

A DISCUSSION OF HEARING AIDS

Hearing Aids

Hearing aids may be worn as ear level instruments or as body-type aids to rehabilitate hearing loss. There are also hearing aids that can be built into an ear mould and inserted entirely within the ear.

In many instances hearing aids may be used to alleviate or control distressing head noise (tinnitus). Hearing aid amplification may effectively mask out (keep the wearer from hearing) the tinnitus.



Two Aids are Better Than One

Hearing aids worn in both ears are called binaural hearing aids. There are a number of advantages to the patient in the use of aids in each ear. Binaural fitting will usually allow a patient to have balanced hearing, with speech perceived equally loud in the two ears. This will permit localisation of sound. The most important advantage, however, is that most hearing aid users are able to understand speech in a noisy background much better than when an aid is used only in one ear. Furthermore, using two aids results in a significant increase in the loudness of sound due to binaural summation. The effect of this is that the volume control may be reduced for each ear and this in turn will lessen the impact of background noise.

The Use of a Hearing Aid

Different persons react differently to the use of a hearing aid. One's age, the severity of the hearing impairment, and the acceptance of the need for the aid may strongly influence one's reaction to supplementing his own hearing with amplified sound. The eye and degree of hearing impairment may limit the benefits to be gained from a hearing aid. Generally speaking, the hard-of-hearing person has a dual problem.

noises including speech are not perceived in their normal loudness. In addition, there is often an accompanying reduction in what is called discrimination, an impairment of one's ability to distinguish among the sounds of speech leads to a reduction in understanding.

If a person has an impairment of the conductive type, he can expect maximum benefits from a hearing aid because discrimination ability is not greatly affected. Most persons with this type of impairment become adjusted to using a hearing aid with very little difficulty.

If the hearing impairment is of the sensori-neural or nerve type, the difficulty of adjusting satisfactorily to a hearing aid may be greatly increased. Very often, persons who have this type of loss can hear speech sounds if they are loud enough but cannot always understand what is being said. It is true that speech must be loud enough to permit the listener to understand to his full capability, but making speech increasingly louder will not necessarily lead to a corresponding improvement in discrimination because the hearing nerve has become less sensitive to the acoustic differences of speech sounds. A hearing impaired person will often say, "I hear but I can't always understand what I hear." Because the prime function of an aid is to amplify sounds, some users of these instruments continue to experience difficulty in understanding. Through amplification, some sounds of speech can be heard and understood with greater ease. The hearing aid offers the user hearing that is short of normal acuity but more satisfactory than the uncompensated impairment.

The major problem for a new hearing aid user is to adjust the hearing aid in noise. There have been many innovations in hearing aid fitting that have helped new users to learn to live with noise. Changes in circuitry of the hearing aid, specially designed ear moulds, and highly adjustable aids have greatly eased the initial learning process for many patients.

Steps in Learning to use a Hearing Aid

Whatever the type of hearing impairment, it is important to follow a planned program of "learning to use the hearing aid." The ease or difficulty of hearing will vary depending on the loudness of background noises, the distance of the listener from the source

of sounds, the clarity of speech or of music, and the lighting (which may enhance or may interfere with lip reading). Practice exercises will help to prepare the wearer to use his hearing aid in widely different situations.

Some recommendations for learning to use a hearing aid for maximum benefit are described in the following paragraphs.

1. Use the Aid at First in Your Own Home Environment. Your hearing aid amplifies noise as well as it amplifies music or speech and you may be disturbed temporarily to background noise. Concentrate on listening for all of the normal household sounds and try to identify each sound that you hear. Once you can identify background noises, such as the hum of the refrigerator, the roar of an electric fan, the clinking of dishes, or the slamming of doors, these noises will tend to be less annoying and distracting to you.

2. Wear the Aid Only as Long as You Are Comfortable With It. If you are tired and fatigued after using the aid for an hour or two, take it off. Let the way you feel be your guide. You can, over a period of several weeks, gradually lengthen the amount of time that you wear the aid.



3. Accustom Yourself to the Use of the Aid by Listening to Just One Other Person – husband or wife, neighbour or friend. Talk about familiar topics; use common expressions, names, or a series of numbers for practical purposes. After a few days of practice with one person in a quiet environment try a different listening exercise. Turn on the radio or television and

4. Do Not Strain to Catch Every Word The importance of listening carefully and of concentrating on what is being said cannot be over emphasised, but do not worry if you miss an occasional word. Normal hearing persons miss individual words or parts of sentences and unconsciously “fill in” with the thought expressed. (Keep your eyes on the face of the speaker. Speech reading is a very great help as a supplement to the hearing aid.)

5. Do Not Be Discouraged by the Interference of Background Noises. If your initial experience with the aid is unsatisfactory, remember that you are learning new habits, or rather, relearning old habits in a new setting. Normal hearing persons are aware of background noises too, but have learned to push them out of conscious awareness. As you learn to discriminate between noise and speech and to identify various background sounds, you also will be able to ignore extraneous noises just as persons with normal hearing do.

