

WINTER
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Sound BYTES

INFORMATION FOR YOUR EARS

Sound Smarter: The AI Revolution in Hearing Aids

Artificial Intelligence (also known as AI) has become a popular buzzword in the technology world, but it's actually been around for many years. If you have ever used the internet, social media, Siri/Alexa, or watch Netflix, then you have used artificial intelligence.

Machine Learning (ML) is an extension of AI that has played a major role in advancements to hearing technology. ML is a form of AI that detects patterns without needing human direction. From those patterns, it learns how to make predictions and becomes more efficient with more experiences. Hearing aids utilize ML to look for patterns that support the patient's listening preferences and adapt to ever-changing listening environments.

Hearing aids also use a form of machine learning called a neural network. A neural network is technology that is trained on millions of real-life sound samples (i.e. human speech, a train, a restaurant). That way, the hearing aid learns to recognize different types of sound and their relative importance so that the patient can hear the sounds that are important for them. The automatic nature of the device means less adjustments required by the patient.

New childproof packaging for non-rechargeable hearing aid batteries: Are they also adult proof?

A new law requires childproof packaging for hearing aid batteries. Patients are noticing significant difficulty removing their batteries from the packaging, as it now requires use of scissors to individually remove each battery.

Many patients or their caregivers are removing the batteries ahead of time for convenience, and make the mistake of grouping them together. **Unused batteries should not be touching each other**, as this causes them to lose charge very quickly (even with the sticker still on them)

We want to help. A multi-compartment container such as a reusable battery caddy or a tacklebox can be used for effective storage of batteries. We offer a key chain battery caddy option that stores two batteries. **Please note that removing batteries from original packaging will no longer ensure they are child proof, so it is important to store out of reach of children, pets, and adults who need tamper resistant packaging.**



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When Hearing Aids are not Enough

Within our cochlea, the organ of hearing, there are little hair-like structures called hair cells that are responsible for interpreting different sounds and pitches. When hearing loss occurs, these hair cells become damaged, and individuals need more volume in order to maintain clarity of speech. In some patients, the damage to the inner hair cells is so extensive that no matter how loud a hearing aid is, speech is still not clear. In these cases, a cochlear implant may be considered.

A cochlear implant is a surgically implanted device that stimulates residual nerves in an effort to provide improved clarity of speech. The device has two components: an electrical array which is inserted into the cochlea, and a processor which is magnetically attached to the side of the head. The surgery is typically an out-patient surgery, meaning most patients are able to go home the same day. While the surgery only takes a couple of hours, the rehabilitation process takes much longer. After the device has been activated, it can take up to a year to receive the full benefit of speech understanding.

If you are a current hearing aid user and find yourself reading lips, struggling to hear on the phone, withdrawing from social activities, or often needing repetition, talk to your audiologist to see if a cochlear implant may be appropriate for you. An updated hearing test will provide valuable information to determine if a cochlear implant consultation is right for you.



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The Benefits of a Custom Fitting

The concept of “one size fits all” rarely works for most things in life and this also applies to hearing aid fittings. While in some cases, domes can be an appropriate option, some patients find more benefit from a custom option due to a variety of reasons. For example, the size and shape of the ear canal varies greatly among patients, as the ear canal is typically an S-shaped funnel. Some ear canals have sharp curves whereas other ear canals can be more straight. Additionally, the ear canal volume varies greatly among patients. The size and shape of the ear canal can even vary between the left and right ear for the same patient.

Therefore, there are many possible benefits to obtaining a custom fit for your hearing aid fitting. Here is a list of a few of the benefits to obtaining a custom fitting:

1. **More gain:** In individuals with greater degrees of hearing loss, custom molds are the only way to provide adequate volume without feedback.
2. **Better retention:** When a hearing aid is made for your ear exactly, it will often remain in your ear canal better while chewing or talking.
3. **Easier to manipulate:** For individuals with dexterity issues, replacing small non-custom domes can be challenging. A custom mold is often larger than the dome making it easier to hold onto while inserting into the ear canal.

To obtain a custom fitting, the audiologist takes an impression of the ear. A foam or cotton block is placed in the ear canal to prevent the earmold impression material from adhering to the eardrum. Then a silicon material is injected into the ear canal. It typically takes about 5 minutes to cure or harden. The impression is sent to the hearing aid manufacturer. The hearing manufacturer digitally scans the impression and uses it to make the hearing aid fit specifically for each patient. It is quite the art form to see how the engineers can place the tiny electronics in each custom-built device.

If you would like more information about obtaining a custom fitting for your hearing aid, reach out to your audiologist to discuss if a custom fit is right for you.