



# the Trumpeteer

An Ear- Responsible Publication of Central Carolina ENT, PA

## Sleep Apnea in Children. Does my child need to have surgery?

BY: Dr. Doris Lin



### Does my child have sleep apnea?

A child with sleep apnea has loud snoring that is present every night regardless of sleep position, cold symptoms or allergy symptoms. The snoring is interrupted by pauses in breathing, often with sounds of gasping or snorting. About ten percent of children are reported to snore, of these children, about ten percent have obstructive sleep apnea.

This disrupted breathing pattern can be detrimental to a child's development and growth. A child who does not sleep well will often be cranky and irritable during the daytime. The child may seem inattentive at school and sometimes is diagnosed with attention deficit disorder (ADD)

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or attention deficit hyperactivity disorder (ADHD). Since growth hormone is secreted at night, disrupted sleep can lead to interruptions in growth hormone secretion which can result in slow growth or development. Sleep disordered breathing also causes increased nighttime urine production which may lead to frequent bedwetting.

### Diagnosis of sleep disordered breathing in a child

The first step in diagnosis of sleep disordered breathing in a child is usually made by the parents or the patient's primary caregiver (sometimes the grandparents). The primary caregivers often do not sleep well themselves because they are watching the child breathe at night, concerned that the child pauses in his or her breathing so frequently at night. You might observe loud snoring interrupted by gasping, snorting, thrashing in bed as well as unexplained bedwetting. The child is often irritable during the day, may have poor school performance, and may be diagnosed with ADD or ADHD by the school.

These children should be evaluated by an otolaryngologist - head and neck surgeon. Many of these children have enlarged tonsils and adenoids, but not all. The tonsils and adenoids are part

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## CCENT NEWS TOPICS



Central Carolina ENT is one of the first accredited Ear, Nose and Throat practice in North Carolina with an in-office CT scan (the mini-CAT™ Scan) and one of

the first ENT accredited labs in the United States. The accreditation was awarded January 2009 by the Intersocietal Commission for the Accreditation of Computed Tomography Laboratories ( ICACTL).

### CCENT at the Apex Health Fair



Dr. LeLiever talks with Dr. LaHiri



Exhibitors greet the guests in Apex

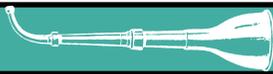


Dr Lin with Dr. Titus, Director of new clinic

Dr Lin, chatting with other Duke doctors and staff.



Dr.Doris Lin and Audiologist, J.P. Miller visited an open house January 8th at the New Duke Primary and Urgent Care Clinic in Morrisville. They met the doctors and staff of the new facility and informed them of CCENT services. Our Apex office is approximately 11 miles from the Duke clinic which is located on Chapel Hill Road, just south of I-540.



## ENT AND AUDIOLOGY IN DUAL PRACTICE WHY DO I NEED A HEARING TEST?

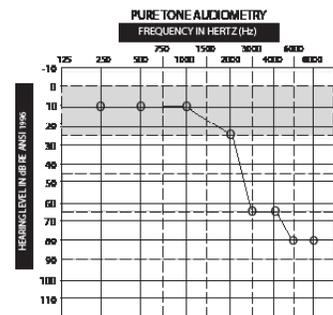
By: Ellen R. Wilson, Au.D., Audiologist

Central Carolina Ear, Nose, and Throat Associates has a complete audiology department to assess hearing, dizziness/balance disorders and other ear pathologies. It goes without saying that if hearing loss is your primary symptom and concern, then a comprehensive hearing test should be performed to adequately diagnose the type of loss, degree of loss, pattern of loss, and word recognition ability. This enables the physician to adequately treat you if medical intervention is an option or the audiologist to adequately assess prognosis for hearing rehabilitation.

A patient coming into the office with the primary complaint of hearing loss or an emergency sudden hearing loss will always be examined by the audiologist prior to their visit with the physician. What is less understood by patients, however, is why the ENT physician may request a hearing test for other ear, nose, and throat pathologies. Listed below are common conditions in which it is prudent to have a hearing examination.

