Facts About Noise-Induced Hearing Loss

Approximately 36 million Americans have hearing loss. One in three developed their hearing loss as a result of exposure to noise.

Noise-induced hearing loss is caused by damage to the hair cells that are found in our inner ear. Hair cells are small sensory cells that convert the sounds we hear (sound energy) into electrical signals that travel to the brain. Once damaged our hair cells cannot grow back, causing permanent hearing loss.

Hearing protection decreases the intensity, or loudness, of noise and helps preserve your hearing.

- Harmful sounds are (1) too loud and last too long or (2) are very loud and sudden.
  - For example, exposure to a one-time intense “impulse” sound such as an explosion, or by continuous exposure to loud sounds over an extended period of time, such as sitting too close during a concert (rock, country, symphony, or any genre of music).
  - You may encounter harmful sounds at work, at home, and during recreational activities. (If you work in a hazardous noise environment, speak with your supervisor or compliance officer about OSHA recommendations on your amount of noise exposure.)
- The loudness of sound is measured in units called decibels (dB). Noise-induced hearing loss can be caused by prolonged exposure to any loud noise over 85 (dB).
  - 60 dB Normal conversations or dishwashers
  - 80 dB Alarm clocks
  - 90 dB Hair dryers, blenders, lawn mowers
  - 100 dB MP3 players at full volume
  - 110 dB Concerts (any music genre), car racing and sporting events
  - 120 dB Jet planes at take off
  - 130 dB Ambulances
  - 140 dB Gun shots, fireworks, and custom car stereos at full volume
- Noise is dangerous if...
  - You have to shout over background noise to be heard
  - The noise is painful to your ears
  - The noise makes your ears ring
  - You have decreased or “muffled” hearing for several hours after exposure
- Protect your hearing, by...
  - Wearing hearing protection when around sounds louder than 85dB for a long period of time. There are different types of hearing protection such as foam earplugs, earmuffs and custom hearing protection devices.
  - Contact your local audiologist for custom hearing protection devices.
  - Turning down the volume when listening to the radio, the TV, MP3 player, or anything through ear buds and headphones. (Visit www.TurnItToTheLeft.com)
  - Walking away from the noise.
  - And, other than hearing protection, do not put anything in your ear!

If you think you may have a hearing loss, visit www.audiology.org and click on the “Find an Audiologist” link to locate and set up an appointment with an audiologist in your area to get your hearing checked.
# Levels of Noise

**In decibels (dB)**

## Painful & Dangerous
- **Use hearing protection or avoid**
  - 140: Fireworks, Gun shots, Custom car stereos (at full volume)
  - 130: Jackhammers, Ambulances

## Uncomfortable
- **Dangerous over 30 seconds**
  - 120: Jet planes (during take off)

## Very Loud
- **Dangerous over 30 minutes**
  - 110: Concerts (any genre of music), Car horns, Sporting events
  - 100: Snowmobiles, MP3 players (at full volume)
  - 90: Lawnmowers, Power tools, Blenders, Hair dryers

Over 85 dB for extended periods can cause permanent hearing loss.

## Loud
- **80**: Alarm clocks
- **70**: Traffic, Vacuums

## Moderate
- **60**: Normal conversation, Dishwashers
- **50**: Moderate rainfall

## Soft
- **40**: Quiet library
- **30**: Whisper

## Faint
- **20**: Leaves rustling

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**October is National Audiology Awareness Month**

**And National Protect Your Hearing Month**

American Academy of Audiology | 11730 Plaza America Drive, Suite 300, Reston, VA 20190 | 800-AAA-2336 | www.HowsYourHearing.org

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Facts About Hearing Loss

Approximately 36 million Americans suffer from hearing loss.

More than half of the people with hearing loss are younger than age 65.

Untreated hearing loss can affect your ability to understand speech and can negatively impact your social and emotional well-being—hearing impairment can decrease your quality of life!

Hearing loss is the third most common health problem in the United States.

Signs you may have a hearing loss:
- Difficulty hearing people talk in noisy environments such as a restaurant, shopping mall, or at the movie theater.
- People seem to “mumble” all the time.
- Family, friends, or colleagues often have to repeat themselves when speaking with you.
- You have trouble hearing people when they are not facing you or are in another room.
- You have trouble following conversations.
- You have ringing, buzzing, or hissing sounds in your ears.

What causes hearing loss?
- Exposure to excessive loud noise.
- Ear infections, trauma, or ear disease.
- Harm of the inner ear and ear drum from contact with a foreign object (cotton swabs, fingers, bugs).
- Illness or certain medications.
- Deteriorating hearing due to the normal aging process.

