

In 1978 a major discovery lent substance to this prediction. Dr. David Kemp, an English physicist, discovered that the cochlea, a hollow, spiral-shaped bone in the skull that contains the organs of hearing, actually emits sounds.

These sounds, known as otoacoustic emissions, were found to be of two types: spontaneous and evoked.

Spontaneous emissions of sound are produced by the ears of normal people from time to time for no apparent reason. Although a microphone in the ear can clearly register such sounds, they are rarely noticed by the hearer, perhaps because the brain filters them out from the flow of signals that underlie perception.

Spontaneous emissions are apparently not related to tinnitus, or ringing of the ears, an ailment that can be caused by very large doses of aspirin, among other things. Dr. Glenis R. Long of Purdue University says that only about 3 percent of people suffering from tinnitus are found to produce spontaneous sound emissions of their own.

The other kind of ear-produced sound, evoked otoacoustic emissions, is similar to echoes, generally somewhat distorted from the original sound. The types of distortions found in these sound emissions appear to correspond to the kind of interference patterns that occur when one sound frequency is imposed on another.

A person who fails to emit echo-like sounds from his or her ear in response to a test tone generally turns out to be deaf, or suffering from disease or the influence of certain drugs. When a sound-producing device called a transducer is inserted in an ear canal and emits a brief click, a healthy cochlea responds a few thousandths of a second later by sending back an echo, which is picked up by a miniature microphone.

Scientists discovered that the otoacoustic echo response disappears when a person is taking large doses of aspirin, quinine, or psychoactive drugs. Aspirin, in fact, is known to cause temporary hearing loss. According to Dr. Long, people possessing "perfect pitch," the ability to sing or whistle a specified note without first hearing it on a pitch pipe or tuning fork, lose some

[of this ability when taking certain drugs.](#)

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### [Reference](#)

<http://www.nytimes.com/1992/06/09/science/ear-s-own-sounds-may-underlie-its-precision.html?pagewanted=all>

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