Brain responds to human voice in one fifth of a second

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(PhysOrg.com) -- Psychology researchers have found the sound of the human voice can be recognised by the brain in less than one fifth of a second.

The study, conducted at the Centre for Cognitive Neuroimaging in the Department of Psychology, found that the brain recognises voices within a similar time-frame as it recognises faces - after around 170ms following presentation.

Ian Charest, a PhD student who conducted the study under the supervision of Professor Pascal Belin, said: “Because human social interactions rely heavily on facial and vocal expressions, the brain is likely to have developed the ability to process them very rapidly and efficiently. Since faces and voices are usually paired together in social communication, it makes sense that the brain would process them in a similar time-frame.”

Researchers tested 32 volunteers in an experiment in which electrical signals generated by the brain were measured using EEG caps as the volunteers listened to series of sounds comprising bird songs, environmental sounds and human voices.

They observed electric potentials related to voice that had twice the amplitude as those related to bird songs and environmental sounds in less than 200 milliseconds.

Ian, from Trois-Rivičres, Québec, Canada added: “This knowledge may also help us understand conditions such as autism and help develop more accessible diagnostic tools. Autistic individuals have difficulties in social interactions and we observe abnormal brain activity after presentation of faces or voices in their brains.”

The study, entitled ‘Electrophysiological evidence for an early processing of human voices’ is published online by *BMC Neuroscience*. It was supported by grants from the Economical and Social Research Council, Medical Research Council, Royal Society, Biotechnology and Biological Sciences Research Council, Canadian Foundation for Innovation, Natural Sciences and Engineering Research Council of Canada, Canadian Institute of Health Research, and France-Télécom.

More information: For more information on their research and on voice perception, please visit the Voice Neurocognition Laboratory’s website @ vnl.psy.gla.ac.uk .

Provided by University of Glasgow

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