Lip reading

Lip reading, also known as lipreading or speechreading, is a technique of understanding speech by visually interpreting the movements of the lips, face and tongue when normal sound is not available. It relies also on information provided by the context, knowledge of the language, and any residual hearing.

The aim of a work was to analyze the modulation of the brain activity within the areas involved in lipreading when an additional visual stimulus is included.

The experiment consisted of two fMRI runs (lipreading_only and lipreading+picture) where two conditions were considered in each one (oral speech sentences condition [OSS] and oral speech syllables condition [OSSY]).

During lipreading-only, higher activity in the left middle temporal gyrus (MTG) was identified for OSS than OSSY; during lipreading+picture, apart from the left MTG, higher activity was also present in the supplementary motor area (SMA), the left precentral gyrus (PreCG) and the left inferior frontal gyrus (IFG). The comparison between these two runs revealed higher activity for lipreading-only in the SMA and the left IFG.

The presence of a visual reference during a lipreading task leads to a decrease in activity in frontal areas [1)].

1)
Plata Bello J, García-Peña C, Modroño C, Hernández-Martín E, Pérez-Martín Y, Marcano F, González-Mora JL. Visual inputs decrease brain activity in frontal areas during silent lipreading. PLoS One. 2019 Oct 10;14(10):e0223782. doi: 10.1371/journal.pone.0223782. eCollection 2019. PubMed PMID: 31600311.