### VERTIGO, DIZZINESS, BALANCE, EQUILIBRIUM

The inner ear (cochlea) has two functions - one is hearing, one is balance. It is important to check a patient's hearing when they have symptoms of dizziness as these two may correlate. Asymmetric hearing loss (loss of hearing in one ear more than the other) can suggest the affected ear and potentially other more serious disorders such as an acoustic neuroma. The pattern of hearing loss may suggest certain pathologies like cochlear hydrops or Meniere's disease. The type of hearing loss may suggest a middle ear pathology or otosclerosis. Tests that might be ordered are comprehensive audiogram, tympanometry, acoustic stapedial reflex testing, electronystagmography and auditory brainstem response testing.



Sensorineural high frequency hearing loss above 2KHz

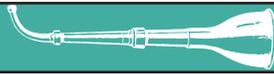
### TINNITUS

Tinnitus or ringing in the ear is a common pathology that affects millions of Americans. While most people experience this sometime in their life, it is usually brief lasting. Constant, particularly unilateral (one sided) ringing in the ear, however, can (as above) be suggestive of more serious problems and therefore should be evaluated to see if there are other correlating symptoms (asymmetric hearing loss, dizziness). With other symptomology, an acoustic neuroma or other type of brain tumor might need to be ruled out with MRI (magnetic resonance imaging). Also tinnitus matching (determining approximate duration and intensity of tinnitus) may be indicative of certain pathologies. Tests that might be ordered are comprehensive audiogram, tympanometry, acoustic stapedial reflex testing, tinnitus matching, and auditory brainstem response testing.

### OTITIS MEDIA/EAR INFECTIONS

Often patients will ask, "my ears are stopped up right now, shouldn't I wait to have my hearing tested when they've cleared up." We hear this commonly, but there are several good reasons to see the audiologist. First, serous fluid is often clear and not as easily visible as one might expect. Retraction of the tympanic membrane may be visible on otoscopic examination or sometimes an air/fluid level present, but it is hard to quantify. The audiologist will perform a quick tympanogram to assess mobility of the tympanic membrane and function of the Eustachian tube. If mobility is greatly impaired or significant middle ear pressure is present, a screening audiogram should be done also to facilitate probable treatment options. Middle ear fluid can be as thin as water or as thick as glue. Obviously thin fluid results in minimal hearing loss, whereas thick fluid can produce a maximal conductive hearing loss. Thinner fluids are more likely to resolve spontaneously than thick fluids as thicker fluids may contain infection, pus, blood or other middle ear debris. If the

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tympanograms are flat (no peak, no pressure, no mobility), spontaneous resolution is not probable and medical treatment is indicated. Recurrent otitis media/ear infections usually will need to be treated with bilateral ventilation tubes. Important to note – ear infections are not just a childhood pathology. While children are prone to middle ear infections naturally because of the orientation of the Eustachian tube, adults with chronic sinus and allergy problems may get infections as well so the recommended sequence is the same, a tympanogram and audiogram. Infant/pediatric assessments will include visual assessment audiometry preoperatively and an otoacoustic emission tests post-operatively to objectively evaluate their hearing levels as they are too young to perform standard test procedures.

#### TYMPANIC MEMBRANE PERFORATIONS

Whether the tympanic membrane (eardrum) has ruptured spontaneously from fluid, cholesteatoma, head injury, accident, acoustic trauma, or self-injury from trying to clean out own ear(s), you may need to see the audiologist. Depending on size of the perforation and potential involvement of ossicles (middle ear bones), a comprehensive audiogram may suggest potential for recovery or need for surgical intervention.

#### SINUS/ALLERGY

Read above on otitis media. Everything in the nasopharynx and middle ear is mucus membranes. Swelling, inflammation, congestion, etc. easily affects the function of the Eustachian tube running into the middle ear space. Eustachian tube dysfunction causes negative pressure in the middle ear space resulting in a vacuum-like action of fluids in these mucosal tissues leading to serous fluid, ear infections, or otitis media. The physician may request minimally a tympanogram, but sometimes might also want an audiogram if hearing is depressed during/following severe sinusitis. Tests that might be ordered are tympanometry, Eustachian Tube Function battery, and audiogram.

