Say what?

When speech funnels into your right ear, the initial signal reaches the side of the brain that processes language in about 20 milliseconds.

But if the information is captured by your left ear, it travels a longer, more circuitous route.
That’s not a problem if both ears hear the same words, but when each receives competing messages—think about being on the phone while someone is talking nearby—the information captured by the right ear will be processed more efficiently.

The phenomenon is known as the right-ear advantage.

It helps explain why children, in particular, have trouble handling information when competing signals bombard each ear, and new evidence suggests it also may affect adults when they’re trying to absorb complex information.

“In children, the right ear has a huge advantage,” said Aurora Weaver, a professor in communication disorders at Auburn University. “It’s not that the left ear isn’t hearing. It’s that the brain can’t make use of the information and respond to it.”

Audiologists test the ability to process competing messages by presenting different material simultaneously to each ear, then asking the person to repeat it.

Traditionally, two digits are presented to each ear.

A typical 7-year-old child will accurately repeat the information presented to the right ear approximately 70% of the time, according to Frank Musiek, a professor of speech, language and hearing sciences at the University of Arizona. The same child will accurately repeat information presented to the left ear approximately 55% of the time.

“It’s part of what’s going on when you think a child is not paying attention,” Dr. Weaver said. “If a classmate is talking in the right ear, it’s harder to attend to what is being discussed in class.”

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thanks for watching!
When speech is captured by the right ear, it generally travels directly to the left hemisphere of the brain, where, for most people, language is processed.

But speech collected by the left ear typically travels first to the right hemisphere. From there, it must be relayed to the left hemisphere through a broad band of nerve fibers that facilitates communication between the hemispheres and is known as the corpus callosum.

“When you have a direct shot from the right ear to the left hemisphere, you don’t have to cross the entire width of brain to get to other side,” Dr. Musiek said. “The signal from the left ear is put at a disadvantage.”

The relay could take as little as three to five milliseconds or as much as 300 milliseconds. “We’re talking about a definite difference,” Dr. Musiek said.

The right-ear advantage is more evident in children than adults because myelin, an insulating sheath that allows nerve impulses to move more quickly through the corpus callosum, hasn’t fully developed. As the myelin forms over a series of years, the relay of information from the right hemisphere to the left improves, and the right-ear advantage fades.

A 9-year-old receiving competing information in each ear will be approximately 80% accurate in the right ear and 75% accurate in the left, Dr. Musiek said. Children 11 and older will be approximately 90% accurate in each ear—about the same as an adult.

In adults, the right-ear advantage is generally considered clinically insignificant, but Dr. Weaver and her colleagues, who shared their findings in December at the annual conference of the Acoustical Society of America, tested this by presenting adults with complex streams of material.
“We included more pieces of information, from two digits in each ear to up to nine digits in each ear, which would be close to a phone number or social security number,” Dr. Weaver said.

The study, including 41 adults ages 19 to 28, found that as cognitive demand increased, the right-ear advantage persisted.

The ability among the test group to repeat information that exceeded their basic memory capacity was, on average, 7% greater in the right ear, and in some individuals, it was as much as 40% greater.

Other things could contribute to the results. For example, traditionally in tests like this, streams of competing information are kept brief to avoid confusing auditory processing with memory tasks, Dr. Musiek said.

But if you have an important message to deliver to someone, you might want to begin like this:

Lend me your ear. No, not that one. The other one.

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