How the brain separates audio signals from noise

June 10 2008

How are we able to follow a single conversation in the midst of a crowded and noisy room? Little is known about how the human brain accomplishes the seemingly simple task of extracting meaningful signals from noisy acoustic environments.

In a new article published this week in the open-access journal *PLoS Biology*, Alexander Gutschalk and his colleagues provide an important advance towards solving this mystery by discovering the neural correlates of conscious auditory perception.

The researchers use magnetoencephalography (MEG) to record brain activity as human subjects detect target tones in a complex auditory scene consisting of distracting tones. They discover that the awareness of these sounds correlates with activity in high-level auditory regions in the brain, but not the initial cortical region where sound is processed.

Because many previous neuroimaging studies have used simple stimuli in unnatural contexts, such as pure tones in an otherwise quiet environment, this novel study will influence future research investigations aimed at uncovering the neural mechanisms of conscious perception in natural and complex environments.

Citation: Gutschalk A, Micheyl C, Oxenham AJ (2008) Neural correlates of auditory perceptual awareness under informational masking. PLoS Biol 6(6): e138. 10.1371/journal.pbio.0060138 -- biology.plosjournals.org/perls … journal.pbio.0060138

Source: Public Library of Science