

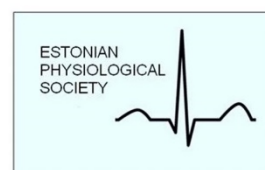
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ABSTRACT BOOK

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ABSTRACTS

P6 NEUROPHYSIOLOGY

Posters P6-1 to P6-17

Chair: Michael Druzin and Mami Noda

P6-1 The interference of tonic muscle activity on the EEG signal: Single motor unit study

Gizem Yilmaz¹, Pekcan Ungan¹, Oğuz Sebik¹, Paulius Uginčius², Kemal S Türker¹

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P6-2 The effect of exercise modalities on D-galactose induced rat Alzheimer model

Dilek Ozbeyli¹, Gulce Sari², Naziye Ozkan³, Betül Karademir², MeralYuksel⁴, Serap Sirvanci³, Ozgur Kasimay¹

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P6-3 Olfactory sensitivity in autism spectrum disorder

Francesco Piras, Roberta Fadda, Giuseppe Doneddu, Carla Masala
Center for Pervasive Developmental Disorders, AOB, Cagliari, Italy

P6-4 The influence of 29 weeks of social isolation on basic behavioral and somatic parameters in Wistar Kyoto rats

Jana Murinova, Zuzana Matuskova, Stanislava Vranková, Stefan Bendzala, Olga Pechanova, Igor Rieicansky

Institute of Normal and Pathological Physiology, Slovak Academy of Sciences, Slovakia

P6-5 Satiety state dependent metabolic sidedness in the hypothalamus of male rats

Istvan Toth¹, David S. Kiss¹, Gergely Jocsak¹, Virag Somogyi¹, Tibor Bartha¹, Laszlo V. Frenyo¹, Attila Zsarnovszky^{2,3}

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Student's feedback was taken from the opinion poll during the last weeks of the course and electronic questionnaire data provided after the completion of the course, feedback from the faculty was collected from six teachers involved in integrative physiology seminars during last years.

Conclusions: We found that both methods had positive and negative aspects. Therefore, we consider combining of both methods, and hope to achieve the best possible outcome to make medical physiology more understandable and interesting for our students.

6. Neurophysiology

P6-1

The interference of tonic muscle activity on the EEG signal: Single motor unit study

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Aim: Electroencephalography (EEG) is an important measurement tool of the cerebral electrical activity. The EEG signal is recorded via placing recording electrodes over the scalp. However, considering the anatomical locations of facial or masticatory muscles surrounding the skull, the electrical activity of muscles can interfere with the EEG. Temporalis muscle (*m. temporalis*) keeps the mandible in the physiological rest position and it covers a large area under the frontal EEG electrodes. In this study, we evaluated the possible interference of the resting activity of the temporalis muscle on the EEG under conventional EEG recording conditions.

Methods: In 9 healthy adults EEG activity from 19 scalp locations and single motor unit (SMU) activity from anterior temporalis muscle were recorded in three relaxed conditions; eyes open, eyes closed, jaw dropped. The EEG signal was spike triggered averaged (STA) using the action potentials of SMUs as triggers to evaluate their rejections at various EEG recording sites.

Results: Resting temporalis SMU activity generated prominent Macro-electro-myoecephalogram (Macro-EMEG) potentials with different amplitudes, reaching maxima in the proximity of the recorded SMU. Interference was also notable at the scalp sites that are relatively far

from the recorded SMU and even at the contralateral locations.

Conclusions: Considering the great number of SMUs in the head and neck muscles, prominent contamination from the activity of only a single MU should indicate the susceptibility of EEG to muscle activity artifacts even under the rest conditions. This study emphasizes the need for efficient artifact evaluation methods which can handle muscle interferences.

P6-2

The effect of exercise modalities on D-galactose induced rat Alzheimer model

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Aim: The present study was designed to investigate the effect of different exercise modalities on D-galactose induced Alzheimer model.

Methods: D-galactose (100 mg/kg) or saline was administered by intraperitoneally for 6 weeks to ovariectomised or sham-operated Wistar rats. Aerobic (AE; swimming), resistance (RE; climbing with weight) or combined exercise (CE) types were performed for 3 times a week for 6 weeks. Hippocampal mRNA levels of nerve growth factor (NGF), Amyloid precursor protein 695 (APP) were determined by RT-PCR. Novel object recognition test was performed. Malondialdehyde (MDA), glutathion (GSH), lucigenin and NO levels of brain tissue, the levels of circulating IGF-I (Elisa) were measured.

Results: Although the time spent with novel object of Alzheimer sedentary group was decreased according to sham sedentary group, it was increased back in all exercised groups ($p<0.05-0.01$). Increased MDA levels of the Alzheimer sedentary rats were decreased via all exercise types ($p<0.05$). Lucigenin levels were risen in Alzheimer sedentary and AE groups ($p<0.05$). Serum IGF-I levels were increased in all exercised groups, while there was an additional increase in Alzheimer RE group ($p<0.05-0.001$).The increased hippocampal NGF mRNA levels via Alzheimer model were declined by CE ($p<0.01-0.001$). APP