JULY 2025

NEUROAUDIOLOGY NEWSELTTER

Editor: Alyssa Davidson, AuD, PhD
Co-Editor: Amy Bradbury, AuD
Founder: Frank Musiek, PhD

Medicare Audiology Access Improvement Act

The Medicare Audiology Access Improvement Act from ASHA (April 10, 2025) appears to be a valuable document for the increased practice flexibility of audiologists. It is supported by the AAA, ASHA, ADA and we encourage our readers to attend to the bill and support it as it matriculates through congress.

The American Speech-Language-Hearing Association (ASHA), American Academy of Audiology (AAA), and Academy of Doctors of Audiology (ADA) are pleased to announce the introduction of the Medicare Audiology Access Improvement Act, S. 1996, in the United States Senate. We applaud Senators Elizabeth Warren (D-MA), Rand Paul (R-KY), and Chuck Grassley (R-IA) for championing this legislation to remove unnecessary barriers to access to audiology services for seniors and other Medicare Part B beneficiaries.

The Medicare Audiology Access Improvement Act (H.R. 2757/ S. 1996) will:
•Eliminate pre-treatment order requirements so beneficiaries have streamlined access to audiologists, saving seniors out of pocket costs for extra office visits.

•Support continuity of care by authorizing audiologists to be reimbursed for the Medicare-covered diagnostic and treatment services that they are licensed to provide.

•Reclassify audiologists as practitioners under the Medicare statute, enabling services to be furnished through telehealth beyond the current September 30, 2025, expiration of such authority.

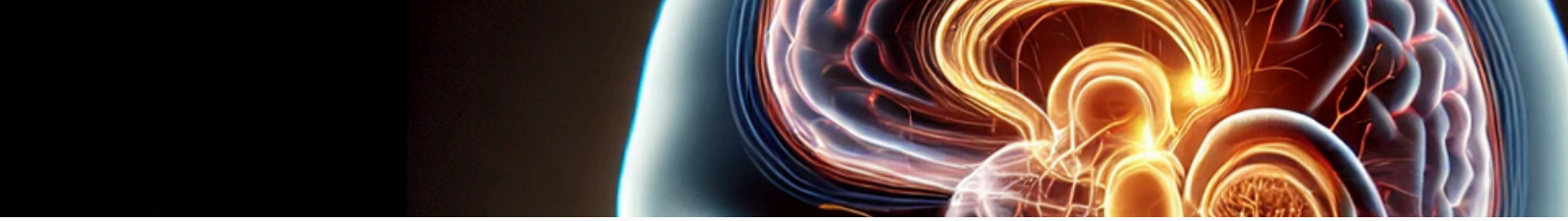
We look forward to working together and with bill champions to advance the Medicare Audiology Access Improvement Act in Congress, so that Medicare Part B beneficiaries have timely access to the audiology care that they need, when they need it the most.

Audiology Trivia

1.**According to the introduction review by Hwang et al. (2023), what is the percentage range of auditory disturbances related to adult head injury?**
a) 19–50, b) 24–35, c) 8–67, d) 2–14

2.**The dichotic digits initially reaches maximum intelligbility at what sensation level?**
a) 40 dB, b) 30 dB, c) 25 dB, d) 20 dB

3.**In their study (Berning et al., 2019) on superior canal dehiscence (SCD), what percentage of symptomatic patients showed radiologic evidence of SCD?**
a) 54, b) 40, c) 26, d) 14

