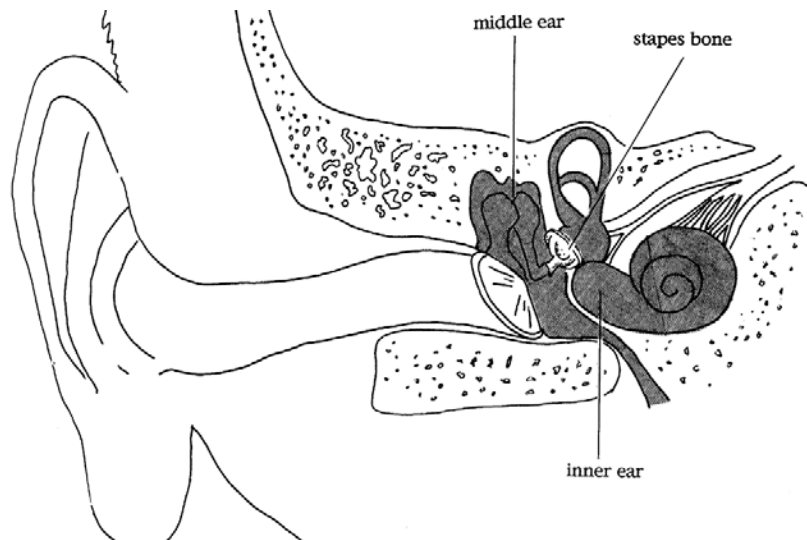
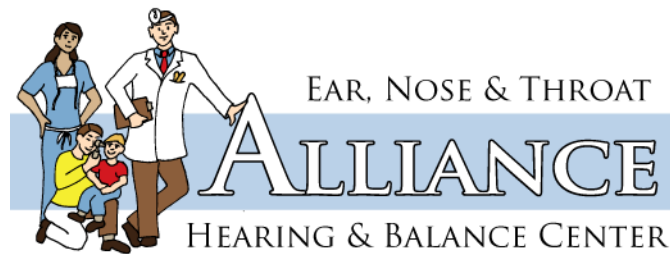


## Stapedectomy

Otosclerosis is a disease limited to the bone surrounding the middle and inner ear structures. It causes inflammation followed by thickening of the bone. The most common consequence of otosclerosis is that it inhibits the movement of the **stapes**, one of the three small middle ear bones. Normally these bones amplify the sounds that strike the eardrum. The stapes acts like a plunger and set the fluids of the inner ear in motion with each sound wave, but in this condition the stapes is frozen in place and less sound reaches the nerve fibers of inner ear. This impaired hearing is called a **conductive hearing loss** because the sound is not conducted and amplified normally by the middle ear.



The cause of otosclerosis is not known. It happens to women slightly more often than men. It first appears in many people in their early twenties. Although otosclerosis tends to run in families, it is unpredictable and parents do not necessarily transmit it to their children. Otosclerosis affects the ears only and not other parts of the body. It is not associated with pain or infection. The condition is accelerated during pregnancy and by birth control pills. The diagnosis is made by a gradual loss of hearing in one ear or both, a normal examination of the ear, and a hearing test that has a typical pattern of a conductive hearing loss. The disease is usually self-limited. The hearing loss often reaches 40 decibels or so which is a moderate hearing loss but rarely gets worse. In a few unfortunate people the inflammatory disease causes an injury to the nerve structures in the inner ear and this results in an additional sensorineural hearing loss. It is unpredictable whether the process will strike only one ear or both.



## What can be done about the problem?

There is little available medicine for treating otosclerosis. The one opportunity is to use a combination of fluoride and calcium carbonate (**Florical**). This can be prescribed when there is a documented progressive loss of hearing or when a person with otosclerosis experiences dizzy spells. It cannot be used by people with severe kidney disease, with a history of kidney stones or stomach pains, or during the first trimester of pregnancy. The most common side effect is stomach distress (about 30% of patients stop the medication), but it can also cause arthritis and other muscle pains, tiredness, and irritability. Florical does not improve hearing but may slow or stabilize the progress of the disease and prevent dizziness although this is not a common symptom of this disease. The medication is best taken with meals and started with gradual increase in dose.

The conductive hearing loss can be treated by wearing a **hearing aid**. For more information, ask your doctor. The hearing loss can also be left untreated.

**Stapedectomy** is the surgical treatment which usually produces the best quality hearing. This is an operation where the "frozen" stapes bone is removed and replaced with a tiny metal prosthesis (< 1/8 inch in length) and a small piece of a vein or, sometimes, a piece of sterile patching. The vein is usually removed from the back of one hand. The surgery is performed either under some sedation or general anesthesia (completely asleep). General anesthesia is often the safest choice. The surgery is performed through the ear canal with a microscope. The eardrum is lifted up and later repositioned without need for any visible incisions. The surgery takes about 1-2 hours and most patients are able to recover at home.

## What's the chance of the operation working?

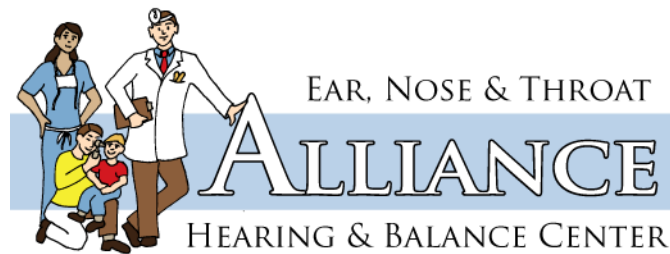
A stapedectomy has a high success rate. More than 90% of people have significant improvement in their hearing.

