

## Ears and Altitude

Ear problems are the most common medical complaint of airplane travelers, and while they are usually simple, minor annoyances, they may result in temporary pain and hearing loss. Make air travel comfortable by learning how to equalize the pressure in the ears instead of suffering from an uncomfortable feeling of fullness or pressure.

### Why do ears pop?

Normally, swallowing causes a little click or popping sound in the ear. This occurs because a small bubble of air has entered the middle ear, up from the back of the nose. It passes through the Eustachian tube, a membrane-lined tube about the size of a pencil lead that connects the back of the nose with the middle ear. The air in the middle ear is constantly being absorbed by its membranous lining and re-supplied through the Eustachian tube. In this manner, air pressure on both sides of the eardrum stays about equal. If, and when, the air pressure is not equal the ear feels blocked.

The Eustachian tube can be blocked, or obstructed, for a variety of reasons. When that occurs, the middle ear pressure cannot be equalized. The air already there is absorbed and a vacuum occurs, sucking the eardrum inward and stretching it. Such an eardrum cannot vibrate naturally, so sounds are muffled or blocked, and the stretching can be painful. If the tube remains blocked, fluid (like blood serum) will seep into the area from the membranes in an attempt to overcome the vacuum. This is called "fluid in the ear," serous otitis or aero-otitis.

The most common cause for a blocked Eustachian tube is the common cold. Sinus infections and nasal allergies are also causes. A stuffy nose leads to stuffy ears because the swollen membranes block the opening of the Eustachian tube.

## How can air travel cause hearing problems?

Air travel is sometimes associated with rapid changes in air pressure. To maintain comfort, the Eustachian tube must open frequently and wide enough to equalize the changes in pressure. This is especially true when the airplane is landing, going from low atmospheric pressure down closer to earth where the air pressure is higher.

Actually, any situation in which rapid altitude or pressure changes occur creates the problem. It may be experienced when riding in elevators or when diving to the bottom of a swimming pool. Deep sea divers, as well as pilots, are taught how to equalize their ear pressure. Anybody can learn the trick too.

## How to unblock ears?

Swallowing activates the muscles that open the Eustachian tube. Swallowing occurs more often when chewing gum or when sucking on hard candies. These are good air travel practices, especially just before take-off and during descent. Yawning is even better. Avoid sleeping during descent because swallowing may not occur often enough to keep up with the pressure changes.

If yawning and swallowing are not effective, pinch the nostrils shut, take a mouthful of air, and direct the air into the back of the nose as if trying to blow the nose gently. The ears have been successfully unblocked when a pop is heard. This may have to be repeated several times during descent.

Even after landing, continue the pressure equalizing techniques and the use of decongestants and nasal sprays. If the ears fail to open or if pain persists, seek the help of a physician who has experience in the care of ear disorders. The ear specialist may need to release the pressure or fluid with a small incision in the ear drum.

### How to help babies unblock their ears?

Babies cannot intentionally pop their ears, but popping may occur if they are sucking on a bottle or pacifier. Feed the baby during the flight, and do not allow him or her to sleep during descent. Children are especially vulnerable to blockages because their Eustachian tubes are narrower than in adults.

### Is the use of decongestants and nose sprays recommended?

Many experienced air travelers use a decongestant pill or nasal spray an hour or so before descent. This will shrink the membranes and help the ears pop more easily. Travelers with allergy problems should take their medication at the beginning of the flight for the same reason. However, avoid making a habit of nasal sprays. After a few days, they may cause more congestion than relief.

Decongestant tablets and sprays can be purchased without a prescription. However, they should be avoided by people with heart disease, high blood

pressure, irregular heart rhythms, thyroid disease, or excessive nervousness. Such people should consult their physicians before using these medicines. Pregnant women should likewise consult their physicians first.

## Tips to prevent discomfort during air travel

- Consult with a surgeon on how soon after ear surgery it is safe to fly.
- Postpone an airplane trip if a cold, sinus infection, or an allergy attack is present.
- Patients in good health can take a decongestant pill or nose spray approximately an hour before descent to help the ears pop more easily.
- Avoid sleeping during descent.
- Chew gum or suck on a hard candy just before take-off and during descent.
- When inflating the ears, do not use force. The proper technique involves only pressure created by the cheek and throat muscles.