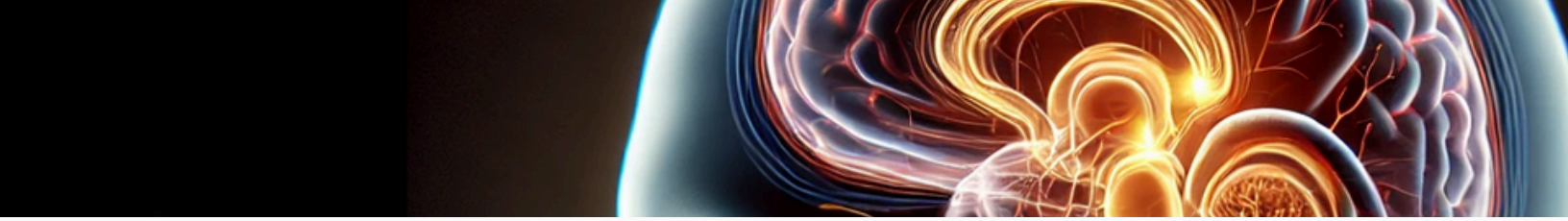


Neural Characteristics, Literacy, and Cochlear Implants in Children

A recent article, titled: The neural characteristics influencing literacy outcome in children with cochlear implants. https://academic.oup.com/braincomms/article/7/2/fcaf086/8029808 Brain Communications: Volume 7, Issue 2, 2025

This study is one of the first to identify the influence of neural characteristics on reading outcomes for children with cochlear implants. The findings showcase the importance of early identification and intervention of deaf children to enhance outcomes and strengthen neural network connections. The benefits of specialized interventions to help children should be regarded as an integral part of maximizing the benefits of their prosthetic hearing devices. Cortical activity was obtained using naturalistic stimuli from 75 children (50 cochlear implant recipients and 25 age-matched children with typical hearing using functional near-infrared spectroscopy. Brain regions within the reading network exhibited reduced connectivity, with the strength of connectivity dependent on factors related to the timing of prosthetic intervention. The connectivity and interaction between brain regions play a crucial role in the identification of reading ability in children with cochlear implants.

As we continue to think about the value early identification and intervention through prosthetic hearing devices and specialized interventions to promote neural connectivity, let's also note the importance of ensuring audibility, accessibility, and connectivity throughout the child's day, of which several hours are spent in an educational setting. Refer to Audiology Today May/June 2025 https://www.audiology.org/news-and-publications/audiology-today/articles/connectivity-for-children-with-hearing-loss/



NeruoAudiology/CAPD Corner

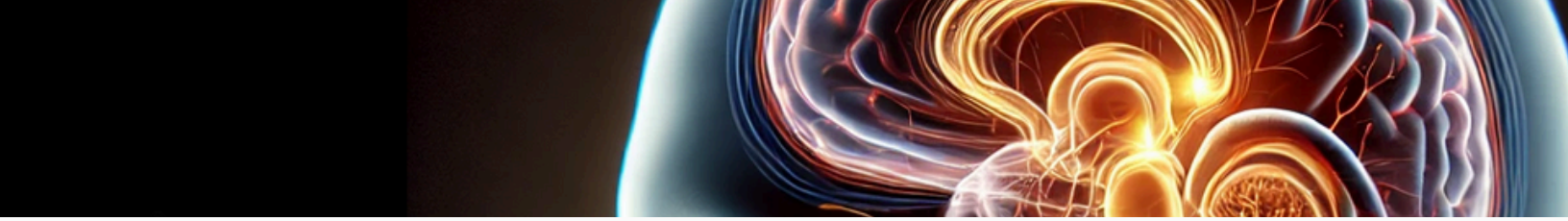
TOPIC: THE SCIENCE AND PSUEDOSCIENCE OF MUSIC AS A TREATMENT FOR APD
AUTHOR: BILL KEITH, PHD

There is no doubt that musicians typically have superior auditory processing abilities. Are these superior abilities inherent, a facet of the aptitudes that lead someone to become a musician; or are they the result of years of practice? Research supports both propositions. People with good musical ability who do not learn music also have above average auditory skills[1]. But there is also clear evidence of a learning component, with the amount of improvement correlated to the number of years of musical experience[2,3]. Improvement results from training and practical experience with a musical instrument, voice included.

Musical training has been reported to enhance various auditory skills including pitch discrimination, sound localisation, temporal resolution, temporal ordering, speech recognition in noise, and discrimination of spectrally complex acoustic signals. In addition, learning and playing musical instruments has been reported to boost brain and cognitive functions including memory and attention, and speech, phonological and language development. Music training reportedly improves educational outcomes including graduation rates. Other reported indirect benefits of music education include improved focus, discipline, confidence and even friendships[2,3].

