

# The Southside Scene

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In the Livingston Health  
Services Building

*Welcome to our newsletter! We hope you will find the information it contains to be helpful, and encourage you to pass it along to friends or family members who might also benefit from it. Please feel free to suggest topics for further newsletters – call us or let us know at your next visit!*

## Cell Phone Help for Hearing Aid Wearers is On the Way!

Cellular phone manufacturers will soon be required to offer handsets that work with hearing aids.

Many hearing aid wearers currently have problems with digital wireless phones due to electromagnetic energy, which can result in static and squeals. Within the next two years, most manufacturers of cell phones must offer at least two models that emit reduced energy levels, thus reducing this interference. By 2008, half of all cell phones must be hearing aid compatible. Analog phones will also need to be available, as they usually do not interfere with hearing aids.

Federal rules have already been enacted that require most home telephones to be compatible with hearing aids, but until now cell phones have been exempt from these requirements. ■



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### The Scoop on Sue

- Sue had surgery on her right knee on July 21st. It was successful, and she expects to be back on the volleyball court in September, when she begins teaching advanced volleyball classes for Rush-Henrietta continuing education.
- She expects to be an aunt again in early Fall, when her brother & sister-in-law complete the adoption of a child from overseas.
- Starting in September, Sue will be out of the office on Monday mornings and Thursday late afternoons due to her teaching schedule at SUNY Geneseo.

## Technology Update

### What is Digital?

Quite frequently patients come into the office and ask about “those digital hearing aids.” Unfortunately, some people in the industry continue to hype the concept of digital technology. The truth of the matter is that “digital technology” is fairly common in today’s hearing aid industry. (Remember when televisions first came out? Generally one person on the block had a TV and many gathered around to see it. Now, households generally have 2 or 3 televisions.) Almost every manufacturer makes a digital product. What is also becoming more common is that many manufacturers are now creating multiple product lines, all digital, in efforts to attend to everybody’s needs, including cost. To go one step further, some of the manu-

facturers don’t even make analog products any more. (That would be like making a black and white television these days...why would you?)

### So then, what does digital truly mean?

The term digital is actually referring to the circuit processing of sound as it travels through the hearing aid. For those that are familiar with the concept of digital, it truly means sound is being converted to a binary system within the processor after it gets converted to electronic energy through the microphone. For the rest of us, it means sound is being converted to computer language. This language allows for the fidelity of the sound to be maintained as it travels through

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## Eustachian Tube Dysfunction (ETD)



### Sue Says...

With the upcoming “hay fever” season, namely allergies to ragweed in the fall, one is bound to experience a little Eustachian Tube Dysfunction along with the nasal and sinus congestions associated with these allergies. What is Eustachian Tube Dysfunction and why does it affect your ears and sometimes your hearing?

The Eustachian tubes are passageways that connect the middle ear to the nasopharynx (the part of your throat just behind your nose.) The purpose of these passageways is to allow air up into the middle ears so that the pressure on either side of your eardrum is equal. This is an important function to keep the middle ear space free of pressure, fluid or infection; and to keep it working at its peak to allow sound to get through to the inner ear efficiently. The Eustachian tubes are designed to open and close periodically, naturally, and passively. This periodic open and closing helps keep the middle ear’s environment quite happy.

When the Eustachian tubes do not open and close as regularly as they should, one may start to feel pressure in the ear. This sensation is often alleviated by simply “popping” the ears. This is accomplished by holding the nose, closing the mouth, and blowing through the nose. This maneuver is called the Val Salva maneuver. This maneuver is quite effective when one is exposed to a sudden pressure change and the Eustachian tubes cannot open quickly enough to equalize that pressure. Such a scenario is when ascending or descending in an airplane.

When the nasopharynx experiences congestion and inflammation (as in the case of allergies, a cold, sinus/nasal congestion), the Eustachian tubes cannot open as regularly as they need to because of the inflammation. This is the Dysfunction part. Therefore, pressure will then build up in the middle ear space. In this instance, it is not always wise to perform the Val Salva maneuver. If there is a lot of mucous associated with the congestion, this mucous (or any bacteria/virus) can then be pushed up into the Eustachian tube. Interestingly though, this is not where middle ear fluid typically comes from.

Middle ear fluid comes from within the cellular walls within the middle ear space. As stated above, a pressure in the middle ear space will develop if the Eustachian tubes cannot perform their function. This pressure is generally a “negative pressure.” This negative pressure then creates a “vacuum” in the middle ear. This vacuum starts to suck on the cell walls within the middle ear. THIS is where middle ear fluid generally originates. If the negative pressure within the middle ear persists, and the Eustachian tubes cannot do their job, then the middle ear becomes a wonderful breeding ground for bacteria. It is then that one will have an active middle ear infection.

Treatment for middle ear infections is of course antibiotics, and determined by your physician. However, if there is no infection, but fluid in the middle ear remains, antibiotics cannot do anything to relieve the fluid. The most persistent phase of this whole process is the fluid. Time has been proven to be the best treatment for fluid. It is annoying and frustrating to have this condition persist, but time is the true healer. Your physician may successfully help it along by attending to the primary cause of the whole situation...the Eustachian Tube Dysfunction and whatever caused it.

Your hearing, most often, is mildly affected by Eustachian Tube Dysfunction on a temporary basis. The negative pressure may cause a slight deviation of hearing, but generally considered minimal. The fluid will cause a greater deviation and can cause a mild to moderate, but temporary hearing loss, especially in the low frequencies (pitches). Infection at its worst will usually cause a moderate low frequency hearing loss, again temporary. It would not be unusual to fluctuate throughout any given day from normal to mild with negative pressure and then back to normal with Eustachian Tube Dysfunction.

