

This result was found for startle probes presented at 2.5s, but not at longer intervals.

Conclusions: The MN system is involved in emotional processing, as shown by modulation of the startle reflex when a negative picture is primed with emotionally congruent biological motion. Further, this modulation occurs only when the time interval between picture presentation and startle probe is relatively short, suggesting that the MN system may provide an early warning of threat-related actions.

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Increase of prefrontal cortex blood flow during trail making test

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Background and aims: Trail making test (TMT) was developed as a neuropsychological test evaluating frontal lobe function. However, the contribution of frontal lobe in results of TMT is still controversial because studies in patients with brain injuries suggest the role of basal ganglia rather than frontal lobe in results of TMT.

Methods: To examine the contribution of frontal lobe in the results of TMT, we measured blood flow in frontal cortex during performance of computer version TMT-A and TMT-B.

Sixteen healthy student volunteers (8 male, 25.9±5.3 year old; 8 female, 22.0±2.9 year old) was used in the study. Seven laser beam probes and 8 sensor probes were put on frontal lobe, and absorbance of 695 nm and 830 nm infrared beams were measured at 10Hz by optic topography (ETG 4000, Hitachi, Medical Corporation, Tokyo, Japan).

Results: Concentration of deoxyhemoglobin was decreased while concentration of oxyhemoglobin was increased in the prefrontal cortex during the performance of TMT-A and TMT-B.

Conclusions: The results suggest that blood flow increases in the prefrontal cortex during the performance of TMT, and possible involvement of this brain region in the performance of TMT.

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Circadian rhythm of malondialdehyde formation in healthy subjects

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Objective: Malondialdehyde (MDA) is a common biologic marker of oxidative stress used in psychiatric research. Data regarding MDA levels in healthy subjects are controversial. One factor affecting MDA levels may stem from the existence of a circadian rhythm of MDA formation. The objective of this study consists of investigating whether MDA formation has a circadian rhythm of formation in healthy human subjects.

Methods: The sample was comprised by 9 healthy male subjects. None of them had a history of medical or neurological disease and routine laboratory parameters were normal. The study was carried out in accordance with the Helsinki Declaration and

all subjects gave written informed consent before their inclusion. Blood samples were extracted at 12:00 and 2:00 in December 2004. The same routine was followed during the two experimental sessions. Serum MDA was determined by the thiobarbituric acid reactive substance (TBARS) according to the method of Ohkaba et al (1979).

Results: The sample was comprised by 9 male healthy subjects (age 33.0±11.7). There were significant differences in MDA levels between 12:00 and 2:00 (2.33±1.01 vs. 1.58±0.48, p<0.015).

Conclusions: MDA has a circadian rhythm of formation with higher levels at 12:00 than 2:00. This variation in circadian MDA levels of formation should be accounted when researching in this field.

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The medium latency auditory evoked response in attention deficit disorder and hyperactivity

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The Attention Deficit Disorder and Hyperactivity (ADDH) is now, a frequent diagnosis in Paediatrics Psychiatry. This real neurobiological syndrome has a variable incidence (3-12%), an early beginning (before 7 years) and an important permanency in adult age (15-20% keep diagnosis and 65% residual symptoms). It represents a risk factor for posterior psychiatric diseases, antisocial behaviour and relation problems. This makes the early diagnosis and treatment necessary. The 70-90% of the patients responds to simpatico mimetic treatment and the methylphenidate is the most used. Patients must carry out the clinical criteria and nowadays there is not any recognized helpful test for the diagnoses except the clinical one. The medium latency auditory evoked response (MLAER) appears 10-70 ms after the cochlear receptor activation and it has cortical and subcortical generators.

We studied MLAER in ADDH: their morphology, changes with treatment and relation between morphology changes and clinical response to treatment.

Patients (53) had ADDH clinical criteria, methylphenidate treatment chosed, not comorbidity neither hearing loss. First phase without treatment and second with it where we did MLAER and troncoencephalic auditory evoked response during wakefulness and sleep.

Without treatment 76% responses were asymmetric (51% of them with a specific type). The rest 23% were normal. With treatment 63% changed the morphology and 70% had a good response to treatment. Only 11% of patients without alterations had a good clinical development.

An ADDH diagnosis has different physiopathologic mechanism. The MLAER in ADDH could predict the treatment response.

