People with severe colds and sinus infections know that air travel can be painful. During a flight, the air pressure in the sinuses (collections of air within the facial bones) and middle ear must equilibrate with the cabin pressure inside the airplane, which changes during ascent and descent. Certain infections and other conditions can cause blockage in the Eustachian tube (which connects the middle ear to the back of the nose and maintains equal air pressure on both sides of the eardrum) or in the sinus openings, and this restriction to the flow of air can prevent the equalization, or equilibration, of pressure and result in pain. Examples of conditions blocking the equilibration of air pressure in the ears or sinuses include congestion caused by colds or allergies, middle ear infections, and sinus infections.

Pain is not the only symptom that may occur when the Eustachian tube is blocked. The pressure changes inside the middle ear may sometimes lead to vertigo (a sense of "spinning"), tinnitus ("ringing" in the ears) or hearing loss. In severe cases, rupture of the tympanic membrane (eardrum) may occur.

Most doctors would agree that avoiding flying when you have an active sinus or ear infection is the best way to prevent pain and possible complications, but if flying is a necessity, decongestants can be used in an attempt to overcome some of the blockages to air circulation. Both systemic (taken orally) and topical (nose drops or nasal sprays) can be used to treat congestion. Over-the-counter pain relievers can also be used to help control discomfort.

While you're flying, chewing gum or swallowing frequently, particularly during ascent and descent, may provide some relief. Giving a bottle or pacifier to susceptible infants can also help prevent pain. You should also learn the technique known as a Valsalva maneuver, which equalizes air pressure within the ears. To perform the Valsalva maneuver, simply hold your nose closed and attempt to exhale with a closed mouth. You'll hear, and feel, a faint "popping" (or sometimes a high-pitched noise, if you're congested) in the ears when you do this successfully.

A product developed for Air Force pilots can also provide relief to those with blocked Eustachian tubes. Called "Ear Planes," these ear plugs protect the eardrum from rapid or large ambient changes in pressure by allowing the pressure changes to take place slowly through a passage in the ear plugs. This slowing of the rate of pressure change minimizes the difference in pressure across the ear drum.

If you have had tympanostomy tubes inserted in the eardrums because of chronic ear infections or congestion, these should prevent the symptoms from occurring.
Tympanostomy tubes are most commonly used in the management of chronic ear effusions (accumulations of fluid) in infants and children, but some adults require placement of tympanostomy tubes.

Interestingly, changes in cabin air pressure can also cause toothache in people who have diseases of the dental pulp. This rare condition develops when a small pocket of air localized inside a diseased tooth is subjected to changes in the surrounding barometric pressure.


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