made the problem very important. The aim of the present study was to investigate sleep changes during psychoemotional stress. Two approaches were used. The first one consisted of an EEG sleep recording during emotional stress, and the second one of self-assessment of sleep. Students' examinations, parachute jumping and loss of job were used as models of psychoemotional stress. Data obtained showed that sleep complaints and unusual sleep duration were always presented during examinations or parachute jumping. REM sleep was significantly shorter. After the event, REM sleep increased. Qualitative changes in EEG sleep latency of the first REM episode, duration and number of sleep cycles and sleep stages were also observed.

The effects of mathematical cognitive style on EEG asymmetry in association with arithmetic processing

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The effects of cognitive style on EEG asymmetry during arithmetic processing was investigated in three studies employing right-handed males (n ranged from 14 to 28). A neuropsychologically based questionnaire designed to measure mathematical strategy preference was constructed and used to select subjects. In direct comparison to subjects who preferred spatial problems, estimation and an intuitive approach to mathematics, verbally oriented and analytical subjects exhibited greater relative left mid-temporal alpha 1 (7.0–9.99 Hz) attenuation during an eyes-open baseline and a mixed set of arithmetic tasks, greater left posterior and right frontal beta (15–19 Hz) attenuation during simple subtraction and multiplication tasks and greater relative right frontal theta (3.0–6.99 Hz) attenuation during fact retrieval problems with verbal operators (e.g., 6 times 3 equals). The roles of operation shifting requirements and cognitive style-stimulus type mismatch in mediating frontal asymmetries will be discussed, as will the implications of the studies to cognitive neuropsychological models of arithmetic.

Reaction time of predictive and non-predictive antisaccades

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The purpose of this study was the detection of the parameters involved in the phenomenon that the reaction time of antisaccades is greater than that of saccades. To investigate this subject, four different paradigms were used: (1) predictive target position and kind of eye movement (saccade or antisaccade); (2) predictive target and non-predictive eye movement; (3) non-predictive target but predictive eye movement; (4) non-predictive target and eye movement. Eye movements were recorded with an infrared eye-recording system from five naive subjects in each paradigm. The reaction time of antisaccades was found to be considerably greater than that of saccades in the third and fourth paradigm using the ANOVA method ((3) 231±40 to 179±50 msec, $p<0.01$; (4) 437±91 to 412±85 msec, $p<0.01$). In contrast, such a difference was not found in the first and second paradigms, as the reaction times of antisaccades and saccades were close enough to each other ((1) 186±67 to 179±61 msec, $p>0.05$; (2) 397±97 to 385±91 msec, $p>0.05$). In conclusion, the critical parameter that makes the difference between the reaction time of antisaccades and saccades seems to be the non-predictive target position (left or right semi-field). In the other hand, the non-predictive kind of eye movement prolongs almost equally both eye-movement-type reaction times.

EEG-reactivity to auditory stimuli in acute never-treated schizophrenics as compared to normal adults and 14-year-old children

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We have studied the hypothesis that (a) information-induced EEG changes (EEG-reactivity) correspond to the EEG components of non-unitary adaptive orienting response which is elicited by the memory-driven processes that underlie the allocation of attention, (b) the functional significance of EEG reactivity is the update of the working memory's contents, and (c) deviations in EEG-reactivity suggest deviations of working memory. A 19-channel EEG (average reference) was collected during initial resting and before and after presentation of short nonsense sentences and tones (conditions) by 5 first-episode, drug-free schizophrenics (mean age 20.2±2.4 years), 5 sex-matched normal adults (24.2±3.5 years), and five 14-year-old children (13.9±01 years). For each condition, ten EEG-epochs of 2 sec were spectrally analysed; mean power was computed for the frequency bands theta (5.5–8.0 Hz), alpha 1 (8.5–10.0 Hz), alpha 2 (10.5–13.0 Hz) and used to estimate EEG reactivity as the arithmetic difference between post-stimulus EEG and pre-stimulus EEG. We present the results of EEG reactivity to the first sentence and tone. EEG reactivity to sentence 1: schizophrenics show, as compared to