

AUDIO-VISUAL INTEGRATION IN SPEECH PERCEPTION: AN fMRI STUDY USING THE MCGURK EFFECT

S.Tomaskovic, L.Slabu, R.Renken, E.Wiersinga-Post, F.de Smit, H.Duifhuis

Department of Biomedical Engineering, University of Groningen, BCN NeuroImaging Center, Groningen, The Netherlands

In speech perception both auditory and visual information is important. Especially in a noisy environment visual information can improve speech intelligibility. How auditory and visual information is combined is largely unknown. To investigate this process we use the McGurk effect. This effect is a useful tool for studying audio-visual (AV) integration, since, in the McGurk effect, the auditory perception is changed due to AV integration. E.g., when the speech sound /aba/ is presented while a moving mouth pronouncing the sound /aga/ is shown, *hearing /ada/* indicates AV integration. In psychophysical experiments the strength of the McGurk effect was studied as a function of AV synchronicity. AV time shifts ranging from -520 ms to +520 ms were used. Based on psychophysical data fMRI stimuli for minimum, intermediate or maximal strength of the McGurk effect were selected. The sparse sampling technique was used to record the fMRI data. Given the assumption that the strength of the McGurk effect reflects the strength of AV integration, we expected to find a correlation in brain activation and AV synchronicity of areas involved in AV integration. Preliminary results did not show such a correlation.