to heart problems, we tend to recommend oxygen in patients who have both heart and lung problems.

I have a lung disease that is not COPD. Where can I get help?

The guidelines for people living with Chronic Obstructive Pulmonary Disease (COPD) can also be reasonably applied to interstitial lung disease, cystic fibrosis or restrictive lung disease. Patients with asthma will usually be fine and all puffers work well in the aircraft. Patients who have lung disease with lung cysts or a chronic pneumothorax (collapsed lung) require careful, individual consideration.

What if I am unwell when I plan to travel? I am desperate to travel. Should I just take the risk?

Please don't fly when you are not feeling at your best. Many of the reported critical incidents are related to patients who went on a journey when they were unwell. As a rough guide, you should have returned to your usual health for seven days before you fly. From time to time, health professionals encounter a patient who is prepared to accept 'any risk' to travel long distances. Some are at a stage in their illness where the risks seem immaterial and airlines are right to be concerned about carrying these patients. Although rare, deaths in-flight can occur. A serious medical deterioration may require that a flight be diverted at great cost and inconvenience to the airline, crew and other passengers. In complex cases, your doctor may discuss your situation with the Airline Medical Officer who is well informed and will try to accommodate you. However, it is the Captain who has the ultimate responsibility and the final right to refuse to carry you.

Some practical travel advice

- Plan ahead, as it can take time to have the appropriate investigations and medical reviews completed before you travel.
- Consider the destination, not just the flight! What is the altitude? Will heat or humidity be oppressive and cause distress that will affect your enjoyment of your travel experience? Are you travelling to a country with an influenza epidemic?
- Purchase a changeable ticket, just in case you need to delay your plans due to ill health.
- Take all your medical documentation with you. It is likely for overseas travel that you will need a "Medical Fitness to Fly Clearance" completed by your specialist or general practitioner. Make sure you plan ahead and leave enough time prior to your departure to have this documentation completed.
- If you are travelling overseas, ensure that you have travel insurance or access to health care. Insurance can be difficult for those with chronic illnesses but some countries have a reciprocal health care arrangement with Australia that will cover you for emergencies (but not the high costs of medical evacuation if needed). If you limit your travel to Australia, you do have the advantage that the doctor caring for your lungs in an Australian hospital is likely to know your own specialist and be able to discuss your case personally.
- Check in early for your flight.
- If you need oxygen, arrange it well in advance. If necessary, ask for a wheelchair for use within the terminal.
- Request a seat near a bathroom on the plane and if you are on a short flight, use the bathroom in the terminal before you board.
- Ensure you have enough prescriptions and medicines to last you the entire trip as many medicines are difficult to obtain overseas.

What if I need oxygen in-flight?

If you require oxygen in-flight, call your airline well in advance of your trip, or check their website, which should outline the steps that need to be taken to obtain oxygen. The most common source of oxygen supply on aircraft is via a compressed gas cylinder which is stored under your seat. This needs to be pre-ordered and may be supplied by the airline itself (charges may apply), or ordered from the airline's preferred oxygen supplier. Cylinders will usually cost between \$100-200 each, depending on the airline and preferred oxygen supplier. Check with the airline via phone and on their website for guidance and information about the cost.

Most commercial airlines allow portable oxygen concentrators which can be carried with you at all times and stored under the seat in front of you. Check with the airline that your machine is on their list of acceptable medical equipment.

Happily, most patients living with lung disease will be able to travel and to do so safely.

See below for some websites with information about in-flight oxygen:

- <http://www.qantas.com/travel/airlines/oxygen/global/en>
- <https://www.virginaustralia.com/eu/en/information/domestic-and-short-haul-international/oxygen/>
- <https://tigerair.com.au/fly/special-assistance>
- <http://www.jetstar.com/au/en/help/articles/travel-oxygen>

Reference

1. Ahmedzaih S et al. Managing passengers with stable respiratory disease planning air travel: British Thoracic Society recommendations. *Thorax* 2011;66:i1ei30. doi:10.1136/thoraxjnl-2011-200295.

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