

DEALING WITH DIZZINESS

SPONSORED BY BALANCE CENTER OF MARYLAND AND METROPOLITAN NEUROEAR GROUP

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ACOUSTIC NEUROMA

What is an acoustic neuroma?

An acoustic neuroma is a benign tumor that grows in the internal auditory canal and affects cranial nerve VIII, the vestibulocochlear nerve. Acoustic neuromas are slow-growing tumors and are the third most common type of intracranial tumor. The majority of patients will present with progressive unilateral sensorineural hearing loss. Some patients will report vestibular symptoms or sudden hearing loss as the initial symptom. The "gold standard" for diagnosis of an acoustic neuroma is MRI with gadolinium contrast. An acoustic neuroma is seen as an enhancing mass in the cerebellopontine angle that extends into the internal auditory canal. There are a number of different treatments for acoustic neuromas and each are based on patient age, size of the tumor, history of hearing and associated medical tumors within the canal can be conservatively with months to follow the tumor. Additionally, stereotactic radiosurgery, or Gamma Knife, a form of radiation therapy, can be used as a treatment option. High dose radiation is delivered to the core of the tumor in an effort to slow the growth. Although the radiation does not kill the tumor, it induces fibrosis and scar tissue that hinders future growth. A third treatment option is microsurgical excision. Each treatment has its own risks and benefits and should be thoroughly considered for the individual patient. However, if left untreated, acoustic neuromas can cause multiple problems. Since three different nerves (hearing, balance, and facial) travel through the internal auditory canal, a growing tumor can cause hearing loss, balance problems, and/or facial paralysis. For additional information on acoustic neuromas, including surgical approaches, please refer to the Neurotology Research Center at www.earsite.com.



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ADAPTATION

EXERCISES

Purpose & Goals

Vestibular adaptation is important during normal development, as well as in response to disease and injury. Vestibular adaptation is described as the ability of the vestibular system to make long-term changes in response to head movement. The goals of adaptation are to improve gaze stability by decreasing retinal slip, to improve postural stability, and to decrease overall symptoms. Adaptation exercises should be developed based on specific guidelines, including:

- 1. Using a stimulus that incorporates both movement of the head and visual input,**
- 2. Response to exercise takes time, and each exercise should be performed for at least 1 minute without rest,**
- 3. Adaptation is context-specific, and varied environments should be considered,**
- 4. Adaptation is affected by voluntary motor control, and**
- 5. The patient should work within the limits of his/her own ability and progress at his/her own rate.**

Vestibular Support Group and Lecture Series

The last Monday of each month at 7:30 pm

Please contact BCOM@earsite.com or 301-493-9409 for details

HOW CAN PHYSICAL THERAPY HELP? Vestibular rehabilitation following acoustic neuroma excision

Because excision of acoustic neuromas often disrupts vestibular nerve function, beginning vestibular rehabilitation therapy is warranted in the first few post-operative days. Since the vestibular system is compromised, these patients should be treated with exercises that address unilateral vestibular hypofunction. A study done by Herdman SJ et al. in 1995 indicates that the use of vestibular adaptation exercise after acoustic neuroma excision results in improved postural stability in both static stance and ambulation. Additionally, these patients also report a decreased perception of disequilibrium in the early stages following surgery. The benefits of individualized vestibular rehabilitation extend beyond the early stages of recovery. A study by Vereeck L et al. in 2008 reveals that, especially in individuals over age 50, customized vestibular exercises should be prescribed, and emphasis should be placed on the importance of the need for exposure to movement. Additionally, the retention of the early beneficial effects after one year further stresses the importance of customized vestibular rehabilitation exercises. Should the patient have facial nerve involvement as a result of the surgery, he/she may also require facial neuromuscular reeducation.

In the next issue of *Dealing with Dizziness*.
Psychological Issues and Dizziness



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