



September 2022 Newsletter

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12484, Oakland, CA 94604-2484. See the back page to sign up and support National HLAA.

At the September 10 meeting we will present: Coping with Hearing Loss: Taking Care of Our Mental Health. We will show a video featuring Dr. Alison Freeman’s presentation to HLAA-LA last February. Psychologist Dr. Alison Freeman explains that hearing loss is primarily a communication disability rather than just not being able to hear. Struggling to understand conversations with lifelong friends and family, hearing music or professional meetings is a constant stress every day and can lead to depression and social withdrawal. An essential part of dealing with hearing loss is recognizing that stress is inevitable so rather than avoiding it, learning more effective stress communication skills will be more productive and emotionally satisfying. Come learn new coping skills for keeping depression and anxiety at bay with Dr. Freeman, who has a severe, bilateral sensorineural hearing loss herself. Social time: 9:30 a.m., Meeting begins: 10 a.m.

Register for these free events [HERE](https://www.hearinglosseb.org/monthly-meetings-1). Or use this link if you are getting a hard copy of the newsletter: <https://www.hearinglosseb.org/monthly-meetings-1>. After you register, you’ll be sent the link to join the meeting. Consider staying after the meeting for AfterWords – a chance to ask more in-depth questions, as well as discuss anything you want with fellow members!

HLAA-EB posts our newsletters to the California State Association webpage and a link on our website. **VOLUNTEER! Contact us to let us know you are available!** Check out our website at: <http://www.hearinglosseb.org/> Contact us at: info@hearinglosseb.org

MEETING NOTES: *“Cochlear Implants: Advances in Electrode Design & Surgical Procedures; Benefits of Combining Acoustic & Electric Hearing for Speech & Music Perception”*

At our August 13., 2022, HLAA-EB Chapter meeting, our guest speaker was John Galvin, Ph.D. who is a Research Scientist at the House Institute in Los Angeles, CA. Dr. Galvin has been involved with cochlear implant research for more than 20 years, first at the House Ear Institute, then at UCLA, and now at the House Institute Foundation. Dr. Galvin’s areas of interest in cochlear implant research range from psychophysics to speech and music perception.



Dr. Galvin set forth the following agenda for his presentation, which was accompanied by many visual & auditory demonstrations: History of Cochlear Implants (CIs); Early House CI Research; Components of the CI System; Factors That Affect CI Outcomes; Benefits &

Challenges of Combining Residual Acoustical & Electric Hearing; Legacy & Future of House CI Research; Summary of What Has Been Learned about CIs; Links & Resources for More Information.

History of CIs: Initially, Dr. Galvin provided a detailed history of CI's, while highlighting key developments:

- The French did it first: Implanted electrodes for auditory use in 1957; used coil for stimulation; introduced “promontory stimulation” to evaluate implantation candidacy; advocated multi-channel stimulation.
- Early developments in CIs: First micro-electronic multi-channel CI; multi-channel device technology for inserting electrodes; continuously interleaved sampling (CIS) speech processing strategy still used today.
- Dr. William House of the House Ear Institute: Developed the first FDA approved, single channel CI; implanted the first child with a CI; developed the Auditory Brainstem Implant (ABI).
- The House Institute & Clinic: Became the premier center where ENTs from all over the world come to learn new CI surgical procedures; in the 1980's, became one of most prolific research groups worldwide.

Early House CI Research: Dr. Galvin and his colleagues have conducted research on many CI topics:

- ✓ Sound intensity; sensitivity to modulation; sensitivity to stimulation; speech recognition; Chinese tone recognition; speech & music perception; current steering; auditory training.
- ✓ Developed “CI simulations” for testing listeners with normal hearing to evaluate many CI parameters.
- ✓ Presented at the Conference of Implants & Auditory Prostheses; referred to as “HEI Research Mafia”.
- ✓ Developed the pediatric research program & CARE Center at House, advocating for early implantation.

Components of the CI System: The CI system has several components, as described by Dr. Galvin:

- Sound is picked up by the microphone & digitized by the speech processor.
- Digital signal is transmitted by the RF coil.
- Digital signal is decoded.
- Electric pulses are delivered to electrodes & stimulates surviving neurons.



