



JOURNEY TO **BETTER** HEARING

Your step-by-step guide to
hearing better with Earlens



Journey to Better Hearing

Although we hear with our ears,
we listen with our brains.

As a result, it is not surprising that most people require at least 6 weeks of hearing aid use before they consider themselves to have “adjusted” to their new hearing aids.

In studies, both new and experienced hearing aid wearers have experienced an increase in benefits across time. That’s why it’s so important to wear your Earlens across your provider’s entire fitting optimization period.

AWARENESS OF SOUNDS

WEEK 1

This guide to better hearing will help you maximize and recognize the benefits of hearing more complete sound with Earlens.

In this stage, you may hear sounds that you haven’t heard in a while, and the world may feel “noisier” than usual.

Over time, less important sounds will move back into the background as your brain begins to prioritize them.

Research suggests that it takes at least 6 weeks to adapt to a new hearing solution.

SOURCES

1. Cox, Robyn M., and Genevieve Alexander C. “Maturation of Hearing Aid Benefit.” *Ear and Hearing* 13.3 (1992): 131-41.
2. Cox et al. “Benefit acclimatization in elderly hearing aid users.” *J Am Acad Audiol* 7(6):428-41, 1996.
3. Berger KW, and Hagberg EN. Hearing aid users’ attitudes and hearing aid usage. *Monographs in Contemporary Audiology* 1982;3(4):24.
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IDENTIFICATION OF SOUNDS

UTILIZATION OF SOUNDS

WEEK 2-4

When you hear a sound with Earlens, you may not recognize it at first. This could be because it sounds different than before you had your new high frequency hearing.

As you acclimate to hearing with Earlens, your brain will relearn sounds and start automatically identifying them.

WEEK 5-8

In normal hearing, the brain uses high frequencies to help find and focus on sounds, like choosing a voice to listen to in a noisy restaurant.

As your brain learns to use the new frequencies you are hearing, you may notice benefits like being able to follow conversations in loud environments more easily.

6. LeGendre S. J., Liss J. M., Lotto A. J. (2009). Discriminating dysarthria type and predicting intelligibility from amplitude modulation spectra. *J. Acoust. Soc. Am.* 125 253010.1121/1.4783544.
7. Moore B. C. J., Füllgrabe C., Stone M. A. (2010). Effect of spatial separation, extended bandwidth, and compression speed on intelligibility in a competing-speech task. *J. Acoust. Soc. Am.* 128 360–371 10.1121/1.3436533.
8. Levy SC et al. Extended High-Frequency Bandwidth Improves Speech Reception in the Presence of Spatially Separated Masking Speech. *Ear Hear.* 2015 Sep-Oct;36(5):e214-24.
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Goals & Notes

Top 3 hearing goals:

1

2

3

New sounds I'm hearing:

Goals & Notes

HOW MANY TIMES HAVE YOU WORN EARLENS IN THIS SITUATION?

To the best of your knowledge, write down how many times you wore Earlens in this situation.

HOW ARE YOU HEARING WITH EARLENS IN THIS SITUATION?

Rate current difficulty (1-5), with 1 being "Very Difficult" and 5 being "Very Easy".

		DIFFICULT						EASY
Goal 1		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
		1	2	3	4	5		
Goal 2		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
		1	2	3	4	5		
Goal 3		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
		1	2	3	4	5		

Questions or concerns for my audiologist:

Prof. Brian C.J. Moore's Story

"I'm hearing those high frequencies, but I'm also getting a very **natural sound quality**"

- Prof. Brian C. J. Moore



"I had not been able to hear such a full range of frequencies with my prior hearing aid.

As a result, when I first started wearing the Earlens I did not initially recognize some of the higher-frequency sounds that I was now hearing for the first time in a very long time. For example, I might perceive consonants in speech like "t" as little bursts

of noise that sounded separate from what the talker was saying. It took my brain several weeks to adjust, after which these higher frequencies became more integrated and natural sounding. Ultimately, these high frequency sounds helped me to better understand what was being said after I successfully adapted to hearing them again."

- Dr. Brian Moore is Emeritus Professor of Auditory Perception in the University of Cambridge.

Fitting Day

What to Expect

Today is the first day in many years that you're hearing sounds at higher frequencies. Some people notice an immediate improvement in sound quality. If you do not, give it time.

