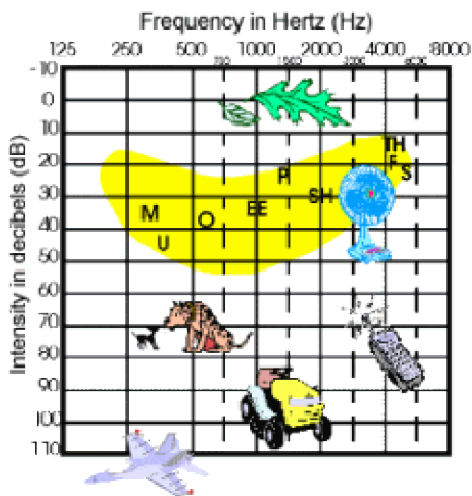




## Missing Links-The Effects of Hearing Loss on Speech Discrimination

Sounds generated by the speech mechanism possess specific and replicable acoustical properties. While the human ear is capable of detecting sound with energy between 20 to 20,000 Hz, most sounds generated in human language are comprised of speech energy in the 125-6000 Hz range. Vowel sounds generally hold low frequency energy (125-1000 Hz). Consonants on the other hand hold mid to high frequency energy (1000-6000 Hz). Vowel sounds generally have higher intensity levels than consonants. Figure 1 depicts the frequency characteristics of certain vowel and consonant sounds in the English language (at normal conversational levels [60 dB]).<sup>1</sup>



A common complaint heard from those with sensorineural hearing loss (nerve deafness) is that speech sounds “garbled”. This is a loss related complaint consistent with impaired speech discrimination performance. Unlike their normal hearing counterparts, hearing-impaired persons have difficulty discriminating subtle acoustical difference between sounds- like “T” and “S” for example.

As Figure 1 demonstrates, most consonants possess mid to high frequency energy. If you have high frequency hearing loss, your ability to discriminate between consonants greatly diminishes. When placed in situations with moderate to high background noise levels, speech discrimination performance further deteriorates.

To gain some appreciation of poor speech discrimination, consider the phrase:

**“Tom, I asked you to take out the trash last night!”**

In worst case scenarios, hearing impaired persons might perceive this same passage as:  
**“\_om, I a\_ked you \_o\_ake ou\_ \_e \_ra\_ la\_ nigh\_ !”**

<sup>1</sup> \* Graphic Courtesy of American Academy Audiology and Allan S. Mehr, FAA,



When communicating with hearing impaired persons, here are helpful “Do’s and Don’ts”:

- Select acoustically friendly spaces to communicate. Carpeted rooms, for example, dampen acoustical reverberation and may add clarity.
- Position yourself in front of the hearing-impaired person. Lip reading helps.
- Don’t talk between rooms within a house. Give them a chance!
- Don’t shout! Remember, many hearing impaired persons hear speech but just cannot decipher it! Shouting may distort your voice to the hearing-impaired listener.

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