So should musical training be a primary recommendation in the treatment of auditory processing disorders in children? To address this question there are a number of cautions to be considered. First, a systematic review and meta-analysis reveals that reported benefits of music training are undoubtedly real but that effect sizes are small[1]. Whilst this finding argues against using music training specifically for the purpose of improving auditory skills, note that it doesn't necessarily negate the possibility that for children in general perhaps the totality of benefits rather than the magnitude of individual skill changes is worthwhile. Second, systematic reviews and a meta-analysis raise concerns of publication bias[1] and confirmation bias[4] in the field. In one example, McKay (2021) carried out a systematic review of studies investigating potential speech recognition benefits from music training in participants with sensorineural hearing loss. She found no convincing evidence of benefit, yet 10 of the 13 studies reviewed made claims of benefits, showing a propensity for confirmation bias in this area of research. Third, the emergence of beneficial effects is slow, taking months or years to be measurable[2,1]. Some common APD treatments provide much faster results. Fourth, there appears to be little if any published evidence of music training outcomes specifically in children with auditory processing disorders. Finally, music training is a time-intensive and potentially expensive activity. At SoundSkills our policy is therefore to encourage music training, if there is family interest, as an optional supplement to primary treatment recommendations.

An interesting question is whether or not critical music listening experience enhances auditory processing skills. As both a keen opera fan and parent of a child who trained in classical singing, I have attended countless operatic and choral performances, not to mention years of singing practices and competitions. I can assure readers that despite this experience my musical talents are just as abysmal, and my auditory processing skills just as unremarkable, as they ever were. After presenting a keynote lecture, Dr Nina Kraus, renowned expert in the area, was asked whether music listening experience helped auditory skills. Her succinct response was that you don't get fit watching sport from a couch.



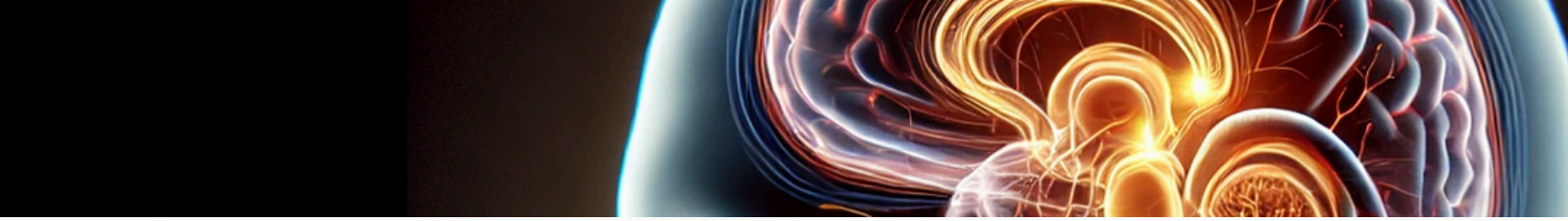
NeruoAudiology/CAPD Corner

TOPIC: THE SCIENCE AND PSUEDOSCIENCE OF MUSIC AS A TREATMENT FOR APD
AUTHOR: BILL KEITH, PHD

But music listening is at the core of an enormous industry of allegedly pseudoscientific treatment for "auditory processing disorder". In the mid-20th century French otolaryngologist Alfred Tomatis developed equipment to filter music to simulate hearing a mother's voice in utero as a treatment for various conditions including autism. The treatment was designed to "tonify" the middle ear muscles. He believed autism was due to impoverished fetal auditory stimulation. Tomatis and his followers adapted his "audio-psycho-phonology" method to target diverse childhood disorders including auditory processing problems, dyslexia, learning disabilities, attention deficit disorders, and sensory processing and motor-skill difficulties. Tomatis therapy and its derivatives are also claimed to have helped adults fight depression, learn foreign languages faster, develop better communication skills, and improve both creativity and on-the-job performance. Berard, a protégé of Tomatis, also recommended it for "marriage counselling". After disputes with the medical establishments in France and Canada Tomatis left the orthodox medical community.

