

P530**Physiologic effects of non-awakening electrocutaneous stimulation of palm during slow wave period of nap**

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Objectives: Recent research revealed the possibility to influence slow wave activity during sleep as well as learning process by means of magnetic electric and afferent stimulation. Previously we observed physiologic and therapeutic effects of non-awakening electrocutaneous stimulation of palm during slow wave night sleep. The purpose of current research was to confirm those effects for the case of daytime sleep, using similar stimulation method.

Methods: Eighteen good sleepers (nine male and nine female, aged 20–30 years) participated in the study. Each subject took part in 3 control experiments the 4th one with stimulation. Subjects had to take a nap at 12:30 or 14:30 on a weekend.

Sub-threshold rhythmic low frequency (1.0 Hz) palm electric stimulation was applied to subjects during slow wave (stage 3) periods of nap. Stimulation switched on automatically when certain quantity of EEG delta waves appeared and turned off 30 s later. Stimulation off period lasted for 20 sec and then it could resume.

Results: Experimental data has shown the sub-threshold low frequency electrocutaneous stimulation of palm during slow wave period of nap to produce positive effect on sleep structure resulting in significant increase of EEG delta wave (0.5–2.0 Hz) power.

Conclusions: We suppose that the result obtained is determined by hypothetical mechanism sustaining and deepening the sleep process. That mechanism also counteracts arousing effects of afferent stimulation. Future studies should test the possibility to use such techniques to support functional recovery in neuropsychological patients.

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P531**Involvement of the amygdala in blood pressure fluctuation during REM sleep**

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In addition to rapid eye movement, a variety of changes in autonomic nervous system occur during REM sleep, including sudden fluctuation of heart rate, respiration or blood pressure. Such phenomena are considered to reflect the emotional changes during REM sleep. Brain imaging studies in human have revealed that activity of amygdala increases during REM sleep. In rats, considerable number of the amygdala neurons increase their activity during REM sleep. Therefore, it is hypothesized that the autonomic changes during REM sleep would be triggered in amygdala. In the present study, (1) single neuronal activity in amygdala was recorded in unanesthetized, head-restrained rats under sleep-waking cycles, and (2) effect of electrical lesion in amygdala on blood pressure fluctuation during REM sleep was examined. About 40% (18/48) of amygdala neurons demonstrated activity closely correlated with blood pressure fluctuation during REM sleep. Blood pressure fluctuation during REM sleep is composed of single peak increase (4.2 counts/h), multi peaks increase (15.5 counts/h) and single peak decrease (5.9 counts/h).

After electrical lesion (500 μ A, 30sec) to the amygdala, these fluctuations almost disappeared. These results suggest that amygdala has closely involved in blood pressure fluctuation during REM sleep. Further studies are required to identify the amygdala subnucleus involved in this phenomenon.

Disclosure: Nothing to disclose.

P532**The European Portuguese version of the children chronotype questionnaire (CCTQ): reliability and raw scores in a large continental sample**

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Objectives: To study the psychometric properties, and to obtain raw scores, of the European Portuguese version of the Children ChronoType Questionnaire (CCTQ – Werner, LeBourgeois, Geiger and Jenni, 2009) in a large sample aged 4–11 yr.-old from Continental Portugal.

Methods: A cluster sample was recruited in all educational regions of Continental Portugal. Questionnaires for 3166 (51.1% boys) kindergarten and school aged children were retrieved. Based on parents/tutors answers, three chronotype measures were computed: morningness/eveningness scale score (M/E); corrected midsleep point on free days (cMSF); five-point chronotype score (CT).

Results: Chronbach alpha for the M/E scale was 0.73. Corrected item-total correlations ranged from 0.27 to 0.49, average of 0.40. Scores on the M/E scale showed a Gaussian distribution with a mean of 29.0 (\pm 5.16); cMSF mean was 3:34 (\pm 42 min); CT median score was 3. Associations between the chronotype measures ranged from moderate ($r_s = 0.38$) to large ($r_s = 0.58$).

Conclusions: Our results for the European Portuguese CCTQ in a Continental sample were similar to the ones obtained on the original questionnaire for the M/E scale, but our children showed later schedules as expressed by cMSF. The CCTQ [PT] M/E scale appears to be a reliable tool. At the moment, its validity is being studied using actigraphy.

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P533**Efficacy of Japanese sake yeast on the sleep quality: a double-blind randomised controlled clinical trial**

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Objectives: We searched for a new food materials to improve the quality of sleep and found Japanese sake yeast (Kamada *et al.*: Journal of Sleep Research, 21 (Suppl. 1), p276, 2012). In this study,