## Who should not have a stapedectomy?

People who experience frequent changes in barometric pressure (pilots and divers), patients with chronic difficulties with balance or dizziness, people whose work or hobbies demand excellent balance, and anyone with Meniere's disease. If a person has a perforated ear drum or repeated ear infections, these problems may cause a problem for a stapedectomy. People with a loss of hearing due to nerve damage (sensorineural hearing loss) need to understand that this will limit the effectiveness of surgery to return to normal hearing.

## What could go wrong with the surgery?

- The most frequent complication is injury to a small nerve that crosses the eardrum and operative site. The nerve is called the *chorda tympani* and supplies the sensations of salt and sweetness primarily to the back of one half of one side of the tongue. When this nerve is bruised or cut it can result in a metallic taste in the mouth or a reduced sense of taste. This change in taste usually goes away within the first six months after surgery without any specific treatment.
- The eardrum can also be injured during the operation. For example, a hole may be inadvertently created in the eardrum but can usually be easily fixed.
- There will be a 1-2 inch scar on the back of the hand where the vein is taken to make a graft to cover the hole into the inner ear. This can sometimes be tender or even become infected but should also be an easily treatable problem. Let your surgeon know if you have a history of unusual scarring.



- A period of dizziness for several days after the surgery.
- In rare instances (about 1 in 100) patients have a more significant complication which is not as treatable. These possible complications include: (1.) prolonged or permanent dizziness, (2.) a permanent hearing loss caused by injury to the structures of the inner ear, (3.) a persistent conductive hearing loss due to a problem with the repair, (4.) a ringing or buzzing sound in the ear (also known as tinnitus), and (5.) a permanent injury to the facial nerve that supplies movement to the facial muscles of expression. These are the reasons why only one ear is operated on at a time.

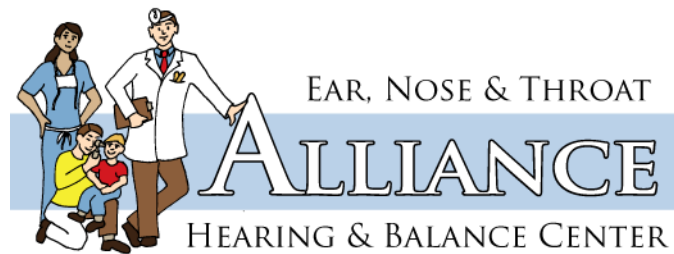
### What should I expect after surgery?

- Most people have some spinning sensation, nausea and pain after this surgery for a day or two. **Be sure to bring someone to drive you home.** You will also **need some to stay with you at home for the first 1-2 days** until you can safely walk without pain, nausea or dizziness and care for yourself.
- Most patients experience a small amount of dizziness or buzzing but this should not last beyond the first several hours after surgery. If dizziness occurs and is mild, use Dramamine which can be bought at a pharmacy without a prescription. If the dizziness is excessive, call our office.
- The patient needs to plan bedrest for several days after surgery. It is preferable to have one's head elevated at all times to minimize the pressure of the inner ear fluids on the new graft. If possible, one's head should be turned with the unoperated ear against the pillow. The operated ear should be pointed towards the ceiling.
- **No heavy lifting** until permission from your doctor.
- **Avoid straining.** During the first week after surgery, (1.) use some form of **laxative** (for example, prunes, Metamucil, Colace, or a glycerine suppository), (2.) **open one's mouth when sneezing**, and (3.) **avoid blowing one's nose**, and (4.) **limit one's travel and exercise plans.**

Heavy bearing down (caused by constipation), sneezing without opening one's mouth, and flying (avoid for at least 6 weeks) and strenuous or contact sports (minimum: 3 weeks absence- discuss with your doctor) or scuba diving (lifetime avoidance) can all cause excessive pressure on the new graft which must separate the fluid of the inner ear from the air space of the middle ear.

- Do not be alarmed if you cannot hear normally after the surgery. This hearing loss is usually due to ear packing in the ear canal and fluid collecting behind the eardrum. The packing stays in the operated ear for a week. **Cotton** with or without a Band-Aid can be applied by the patient to the outer part of the ear canal when the original becomes soiled. Sometimes there will be a small amount of blood that can drain out of the ear canal. Call your doctor if there is a smelly discharge from the operated ear.
- Usually your doctor will have the patient place about five (5) drops of antibiotic solution (such as Floxin, Cortisporin, Ciprodex or Cipro HC) in the operated ear. Occasionally your doctor will prescribe an oral antibiotic.

- There will be a clear sticky dressing over the incision on the back of the hand. This should be left undisturbed for a week.



- There may be some soreness or temporary numbness on the back of the hand or soreness around the operated ear. But, in general, there is little pain associated with the surgery. Usually Tylenol is all that is needed. A stronger pain medication is often also prescribed. If there is excessive pain, call our office.
- Notify our office, if you have a fever > 100 degrees F, excessive pain, excessive smelly ear drainage, or dizziness.
- In most cases, the patient can be back to normal activities and work within a week or two.

Your first visit to our office after surgery will be to check and possibly clean the ear canal. It may be weeks before your hearing has improved.