How to protect your hearing.
- Wear hearing protection when around sounds louder than 85dB for a long period of time. There are different types of hearing protection such as foam earplugs, earmuffs and custom hearing protection devices. Contact your local audiologist for custom hearing protection devices.
- Turn down the volume when listening to the radio, the TV, MP3 player, or anything through ear buds and headphones. (Visit www.TurnItToTheLeft.com)
- Walk away from the noise.
- And, other than hearing protection, do not put anything in your ear!

If you think you may have a hearing loss, visit www.audiology.org and click on the “Find an Audiologist” link to locate and set up an appointment with an audiologist in your area to get your hearing checked.
Communication Tips

Rather than saying "What?" or "Huh?" try to make a specific clarification request. In other words, if the talker mumbles, ask him or her to please speak more clearly. If the talker speaks in a quiet voice, politely ask him or her to speak louder. Many talkers cover their mouths when they are talking. When this happens, tell them you can understand them better if they would not cover their mouths.

Speak slowly. Your hearing loss is "invisible" to the people you converse with. They may forget to speak in a manner helpful to you. One way to overcome this is to explain that you are really interested in hearing what she has to say and that you would like to use a cue, like tapping your ear or your mouth, to remind her to speak more slowly.

Turn down the volume. Background noises (loud music, people talking, dishes clanking, and television and music systems playing) make it especially difficult for people with hearing loss (and for those wearing hearing aids) to listen easily. You might choose quieter restaurants, or ask your place of worship to carpet the social hall to reduce reverberation, you might move to a quieter location to have a conversation. Anticipate difficult listening situations and plan how to minimize them. Your audiologist can help you with these strategies.

Face the person. Ask your loved ones, coworkers, and friends to come into the room and get your attention before talking to you. It will be much easier for you to understand when people face you as they speak.

Accentuate the positive! Even though it is true that many people do mumble, speak too fast, cover their mouths, and/or drop the volume of their voices at the end of sentences, do not blame your listening difficulties on them.

Instead, accept responsibility and make communication requests in a polite manner. You might say, "It would really help me a lot if you would speak slower," rather than "I can never understand a single word you say because you talk so fast!" Remember, you are much more likely to get the assistance you need from your communication partners by being polite but assertive.

You have rights! Find out what your legal rights are as a person with hearing loss. For example, you have the right to ask for accommodations for your hearing loss when you travel and you may also request accommodations in the workplace.
The Human Ear

Directions: Color in the diagram below using a different color for each part of the ear.

- **OUTER EAR**
  - pinna

- **MIDDLE EAR**
  - ear canal
  - ear drum
  - hammer
  - anvil
  - stirrup

- **INNER EAR**
  - cochlea
  - semicircular canals
  - nerves (connect to the brain)
  - Eustachian tube (connects to the nose)

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Protect your ears. If the noise is too loud, walk away, turn it down (*Turn it to the Left*), or use ear plugs.

*Turn it to the Left!*®

[Image Credits and Copyright Notice]

www.TurnItToTheLeft.com
Questions on Hearing Acuity

1. Do you find it difficult to follow a conversation in a noisy restaurant or crowded room?
   - Yes □ No □ Sometimes □

2. Do you sometimes feel that people are mumbling or not speaking clearly?
   - Yes □ No □ Sometimes □

3. Do you experience difficulty following dialog in the theater?
   - Yes □ No □ Sometimes □

4. Do you sometimes find it difficult to understand a speaker at a public meeting or a religious service?
   - Yes □ No □ Sometimes □

5. Do you find yourself asking people to speak up or repeat themselves?
   - Yes □ No □ Sometimes □

6. Do you find men’s voices easier to understand than women’s?
   - Yes □ No □ Sometimes □

7. Do you experience difficulty understanding soft or whispered speech?
   - Yes □ No □ Sometimes □

8. Do you sometimes have difficulty understanding speech on the telephone?
   - Yes □ No □ Sometimes □

9. Does a hearing problem cause you to feel embarrassed when meeting new people?
   - Yes □ No □ Sometimes □

10. Do you feel handicapped by a hearing problem?
    - Yes □ No □ Sometimes □

11. Does a hearing problem cause you to visit friends, relatives or neighbors less often that you would like?
    - Yes □ No □ Sometimes □

12. Do you experience ringing or noises in your ears?
    - Yes □ No □ Sometimes □

13. Do you hear better with one ear than the other?
    - Yes □ No □ Sometimes □

14. Have you had any significant noise exposure during work, recreation or military service?
    - Yes □ No □ Sometimes □

15. Have any of your relatives (by birth) had a hearing loss?
    - Yes □ No □ Sometimes □

Scoring:
- 2 points for Yes
- 1 point for Sometimes
- 0 points for No

Scores of 3 or more: may mean that you have a hearing problem.
Scores of 6 or more: strongly suggest that a hearing check is warranted.