Because you're hearing differently, certain sounds, like your own voice and chewing may sound strange right now. Your brain is starting to acclimate to full frequency hearing. As it does, you'll be better able to notice new sounds that you previously missed, and learn how to use the new information - for instance, to focus on speech in noisy environments.

Science Says

Research has proven that our brains are very "plastic"—or highly adaptable to changes. This extends to hearing as well. Using amplification changes the way that adults process sound information like speech in noisy situations. Even though sounds may feel "strange" or "different", the brain can and will adjust.

This process typically takes at least 6 weeks.

HEARING TIP



Earlens may feel different than other hearing devices you have worn. This is normal. It may take time to adjust to the feeling of Earlens. Discomfort or pain is unusual. If you experience either of these, you should call your audiologist right away.

Week 1

AWARENESS OF SOUNDS

What to Expect

Sounds can be described by their “pitch” or sound frequency. Some sounds, like a foghorn, are low frequency. Other sounds, like birds chirping, are high frequency. With Earlens, you will hear sounds in the higher frequencies more clearly than you have for some time. As you begin to hear a fuller range of frequencies, the world around you will come more into focus.

During this time, you may have an initial sense of “fullness” in your ear. The oil used to place the Lens on your eardrum can contribute to this feeling, which will dissipate within a few days.

Science Says

Different frequencies impact our perception of sound. If you have high frequency hearing loss, things may sound less bright or sharp when you are not wearing your Earlens behind-the-ear Processor. If you have low frequency loss, things may not sound as full.

SOURCES

1. Cox, Robyn M., and Genevieve Alexander C. “Maturation of Hearing Aid Benefit.” *Ear and Hearing* 13.3 (1992): 131-41.
2. Cox et al. “Benefit acclimatization in elderly hearing aid users.” *J Am Acad Audiol* 7(6):428-41, 1996.

Listening Exercises

- During this stage, pay attention to the sounds around you and note new or unfamiliar sounds.
- Find a quiet place to sit. Close your eyes and listen for 1-2 minutes. Are you able to envision your surroundings better than you could prior to Earlens? Can you form a better image of the world around you?

TIPS FOR YOUR NEW EARLENS*



Your own voice and familiar sounds may initially seem different. Wear your new Earlens Hearing Solution as often as possible so that your brain can adjust.



At first, you may be aware of the Lens in your ear. This is similar to wearing a new watch. You will notice it initially, but soon you forget you are wearing it at all.



When you charge your Earlens Processors, one light on the charger could blink up to 20 seconds while your Processor and Charger are connecting. If four lights are flashing, try removing and placing the Processors back into the charger and immediately press the top user control. Once connected, you should see at least 1 solid light.



Never use Q-tips to clean your ears with the Lens in place. Apply 1 pump of mineral oil daily, or as directed by your Earlens provider, to help keep the Lens working properly.

*See your Earlens User Guide for other helpful tips.

Week 2-4

IDENTIFICATION OF SOUNDS

What to Expect

You are hearing a more complete range of sound, so some things may sound “bright” or “tinny.” Fortunately, brightness is associated with clarity. Hearing higher frequencies will help you identify consonant sounds, like “s”, “z” and “v” to understand what is being said. Your brain will also start to easily identify non-speech sounds. An example might be automatically connecting a ticking sound with the clock on the wall.

Science Says

As hearing deteriorates in certain frequency ranges, we begin missing information. High frequencies are one of the first places that we tend to have hearing loss, but they are important for:



BETTER HEARING IN NOISY ENVIRONMENTS

Better high frequency hearing is associated with understanding speech better in challenging listening situations, like restaurants, and understanding a talker in the presence of other talkers.



SPEECH UNDERSTANDING

In communication, intelligibility measures how understandable speech is. In studies of people with and without hearing loss, speech intelligibility improved as high frequency bandwidth increased.



NATURAL SOUND QUALITY

People perceive sound to be more natural when the frequency range includes more high and low frequencies. In a study from Cambridge University, the frequency range that Earlens amplifies was perceived to be 3x more natural.



“With Earlens I had no trouble at all hearing everyone at the table clearly. It was amazing.”

- Richard H.

Listening Exercises

- Listen to the TV or have a partner read a newspaper passage out loud to you. Think about what new speech sounds you are hearing.
- Try listening to music. How does it sound with and without your Earlens?

