



## **Selective Vestibular or Total Vestibular/Cochlear Nerve Section**

### **What is Selective Vestibular Or Total Vestibular/Cochlear Nerve Section?**

The vestibular nerve is part of the hearing (cochlear) and balance (vestibular) nerve. It connects the balance organs of the inner ear to their counterparts in the brainstem. Each inner ear has five balance organs, three semicircular canals to detect rotation and two special organs (the utricle and saccule) to detect linear movement. The hearing and balance nerve (the eighth nerve or the statoacoustic nerve) is actually three nerves bundled together. The two parts of the balance (vestibular) nerve sit atop the hearing (cochlear) nerve.

A selective vestibular nerve section specifically separates the two balance nerves from the hearing nerve and cuts them. The goal is to disable the poorly functioning balance nerve while preserving the hearing nerve. A total vestibular/cochlear nerve section cuts both nerves. Selective vestibular nerve section is reserved for persons who have a poorly functioning balance organ while usable hearing remains in the same ear. A total vestibular/cochlear nerve section destroys both the hearing and balance organs and the hearing and balance nerve on just one side. When other therapy or surgery has not resolved a balance organ problem on just one side, one of these surgeries may be selected. The selective nerve section is generally reserved for cases where hearing preservation makes sense in the symptomatic ear and the opposite ear is in usable condition. The total nerve section is for individuals who have severe problems with both hearing and balance organ system in only one symptomatic ear. Tinnitus or ear noise may be less of a problem after total vestibular/cochlear section.

### **Purpose of Surgery:**

Selective vestibular nerve section disconnects a poorly performing balance organ from the brain so that it will no longer send bad information to the brain. The procedure is done almost exclusively to relieve recurring spells of vertigo from Meniere's disease but may, on relatively rare occasions, be used to manage other serious ear problems. The goal of total vestibular/cochlear nerve section is to alleviate recurring spells of vertigo/imbalance that come from the balance organ system in only one symptomatic ear. Tinnitus or ear noise may or may not be less of a problem after total vestibular/cochlear section.

### **Alternatives to Selective Vestibular Or Total Vestibular/Cochlear Nerve Section:**

Long term tolerance for recurring spells of vertigo may eventually result in sufficiently fewer or more tolerable symptoms. Among the other options are transtympanic gentamicin or steroid therapy, endolymphatic sac surgery, labyrinthectomy, and other procedures for the inner ear. Ask your ear doctor about the potential applicability of these procedures to your ear problem.

### **Risk of not having surgery:**

Delaying surgery carries risks of continued balance-vertigo problems, although some imbalance does remain after vestibular nerve section.

### **General Considerations:**

The selective vestibular nerve section is typically accomplished by a retrosigmoid craniotomy. In a retrosigmoid craniotomy, the surgeon opens the skull behind the ear, in front of the base of the brain. Between the base of the brain and the inner ear, the surgeon finds, separates, and cuts the balance nerve away from the hearing nerve. The bone removed during the surgical opening of the skull is usually split and put back as part of repair of the surgical opening. Total vestibular/cochlear nerve section is ordinarily accomplished by surgically removing the hearing/balance organ and reaching the hearing and balance nerve directly on the deep side of the inner ear. The surgical pathway is the translabyrinthine approach. The retrosigmoid craniotomy disturbs a bit more muscle and has a bit more headache risk than the translabyrinthine approach. In the translabyrinthine approach, the surgeon may elect to take fat from the abdomen to plug up the surgical pathway. The fat plug prevents spinal fluid from leaking out of the ear. Feel free to ask the surgeon to demonstrate the surgery pathway on a plastic skull.

### **Before Surgery:**

Avoid use of Advil, Motrin, Aleve, Celebrex, Vioxx, or similar non-steroidal anti-inflammatory medication for a minimum of five days and preferably two weeks before surgery. Ask the doctor if any other medications will need to be changed ahead of surgery.

### **After surgery, restrictions include:**

Do not use aspirin, Advil, Motrin, Aleve, Celebrex, Vioxx, or similar non-steroidal anti-inflammatory medication for two weeks after surgery. These and other arthritis medications may cause bleeding. No nose blowing for a minimum of two (2) weeks. Open mouth to sneeze for two (2) weeks. Do not stop a sneeze by squeezing your nose. You may wash the incision with soap and water and coat it with antibiotic ointment.