If you think you or your child may have a hearing loss visit www.audiology.org and click on the “Find an Audiologist” link to locate and set an appointment with an audiologist in your area to get your hearing checked.
10 FUN FACTS ABOUT HEARING

1. Fish do not have ears, but they can hear pressure changes through ridges on their body.

2. The ear's malleus, incus and stapes (otherwise known as the hammer, anvil and stirrup) are the smallest bones in the human body. All three together could fit together on a penny.

3. The ear continues to hear sounds, even while you sleep.

4. Sound travels at the speed of 1,130 feet per second, or 770 miles per hour.

5. Dogs can hear much higher frequencies than humans.

6. Ears not only help you hear, but also aid in balance.

7. Snakes hear through the jaw bone and through a traditional inner ear. In essence, snakes have two distinct hearing mechanisms, which helps them hear and catch prey.

8. Sitting in front of the speakers at a rock concert can expose you to 120 decibels, which will begin to damage hearing in only 7 1/2 minutes.

9. Thirty-seven percent of children with only minimal hearing loss fail at least one grade.

10. Male mosquitoes hear with thousands of tiny hairs growing on their antennae.

References

The American Academy of Audiology is the world's largest professional organization of, by, and for audiologists. The active membership of more than 10,000 audiologists join together to provide the highest quality of hearing health care service to children and adults.
Hearing & Hearing Loss

As of 2009, there are some 315 million people in the United States. Of those, it is estimated about 36 million have hearing loss. Although hearing loss is often associated with aging, hearing loss is clearly present in newborns, children, teenagers, young adults and adults. Healthy human ears can perceive an enormous range of sounds in terms of pitch and loudness. Hearing is the primary sense through which we learn speech and language. The ability to hear clearly from birth is extremely important with regard to normal development of speech and language skills, auditory processing skills, a sense of self, as well as normal emotional and psychological well-being and more.

Common Causes of Hearing Loss
As we age, our ears are exposed to a lifetime of noises such as lawnmowers, telephones, industrial machinery, leaf blowers, chain saws, industrial noise, hair dryers, weapons, and recorded and live music. Many of these sounds occur at loud and potentially injurious levels. Although some people are born with hearing loss, most acquire hearing loss later in life. Causes for acquired hearing loss include a genetic predisposition, ear disease, noise exposure (including music, industrial, military and more), ototoxic medicines, head trauma, and others.

General Types of Hearing Loss
There are three primary hearing loss categories: sensorineural, conductive, and mixed.

The first category of hearing loss is the most common, called “sensorineural.” Sensorineural hearing loss occurs when tiny hair cells within the inner ear (the cochlea) are damaged. Sensorineural hearing loss is permanent and in most cases there are no medical or surgical treatment options. Hearing aids are the primary treatment for sensorineural hearing loss. In some situations, such as when hearing aids have not been beneficial for particular patients with severe and profound sensorineural hearing loss, these people may benefit from cochlear implantation.

The most common sensorineural hearing loss is a high-frequency hearing loss, typically associated with aging or noise exposure, and often both. High-frequency hearing loss may be difficult for patients to “self-diagnose” because it occurs slowly over decades. Persons with high-frequency sensorineural hearing loss often note they can hear, but they cannot hear clearly. They may say “people don’t speak as clearly as they used to...” These are common observations from people with high-frequency sensorineural hearing loss. The primary rehabilitative tool for these individuals is hearing aids.

The second most common type of hearing loss is referred to as “conductive.” Most often, conductive hearing loss results from a blockage of the normal air conduction sound pathways. Conductive hearing loss may be due to ear wax (cerumen) blocking the ear canal or perhaps a foreign object may be lodged in the ear canal. Another example of a conductive hearing loss is when fluid occupies the middle ear space, as might occur with common ear infections (otitis media).

The third most common type of hearing loss is called a "mixed" hearing loss. As its name implies, it involves both sensorineural and conductive hearing loss components.

Degree of Hearing Loss
Audiologists use general terms (normal, mild, moderate, severe, and profound) to characterize the degree of hearing loss. Hearing loss is measured in decibels (dBs) and the general categories refer to an average of the decibel level of hearing loss present.

