

Fun Facts Friday: Elephants' Ancient Inner Ear

As mammals evolved, most developed a more specialized cochlea, the spiral-shaped structure in the inner ear responsible for hearing, than the one found in reptiles. Elephants, along with dugongs and manatees, their closest living relatives, evolved away from that ancestral design and later reverted to a reptilian-like cochlear structure that most of the mammalian line left behind.

The cochlear structure of reptiles is associated with keen sensitivity to vibrations. Researchers believe the elephant's reptilian-like cochlea may contribute to elephants' low-frequency hearing and to their ability to detect seismic signals, vibrations that travel through the ground.

When an elephant rumbles, that sound travels through the air and also sends vibrations through the ground. Elephants detect those ground-borne signals through bone conduction to the inner ear, where the cochlea converts vibration into nerve signals, and through vibration-sensitive receptors in the feet and trunk. Together, these pathways give elephants more than one way to receive the same low-frequency signal.

Photo: Mundi's visible ears are only part of the story. Photo: David Barfield