Filtered and temporally processed music has persisted to this day under various guises - Tomatis, Berard, Johansen, Auditory Integration, Integrated Listening, and Sound Therapy; as a purported treatment for developmental disorders including "auditory processing disorder" (APD). Popularity as an APD treatment was fuelled by the books "Sound of a Miracle" written by a parent, and "Every Day a Miracle" written by a Sound Therapy practitioner.

Practitioners are seldom qualified health professionals. Treatment, often expensive, typically includes listening by air, bone, or simultaneous air and bone conduction to hours of music, or sometimes recorded mother's voice, processed by constantly changing filters. In some versions pure tone hearing thresholds are repeatedly monitored, sometimes measured in 1dB steps, until eventually a flat and straight (dBHL) audiogram is obtained, supposed evidence that the APD is no longer detectable. ("Peaks and valleys" in audiograms are considered by Tomatis followers as indicative of APD.) Therapies for APD based on music listening are inconsistent with current scientific knowledge[5,6]. Listening to music does not provide similar benefits to music training and does not treat APD. Spending a similar amount of time listening to audiobooks might be more beneficial, but's that's another topic. It is unfortunate that despite a lack of quality evidence in support, some occupational therapists, speech-language pathologists, and even audiologists nonetheless continue to promote these methods. French authorities have always considered Tomatis sound therapy as an alternative medical practice which should not be promoted. Tomatis-derived music listening programmes are not endorsed by audiology, speech-language and medical professional organisations. Our own professional organizations (AAA, ASHA) do not endorse music listening programmes such as Auditory Integration Therapy and in fact encourage us to caution patients about these non-evidence-based practices[7,8].



NeruoAudiology/CAPD Corner

TOPIC: THE SCIENCE AND PSUEDOSCIENCE OF MUSIC AS A TREATMENT FOR APD
AUTHOR: BILL KEITH, PHD

On a more positive note, discussion of musical treatments for disabilities would not be complete without recognition of the remarkable work of professional music therapists, particularly in one-on-one therapy with children with severe and profound disabilities. Music therapy is evidence-based and can achieve breakthroughs in therapy with special needs children. Early in my career, at the urging of Danish ENT Surgeon and audiological services advocate, Dr Ole Bentzen (the 'OB1' in the original Madsen OB1 audiometer), I listened, transfixed, to hours of tape recorded music therapy with a profoundly disabled non-verbal girl and heard her change from being completely unresponsive, to participating with joyous and responsive musical vocalisation, albeit with just a single vowel sound, in the improvised to and fro musical communication of her therapy sessions. The treatment unlocked a communication channel to enable a speech language pathologist to begin work with her. I became involved in facilitating visits and training courses by the pioneering US, UK, and Danish music therapists Paul Nordoff, Clive Robbins, Carol Robbins and Claus Bang. Paul Nordoff and Clive and Carol Robbins worked mostly with hearing children with disabilities, and Claus Bang, with his selected low pitch, vibratory and percussive instruments, experienced on wooden floors with bare feet, with deaf children. But in the 1970s Clive and Carol Robbins based themselves at the New York State School for the Deaf in Rome, NY, and also focused on working with children with limited residual hearing. The musical instrument and orchestra training supported speech and language development but moreover provided purpose, focus, discipline, teamwork, self-confidence through performing, and socialisation. It was transformative for the children. The school orchestra ultimately travelled to New York City and played proudly at Carnegie Hall. And the work they performed? Beethoven's 'Ode to Joy', written when Beethoven was deaf.

NeruoAudiology/CAPD Corner References

1. Neves, L., Correia, A. I., Castro, S. L., Martins, D., & Lima, C. F. (2022). Does music training enhance auditory and linguistic processing? A systematic review and meta-analysis of behavioral and brain evidence. Neuroscience & Biobehavioral Reviews, 140, 104777.