HEARING TIP



Hearing changes are subtle, nuanced, and occur gradually. Unless you're actively looking for them, you may miss them.

SOURCES

1. Moore, B. C. J., & Tan, C.T. (2003). Perceived naturalness of spectrally distorted speech and music. *J Acoust Soc Am*, 114, 408-419.
2. Levy, S.C, Nilsson, M, et al. (2015). Extended high-frequency bandwidth improves speech reception in the presence of spatially separated masking speech. *Ear Hear*, 36, e214-e224.
3. Stelmachowicz P, et al (2001). The effect of stimulus bandwidth on the perception of /s/ in normal and hearing impaired children and adults. *J Acoust Soc Am*, 110:2183-2190.

“Now **I can hear** what I
really want to hear.”

- Carol L.



Carol's Story

"My hearing loss really did affect me in a lot of different ways.

I would take classes and not be able to understand, and I would have a difficult time following along. I would miss a lot of content and what was going on.

I had difficulty hearing children. My grandkids' voices were higher, so they would kind of tease me. I'd really stare at people's mouths and try and lip read a little bit. Other times I faked it. And sometimes the responses I gave were quite inappropriate to the conversation.

Someone in the family recommended Earlens and thought I might be a good candidate. I was delighted to give them a try. They work – I can hear. I'm just ecstatic with them.

I really love the fact that Earlens has just changed my life. I can go to the movies. I can take my classes. I can go to the book club. I can go to the symphony. The other hearing aids made things really loud. I could hear my shoelaces as they lay on the ground. Now I can hear what I really want to hear. Earlens seems to broaden how much I hear so I don't have to hear it as loud, but I hear more."

Week 5-8

UTILIZATION OF SOUNDS

What to Expect

At this stage, your brain should have begun acclimating to the fuller range of frequencies you are hearing. You're now progressing toward being able to effectively use the new auditory information that you are receiving to hear better in more challenging environments.

Science Says

Research has shown hearing aid users experience a significant improvement in objective hearing benefits across the first 10 weeks of wearing their new hearing aids. And, hearing aid wearers who use listening exercises to "train" their hearing report greater benefit from their hearing devices.

HEARING TIP



As our brains learn to make use of new auditory information, we don't need to spend as much effort making use of all that information. When this gradual change occurs, we feel that it becomes "easier" to hear and understand.

SOURCES

1. Kraus, Nina, Therese Mcgee, Thomas D. Carrell, Cynthia King, Kelly Tremblay, and Trent Nicol. "Central Auditory System Plasticity Associated with Speech Discrimination Training." *Journal of Cognitive Neuroscience* 7.1 (1995): 25-32.
2. Cox et al. "Benefit acclimatization in elderly hearing aid users." *J Am Acad Audiol* 7(6):428-41, 1996.

Listening Exercises

- Have a partner read a paragraph from the newspaper sentence by sentence while holding the newspaper in front of his or her mouth. Is it:
 - ☐ **MUCH EASIER**
Congratulations! Most people take at least 6 weeks to begin to understand speech better without visual cues.
 - ☐ **THE SAME**
This is normal. Research suggests that people typically take 6 to 8 weeks to start to realize improvements in their ability to understand speech better without visual cues.
 - ☐ **MORE DIFFICULT**
Don't worry. If you have a more severe hearing loss in areas, you likely have more new sounds for your brain to adapt to. Continue to wear your hearing aids for as much of the day as possible. Do this exercise across the next few weeks and note whether it takes less effort to listen to what is being said.
- Find a speaking partner and turn on the TV or radio or choose a situation with some light background noise. Ask the speaker to read the newspaper out loud. Practice focusing on the speaker. Consider:
 - ☐ Am I able to focus on the speaker more easily?
 - ☐ Am I better able to tell where different speakers are in the room?
 - ☐ Am I understanding better?

Congratulations on adjusting to your new Earlens Hearing Solution!

We hope you have experienced the benefits of more complete hearing across the last 8 weeks and would love to hear about your experience. To share your story, please email testimonials@earlens.com. We look forward to hearing from you!

"I can hear the birds that I never heard before. **It's like experiencing more of the world**, and it's very pleasurable. And, it's very empowering."

- Barbara W.



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