that cannabinoids exert hypnogogic properties and several clinical trials on certain cannabinoids report improvement of patient's sleep as a positive outcome. On the other hand, cannabinoid abuse has been associated with substantial adverse effects, such as dependence syndrome, impaired respiratory function, cardiovascular disease, and psychosis, linked to schizophrenia development. Moreover, in a last 20 years, there was an increase of production of "high-content Δ^9-tetrahydrocannabinol" (Δ^9-THC) cannabis and a spread of synthetic cannabinoids, with a much higher potency to cannabinoid receptor 1 (CB_1R) compared to a typical marijuana plant. This led to an increased numbers of cannabinoid-related emergency department admissions with a health-threatening symptoms, such as seizures or generalized convulsions. To puzzle out discrepancy among studies, and to decipher whether cannabinoids induce sleep or trigger seizures we aimed to investigate the effects of cannabinoids on electroencephalogram (EEG) and behavior in mice.

Materials and methods: C57/BL6 mice were used throughout the experiments. For the continuous EEG recording we used our high-throughput EEG/EMG bioassay system, with an analysis software (Sleepsign, Kissei-Comtec). For the spike analysis, EEG traces were quantified using OriginLab v8.5 Pro. Experiments, involving behavioural assessment were equipped with a high-quality video recording using double-screen mode. LC-MS/MS spectrometry was employed to measure cannabinoids serum concentration.

Results: Here we report that an intraperitoneal administration of the natural cannabinoid Δ^9-THC, one of the main constituent of marijuana, or the synthetic cannabinoid JWH-018, triggered electrographic seizures in mice. Continuous electroencephalography and videography gave us evidence that animals were not sleeping, but had behavioural and electrographic seizures with different intensity. Pretreatment of mice with AM-251, a cannabinoid receptor 1 (CB_1R)-selective antagonist, completely prevented these cannabinoid-induced seizures.

Conclusions: Our data imply that abuse of cannabinoids can be dangerous and represents an emerging public health threat. Cannabinoid-induced seizures are mediated by CB_1R and pretreatment with a selective CB_1R antagonist (AM-251) completely prevented electrographic and behavioural seizures. Therefore, AM-251 could be used as a therapy for cannabinoid-induced seizures or similar life-threatening conditions.

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Parasomnia

PREVALENCE OF SLEEP TALKING IN AN ITALIAN SAMPLE, ASSOCIATION WITH OTHER ALTERED NOCTURNAL BEHAVIOURS AND QUALITY OF SLEEP: PRELIMINARY FINDINGS

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Introduction: Sleep talking (ST) was described by the ICSD-II as "the utterance of speech or sounds during sleep without simultaneous subjective detailed awareness of the event" (ICSD-II, 2001), while the recent revision of the ICSD reports the phenomenon as "Isolated symptoms and normal variants" of parasomnias (ICSD-3, 2014). A cross-sectional epidemiological study reported a high presence of ST both in the lifetime (66%) and current prevalence (17%) (Bjorvatn et al., 2010). ST has been recently addressed as a diagnostic marker to differentiate Lewy body dementia from other kind of dementia (Honda et al., 2013; ICSD-3, 2014). Nonetheless, specific investigations about its quantitative features and the influence on sleep quality still lack.

Materials and methods: 783 subjects (age 18-69) completed an on-line survey about sleep quality and presence/frequency of parasomnia-related behaviours. The protocol included the Pittsburgh Sleep Quality Index Questionnaire (PSQI, Italian version-Curcio et al., 2013) and the Munich Parasomnia Screening (MUPS, 2008-Fulda et al., 2008). The MUPS is a self-rating questionnaire, assessing the frequency of 21 nocturnal behaviours (from "never" to "every or nearly every night"). In order to evaluate the relationship between frequency of ST and other altered nocturnal behaviours in the whole sample, correlational analyses (Spearman's Rho) and groups comparisons (Student's t test, Mann-Whitney U test) have been performed.

Results: ST prevalence was of 17% (N = 137) in the lifetime, 55% (N = 426) of current prevalence; 11% (N = 90, M = 33, F = 57; age 18-68, *mean* 25.15±6.24) declared a highly frequent prevalence ("several times a week"–"every or nearly every night") and have been selected for further analysis. The Highly frequent ST declared a wide range of other nocturnal behaviours. The between groups comparisons shown a significant higher presence of other nocturnal behaviours [hypnic jerks, rhythmic feet movements, rhythmic movement disorder, hypnagogic hallucinations, periodic leg movements, sleep-related bruxism, sleep-related groaning, nightmares, sleep terrors, confusional arousal, sleepwalking, violent behaviour, REM sleep behaviour disorder ($p< 0.05$)] in Highly frequent ST compared to the groups "NO other frequent parasomnias" and "Other frequent parasomnias". Coherently, correlational analyses on the whole sample (N = 783) shown significant positive relations between these other nocturnal behaviours and frequency of ST ($p< 0.05$). PSQI global score comparison between Highly frequent ST and NO other frequent parasomnias shown a significant lower quality of sleep for Highly frequent ST ($t = 2.36$; $p = 0.02$).

Conclusions: The results confirm a high presence of declared ST in an Italian sample and a significant co-presence with other altered nocturnal behaviours, coherently with previous findings (ICSD-II, 2001; Bjorvatn et al., 2010; Nielsen et al., 2009). Nonetheless the ICSD-3 (2014) defines this phenomenon as non-pathological parasomnia, the self-reported poor sleep quality suggests that ST could be a potential factor affecting sleep quality. Further studies on the quantitative EEG changes associated to ST and the assessment of its influence on cognitive performance (i.e. overnight gain to a memory tasks) are needed, both in healthy individuals and in pathological cohorts (i.e., dementia patients).

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Chronobiology/Circadian Disorders

TO BE A NIGHT OWL? OR NOT TO BE? FIRST STUDY OF CIRCADIAN PREFERENCES IN CASE OF CZECH ADULTS

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Introduction: Circadian preferences can be defined as an individual preferences of timing of psychological, physiological and behaviour variables which are influenced by biochemical (e.g. hormone production) and external changes (e.g. daylight changing). They are closely related to sleep-wake cycle, change by age and play important role in many areas in human life. This study represents a part of results of first big study on this topic in the Czech Republic. The aim of the study is to map a distribution of circadian preferences and their relation to many variables in case of Czech adults and to prove new Czech translation of MEQ is prepared for usage in clinical practice and other studies.

Materials and methods: We used web form for collecting data. Our sample contained 1793 respondents which were divided into three age categories: 18-25 (n = 788); 26-49 (n = 837) and 50+ (n = 168). Participants responded to MEQ and MCTQ and questions on demographic data (age, sex and civil status, place of residence, children and education). We used descriptive statistic for describing the whole sample and statistical analysis (t-test, Mann-Whitney test, correlations, regression analysis, Cronbach's alpha).

Results: Results show that distribution of circadian preferences in all the three age categories is normal (we took account of sample size and applied the central limit theorem). There is difference between men and women in circadian preferences in two age categories. Women within category of 26-49 years old are more often morning type, while category of 50+ years old shows the opposite. In all three categories men drink beer, alcohol (liquor, whiskey, gin etc.) and beverages with caffeine more than women, otherwise women drink coffee more and in the youngest age category they drink wine more too. MEQ score negatively correlates with MSFsc (mid-sleep times in free days in MCTQ). Negative correlations were found between MEQ score (Cronbach's alpha 0,75) and drinking alcohol and