2. Kraus, N., & White-Schwoch, T. (2020). The argument for music education. American Scientist, 108(4), 210-214.

3. Braz, C. H., Gonçalves, L. F., Paiva, K. M., Haas, P., & Patatt, F. S. A. (2021). Implications of musical practice in central auditory processing: a systematic review. Brazilian Journal of Otorhinolaryngology, 87(2), 217-226.

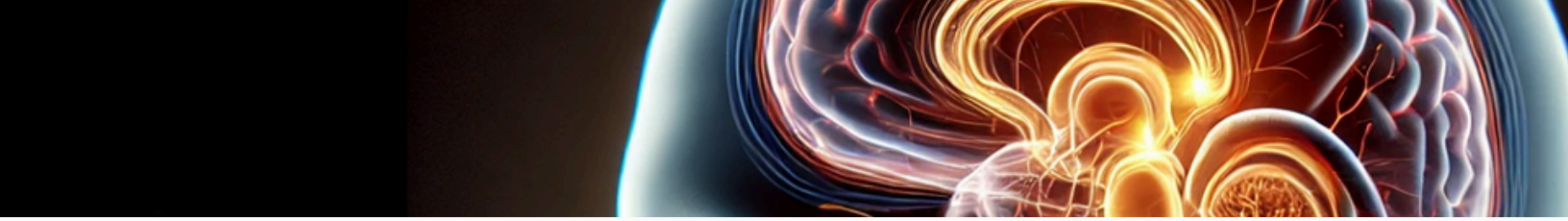
4. McKay, C. M. (2021). No evidence that music training benefits speech perception in hearing-impaired listeners: A systematic review. Trends in hearing, 25, 2331216520985678.

5. Tharpe, A. M. (1999). Auditory integration training: The magical mystery cure. Language, Speech, and Hearing Services in Schools, 30(4), 378-382.

6. Yencer, K. A. (1998). The effects of auditory integration training for children with central auditory processing disorders. American Journal of Audiology, 7(2), 32–43. https://doi.org/10.1044/1059-0889(1998/018)

7. American Academy of Audiology. (2010). Diagnosis, treatment, and management of children and adults with central auditory processing disorder.

8. American Speech-Language-Hearing Association. (2004). Auditory Integration Training: Position Statement. ASHA Supplement 24



2025 Audiology Conferences

American Speech Langauge Hearing Association
November 20-22, 2025
Washington, DC
Acoustical Society of America joint with Acoustical Society of Japan
December 1-5, 2025
Honolulu, Hawaii

NCRAR Conference

On September 17-19, 2025, the National Center for Rehabilitative Auditory Research (NCRAR) will be hosting the 12th Biennial Conference virtually. This conference combines clinical research with clinicians to better translate the science into practice. This year's conference will focus on the Auditory Impacts of Neuropathology: From Toxicity and Trauma to Interprofessional Practice. Presenters include Drs. Frank Musiek, Alyssa Davidson, Christina Roup, among many other auditory scientists!
Early registration ends on August 31st: https://ncrarconference2025.eventscribe.net/

Trivia Answers

1. (C) 8-67% of auditory disturbances are related to adult head injury.
2. (D) Dichotic digits reaches maximum intelligbility at 20 dB SL.
3. (D) 14% of symptomatic patients showed radiologic evidence of SCD.

Learning Corner

The learning corner will offer citations of articles that may contribute to one's knowledge base for CAPD/NeuroAudiology.

- Micula, A., Holmer, E., Ning, R., & Danielsson, H. (2025). Relationships between hearing status, cognitive abilities, and reliance on visual and contextual cues. Ear and Hearing, 46(2), 433-443.
- Brungart, D. S., Ellis, G. M., Davidson, A., Galloza, H., Sheffield, B., & Schurman, J. (2025). Not-so-normal hearing: Temporary hearing changes lead to chronic difficulties for listeners with" normal" audiometric thresholds. Hearing Research, 458, 109183.
- McNamara, B., Brungart, D. S., Bieber, R. E., Phillips, I., Davidson, A. J., & Gordon-Salant, S. (2025). Speech and Non-Speech Auditory Task Performance by Non-Native English Speakers. Ear and Hearing, 46(4), 1056-1068.