## MILD BILATERAL HEARING LOSS: SPEECH RECOGNITION

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<td>Crandell, CC.</td>
<td>Case-matched control.</td>
<td>All selected from patient files of a center for communication disorders in Dallas.</td>
<td>Minimal Degree of SNHL: PTA*.5, 1, 2 kHz,* 15–30 dB* HL* in at least one ear.</td>
<td>Total: N = 40  With hearing loss: N = 20  Controls: N = 20  Ages 5–15 years.  Groups matched for age; average age 9 years, 1 month.  Normal development and IQ.  No significant medical problems.</td>
<td>Speech Stimuli: Bamford-Kowal-Bench Standard Sentence test used to assess sentence recognition.  Competing Noise: Multibabble recording from Speech Perception in Noise test.  Listening Tasks: Assessed 1 ear at a time; speech at 65dB SPL;* SNRs of +6, +3, 0, -3, and -6 dB. Child repeated each sentence.</td>
<td>Children with mild SNHL had poorer scores than controls across most listening conditions.  Analysis of Variance showed differences were statistically significant (p &lt; .01).  Post-hoc analyses showed significant differences were at SNRs ranging from +3 to -1dB.  Performance decrement between the two groups increased as the listening environment became more adverse.</td>
<td>Educational implications of these data, such as acoustical modification of the classroom and/or the utilization of FM* systems, are discussed.</td>
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* SNRs = signal-to-noise ratios; SNHL = sensorineural hearing loss; PTA = pure tone average; kHz = kilohertz; dB = decibel; HL = hearing level; SPL = sound pressure level; FM = frequency modulated
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<td>Needleman, AR, Crandell, CC. Speech recognition in noise by hearing-impaired and noise-masked normal-hearing listeners. J Am Acad Audiol. 1995; 6:414–24.</td>
<td>Case-matched control.</td>
<td>Not specified</td>
<td>Controls: &lt;15dB* .25–8 kHz.*</td>
<td>Total: N = 30</td>
<td>Normally hearing subjects were given simulated hearing losses that were matched to each subject with hearing loss.</td>
<td>Subjects with hearing loss had poorer sentence recognition scores than did masked controls.</td>
<td>Results indicate that subjects with hearing loss exhibited greater susceptibility to noise than noise-masked controls, suggesting that factors other than the loss of pure-tone sensitivity have degraded performance; this indicates the presence of a secondary distortion affecting perception.</td>
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**Main Purpose:**
To determine whether diminished speech perception is the result of reductions in auditory sensitivity or secondary distortions accompanying the loss of pure-tone sensitivity. The speech-recognition abilities of listeners with mild to moderate degrees of SNHL* were compared to normal-hearing individuals with simulated hearing losses.

**Hearing Loss:**
Thresholds given for each frequency, but specific criteria for hearing loss not used.

**All subjects:**
Normal middle ear function.

**Acoustic reflexes** from .5–2 kHz.

**Excellent word recognition in quiet.**

**Native speaker of American English.**

**Good health with no history of chronic illness or disease.**

**Controls:**
N = 20

**With hearing loss: Mean age 40.2 years (21–54 years).**

**Mean age 27.3 years (22–39 years).**

**Subjects with hearing loss**

| SNHL = sensorineural hearing loss; dB = decibel; kHz = kilohertz |