In general, people with normal hearing (up to 25 dB hearing loss for adults, up to 15 dB for children) can hear most speech sounds in quiet and comfortable listening situations.
Adults with mild hearing loss (between 26 and 40 dB) may hear reasonably well in one-on-one conversation, but will miss words and speech sounds when speech is quiet or when there is background noise present.

Adults with moderate hearing loss (between 41 and 70 dB) miss a lot of speech sounds and telephone conversation. They often ask for repeats and often say, “What did she say?”

Adults with severe hearing loss (between 71 and 90 dB) need hearing aids to perceive speech sounds almost all of the time. People with severe hearing loss will miss the vast majority of conversational speech and using telephones will be very difficult.

Adults with profound hearing loss (91 dB or more) cannot hear speech sounds even if they are very loud. People with profound hearing loss need hearing aids or cochlear implants to perceive speech sounds.

People with untreated hearing loss (people with hearing loss who do not wear hearing aids) experience a decreased quality of life. Untreated hearing loss has been shown to cause sadness, depression, anxiety, paranoia, and poor social relationships. People with untreated hearing loss may have a difficult time in their careers—often earning thousands of dollars less than their hearing peers. However, the difference in wages between people with untreated and treated hearing loss is reduced by half, when people wear hearing aids.

If you think you may have a hearing loss, “Find an Audiologist” and set up an appointment to have your hearing checked. Hearing & Hearing Loss

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**How's Your Hearing? Ask an Audiologist**

**Hearing Aids**

Hearing aids are the primary means of managing hearing loss that cannot be treated medically or surgically. Your audiologist will conduct a comprehensive hearing evaluation to determine whether or not you are a candidate for hearing aids. Based on your evaluation, the audiologist may recommend hearing aids or make a referral to investigate medical or surgical options.

Hearing aids are similar to a miniature public address system. The microphone picks up the sound, the amplifier makes the sound louder, and the receiver (speaker) delivers the sound. In 2005, 98 percent of all hearing aids are digital. Digital technology allows advantageous manipulation of sound in many useful ways. Some hearing aids are completely automatic, while others have user-adjustable controls. Your audiologist will work with you to review hearing aid options. The two of you will select the best configuration for your particular needs. All hearing aids are powered by a battery.

**Types**

Hearing aid styles may be broadly classified as "standard" and "custom." Standard hearing aids include behind-the-ear (BTE), mm-BTE, and receiver-in-the-canal (RIC) devices. These products are designed to fit most ears and usually require some customization of the earpiece and the connection of the device to the earpiece. Custom hearing aids include in-the-ear (ITE), in-the-canal (ITC), and completely-in-the-canal (CIC). These products require a custom-molded shell that houses the electronics. Standard and custom hearing aids come in a variety of colors, shapes, and sizes.

The choice of hearing aid styles and features is based on several factors including the exact type and degree of hearing loss, your individual needs (such as communication requirements, lifestyle, and manual dexterity), and your medical and audiological history and related findings.

**One or Two Hearing Aids**

If both ears need amplification, your audiologist will recommend two hearing aids. Research has shown that two hearing aids provide superior benefits for the majority of people with regard to better word recognition in quiet and noisy backgrounds, better quality of sound, better localization ability, more natural hearing. Research has also shown that when both ears are candidates for hearing aids and only one ear is fitted, the unaided ear may lose speech recognition ability more rapidly than the fitted ear.

**Features**

Several features are available to improve the hearing aid experience. The most common are:

- Directional microphones to enhance speech understanding in noise,
- Noise management to improve listening comfort in noisy situations,
- Feedback cancellation to alleviate the annoyance of whistling and buzzing, and
- Telephone programs to access sound from phones and other sound sources.

**Fittings**

After your hearing aids have been selected, they must be fitted appropriately. Hearing aids must amplify sounds so they can be heard comfortably without causing discomfort, and hearing aids must be secure and physically comfortable in the ear. The hearing aids are adjusted using a computer in the audiologist's office, and the results can be measured. However, the audiologist's office does not usually represent the variety of sounds heard in everyday life, and so your new hearing aids will need to be evaluated in the sound environments important to you; a daily journal is useful for this purpose. By working with your audiologist, the hearing aids can be adjusted to perform most functions optimally and automatically in these environments. Your audiologist will likely suggest specific hearing assistive technologies to supplement the hearing aids and to address specific complaints.

**Maintenance and Insurance**

Your audiologist will review with you the details of your insurance coverage (if available), financing options, loss, theft and damage insurance, warranty, service protocols, maintenance advice, as well as introductory periods and return policies.