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Orexin-a, body weight, and physical activity relationships in the rhesus monkey

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Activation of hypothalamic orexin neurons is a potential mediator of the weight gain associated with some antipsychotic drugs. Male rats display increased Fos expression in lateral hypothalamic orexin neurons following clozapine administration; however, amphetamines led to increased Fos expression in medially located orexin neurons. The rhesus monkey (*Macaca mulatta*) provides a model to examine the relationships between orexin neurons, weight and physical activity. Using stereology, the number of orexin-A immunoreactive neurons was quantified in 18 male (7.6–18.3kg) and 18 female (4.8–12.2kg) monkeys. In females, there was no relationship between weight and medial or lateral orexin-A neuron number. Conversely, in male monkeys, higher body weight was significantly associated with less medial orexin-A neurons ($P < 0.05$), but the relationship with lateral orexin-A neurons only approached significance ($P = 0.075$). Of the 36 animals in which orexin-A neurons was estimated, activity was monitored for 21 days via an Actiwatch-64 in 12 males and 12 females. Weight was negatively associated with activity in males ($P < 0.05$), but not females. Comparisons of activity to orexin-A neurons revealed a significant association between higher activity levels and greater numbers of orexin-A neurons in the medial hypothalamus ($P < 0.05$) but not with those in the lateral hypothalamus of males. Females showed no relationship between orexin-A neurons in either region and activity. The significant relationship between weight, activity, and medial orexin-A neurons of males, indicates that in monkeys, the medially located orexin neurons may be more influential in mediating body weight than in the rodent. (Supported by NIH Grant-P01-AG00001-29 and RR-00165).

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Neurochemical markers for aggression-related personality traits

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Background: Various biological risk factors for aggressive behaviours have been proposed, including disturbances in monoaminergic neurotransmission, endocrine axes and central nervous system (CNS) integrity.

Aims: To describe findings of correlations between markers of CNS chemical integrity, neurotransmission and hormone metabolism in relation to personality traits from forensic psychiatric investigatees and normal subjects in a stress paradigm.

Method: Cerebrospinal fluid (CSF) and serum (S) samples from 46 forensic psychiatric investigatees and 35 healthy subjects undergoing knee replacement surgery were analysed in relation to aggressive personality traits as rated by the Karolinska Scales of Personality, the Psychoopathy Checklist-Revised and the Temperament and Character Inventory.

Results: Aggressive traits were especially associated with increased HVA/5-HIAA ratios, indicating a deficient serotonergic tonic regulation of the monoaminergic activity, and with indices of deficient CNS integrity, such as increased CSF/S albumin ratios.

Conclusion: Neurobiological vulnerability factors are associated with aggressive behavioural and personality traits.

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Time course of emotional responses: the effects of subjective ratings of emotional intensity and voluntary suppression

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Background: Emotional regulation plays a pivotal role in socialization and personal development. However, little is known about the time course of emotional responses and the interaction with the subjective assessment of emotional intensity. The aim of this project was to examine the time course of emotional responses to visual stimuli when they naturally subside and when they are cognitively suppressed.

Methods: Healthy volunteers ($n=48$) viewed 54 images, each lasting for 6 sec, taken from the International Affective Picture System (18 positive, 18 negative, 18 neutral). In the passive condition, subjects had to press a button to view the next image when their response had subsided. In the active condition, subjects had to press a button to view the next image when their response was successfully suppressed. After each presentation, participants rated the intensity of their response on a scale from 1 (lowest) to 9 (highest). Time to resolution (TTR) after image presentation and intensity ratings were averaged (mean \pm SD).

Results: TTR (seconds) for neutral images was 7.22 ± 7.91 and 4.49 ± 5.41 for passive and active condition, respectively. For positive images, 12.1 ± 9.2 and 8.66 ± 7.13 for passive and active condition, respectively. For negative images, 15.68 ± 10.14 and 11.42 ± 8.25 for passive and active condition, respectively. TTR was statistically significantly shorter ($p < 0.006$) for all images during suppression. TTR in both conditions correlated positively with intensity of emotional response.

Conclusions: TTR of emotional responses to emotionally valenced images increases with intensity of the associated response and decreases with voluntary suppression.

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The effect of personality dimensions on subjective and objective measures of emotional reactivity

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Background: This study explores the contribution of personality dimensions as a source of individual variability, to electrodermal arousal, subjective ratings of intensity and time to resolution (TTR) of emotional responses to affectively valenced images.

Methods: Healthy volunteers ($n=48$) viewed 54 images from the International Affective Picture System equally split in positive, negative and neutral categories. Subjects pressed a button to view the next image when their response had naturally subsided (passive condition) or following voluntary suppression (active condition) and then rated the intensity of their response on a scale from 1 (lowest) to 9 (highest). The amplitude of the maximum peak of skin conductance responses (SCRs) was also measured. Personality dimensions were assessed with the Eysenck Personality Inventory (EPQ-Neuroticism, EPQ-Psychoticism and EPQ-Extraversion).

Results: Linear regression analyses were conducted to examine the effect of EPQ-P, EPQ-N and EPQ-E on TTR, intensity ratings, and maximum SCR amplitude in each experimental condition.

The emotional valence of the pictures was the strongest predictor of all 3 main outcome measures in both active and passive condition accounting for 36% of the variance for TTR, 72% for the intensity ratings and 16% for the maximum SCR amplitude. Higher EPQ-Psychoticism