

Why Do I Struggle to Hear In Noise?

Having difficulty following a conversation in background noise is the most common complaint from patients as hearing loss and tinnitus first begins to impact life. This interruption in the ability to socialize and easily communicate can be devastating to the person and their loved ones. Unfortunately, when someone is not able to follow along with what family and loved ones are saying at the dinner table, too many people default to *'then why bother even being there'*.

The feelings of isolation, depression, fear, loneliness, embarrassment, frustration, and anxiety that are associated with hearing loss and tinnitus (def: sounds in the ear) are real; and are very well documented. Perhaps you only need to look in the mirror, or at a loved one, to realize how real these emotions are. The ability to follow a conversation when multiple people are speaking, or with other competing sounds (i.e., when the TV is on in the background, running water from the sink) is a natural cognitive

(brain) ability that we take for granted until it begins to break down and interfere with communication with others. As we age, for many in their 40's and 50's, subtle changes in the ears yield significant differences in the ability to hear in these 'complex' listening environments. And most often, this difficulty is noticed long before the diagnosis of hearing loss. In fact, most people wait 7-10 years before acknowledging that their hearing loss is getting in the way.

The Breakdown

Nearly all of us will experience hearing loss and/or tinnitus as we age. The reasons are complex and include several risk factors such as age, genetics, past exposure to loud sounds and medications. Regardless of the cause, hearing loss and tinnitus start with a breakdown of cellular activity in the ear that then extends deep into the brain.

Tiny 'hair cells' in our ears that process sound (much like the rods and cones in

our eyes that perceive light, color and shape) become damaged and die off; and they do not come back. As a result, our ears will have difficulty noticing fine differences in sounds. For example, the subtle differences between the 's' and 'sh' sounds become undetectable to the listener; making words like 'see' and 'she' harder to understand and distinguish. This difficulty with **clarity** is why so many people with hearing loss say, 'can you repeat that' and not 'can you please say that louder'. Clarity and volume are not the same; and the loss of clarity impacts your life 5-10 years before you need sounds to be louder. Decreased clarity is one of the first signs of hearing loss.

Downstream

Once the 'hair cells' inside the ear are no longer working, the vast neural network that connects these cells to the brain begins to feel the impact. It is estimated that **millions** of neural connections from ear to brain breakdown and do not work



properly at the earliest stages of hearing loss. This loss of neurons is experienced throughout the brain and may lead to cerebral atrophy (brain shrinkage). As these neurons die, the brain's ability to hear is profoundly impacted (*remember – we hear with our brains, not our ears!*). Unfortunately, once the damage in the ears begins, the nerves will continue to be impacted and the damage becomes progressively worse with age. Therefore, most forms of hearing loss are medically defined as a *progressive degenerative disorder*.

Listening to others and following the conversation is otherwise simple and effortless with normal hearing, but with hearing loss the brain will strain just to hold a conversation. The brain has four unique hearing capabilities, including:

1. Localization – the ability to determine where sounds are coming from.
2. Recognition – the ability to recognize words and understand the conversation.
3. Focus – tuning in to what is important (e.g., somebody speaking to you) especially in noisy rooms.
4. Separation – segregating out what you want to hear from what you don't want to hear.

Each of these tasks relies on a vast and robust neural network of information coming from the ears. Thus, each of these is negatively affected when hearing loss and tinnitus wreak havoc on the neural networks from ear-to-



brain, even at the earliest stages of the disorder.

Take Action!

With hearing loss and tinnitus, the damage to your ears and brain is not reversible; however, with treatment you can slow down the progression of the impact that hearing loss has on life. The medical treatment of hearing loss and tinnitus is custom prescribed to address the needs of each patient by restoring clarity, supporting the four cognitive tasks mentioned above and, most importantly, allowing people to maintain high-quality communication with others –

even in the noisiest situations.

If you or a loved one are feeling that *'something has changed'* and that it is more difficult to hear and follow a conversation in noisy situations than it *'used to be'*, don't wait. The prognosis for treatment is significantly improved when treatment starts early (*said differently – the longer you wait for treatment, the worse the prognosis!*). Consult with a hearing healthcare specialist who understands that the impact of hearing loss goes far beyond the ears and impacts the brain and your life.



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