

CRITICAL EVALUATION OF LATERALISATION PHENOMENA DURING HYPNOTIC TREATMENT

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To evaluate eventual hemisphere shifts in hypnosis, 11 volunteers were studied.

A 28 channel brain imager of Neuroscience was used. All volunteers were subjected to suggestions of calmness prior to hypnosis and in hypnosis, hypnosis being induced by the fixation method. Alpha EEG was mainly examined.

Brain mapping in conditions of rest with closed eyes showed a stable alpha rhythm of small amplitude. After induction of hypnosis an activation of the alpha rhythm, frontal and occipital was seen. Furthermore in hypnosis an activation at the right parietooccipital side was seen. This can be interpreted as the synchronisation of activity of thalamo-cortical segments.

Taking the literature into account, the induction of hypnosis can be attributed to the activities of both hemispheres, with lateralisation phenomena occurring in the state of hypnosis.

VERIFICATION TIME AS REFLECTED BY THE EVENT-RELATED POTENTIALS AND REACTION TIME

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In a reaction time (RT) situation subjects had to decide on the congruency of a set of dots (1–6) and the statement that the number of dots was even or odd. The statement was either affirmative or negative. In one condition the dots were presented before the statement, while in the other condition the order of presentation was the opposite. Event-related potentials (ERPs) were recorded to the second member of the to-be-matched pairs. All variables, i.e., the even/odd number of the points, the affirmative/negative statement and the match/mismatch decision had marked effects on the RT. However, the pattern of results was different from the predictions of the major models constructed in order to explain the results of the verification tasks, but strongly emphasizes the linguistic origin of the affirmative-negative RT differences. As the most important ERP result, ERP correlates of the final (correct) decision preceded the effects of the other variables, and the overt response by approximately 300 ms. These results indicate that one-cycle models might be insufficient in cases of relatively complex cognitive tasks.

WHAT PSYCHOLOGICAL PROCESSES MEDIATE FEEDING EVOKED BY LATERAL HYPOTHALAMIC ELECTRICAL STIMULATION?

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Although electrical stimulation of the lateral hypothalamus (ESLH) induces eating in all mammals, there is no generally accepted explanation of why the animals eat. It was thought that the stimulation evoked hunger, but subsequent investigations made this less credible. Recently, it has been hypothesized that stimulation produces a hedonic experience similar to that which occurs when ingesting a small morsel of food. This study determined if taste is enhanced by ESLH.

Taste-reactivity measures were used to examine the effects of ESLH upon taste perception and palatability evaluation. LH electrodes and oral cannulae were implanted. Rats were videotaped and their responses analyzed in three conditions: in an empty chamber for motor reactions; in a chamber with food available to verify stimulus-bound feeding; and in a chamber where taste solutions of different palatability (sucrose, HCL, or quinine) were infused into their mouths. LH stimulation 'on-periods' were alternated every 15-s with 'off-periods'.

ESLH did not potentiate the positive palatability reactions to food or perfusions of preferred solutions. We reject the hypothesis that ESLH elicits eating by influencing hedonic reactions. We suggest that stimulation elicits feeding and other behaviors by activating a mesotelencephalic dopamine system capable of potentiating the attractiveness or incentive salience of external stimuli without hedonic activation.

ELECTROENCEPHALOGRAPHY – A TOOL IN EXERCISE PHYSIOLOGY?

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Central nervous processes of sensorimotor and behaviour control are prerequisites of skills and motor performance.

We have been studying activation processes by means of the EEG. In strong relation to different real and imagined exercise situations short and long lasting changes of EEG-parameters support our hypothesis that variation of CNS activation is related to load and adaptation.

Most important of these are phasic activations dependent on intensity, duration, pattern and psychic demands of exercise.

As one of the most valid parameters appears the mean alpha-frequency over different areas of the brain. A subdivision of situation-related activation levels is supposed.