Factors That May Affect CI Outcomes: There are a number of factors which may limit the outcomes of CI implantation in individual cases:

- Duration of deafness – Shorter duration better, especially for children.
- Age of implantation – Early implantation important, for children.
- Etiology/cause of deafness – Can affect the pattern of nerve survival.
- Electrode-neural interface – Electrode position & pattern of nerve survival.
- Functional spectral resolution – Perceptual ability to distinguish between sounds differing in pitch.
- Tonotopic mismatch – Difference between the input frequency & electrode location.
- Channel Interaction – Current spreads broadly with electrical stimulation.
- Listening demands – Perception differs in quiet, noise, & music.
- CI experience & training – Can benefit CI users even after years of CI experience.
- Availability of acoustic hearing – Provides details of sound not always available with CIs.

Music Perception for CI Users: Music perception is one of the top priorities for both CI users & researchers:

- Rhythm perception is typically near normal for CI users.
- Pitch & timbre perception can be poor due to limited spectral resolution.
- Some types of music may sound better than others (e.g., familiar music, simple arrangements, vocals).
- Polyphonic & orchestral music can be very difficult for CI users.

Combining Acoustic & Electric Hearing: There exist both benefits & challenges to combining residual acoustic & electric CI hearing. Different approaches are needed to optimize CI for combined acoustic & electric hearing, depending on the status of the CI recipient. The following three combination options are available:

1. EAS – CI & acoustic hearing in the same ear.
2. Bimodal – CI in one ear; acoustic hearing in the other ear.
3. SSD – CI in one ear; normal acoustic hearing in the other ear.

An increasing number of CI recipients have usable acoustic hearing in the implanted and/or non-implanted ear. Meanwhile, advancements in CIs have resulted in relaxed candidacy criteria, as well as improvements in electrode design & surgical procedures. Acoustic hearing that is combined with CI electric hearing can provide the extra detail needed for pitch perception & music perception, which the CI alone does not provide. This has resulted in improvements for speech in noise, music perception, & sound quality.

Nevertheless, challenges for optimizing combined acoustic & electric hearing still exist. For example, the problem of tonotopic mismatch may develop. In acoustic hearing, the place of stimulation in the cochlear & the acoustic input are matched. However, the electrode position in the cochlear is typically not matched in the frequency of the acoustic sound. For bimodal & SSD CI users, there is often a mismatch across ears in terms of frequency, with the CI ear often associated with a higher pitch than in the acoustic ear. Therefore, this tonotopic mismatch can limit the advantage of combined acoustic & electric hearing.

Legacy & Future of CI Research: The legacy & future of House research on CI's are strong & noteworthy:

- ✚ 150 peer-reviewed publications on CIs & ABIs from 1987 - 2014. & more than 25 since 2017.
- ✚ More than 20 federally funded research grants.
- ✚ More than 10 research labs have grown from the original department.
- ✚ In the new House Center for Auditory Prostheses, work continues on CIs & ABIs, including many former House faculty now participating as adjunct faculty; many collaborations persist among House researchers; new lab space; new children's center; some external funding with more to come.
- ✚ Steady improvements have been made in CI speech outcomes over the years, along with changes in CI candidacy criteria & surgical procedures.
- ✚ Yet, no major improvements in CI-only outcomes have occurred in nearly 30 years.

Summary: Dr. Galvin concluded his presentation by summarizing what has been learned so far about CI's:

- ❖ The CI was first developed more than 60 years ago, and nearly a million CIs have been implanted.
- ❖ The House Institute has played a major role in the development of the CI.

- ❖ CI & ABI research at House has been quite prolific over the years.
- ❖ Major limitations to the CI are spectral resolution, channel interaction, & tonotopic mismatch.
- ❖ Computer-based auditory training can help mitigate some of these limitations.
- ❖ Many CI users listen to & enjoy music despite the differences in music perception.
- ❖ Addition of acoustic hearing can be very beneficial to CI users in both speech & music perception.
- ❖ CIs need to be optimized to work well with acoustic hearing.

For More Information: Visit: <http://angelsound.tigerspeech.com> Email: jgalvin@hifla.org

~ Kathy Fairbanks

Over-the-Counter (OTC) Hearing Aids

The FDA issued its final rule on August 16, 2022, clearing the path for OTC hearing aids to be sold directly to consumers, without a prescription. Devices can hit the market beginning October 17.