**Resuming normal activities:**

**Dizziness** and some **headaches** are common for a while after surgery. **Tiredness** commonly follows major surgery. Resume **driving** and **return to work** when the dizziness and/or lightheadedness has improved sufficiently and if your job activity fits within lifting restrictions, listed below. Dizziness after surgery usually improves more rapidly the more active you are. Avoid ladders, step stools, and unprotected heights until you can move quickly in any direction without dizziness or lightheadedness. The more quickly you work back into normal routines, the more quickly you will feel better and energy will return.

**Avoid lifting** more than 10 pounds for two weeks after surgery. Then, you may resume normal lifting the activity unless the doctor has indicated a reason to continue to avoid lifting

**General Risks of Selective Vestibular and Total Vestibular/Cochlear Nerve Section:**

**Numbness** in the scalp above and around the ear is common and may improve in a couple of years. **Dizziness** is common after surgery and usually improves within a few weeks. More persistent dizziness occasionally bothers some patients permanently.

**ringing** in the ear is sometimes a noticeable nuisance after surgery, but may also be improved by surgery. Further **hearing impairment** in the operated ear is common in the Selective Vestibular Nerve Section even when the surgeon attempts to save it because portions of the hearing nerve may travel inside the balance nerve in some patients. In the Total Vestibular/Cochlear Nerve Section, the residual hearing is sacrificed as part of the surgery. A hearing aid may not be an option on the operated side, but sometimes, a hearing aid that routes the hearing to the residual hearing ear may be possible. **Taste** for sweet, sour, salt, and bitter on the side to front of the tongue may be altered by surgery and may not recover back to normal, but symptoms usually settle down within six months. Ability to smell is not affected by ear surgery.

**Infection** called meningitis may develop after surgery with a risk of less than 1% of cases. If you think you have an infection, call the doctor right away. **Spinal fluid may leak** through the wound or through the mastoid bone into the nose. If spinal fluid leakage persists, the surgeon may elect to place a spinal fluid drain into the lower back for a few days. If the drain does not solve the problem, more surgery may be necessary stop the spinal fluid leakage. Spinal fluid leakage may predispose to infection and other serious problems. Spinal fluid leakage and meningitis are rare after vestibular nerve surgery. **Weakness** or **paralysis** of the nerve that makes the face to smile can be a side effect of ear surgery, but is rare after vestibular nerve surgery. A delayed onset facial paralysis can develop after leaving the hospital but is also rare. If such happens, please call the doctor immediately. The face recovers to normal or nearly normal in almost all cases, but, in some, facial movement may be permanently impaired. In the event of facial nerve weakness or paralysis, **special eye precautions** will be necessary and more surgery to protect the eye may become necessary. **Other rare problems** after vestibular nerve surgery include numbness to touch or warmth in the face, double vision, trouble swallowing, weakness of the voice, shoulder, and coordination problems. Stroke, excessive bleeding and blood collection inside the head, and death are possible but highly unlikely. Blood transfusions are rarely needed, but would pose transfusion related risks (see blood transfusion informed consent for more details). Anesthesia has its own risks that the anesthesia doctor will discuss with you. **General medical conditions** that affect the heart, circulation, breathing, and urination can all be aggravated by surgery of any kind. Men who have bladders and prostate glands sensitive to certain medications may need bladder catheterization after surgery of any kind.

**Patient/Guardian Statement:**

The patient or patient’s guardian and/or legal representative state by signing below that doctor has discussed the surgery, alternatives, and major risks, that the above information has been communicated to the patient, guardian, and/or legal representative and that an opportunity to ask questions has been given. The consent form should not be signed until the patient, guardian, and/or legal representative have obtained a layman’s understanding of the surgery and have obtained satisfactory answers to all questions. By signing the consent form, the patient, guardian, and/or legal representative indicate a layman’s understanding of the surgery, potential alternatives to surgery, and reasons for surgery and indicate a desire to proceed. If the surgery has been explained in another language, the person who has translated must indicate by cosigning the document that all information from the doctor and from this consent form have been communicated to the patient, guardian, and/or legal representative and that all questions have been answered satisfactorily.

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|---------------------------|---|---|--|------------------|
| Patient Printed Name:     |   |   | Patient Guardian Name:                 | Date Signed:     |
| <b>Circle Surgery Ear</b> | R | L | Doctor: <b>Loren J Bartels MD FACS</b> | Date of Surgery: |
| Witness Signature:        |   |   | Physician who explained surgery:       | Translator       |
|                           |   |   |  | Language         |

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