As with all electronics, hearing aids require care and maintenance. This includes handling them carefully, not exposing the hearing aids to water and chemicals, and keeping them very clean. Your audiologist will discuss and demonstrate proper daily care as well as maintenance techniques and maintenance products. The hearing aid user's manual will review many of these same points. Given the hostile conditions (temperature extremes, high levels of humidity, ear wax, etc.) under which hearing aids operate, daily cleaning and maintenance is recommended. Proper care and maintenance clearly reduces the need for repair.

**Expectations and Outcomes**

Even with the best technology, it is important to maintain realistic expectations. While hearing aids make sounds easier to hear, they will not restore normal hearing. Hearing aids re-introduce you to a world of sound, and it takes time to become accustomed to the new sounds. Some people adjust quickly, others take longer. Your audiologist will discuss auditory training programs, communication strategies, and hearing assistive technologies to alleviate difficulties in these situations.
Assistive Listening & Alerting Devices

**Assistive Listening Devices** (ALDs) are devices used in addition to hearing aids and cochlear implants to make more sounds accessible to people with hearing impairment.

Specifically, hearing aids and cochlear implants are traditionally designed to enhance conversational speech, in one-on-one situations and in relatively quiet situations. However, while listening in the presence of significant background noise, or at a distance, or in special circumstances such as listening to a television playing from across the room, or while trying to use a telephone or listening to the radio, or at a lecture in a large hall, additional listening support is useful.

**FM Systems**

FM systems are very useful and very popular in educational settings. FM systems are micro-radio transmission systems (hence the name “FM”) that maximize the speaker’s voice. FM is very popular in educational settings. The teacher speaks into a tiny and portable microphone (usually clipped onto his/her collar) and the sound is delivered wirelessly into the student’s hearing aids using FM signals—thus, avoiding the introduction of background noise, reverb/echo, and while maintaining an excellent signal-to-noise ratio. FM is also very useful for adults in many listening situations.

**Sound Field Systems**

Another popular listening system designed for classrooms are sound field systems. While employing sound field systems, the teacher wears a small, wireless, microphone and the sound signal is sent to strategically placed speakers located across the classroom to enhance the speech signal. Sound field systems are not only beneficial for students with hearing loss, but many studies have shown that all students in the classroom benefit when sound field systems are used to improve classroom acoustics.

**T-Coils and Loop Systems**

Indeed, most people with hearing loss depend on or benefit from some kind of ALD to help them develop or maintain a comfortable level of independence in their daily lives. From infra-red TV headsets to closed-captions (CC) used while watching TV, to amplified telephones, people with hearing loss use a multitude of ALDs to remain connected to their world. Other popular ALD systems include tele-coils (also called T-Coils, available in many hearing aids for more than 50 years) and loop systems. Loop Systems transmit electromagnetic signals into a “looped area” (such as a living room or an auditorium) allowing the hearing aid wearer to perceive the sound signal through the tele-coil switch on t-coil supplied hearing aids.

The "Get in the Hearing Loop" campaign was created in collaboration with HLAA to address a national looping initiative. The goal of the effort is increase consumer and audiology awareness of hearing aid- and cochlear implant-compatible assistive listening systems. The campaign will culminate in the Second International Hearing Loop Conference to coincide with the HLAA annual convention in Washington, DC,
June 16 – 19, 2011. As part of the campaign we will be creating educational resources for consumers and audiologists alike. Check back on this site for further developments.

Alerting Devices

Beyond the most common ALDs (used for television and telephone), there are many visually based alerting devices (ADs) designed to alert hearing impaired and deaf people to special circumstances and situations. For example, alarm clocks with traditional bells and buzzers are of little use for people with severe-to-profound hearing loss. Therefore, special alerting devices are built into alarm clocks with strobe lights, or perhaps vibrating pillow inserts—to help wake people who cannot hear the typical alarm. Additionally, fire and smoke alarm systems are available that offer visual alarms, too.

Importantly, with the introduction of Bluetooth wireless connectivity, more and more of the products that were previously “add-ons” to hearing aid systems (such as TV and telephone-based ALDs, FM systems and more) are being incorporated into advanced hearing aids as a more complete and often seamless “listening system.” Please speak with your audiologist to learn about advanced wireless systems and features, which can be incorporated into some advanced hearing aid systems.

These products (ALDs and ADs) are commercially available and are highly recommended. Please speak with your audiologist about ALDs and ADs, to get the best and most useful products to enhance your listening experience.

