

# Research reveals how humans develop echolocation skills

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Ongoing research in Sweden reveals that when navigating by echolocation, as blind people do, our powers of hearing can be used in ways we never realized.

Like our fellow mammals, dolphins and bats, humans can find their way through an environment by making sounds and listening for the echoes. With practice, we can learn to use the volume, [pitch](#) and timbre of echoes from a tapping cane, or one's own voice, to navigate an environment without relying on sight, says Bo Schenkman, an associate professor at KTH Royal Institute of Technology in Stockholm.

Unlike with dolphins and bats, [echolocation](#) is a byproduct of human hearing, not a sense in itself. However, people who are blind from an early age are better at echolocation, says Schenkman, who is doing research that explores how people can be trained to use this ability even later in life.

While the ability to detect volume and pitch shifts is known, Schenkman reports that preliminary research shows people are able to also detect the timbre of an [echo](#), that is, the characteristics that give a sound its distinctness. Timbre, for example, is the quality that enables us to tell a violin from a cymbal, even if they are in the same volume and pitch.

Schenkman's research shows that [visually impaired people](#) are on average better at perceiving the quality of two sounds that are close together in time. He also finds that [blind people](#) can more easily counteract the "precedence effect," a phenomenon that occurs when sounds overlap, and a person judges the location of the sounds to be from the location of the first arriving sound, rather than from the ones that arrive later.

**More information:** Bo N. Schenkman. Human echolocation in different situations and rooms, *The Journal of the Acoustical Society of America* (2017). [DOI: 10.1121/1.4987156](https://doi.org/10.1121/1.4987156)

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