

Eustachian Tube Dysfunction

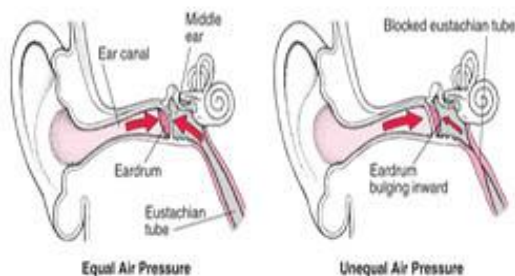
Brown Health Services Patient Education Series

Eustachian Tube Dysfunction (ETD) can cause dulled hearing. It is usually a temporary problem that lasts a week or so and most commonly occurs during and after a cold. There are various other causes and sometimes it lasts longer. Often, no treatment is needed but decongestants, antihistamines, or a steroid nasal spray can help.

What is the Eustachian tube and what does it do?

The Eustachian tube is a narrow tube that connects the space behind the eardrum (the middle ear) with the back of the nose. In adults it is about 3-4 cm long. The middle ear is normally filled with air. The air in the middle ear is constantly being absorbed by the cells that line the middle ear. Fresh supplies of air are needed to get to the middle ear periodically.

The Eustachian tube is normally closed but opens when we swallow, yawn or chew. This allows air to flow into the middle ear and any mucus to flow out. This keeps the air pressure equal to either side of the eardrum. Having equal air pressure on each side of the eardrum and the middle ear free of mucus, helps the eardrum to vibrate. This vibration is needed for us to hear properly.



What is Eustachian tube dysfunction (ETD)?

ETD means that the Eustachian tube functional valve does not open/close properly. Ventilation of the middle ear is compromised causing changes in

air pressure on the outer side of the eardrum compared to the middle ear. The eardrum can be pushed inward, become tense and not vibrate so well when hit by sound waves.

What are the causes of Eustachian tube dysfunction (ETD)?

ETD occurs if the Eustachian tube becomes blocked, if the lining of the tube swells, or if the tube does not open fully or close fully to allow air to travel in/out the middle ear.

Colds and nasal, sinus, ear or throat infections

These are common causes of ETD:

- blocked nose, or thick mucus that develops during a cold or other infections
- infection may also cause the lining of the Eustachian tube to become inflamed and swollen

Most people will have had one or more episodes in their life when they have had a cold and find that they cannot hear so well due to ETD. The symptoms of ETD may persist for up to a week or so (sometimes longer) after the other symptoms of the infection have gone. This is because the trapped mucus and swelling may take a while to clear even when the germ causing the infection has gone.

Allergies

Allergies that affect the nose, such as persistent runny nose and hay fever, can cause extra mucus and inflammation in and around the Eustachian tube and lead to ETD.

Blockages

Anything that causes a blockage to the Eustachian tube can cause ETD - for example, enlarged adenoids.

Air travel and the Eustachian tube

Some people develop ear pain when descending to land during a plane journey.

- unequal pressures develop on either side of the eardrum as the plane descends
- as a plane descends, the air pressure becomes higher nearer ground
- pushes the eardrum inwards which can be painful
- often normal swallowing and chewing quickly causes air to travel up the Eustachian tube to equalize the pressure
- if you have a narrow Eustachian tube, a cold, or anything else that can cause blockage to the Eustachian tube, the pressure does not equalize very easily when the plane descends causing severe ear pain
- try chewing gum or eating when the plane is descending

What is the treatment for Eustachian tube dysfunction (ETD)?

Treatment options depend on the cause and severity of the condition.

Often, no treatment is needed

In many cases, the ETD is mild and does not last longer than a few days or a week or so. For example, this is common following a cold. No particular treatment is needed and the symptoms often soon pass.

Try to get air to flow into the Eustachian tube

Air is more likely to flow in and out of the Eustachian tube if you swallow, yawn or chew. Try doing the following:

- Take a breath in
- Then, try to breathe out gently with your mouth closed and pinching your nose (the Valsalva maneuver)

No air is blown out but you are gently pushing air into the Eustachian tube. You may feel your ears go ‘pop’ as air is forced into the middle ear. This is a particularly good thing to try if you develop ear pain when descending to land in a plane.

Decongestant nasal sprays or tablets

A decongestant may be advised by your provider if you have a cold or other cause of nasal congestion.

- purchase over the counter at pharmacies
- Phenylephrine and pseudoephedrine are the most common oral decongestants
- relieve a blocked nose for several hours, some products up to 12 hours
- nasal spray works more quickly
- DO NOT USE a decongestant spray for more than 3 days at a time, or spray may cause a worse rebound congestion in the nose

Antihistamine tablets or nasal sprays

Antihistamines may be advised by your provider if you have an allergy such as hay fever. In this situation they will help to ease nasal congestion and inflammation. Antihistamines also come in combination with a decongestant to maximize effectiveness (cetirizine-D, loratadine-D for example).

Steroid nasal spray

A steroid nasal spray may be advised if an allergy or other cause of persistent inflammation in the nose is suspected.

- reduces inflammation in the nose
- takes several days for a steroid spray to build up to its full effect
- no immediate relief of symptoms when you first start it
- If inflammation is reduced in the back of the nose, then the Eustachian tube is able to work better.

Referral to a specialist If symptoms continue or the cause of the ETD is not clear, you may be referred to an ear specialist for assessment. Treatment options depend on any underlying cause that may be found.

*Sources: Up-To-Date Eustachian tube dysfunction
Author: Dennis Poe, MD Section Editor: Daniel G Deschler, MD, FACS Deputy Editor: Lisa Kunins, MD Oct 10, 2019*