If you are interested in learning more about assistive listening and alerting devices, visit http://www.howsyourhearing.org/assistivelisteningdevices.html to "Find an Audiologist" and set up an appointment.
Aural Rehabilitation for Adults

Hearing loss currently affects more than 36 million Americans. Although hearing problems are associated with the normal aging process, more than half of all people with hearing loss are younger than 65. There are many causes of hearing loss: loud noises, ear infections, ear trauma, ear disease, illness and disease, certain medications, and of course, the normal aging process. Most hearing losses are permanent. Your audiologist will determine the type and degree of your hearing loss and the best treatment.

Treatment options may include; hearing aids, assistive and alerting devices, FM systems, and hearing rehabilitation. The first step in treatment of hearing loss is a comprehensive and diagnostic hearing evaluation by an audiologist.

Do I Have Hearing Loss?

People with hearing loss sometimes say, "Could you repeat that, please?" or "I hear you but I can't make out the words." Sometimes family members comment the television volume is too high. Sometimes the person with hearing loss might miss the punch line when someone tells a joke. Sometimes the person with hearing loss no longer enjoys dining out, visiting friends, going to meetings, parties, movies, or religious services because it’s a real struggle to listen to the person speaking, it’s exhausting! The earlier signs and symptoms of hearing loss are very common and often do indicate hearing loss. However, the easiest way to find out if you have hearing loss is to simply make an appointment with an audiologist.

What Is an Audiologist?

An audiologist is the primary health-care professional who evaluates, diagnoses, treats, and manages hearing loss and balance disorders in adults and children.

Hearing Loss Options

Most people with hearing loss can be helped through appropriate use of hearing aids, assistive and alerting devices, FM systems, and more. Although hearing aids cannot restore your hearing to normal, they can provide substantial benefit for people with hearing loss. Your audiologist will recommend certain styles and types of hearing aids based on your hearing test results, cosmetic concerns, as well as your listening needs and preferences.
American Speech-Language-Hearing Association

Making effective communication, a human right, accessible and achievable for all.

ShareThis

Augmentative and Alternative Communication (AAC)

- What is AAC?
- What are the types of AAC systems?
- What other organizations have information on AAC?

What is AAC?

Augmentative and alternative communication (AAC) includes all forms of communication (other than oral speech) that are used to express thoughts, needs, wants, and ideas. We all use AAC when we make facial expressions or gestures, use symbols or pictures, or write.

People with severe speech or language problems rely on AAC to supplement existing speech or replace speech that is not functional. Special augmentative aids, such as picture and symbol communication boards and electronic devices, are available to help people express themselves. This may increase social interaction, school performance, and feelings of self-worth.

AAC users should not stop using speech if they are able to do so. The AAC aids and devices are used to enhance their communication.

What are the types of AAC systems?

There are many types of AAC available. AAC systems generally fall into two categories: unaided and aided.

The best AAC system for an individual may include both aided and unaided systems to accommodate a variety of situations.

Unaided communication systems do not provide voice output or electronic hardware. Someone must be present for unaided systems to work (they cannot be used on a phone or
from room to room. Examples include the following:

- gestures
- body language
- sign language
- communication boards

Communication boards can display written words, letters, numbers, pictures, or special symbols.

Aided communication systems are electronic devices that may or may not provide some type of voice output. Devices that provide voice output are called speech generating devices. These devices can display letters, words, and phrases, or a variety of symbols, to allow the user to construct messages. Messages can be spoken electronically and/or printed on a visual display or strip of paper. Many of them can connect to a computer for written communication. Some of them can be programmed to output different spoken languages.

To contact a speech-language pathologist, visit ASHA's Find a Professional.

What other organizations have information on AAC?

This list is not exhaustive and inclusion does not imply endorsement of the organization or the context of the web site by ASHA.

- AAC Institute
- International Society for Augmentative and Alternative Communication
- Rehabilitation Engineering and Assistive Technology Society of North America
- Rehabilitation Engineering Research Center on Communication Enhancement
- State Assistive Technology Programs

See Also:

- AAC: Information for AAC Users
- AAC: Benefits of Speech-Language Pathology Services
- Augmentative Communication: A Glossary
- AAC: More Than Three Decades of Growth and Development
- Augmentative and Alternative Communication Decisions

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TIPS FOR COMMUNICATING WITH INDIVIDUALS WHO HAVE APHASIA

- Get the person’s attention before speaking to them. Sometimes saying their name is adequate, at other times you may need to get in front of them and obtain eye contact or touch them when you say their name.

- Give the person extra time to respond and to communicate.

- Speak slowly and allow enough processing time for the person to understand what has been said. This may take as long as 10-15 seconds and varies with the person.

- Use short concise sentences.

