

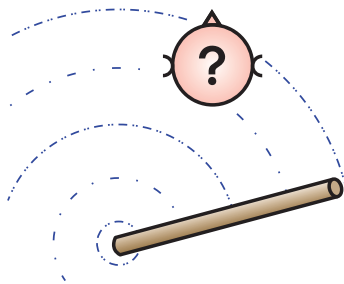
# Impact Sound Perception by Hearing Aid Wearers

## Summary

Normal-hearing and hearing-impaired subjects listened to rods dropped onto the floor behind them. They were asked to judge three properties of the events: 1) the materials of the rods, 2) the lengths of the rods, and 3) the heights from which the rods were dropped. Hearing-impaired subjects were tested both aided and unaided.

As a group, the unaided hearing-impaired subjects were worse than the normal-hearing subjects at judging all three of the sound event properties. Equipped with their own hearing aids, they remained worse only at judging rod material.

### 1. Sound Event



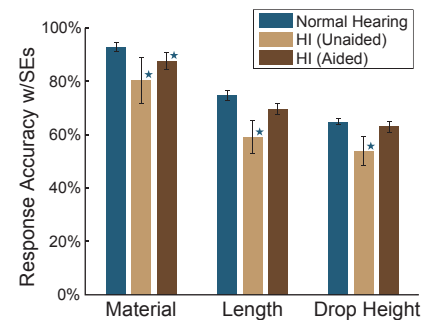
Test subjects listened to twelve different rods being dropped onto the floor behind them. The rods were dropped from two different heights.

### 3. Test Conditions

	Unaided	Aided
Normal-Hearing Subjects (16)		—
Hearing-Impaired Subjects (12)		

Normal-hearing and hearing-impaired subjects were tested unaided. HI subjects also completed a condition using their own hearing aids.

### 5. Task Accuracy



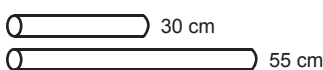
Unaided HI subjects had trouble judging all properties. HAs restored length and height perception. Stars indicate significant deficiencies.

### 2. Listening Task

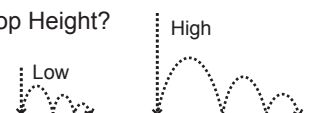
Rod Material?



Rod Length?

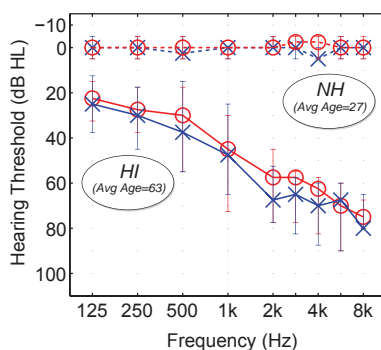


Drop Height?



For each rod drop, the subjects were asked to judge three ecologically-relevant properties of the event: rod material, length, and drop height.

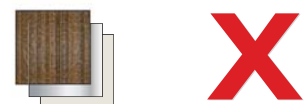
### 4. Subject Audiograms



Hearing-impaired subjects with a wide range of sensorineural hearing losses participated. Median and quartile values are shown.

### 6. Benefit of Hearing Aids

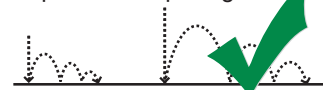
Perception of Rod Material



Perception of Rod Length



Perception of Drop Height



Hearing-impaired subjects' own hearing aids did not restore material perception to normal. Length and height perception were restored.