

## **Hearing: Sound Biomechanics & Perception (How Hearing Works)**

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How does one hear a sound? It's actually a complicated process involving many steps which all need to work together smoothly otherwise hearing loss occurs. Normally, sound travels through the ear canal which then vibrates the eardrum. The eardrum in turn vibrates the malleus, then the incus, followed by the stapes.

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The stapes then stimulates the cochlea through a small opening called the oval window. Within the cochlea, small hair cells stimulate the hearing nerve which carries the signal to a specific location within the brain called the auditory cortex. The auditory cortex is divided up into areas that are responsible for processing different pitches in a similar way to keys on a piano.

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Under normal circumstances, there is always a baseline of ongoing neural activity. When sound is present, however, the neural activity increases above baseline. When there are no sounds present, this activity is at a baseline that establishes your neural code for silence.