- Be sure to speak to the person as an adult in a respectful manner that is appropriate for a person of their age and level of life experience. Do not condescend or speak to the person like a child.

- Do not talk louder or shout unless you know the person has difficulty hearing and then talk a little louder but do not yell.

- Use visual supports when you are communicating with the person. Visual supports could be as simple as pointing to the object, person, or area you are talking about, using gestures to help describe what you are referring to, or having written words or pictures to refer to (depending on what helps the person).

- Individuals with aphasia will be helped by the context of natural environments. For example, when visiting they will use other’s facial expressions, body language, and responses to help them understand. Be sure and respond in a natural way to help them understand the conversation.

- If a person is not able to use words to communicate you will need to utilize other aspects of their communication to understand what they need or want. Pay attention to the tone of their voice, facial expressions, body language, level of frustration, and how they are trying to communicate with you.

- Sometimes a person can’t verbalize using words but can respond correctly to yes and no questions.

- Limit the amount of distraction in the person’s environment when they are communicating. Turn off the television and radio if you are going to be visiting or communicating in general.

- In a group setting remember that the person may need to have one person talking at a time and the conversation may need to move a little slower so the person with aphasia has an opportunity to catch the details.
- Never refer to or talk about the person in front of him/her. Don’t talk for them unless they defer to you.

- It is not unusual for a person to laugh or cry inappropriately. When this occurs, change or move on through the subject or activity.

- If a person is non-verbal and is dependent on you for any of their daily care, be sure and talk to them as you are doing daily care activities. Talk about what you are doing, why you are doing it, and when appropriate, “make small talk”.

- If you don’t understand what the person is trying to tell you, be honest. Find out if what they are trying to communicate is important or if it can wait until a later time.

- We are all most comfortable in familiar situations and contexts. It is wonderful to have the person be involved in activities and events they had previously been involved in whenever possible.

- Avoid asking the person to “say ______” or “quizzing them about words and language. Given the nature of aphasia

- If someone becomes frustrated when attempting to communicate it may be best to acknowledge that you can see they are frustrated, apologize for your difficulty in understanding, and ask if you can come back to this topic a little later.
TIPS FOR COMMUNICATING WITH INDIVIDUALS WITH DYSPHARYNAX

These tips are for individuals with dysarthria and their communication partners. Dysarthria refers to speech that is imprecise, slurred, unclear or difficult to understand due to a change in the function of the muscles that are responsible for speech.

- **MAKE SURE YOU KNOW THE GENERAL TOPIC OF THE CONVERSATION.** Knowing the topic of conversation makes a big difference in understanding speech that is not clear. Encourage the person with dysarthria to introduce and clearly identify the topic.

- **WATCH FOR TURN-TAKING SIGNALS.** Some speakers with dysarthria whose speech is slow have difficulty getting a turn in a conversation due to the increased time and effort involved in speaking. Watch carefully for a person's signals that they are wanting to take a turn.

- **GIVE YOUR UNDIVIDED ATTENTION.** Speech is usually so easy to understand that listeners can do other things and still understand what is being said. Speech that is slow and distorted is more difficult to understand and therefore, requires a listener's undivided attention.

- **PIVING THE TIME AND PLACE FOR COMMUNICATION.** Most of us can talk all day without getting tired. Most of us can do many things while we talk. We can walk and talk, chew gum and talk, or eat and talk. Talking may be a very difficult task for a speaker with dysarthria. Avoid important conversations when the speaker is tired. Meal times may no longer be the best time for conversations since eating uses the same muscles as talking.

- **WATCH THE SPEAKER.** All of us get a considerable amount of information by watching a speaker. When speech is slow or distorted it is even more important to look at the speaker's face.

- **PIECE THE CUES TOGETHER.** Some people describe the task of understanding slow and distorted speech as a process of piecing together a series of cues. Some of the cues may come from the speech in the form of words that were understandable. Other cues may come from the gestures that the speaker may use, the intonation of their voice, or from the physical surroundings. Take advantage of whatever cues are available to you.

- **MAKE THE ENVIRONMENT WORK FOR YOU.** Maximize your ability to understand the speaker with dysarthria by making sure you have enough light; that the light is on the speaker's face; and that all extraneous noise is eliminated or reduced.
• AVOID COMMUNICATION OVER LONG DISTANCES. Make sure to always be in the same room when you initiate conversation. It is difficult for many speakers with dysarthria to speak loudly enough to be heard in another room.

• MAKE SURE YOU'RE HEARING IS AS GOOD AS POSSIBLE. It is important that you hear well. If you think you may have hearing loss, have your hearing tested. Properly fitted hearing aids may make speech of the individual with dysarthria more understandable.

