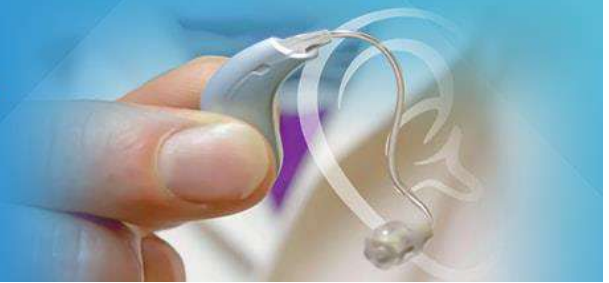


# International Journal of Speech and Audiology



E-ISSN: 2710-3854  
P-ISSN: 2710-3846  
IJSA 2021; 2(1): 15-16  
© 2021 IJSA  
[www.rehabilitationjournals.com](http://www.rehabilitationjournals.com)  
Received: 22-11-2020  
Accepted: 25-12-2020

**Jayanthi Atapattu**  
Faculty of Medicine,  
University of Kelaniya,  
P.O Box 6, Thalagolla Road,  
Ragama, Sri Lanka

## Audiometry techniques, circuits and systems

**Jayanthi Atapattu**

### Abstract

Hearing loss affects at least 25% of patients over the age of 50 and more than 50% of those over the age of 80, according to the American Academy of Audiology. Adolescents and young adults are among the categories where hearing loss is becoming more common. Whether offered, periodic hearing screening may be done by asking the patient or family if they have any concerns about their hearing, or by utilising clinical office tests such as whispered voice, finger rub, or audiometry. Audiometry is a very easy technique that may be interpreted by a qualified health care provider in a family medicine clinic setting. Pure-tone testing uses tones from 500 to 4,000 Hz to evaluate whether the patient's hearing thresholds are within normal ranges. In-office testing requires a calm testing setting, certified audiometric equipment, and properly educated staff. Pure-tone audiometry may assist doctors recommend patients to the right audiologist or otolaryngologist. Hearing loss that is unilateral or asymmetrical may be a sign of a central nervous system problem that needs further investigation.

**Keywords:** audiometric, hearing loss, audiology

### Introduction

Hearing loss influences over 30 million humans within the United States. The incidence of listening to loss varies with age; as a minimum 25% of sufferers among the a long time of fifty one and sixty five have goal proof of listening to loss, and greater than 50% of sufferers over the age of eighty have goal proof of listening to loss. The growing occurrence of listening to loss amongst teens and younger adults, which influences among eight and 19 percentage of this group, is mainly worrisome. The USPSTF, on the alternative hand, helps using screening questionnaires and medical strategies inclusive of the whispered voice. Subjective listening to screening is covered in different hints as a preventative remedy that have to be supplied to people starting on the age of 40<sup>[1]</sup>.

Audiometry is an extraordinarily easy method that may be completed and interpreted via way of means of a skilled fitness care professional. Family physicians need to experience snug acting this trying out on adults and cooperative children. Physicians can also additionally don't forget acting audiometry whilst a affected person reviews a subjective feel of dwindled hearing, or whilst a member of the family reviews a affected person's reduced conversational interaction<sup>[2]</sup>.

Although the USPSTF additionally discovered inadequate proof to advise for or in opposition to automatically screening working-age young people more youthful for listening to impairment, different groups have advocated everyday periodic goal checking out in the course of youth and adolescence. Adolescents regularly pay attention to song at most volume, song-prompted listening to loss. Therefore, sufferers reporting publicity to loud song or occupational noise are suitable applicants for audiometry. Testing can be elevated to consist of sufferers who're uncovered to immoderate noise even as at paintings or at play who've now no longer used ok listening to protection. Unilateral or asymmetrical listening to loss is not unusualplace in hunters<sup>[3]</sup>.

### Pure-Tone Audiometry

When listening to loss is suspected can be used to assess listening to deficits with the aid of using spotchecking. There are numerous forms of audiometers available, however all characteristic further with the aid of using permitting the tester to boom and reduce the intensity (loudness, in decibels [dB]) and frequency (pitch, in cycles according to 2nd or Hz) of the sign as desired<sup>[4]</sup>.

