

Ear problems are the most common medical complaint of air travellers. The problems may be simple discomfort or temporary pain and hearing loss. This leaflet will help you to understand why these ear problems occur and how they can be reduced.

The ear has three parts:

1. The outer ear - the part you can see and the canal leading down to the ear drum.
2. The middle ear - the ear drum, three small bones, the air space behind the ear drum and the air entry tube (Eustachian tube).
3. The inner ear - inside the head where the nerve endings are found for the organs of hearing and balance.

It is the middle ear which causes discomfort during air travel.

Normally you swallow several times every minute. Air passes up the back of the nose when you swallow and sometimes enters the tube which leads into the middle ear space. The air in the middle ear is constantly being absorbed by its lining. This is replaced by air from the tube. In this way the air is kept at equal pressure on either side of the ear drum allowing it to vibrate when sound enters your ear. If the air pressure on each side of the drum is not equal then your ears will feel blocked.

What causes the air pressure to be unequal:

The back of the nose can be congested, which blocks the entrance to the Eustachian tube. This prevents air from passing into the middle ear. The air already in the middle ear is absorbed, and as no more air is allowed up the tube a vacuum occurs, 'sucking' the ear drum inwards. The drum is unable to vibrate effectively and sounds become muffled. The vacuum effect draws fluid from the lining of the middle ear, which increases the 'blocked up' feeling.

The most common cause of Eustachian tube blockage is the 'common

cold'. However patients who suffer from hay fever or nasal allergies can experience the same symptoms. Many children have repeated 'colds' and 'runny noses' which may prevent the tube from working effectively and can result in persistent fluid in the middle ear.

How Air Travel Causes Problems

Each time the air pressure outside the ear changes it is advisable to swallow or yawn to open the tube and let air into the middle ear to equalise the pressure. You will notice the greatest air pressure changes when an aircraft is descending prior to landing. The air pressure is lower while the aircraft is in flight and it increases nearer the ground. The changes as the plane descends cause a vacuum to form in the middle ear even faster than normal and there is even more need to swallow and let air enter the middle ear. Some pressure changes are unavoidable especially if there is a sudden descent because of air turbulence. You may have experienced similar problems when travelling by train through a tunnel, when diving or when driving in hilly country.

Things You Can do to Help

Clearing the back of your nose is most important so that when you swallow air can pass more easily into the Eustachian tube. There are nasal sprays on the market which can help clear the nose and these should be used an hour or so before descent. Do not make regular use of these sprays, which can cause the nose to become more congested than before. Steam therapy is advised for a few days prior to travel. This may help children who have nasal congestion.

When your nose is clear of congestion keep swallowing during descent. Chewing mints or gum is helpful. Yawning will also help because it is a stronger activator of the tube opening. Try not to sleep during descent as you may not swallow enough to keep up with the pressure changes.

Another way to unblock your ears is to force air into the tube by pinching your nose shut and then swallowing until you feel your ears "pop". Ear plugs will protect the outer ear from sudden pressure changes and reduce the need to swallow so frequently. These may be helpful for small children. Pressure on the outer part of the ear at the front will close off the outer ear canal for a while, which may also help in the short term. Babies cannot equalise the air pressure like adults and it may help if they are sucking on a bottle or dummy during descent.

Reversed Problem: It is important that the outer ear canal is not completely blocked if there is **no** problem with your nose or Eustachian tube, because it will cause unequal pressure possibly resulting in pain and discomfort. This can happen when your ear canal is full of wax.

(Peter J Casano, American Academy of Otolaryngology - Alexandria VA)

If you continue to have ear pain you are advised to see your doctor or ear care trained nurse.

For further information or an appointment please contact:

Primary Ear Care & Audiology Services
Rotherham Community Health Services
Community Health Centre
Greasbrough Road
ROTHERHAM S60 1RY

Tel No: 01709 423207

E-mail: rgh-tr.earcarecentre@nhs.net

If you have any comments or concerns about the care we have provided, please let us know, or, alternatively, you can write to:

Patient Services, The Rotherham NHS Foundation Trust
Rotherham Hospital, Moorgate Road
Oakwood, Rotherham S60 2UD

Telephone: 01709 424461

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Primary Ear Care Centre & Audiology Services



Ears and Air Travel

Innovation in your Speciality, Nursing Times Award 2009
Highly Commended
National Training Award 2006 Regional Winner
Outstanding Achiever, Health & Social Care Awards 2004
National Winner