This will expand the choices for millions of Americans who need hearing help, but there are many questions. As this important story hits the news, HLAA has an important opportunity to be part of the conversation in the media, and with people in need of hearing help.

Resources

HLAA has information including a Tip Sheet to help you decide if OTC is right for you. Learn more at hearingloss.org/OTC.

The page will be updated as we learn more, and we'll be posting other materials as events develop.

Main Points

- OTC means millions of American **adults with mild to moderate hearing loss** will soon have more choices in hearing aids, and the ability to get them without seeing a doctor or hearing care professional first.
- HLAA – the leading voice for the growing number of Americans with hearing loss – calls the step a win for millions of adults who have hearing loss and may have been waiting to get the help they need.
- HLAA advocated for consumer protections including clear labeling on cell phone connectivity.
- Forty-eight million Americans have hearing loss, and most never get diagnosed or treated. Cost and stigma are common barriers, even though untreated hearing loss is linked with other serious illnesses, isolation, and cognitive decline.
- HLAA hopes this new class of devices could inspire some people to treat their hearing loss sooner.

- This is an exciting step, but it's still important to remember there's no one-size-fits-all approach to hearing loss. For many, a hearing care professional will still be a part of an effective treatment plan.
- HLAA also urges all Americans is to get their hearing checked, and not to wait to get treated, no matter what option you choose. HLAA provides ongoing advocacy, resources, and support to empower people with hearing loss.
- HLAA is urging consumers to check for a return policy before choosing a device, since it's important to have adequate time to assess and adjust to any hearing aid.

Here's a link to HLAA's [News Clips](#) on this important issue.

Seeking Research Participants!

On behalf of Meta (formerly Facebook), **Contact Design** is seeking research participants for an accessibility panel. They are looking for individuals who meet the following criteria:

- Deaf or hard of hearing
- Blind or low-vision
- Living with upper body physical impairments

Your participation in the panel would provide opportunities to participate in **compensated studies** such as:

- Discussion groups
- Interviews
- Online surveys

There is a \$100 Welcome Gift to each new participant that is registered to the panel. You will then be on a short list to be contacted about relevant paid research studies in the future.

Apply here to take the Applicant Survey:

<https://www.surveymonkey.com/r/CDSFCJH>

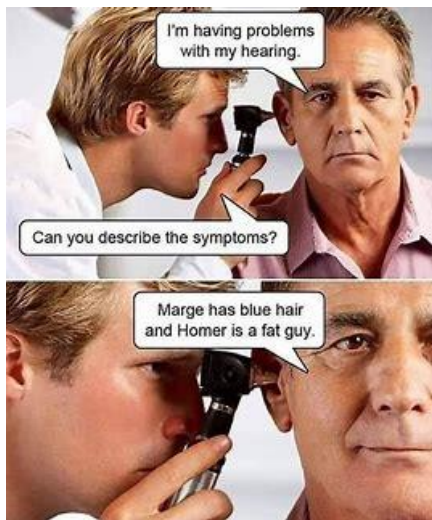
****When filling out the survey, be sure to indicate that HLAA-EB was the referring organization. We may receive compensation for your participation!****

Here is our contact information for your form:

info@hearinglosseb.org

HLAA-East Bay: 510.221.6080

JOKE CORNER



East Bay Leadership Team

The chapter is run by a Steering Committee, Leader Dale Davis, ddavis94605@gmail.com, who also oversees the Membership Database.

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Go to this URL to join: <https://www.hearingloss.org/make-an-impact/become-a-memberrenew/>

OR, if you prefer to pay by check or card thru the mail, Nancy Asmundson has membership forms to send to you, or contact HLAA at 301-657-2248 or e-mail membership@hearingloss.org. Your membership form & payment go to HLAA, 6116 Executive Blvd., Suite 320, Rockville, MD 20852.

COSTS: Regular Membership/year (will receive *Hearing Life* magazine in print and digital format):

Individual - \$45; Couple/Family - \$55; Professional - \$80; Nonprofit - \$80;

Veteran Membership: Complimentary 1-Year Regular Membership & Lifetime Online Membership.

Do you have something to contribute to our newsletter?
Let us know!