• DECIDE UPON AND INCORPORATE STRATEGIES FOR RESOLVING COMMUNICATION BREAKDOWNS. There may be times when you will not be able to understand some or all of a message. It is important to develop a plan of action to take if this happens. Some people find the following steps helpful in preventing frustration:
  → Signal as soon as you don't understand. Most people find that a nonverbal signal is best because it does not disrupt the flow of conversation.
  → Let the speaker know the parts of the message that you did not understand. "So you are talking about when Sam came to visit and that he talked about something, but I missed what he was talking about." This is so that the speaker won't have to repeat the entire message.
  → Let the speaker repeat the misunderstood words one or two times.
  → If you still don't understand ask the person to go to a predetermined "back up" plan that involves rephrasing, verbal spelling, writing, an alphabet board, finger spelling or some other support.

• ESTABLISH SOME RULES OF THE GAME. Most people with dysarthria have some very definite preferences about what they would like you to do and what they wish you would not do. Knowing what these preferences are may help reduce or prevent frustration. For example, does the speaker with dysarthria want you to guess or not? Want you to finish sentences or not?

• FACILITATING COMMUNICATION WITH OTHERS. Communicating with people who are unfamiliar with them is difficult for many individuals with dysarthria. You may be of assistance as a translator in some situations. The person may defer you to repeat what they have said or when giving long pieces of information that will wear them out. Do not speak for them unless they request it. There are times where you may need to help get the strategies to support the person going with unfamiliar listeners. "Do you want to try to spell that word?" Again, it is important to identify the preferences of the individual ahead of time in terms of what situations they would like support in and what type of support they would like.

*** Adapted From:
Techniques for improving the comprehensibility: For the communication partners of the dysarthric speaker. (From Yorkston, Strand, and Kennedy, 1996)
How do Stroke's and Dementia Impact Communication?

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Communication Umbrella

Language
Speech
Social Skills
Hearing
Cognition
Perception
Executive Function

- If you take away a section of the umbrella or if there is a hole in it, it isn’t as effective and you have to use the other parts of the umbrella more or in different ways. This is also the case with communication.

Language

- Language is a symbol system that each culture defines and uses to communicate
- Modality refers to the mode or method of communication
  - Auditory
  - Visual
  - Manual
  - Alternative system

Speech

- The motor movements that we use to express language verbally
  - Voice
  - Resonance
  - Articulation
  - Prosody or intonation
Swallowing

- Using the muscles in the mouth and throat to chew and swallow food and liquid safely and in adequate amounts to keep you healthy

Cognition

- Cognition refers to 'thinking'
  - Attending to information
  - Remembering information
    - Being able to store
    - Being able to retrieve
    - Remembering how to do something
  - Making associations
  - Sequencing things
  - Problem solving
  - Reasoning
  - Many other skills go into cognition

Stroke and Its Impact on Communication

- A stroke on the left side of the brain typically affects language (resulting in aphasia) and/or speech (resulting in dysarthria). It does not typically impact memory for events but because of its impact on words and language someone can appear to have difficulty remembering.
- A stroke on the right side of the brain typically affects perception, pragmatics, and reasoning. It can also impact memory.

Dementia and Its Impact on Communication

- Dementia tends to impact memory, reasoning, and cognitive skills more noticeably than language early on but eventually impacts language, especially word recall, in noticeable ways. Pragmatics are often left relatively intact until the later stages.
Stroke Warning Signs
If you or someone with you has one or more of these signs, don't delay!

- Sudden numbness or weakness of the face, arm or leg, especially on one side of the body
- Sudden confusion, trouble speaking or understanding
- Sudden trouble seeing in one or both eyes
- Sudden trouble walking, dizziness, loss of balance or coordination
- Sudden, severe headache with no known cause

Immediately call 9-1-1 or the emergency medical services (EMS) number so an ambulance (ideally with advanced life support) can be sent for you. Also, check the time so you'll know when the first symptoms appeared. It's very important to take immediate action. If given within three hours of the start of symptoms, a clot-busting drug called tissue plasminogen activator (tPA) can reduce long-term disability for the most common type of stroke. tPA is the only FDA-approved medication for the treatment of stroke within three hours of stroke symptom onset.

A TIA or transient ischemic attack is a "warning stroke" or "mini-stroke" that produces stroke-like symptoms but no lasting damage. Recognizing and treating TIAs can reduce your risk of a major stroke. The usual TIA symptoms are the same as those of stroke, only temporary. The short duration of these symptoms and lack of permanent brain injury is the main difference between TIA and stroke.