**Correspondence**  
**Jayanthi Atapattu**  
Faculty of Medicine,  
University of Kelaniya,  
P.O Box 6, Thalagolla Road,  
Ragama, Sri Lanka

Pure-tone audiometry is widely described as both screening or threshold seek. Screening audiometry gives tones throughout the speech spectrum (500 to 4,000 Hz) on the top limits of everyday listening to (25 to 30 dB for adults, and 15 to twenty dB for children). Results are recorded as pass, indicating that the patient's listening to stages are inside everyday limits, or refer, indicating that listening to loss is feasible and a repeat screening take a look at or a threshold seek take a look at is recommended<sup>[5]</sup>.

Threshold seek a affected person can listen at every frequency 50 percentage of the time. This trying out calls for extra time and knowledge than endorsed process for natural-tone threshold seek checks referred to as the changed Hughson-Westlake method. Testing starts with the ear wherein the affected person perceives to have higher hearing. The tester offers a natural tone at a certainly audible level. After the affected person responds to the natural-tone signal, the tester decreases depth through 10 dB and offers the tone again. If the affected person responds to this tone, a "down 10" sample is employed, with the tester reducing the depth of the tone through 10 dB and supplying a tone till the affected person now not responds. The tester then will increase tone depth through five dB till the affected person responds. This is the affected person's preliminary ascending response<sup>[6, 7]</sup>. Testing need to start at 1,000 Hz, due to the fact this frequency is effortlessly heard with the aid of using maximum sufferers.

### Conclusion

Despite lowering developments withinside the prevalence of age-associated listening to loss, the general public fitness fee related to this sickness will stay massive because of its sturdy hyperlink to age and populace getting old. Hearing loss has been proven to have a adverse impact on fitness-associated exceptional of life, specially in terms of social and emotional factors of conversation. Hearing aids might also additionally assist with those conversation problems at the same time as additionally enhancing fitness-associated exceptional of life. Hearing loss has additionally been related to cognitive deterioration in sure studies.

However, there's no convincing proof that amplification complements cognitive performance. Hearing resource utilization has remained low, indicating that extra look at is needed to higher recognize assist-in search of behaviours and the variables that have an impact on the selection to pursue amplification. Audiology referrals from number one care physicians can be one approach to reinforce listening to resource utilization, but there's currently little statistics to assist this strategy. Addressing those problems will make it much more likely that we can be capable of fulfil the listening to fitness care necessities of an getting old populace and that human beings with listening to problems could be capable of live healthy, active, and contributing participants in their households and communities.

### References

1. Bainbridge KE, Wallhagen MI. Hearing loss in an aging American population: extent, impact, and management. *Annual review of public health* 2014;35:139-52.
2. Feder KP, Michaud D, Ramage-Morin P, McNamee J, Beauregard Y. Prevalence of hearing loss among Canadians aged 20 to 79: Audiometric results from the 2012/2013 Canadian Health Measures Survey. *Statistics*

- Canada 2015, 1.
3. Cunningham LL, Tucci DL. Hearing loss in adults. *New England Journal of Medicine* 2017;377(25):2465-73.
4. Smith RJ, Bale Jr JF, White KR. Sensorineural hearing loss in children. *The Lancet* 2005;365(9462):879-90.
5. Fausti SA, Wilmington DJ, Helt PV, Helt WJ, Konrad-Martin D. Hearing health and care: the need for improved hearing loss prevention and hearing conservation practices. *Journal of Rehabilitation Research & Development* 2005, 42.
6. Li-Korotky HS. Age-related hearing loss: quality of care for quality of life. *The Gerontologist* 2012;52(2):265-71.
7. Hoffman HJ, Dobie RA, Losonczy KG, Themann CL, Flamme GA. Declining prevalence of hearing loss in US adults aged 20 to 69 years. *JAMA otolaryngology-head & neck surgery* 2017;143(3):274-85.