#### BELL'S PALSY/FACIAL NERVE PARALYSIS

There is a point of innervation between the 7<sup>th</sup> cranial nerve (facial nerve) and 8<sup>th</sup> cranial nerve (hearing nerve) resulting in a reflexive action of muscles in the middle ear. The presence of middle ear reflexes both ipsilaterally and contralaterally are assessed to determine whether the inflammation or compression of the facial nerve is a distal or proximal entity and predict prognosis for recovery. A screening audiogram and electro-neurography (ENOG) may be performed as well.

#### PREOPERATIVE/POSTOPERATIVE TESTING IS DONE FOR ANY MAJOR EAR SURGERY.

The physicians must have documentation of your preoperative hearing level to assess surgical options and evaluate risk/benefits of various procedures. Conversely, postoperative testing is performed to document success or failure of surgical intervention. It is important to note that the primary role of surgery is to eradicate disease processes first and foremost with restoration of hearing a secondary, though an important and likely goal. In certain surgeries, restoration of hearing is not a goal due to extensive disease or previous underlying sensorineural hearing loss. Nonetheless, for thoroughness, a post-operative test is the only way the physician to know final status of hearing function.

These paragraphs above are not an exhaustive list of reasons to test hearing, but hopefully shed insight on why you may be asked to have a hearing test. Audiological assessment facilitates proper diagnosis, helps determine course of treatment, and quantifies outcomes. Audiological assessment is an integral part of thorough otologic care for disorders of the ear, hearing loss, and balance function.

# Aspire

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2. Multilevel Noisetracker II, featuring spectral subtraction of noise from the speech signal.
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5. Feedback cancellation software to help control whistling sounds and give you the gain you need.
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Ellen R. Wilson, Au.D. CCC-A

**Come Meet Our Experienced Audiologists**



J.P. Miller, M.S. CCC-A

("Sleep apnea in children", continued from page 1)

fight infection and tend to be enlarged in children with sleep disordered breathing. The tonsils sit at the back of the oral part of the throat and the adenoids sit at the back of the nose. Enlarged tonsils and/or adenoids can easily get in the way of breathing at night. If a child has significant symptoms of sleep apnea and has enlarged tonsils, removal of the tonsils and adenoids is usually recommended. Ninety percent of children with sleep disordered breathing are helped by the surgical removal of the tonsils and adenoids. If the child has moderate symptoms but the tonsils are not enlarged, or have already been removed, a sleep study may be recommended. A sleep study can help with borderline cases but can produce inaccurate results, especially in children. If the symptoms are mild, the child is doing well in school, and the tonsils are small, observation is usually best.

Sleep disordered breathing can have other causes. Children with sudden infant death syndrome (SIDS) and apparent life threatening episode (ALTE) need a thorough evaluation by a pediatric sleep specialist. Children with abnormalities of the jaw, tongue, or face may need the help of a craniofacial team to help improve the airway in a concerted fashion as the child grows.

### Treatment for sleep disordered breathing

Since enlarged tonsils are the most common cause for sleep disordered breathing, surgical removal of the tonsils and adenoids is the most effective treatment for pediatric sleep disordered breathing. Ninety percent of cases are treated successfully with this surgery. Of the nearly 400,000 T&As performed in the U.S. each year, 75 percent are performed to treat sleep disordered breathing.

Not every child with snoring should undergo removal of the tonsils and adenoids. Please ask your family doctor or otolaryngologist - head and neck surgeon if your child has significant snoring with interrupted breathing at night. The procedure does have risks and possible complications primarily from general anesthesia, bleeding and infection. Sometimes the child's speech will sound differently and there is a small chance of nasal regurgitation.

Adapted from <http://www.entnet.org/HealthInformation/Could-Child-Have-Sleep-Apnea.cfm>



Samuel P. Davis, III, M.D.

## Our Board Certified Otolaryngologists



William C. LeLiever MD, FACS, FRCS©



Doris Lin, M.D..



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