



FENS Forum 2010 - Amsterdam

- Posters: to be on display from 8:00 to 13:15 in the morning and from 13:30 to 18:45 in the afternoon. Poster sessions run from 09:30 to 13:15 in the morning and from 13:30 to 17:30 in the afternoon. A one hour time block is dedicated to discussion with the authors (authors should be in attendance at their posters as from the time indicated.)
- For other sessions, time indicates the beginning and end of the sessions.

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Poster board F32 - Wed 07/07/2010, 11:15 - Hall 1

Session 205 - Human cognition 5

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Title Changes of hemispheric interactions in adults during phonologic tasks

Text Cerebral mechanisms of different linguistic levels involve not only classical speech centers, but also other areas of the cortex, as well as some subcortical formations not directly related to the speech function. The system of connections language and non- language areas; the functional contributions of individual cortical areas of the left and right hemispheres are determined by nature of the task. In present investigation the structure of interregional interactions of brain bioelectric potentials has been studied during performance by adults of three phonologic tasks: phonemic recognition in auditory presented words, generating words from auditory presented set of phonemes and controlled word association. Correlation and coherence analyses of multichannel EEG recordings from healthy adults (N=18), were used for investigate the reorganization of systemic interactions (20 EEG derivations) during verbal tasks. According to our data intensification of hemispheric interaction was observed during recognition of phoneme in the context of auditory presented words, especially in theta and delta frequency bands between temporal areas of both hemispheres and between anterior regions in alpha frequency band. Correlation analysis of EEG during generating words from the set of phonemes indicated the changes in the hemispheric interactions were most pronounced in the temporal, especially in Wernicke's zone, TPO areas of both hemispheres. For all frequency bands, changes in the EEG coherences were the greatest in Wernicke's and the TPO areas of the right and left hemispheres during generating words. These findings suggest that cerebral processes underlying mental generation of words, require coordinated activity of the left and right hemispheres, which is accompanied by an increase in the hemispheric interactions in the EEG, especially in the temporal, inferofrontal, and TPO areas. Remarkable increasing of regional interactions in occipital areas with decreasing interactions in frontal areas during controlled word association was observed. Probably it reflected letter visual image actualization in adults. We suppose that the algorithm of interaction of spatially distributed brain structures involved in constellations were determined by the specific nature of the task.

Theme F - Cognition and behaviour
Human cognition and behaviour - Language