Auditory system

The auditory system functions to collect sound waves from the environment, transform mechanical vibrations from those sound waves into electrical nerve signals, which can be relayed to various areas of the central nervous system, and process sound into meaningful content. The complexity of auditory processing is apparent by the system's ability to localize, analyze, and interpret a sound that then extrapolates into useful information that the individual can respond to with simultaneous integration with other sensory stimuli. For a sound to be perceived by the individual, it needs to travel to and be processed by higher-order regions in the cerebral cortex, specifically the primary auditory area. From there, through bottom-up and top-down signaling pathways, the information can be relayed to other areas of the central nervous system, cerebral cortex, and lower brainstem regions to make meaning of the information as well as integrate auditory and other sensory stimuli. The primary auditory area acts as the principal location that receives sounds from peripheral auditory structures and is integral to begin the process of complex sound interpretation as well as the conscious perception of noise [1].

The auditory system is the sensory system for the sense of hearing. It includes both the sensory organs (the ears) and the auditory parts of the sensory system.

see Primary auditory cortex

1)
Mangold SA, M Das J. Neuroanatomy, Cortical Primary Auditory Area. 2020 Feb 3. StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020 Jan-. Available from http://www.ncbi.nlm.nih.gov/books/NBK554521/ PubMed PMID: 32119408.