Introduction. The circadian rhythms represent endogenously generated rhythms of 24-25 hours ensuring the cyclicity of physiologic and behavioral processes within the body. Their study value resides in a better understanding of the homeostatic activity of the organism as well as how their disturbances induce diverse pathogenetic pathways affecting various systems. A wider knowledge about how everything in our body is synchronized, will ensure us with more efficient treatment schemes and the development of chrono-pharmacotherapy.
Aim of the study. The purpose of this study is to highlight the significance of respecting the circadian rhythms by evaluating the circadian component of the sleep-wake cycle and its impact on the physical and psychological state of first year medical students at the end of the study year.
Materials and methods. At the end of the study year 2018-2019, 55 students from the Faculty of Medicine N°1 of the *Nicolae Testemitanu* State University of Medicine and Pharmacy filled a self-administered questionnaire, which included a general data section and four tests: Pittsburgh Sleep Quality Index, Beck, Hamilton and Dijon. These tests helped in assessing their lifestyle particularities, sleep quality as well as degree of anxiety, depression and physical development.
Results. Among the participants, 11 out of 19 students that use to go to sleep before 00:00 got a PSQI<5, only 13 out of 36 registering a PSQI>5. Those registering a Hamilton score higher than 4 tended to sleep fewer hours scattered other a day (P=0,001). On the other hand, a less depressive state (<9 on Beck scale) was observed in students having an irregular sleep pattern other 24 hours (P=0,0009). Dijon test-based results suggest a higher degree of physical development if they used to get to sleep after midnight.
Conclusions. The study proves disorganized lifestyles modifying the circadian rhythms induce over time alterations in homeostasis affecting both physical and mental state. In order to ensure higher life quality standards and better medical practice, regulated daily habits according the biological rhythms are encouraged.
Key words: Circadian rhythm, sleep-wake cycle, sleep quality

282. SLEEP QUALITY AND SLEEP HABITS IN HIGH SCHOOL STUDENTS

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Introduction. Good sleep quality is an essential premise for an efficient daily activity. High school students, due to their adolescence age and intensive mental activity, need 8-10 hours of sleep. They also experience some physiological age problems such as late melatonin secretion leading to the difficulty to fall asleep and to wake up in the morning. The overusage of different devices (cell phones, computers, etc.) is known to disturb the process of falling asleep.
Aim of the study. To evaluate the sleep quality and sleep habits of urban high school students.
Materials and methods. The study consisted of an anonymous on-line questioning of high school students (grades 10-12), aged 15-19 years, from 7 lyceums of Chisinau and Balti. The questionnaire included: the Pittsburgh Sleep Quality Index (PSQI), the Epworth Sleepiness Scale (ESS), the Dijon Physical Activity Score (DPAS) and a questionnaire about anthropometric and demographic data.

Results. One hundred eighteen responders completed the study with a mean age of 17±1.1 years, male to female ratio 1:2.6 and mean body mass index 19.6±2.1. The mean PSQI score was 7.2±0.5, and the prevalence of "poor" sleepers (PSQI score >5) was 69.5% (82/118). Sleep quality during the past month was assessed by the responders as "fairly good" in 55.9% (66/118), "fairly bad" in 38.1% (45/118), and "very bad" in 5.9% (7/118). The mean time of actual sleep was 6.5±0.9 hours, 41.5% (49/118) slept less than 7 hours per day, and 98.3% (116/118) went to bed after 10 PM. 96.6% of participants (114/118) declared the usage of the cell phone before bedtime, 66.9% (79/118) - the consumption of coffee and energizers after 5 PM and 45.8% (54/118) declared eating carbohydrates after 7 PM. The prevalence of smokers was 10.2% (12/118). The mean ESS was 6.9±0.6, but in 84.7% (100/118) of participants was registered higher normal daytime sleepiness (6-10 points). The responders characterized their physical activity as "zero" in 14.4% (17/118), "low" in 24.6% (29/118), and "medium" – in 61% (72/118).

Conclusions. In about half of the high school students, the sleep quality was bad and very bad. Every third high school student slept less than 7 hours per day, and every second one had poor sleep habits (low physical activity, carbohydrates overconsumption, cell phone usage). This situation can negatively influence cognitive performances and life quality in high school students. For them, their parents and teachers should organize an awareness program about the importance of sleep hygiene and sleep quality for good quality of life and academic performances.

Key words: sleep quality, sleep habits, high school student

283. MOLECULAR, NEUROCHEMICAL AND NEUROPHYSIOLOGICAL MECHANISMS OF MEMORY

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Introduction. Learning and memory have proven to be fascinating mental processes because they address one of the fundamental features of human activity: our ability to acquire new informations and to retain it over time in memory. (Kandel ER, 2001). The brain has to process a continuous input from our sensory organs and at the same time it must be able to store memories, sometimes even for a lifetime. One of the fundamental questions in memory research is how our experiences of life can persist over time. What is the cellular foundation of this long-term information storage of neurons in neuronal networks, which is so important for humans? It is generally acknowledged that the memory processes are the result of the interplay between synaptic plasticity and orchestrated network activity that finally culminates in the long-term storage of information. Overall, information storage starts with the encoding of new information and progresses to the short-term memory. At this stage the engram might be either consolidated for a lifetime, destabilized, or restabilized in the course of memory retrieval. These neuronal dynamics start and end with synaptic and cellular plasticity and can be observed at the behavioral level (Korte M, Schmitz D, 2016). The formation of long-term memory involves gene transcription, protein synthesis and synaptic plasticity dynamics. This plasticity is dependent on a well-regulated program of neurotransmitter release, postsynaptic receptor activation, intracellular signaling cascades, gene transcription, and subsequent protein