

# Probing Question: Why are some deaf people able to play instruments?

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Applause exploded in Vienna's Karntnertortheater on May 7, 1824, following the premiere performance of Beethoven's Ninth Symphony. Yet the master composer himself, by then almost completely deaf, didn't know his work was well received until he turned to see the audience.

Nearly two centuries later, a hearing-impaired British solo percussionist and composer named Evelyn Glennie performs intricate, arresting rhythms on a myriad of instruments. How can Beethoven and Glennie, among the few accomplished deaf musicians, make music they cannot hear?

The answer lies in ways of "hearing" and experiencing music well beyond the auditory system, said Michael Broyles, Penn State professor of music who has published a book about Beethoven's musical style. What Beethoven and Glennie share, Broyles says, is musical training, perfect pitch and excellent hearing before they suffered its loss. Glennie became deaf at about 12 years of age while Beethoven gradually began to lose his hearing at age 30. Both were able to experience hearing music in a way that helped each of them to continue to make music when their physical hearing failed.

"There are musicians, and I think Beethoven was one, who can hear music so clearly in their minds that there's almost no difference between the physical sound and what's going on in their head," said Broyles.

Most of us have had the melody of a song, perhaps an especially

annoying one, stuck in our heads. But for the most talented of musicians, this internal "listening" to music goes well beyond the common experience. These individuals can literally read a score as most people would a novel, and experience music in their minds exactly as if listening to it, said Broyles. In fact, he adds, there's a story in music circles about a famous pianist who read a performance score while at a library, and experienced it so intensely that he clapped out loud at the end.

Glennie's musical talent helps her in a different way.

On her Web site, Glennie explained how she learned to feel instead of hear music. In her early teens, Glennie would place her hands against the classroom wall while her percussion teacher, Ron Forbes, played timpani, drums that produce a definite pitch. She learned to distinguish how the notes felt.

"Eventually I managed to distinguish the rough pitch of notes by associating where on my body I felt the sound with the sense of perfect pitch I had before losing my hearing," Glennie wrote. "The low sounds I feel mainly in my legs and feet and high sounds might be particular places on my face, neck and chest."

She also feels the vibration of sound. "Hearing is basically a specialized form of touch," she wrote. "Sound is simply vibrating air which the ear picks up and converts to electrical signals, which are then interpreted by the brain. The sense of hearing is not the only sense that can do this, touch can do this, too."

Percussion instruments lend themselves to making vibrations the body can easily feel, said Broyles. "When you see Evelyn Glennie perform, there is no sense whatsoever that her hearing is impaired. The only thing unusual the audience notices is that she performs barefoot, the better to detect sound vibrations from the floor."

Feeling the vibrations of sound is one way in which many deaf people, even those deaf from birth, experience music. "I've known some deaf people who can dance beyond description," said Elise Uhring, an audiologist at Penn State's Speech and Hearing Clinic. "They feel the vibration and dance from the true vibration."

Uhring recalled weekly dances at a school for the deaf where the stereo speakers would be placed face-down on the floor. "Anybody walking in wouldn't guess the dancing kids were deaf," she said.

Glennie urges her listeners to forget her deafness and just enjoy the music. For Beethoven, too, the focus was on the music, said Broyles. A benefit of his deafness, perhaps to the world if not to Beethoven himself, was that it forced him inward, tuning out other stimuli, said Broyles.

The quartets Beethoven composed in the last three to four years of his life stand apart from the rest of classical music in style and complexity, he added. "I don't think they would have occurred had he not been deaf," said Broyles. "They're not only introspective but very complex, contrapuntal and clearly indicate someone reflecting in his own mind about sounds."

Source: By Lisa Duchene, Penn State

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