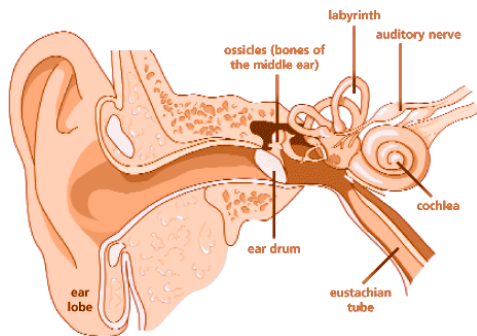


A DISCUSSION OF THE EUSTACHIAN TUBE

FUNCTION OF THE EUSTACHIAN TUBE

The Eustachian tube is a narrow (at one point 1 mm diameter), 3.5 cm long channel connecting the middle ear with the nasopharynx, the upper throat area just above the palate in the back of the nose.



The Eustachian tube functions as a pressure equalising valve for the middle ear which is normally filled with air. When functioning properly the Eustachian tube opens for a fraction of a second periodically (about once every three minutes) in response to swallowing or yawning. In so doing it allows air into the middle ear to replace air that has been absorbed by the middle ear lining (mucous membrane) or to equalise pressure changes occurring on altitude changes. Anything that interferes with this periodic opening and closing of the Eustachian tube may result in hearing impairment or other ear symptoms.

Obstruction or blockage of the Eustachian tube results in a negative middle ear pressure, with retraction (sucking in) of the eardrum membrane. In the adult this is usually accompanied by some ear discomfort, a fullness or pressure feeling and may result in a mild hearing impairment and head noise (tinnitus). There may be no other symptoms in children. If the obstruction is prolonged, fluid may be drawn from the lining of the middle ear creating a condition called serous otitis media (fluid in the middle ear).

CAUSES OF SEROUS OTITIS MEDIA

Serous otitis media (or fluid in the middle ear) may result from any condition that interferes with the periodic opening and closing on the Eustachian tube. The causes may be congenital (present at birth), may be due to infection or allergy, or may be due to blockage of the tube by adenoids.

The Immature Eustachian tube

The size and shape of the Eustachian tube is different in children than in adults. This accounts for the fact that serous otitis media is more common in very young children.

Cleft Palate

Serous otitis media is more common in the child with a cleft palate. This is due to the fact that the muscles that move the palate also open the Eustachian tube.

Infection

The lining membrane (mucous membrane) of the middle ear and Eustachian tube is connected with, and is the same as, the membrane of the nose, sinuses and throat. Infection of these areas results in mucous membrane swelling which in turn may result in Eustachian tube obstruction.

Allergy

Allergic reactions in the nose and throat result in mucous membrane swelling, and this swelling may also affect the Eustachian tube.

Adenoids

The adenoids are located in the nasopharynx, in the area around and between the Eustachian tube openings. When enlarged, the adenoids may block the Eustachian tube opening.

EUSTACHIAN TUBE PROBLEMS RELATED TO FLYING

Individuals with a Eustachian tube problem may experience difficulty equalising middle ear pressure when flying.

When an aircraft ascends, atmospheric pressure decreases, resulting in a relative increase in the middle ear air pressure. When the aircraft descends, just the opposite occurs: atmospheric pressure increases and there is a relative decrease in the middle ear pressure. Either situation may result in discomfort in the ear due to abnormal middle ear pressure if the Eustachian tube is not functioning properly. Usually this discomfort is experienced upon aircraft descent.

To avoid middle ear problems associated with flying you should not fly if you have an acute upper respiratory problem such as a common cold, allergy or sinus infection. Should you have such a problem and must fly, or should you have a chronic Eustachian tube problem, try the following:

1. Obtain from your chemist the following items: Sudafed tablets and Drixine spray
2. Following the container directions, begin taking Sudafed tablets the day before your air flight. Continue the medication for 24 hours after the flight if you have experienced any ear difficulty.
3. Following the container directions for Drixine, use the nasal spray shortly before boarding the aircraft. Should your ears "plug up" upon descent, hold your nose and swallow. This will help suck excess air pressure out of the middle ear.
4. 45 minutes before the aircraft is due to land again use the nasal spray every five minutes for 15 minutes. Chew gum to stimulate swallowing. Should your ears "plug up" despite this, hold your nose and blow forcibly to try to blow air up the Eustachian tube into the middle ear (Valsalva manoeuvre).
5. Remember that it is unwise to fly if you have an acute upper respiratory infection. Should flying be necessary under these circumstances do not perform the Valsalva manoeuvre mentioned above.
6. If flying is necessary and frequent, your surgeon may recommend a grommet (or middle ear ventilation tube) to minimise ear discomfort and damage.

None of these recommendations or precautions needed to be followed if you have a middle ear ventilation tube in your eardrum membrane.