It is rare that an ear infection, or fluid will cause permanent hearing loss. Often times scar tissue will be seen on an ear drum, indicating that perhaps this process has occurred several times in the past (and perhaps having even burst the eardrum before); however, this scarring also rarely has any effect on one’s hearing. ■

## Technology Update

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the circuitry. Basically, what comes into the hearing aid is also what comes out of the hearing aid (plus or minus appropriate modifications to satisfy the hearing loss.) No information is lost during the conversion of sound within the electronics.

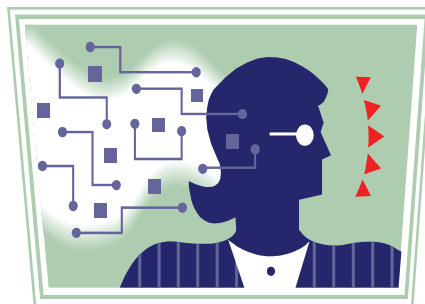
This is contrary to analog processing. With analog hearing aids, bits and pieces of the signal are lost during the processing of the sound. Therefore, what comes out of the hearing aid is a good replica of the original sound, but not exact. One can think of the difference between an audio-tape (magnetic) versus a CD (digital); or a VHS tape versus a DVD. When a musician listens to an audio-tape, that person has enough knowledge of music that he knows that the quality of that audio-tape is inferior to the quality of the CD. To the casual music listener, that quality difference may not be as obvious. A person with hearing loss is like that musician. S/he knows that what is being heard isn't quite right (either consciously or subconsciously). When the sound goes through an analog hearing aid, the bits and pieces that are lost are crucial to the quality of the sound to a person who has hearing loss. It may actually make the clarity of the sound worse yet. But, when the sound is converted digitally, and the original sound is maintained, then the hearing impaired ear has a better shot at receiving more of the information than without a hearing aid; or with an analog hearing aid. The hearing impaired ear needs as much information as possible to make sense of the signal. Digital technology offers this ability.

*“Digital technology and the conversion of sound into computer language allows for greater flexibility and fine-tuning of the hearing aid.”*

**(Terminology caution is warranted:** One may still see advertisements for a product that is digitally programmable. This is to catch your eye with the word digital. This is NOT, however, referring to a true digitally processed hearing aid. It is only referring to a hearing aid that is programmed on the computer. It is still an analog processed instrument!)

Digital technology and the conversion of sound into computer language allows for greater flexibility and fine-tuning of the hearing aid. It allows the manufacturers to put greater capacities into smaller spaces. This technology now allows me, the audiologist, an opportunity to make more adjustments to the hearing aid while the hearing aids are connected to my computer, and in your ears. You can think of it as cable TV...before cable, we just had local network stations received through an antenna. With cable TV, you now have increased options, better clarity of the stations, and various packages (basic cable versus a cable package with all of the bells and whistles).

So now we have a digital hearing aid that is more flexible. There are cautions to the word digital. First, just because it is digital does not make it so that you can hear better in background sound. No one has yet shown objectively that just because a hearing aid is digital it helps a person hear better in background sound. **A big exception to this...**people still report subjectively that digital hearing aids help them hear better in background sound. We don't have the scientific evidence to prove this though. It just goes to show that we still don't know enough about the ear to mimic it with electronic devices.



### What CAN a digital hearing aid do to help in background sound?

If a hearing aid IS digital, it DOES ALLOW for the advanced technology that does help you hear better in background sound to be incorporated into the device! These two technologies are DUAL MICROPHONE SYSTEMS and NOISE REDUCTION CIRCUITS. Please keep in mind that digital hearing aids are AVAILABLE with these technologies, but all digital hearing aids do not necessarily have them.

#### Dual Microphones

Dual microphones have been known to help in background sound (and have been scientifically proven) long before digital hearing aids came about. Dual microphones refer to the placement of two microphones into one hearing aid. When in background sound, the back microphone changes (almost like it gets turned off), and the person hears what's in front of him better than what is behind him. With digital technology, manufacturers have been able to make improvements on this concept and add more adaptable/automatic features.

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## *Southside Hearing Center*

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## Technology Update

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### **Noise Reduction Circuits**

Noise reduction circuits are a result of digital technology. This circuitry is essentially "taking the glare off the background sound." I liken it to putting a pair of sunglasses on while outside on a sunny day. You can still see, but it's not quite as bright. (Note: more basic digital hearing aids do not have this feature.)

### **What's the Bottom Line?**

So now, when the term "digital" is used to describe a hearing aid, it doesn't mean anything more than the way the sound is processed. You are not guaranteed to hear better in background sound with a digital aid, unless you have the other features described above. You are not guaranteed the most flexible hearing aid. You are also not guaranteed the highest costs just because it is digital.

**However, because it is digital, you WILL be guaranteed a cleaner, more clear sound with greater flexibility than an analog version of that hearing aid! ■**

### **SPECIAL POINTS OF INTEREST**

- Now is the time to purchase new hearing aids or replace old hearing aids...call us and ask how you can **save up to \$500** off the purchase of a new set of hearing aids during the month of September! Tell your friends and family, too!
- Tired of going to the store to get hearing aid batteries? **Join our Battery Club**, and we'll mail them to you when you need them! Call us for details.
- HIPAA is in full effect! **Please bear with us as we have you complete the necessary paperwork at your next visit.** Remember, this law was established to protect YOUR rights as a patient!