6. Practice Locating the Source of Sound by Listening Alone. Localisation of sound (the determination of the direction from which the sound comes) often presents a special problem to wearers of hearing aids. One exercise that helps to develop directional

perception is to relax in a chair, keep your eyes closed, and have someone speak to you from different places in the room. Each time your helper changes his position, attempt to locate him through the sound of his voice alone.

7. Increase Your Tolerance For Loud Sounds. At first, hearing aid users tend to set the volume control at a level too low for efficient listening. Louder sounds need not cause discomfort. By a very simple procedure you may, over a period of time, increase your tolerance for sound. While you are listening to one speak or to your radio or television in your own home, gradually turn up the volume control of your hearing aid until the sound is very loud. When the loudness is uncomfortable, very slowly turn the volume down to a more comfortable level. After a period of practice you will find that your comfort level has increased considerably.

8. Practice Learning to Discriminate Different Speech Sounds. Prepare a list of words which differ in one sound only. For example:

food – mood
ball – all
see – she

feel – peel
could – good
gown – down

Have your helper pronounce these words slowly and distinctly. Watch the lip movements closely while you carefully listen for the differences in similar pairs of words. They try to discriminate the words by listening alone.

9. *Listen to Something Read Aloud.* A good exercise in listening is to have your companion read aloud from a magazine or a newspaper while you follow along with your own copy of the reading material. At irregular intervals your reader should stop and have you repeat the last word read.



10. *Gradually Extend the Number of Persons with Whom you Talk, Still Within Your Own Home Environment.* You will find that it is more difficult to carry on a conversation with three or four persons than it is to talk to one. Concentrate mainly on the individual who is talking the most.

11. *Gradually Increase the Number of Situations in Which You Use Your Hearing Aid.* After you have adjusted fairly well in your own home to background noise and to conversation with several people at once you will be ready to extend the use of your aid to the super market, church, theatre, and other public places. Turn the volume low to reduce the impact of unfamiliar background noise; do not sit under balconies; move about in the different areas of the auditorium or theatre until you find a section or a seat where you can hear well. Dining out may present special problems to the hearing aid user, so eat your first meals in public in

a quiet restaurant with carpeted floors and draped windows, avoid noisy cafeterias. As your tolerance for noise increases, you will find it easier to experiment with increasingly noisy environments.

12. *Take Part in an Organised Course in Lipreading.* Lipreading will help you in general communication with others; consider it an important supplement to the use of the hearing aid. Although lipreading has many limitations, some words cannot be seen on the lips and some words cannot be distinguished from each other, lipreading combined with a hearing aid is often more satisfactory than is either alone.

13. *The Telephone and The Hearing Aid.* If your hearing loss is not especially severe, you will probably be able, with a little practice, to use your hearing aid with the telephone. Place the receiver end of the telephone next to the microphone of the hearing aid. In some hearing aids the induction coil is an integral part of the aid, and the cordless portion of the telephone is placed in contact with the case of the aid. Getting used to the placement of the telephone and getting used to listening in this manner requires practice. It is suggested that you arrange to have a friend telephone you at a certain time each day for several days to help you become accustomed to the telephone procedure with the hearing aid.

Adjustment to a Hearing Aid

There is no magic in adjusting satisfactorily to the use of a hearing aid. It requires practice and an application of the common sense steps discussed above. Do not expect perfection. Accept limited successes as signs of your progress. Different persons will learn at different rates. Some individuals, perhaps because of the severity of their loss or because of the nature of their hearing impairment, may require many weeks to learn to use the aid: even then they may never have a completely satisfactory adjustment. Others will find that the adjustment entails only minor problems and will be wearing the aid without any great difficulty within a few hours.

The prime objective in wearing a hearing aid is to bring about more nearly normal communications in everyday life. To achieve this goal, speech reading is almost always required. For maximum benefits lipreading rehabilitation should accompany the practice training in using the hearing aid.

When Hearing Aids are not enough

Progressive hearing loss where hearing aids are not providing satisfactory hearing rehabilitation, may be a situation where cochlear implantation provides an excellent alternative.

Cochlear implants (bionic ears) provide reliable hearing in patients with severe to profound hearing loss that are unable. Cochlear implants require a day surgery operation to insert the electrode into the cochlea. Once the wound has healed, after 8 weeks, the device is switched on to restore hearing.

If you are unsure about your patient's suitability for implantation contact the Northside Cochlear Implant Clinic, in Sydney (www.northsideaudiology.com.au) or Dr Nirmal Patel, our cochlear implant surgeon, who would be happy to review your patient's case and advise.

(Adapted a reproduced with permission from the University of Utah Patient Discussion Handbook)

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