in most sinusoidal capillaries. In the perivascular and portal tracts is infiltration of immunocompetent cells. In some hepatocytes are karyopicosis and hydropic dystrophy. Under the capsule is focal collication necrosis of hepatocytes. In group III rats with Mexidol correction revealed less pronounced stress changes in the kidneys and liver. The kidneys of rats of this group are characterized by focal changes of the sinuous tubules with swelling of epitheliocytes, in the lumen of individual tubules are homogeneous masses in a small amount. In some glomeruli is little plethora of capillaries and swelling of the mesangium. During the study of the liver is revealed that lobules and triads are preserved, the interlobular vessels are slightly full-blooded. Single hepatocytes around the central veins are characterized by hyaline-drip dystrophy, at the periphery of the lobules is hydropic dystrophy.

Conclusions. The results of the study directly indicate the appropriateness of using Mexidol as a nephro- and hepatoprotector in acute stress.

Key words: Mexidol, kidney, liver, stress, rat

DEPARTMENT OF HUMAN PHYSIOLOGY AND BIOPHYSICS

270. THE INFLUENCE OF LIGHT FROM GADGETS ON CIRCADIAN RHYTHM IN CHILDREN

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Introduction. Circadian rhythms are variations in physiology and behaviour that persist with a cycle length close to 24 hours. Such biological rhythms include the sleep and wake cycle, alertness, daily cycles of hormonal secretion (e.g., melatonin and cortisol, ghrelin and leptin), body temperature cycle and blood pressure regulation.

Circadian rhythms must be synchronized or entrained to the 24-hour day regularly. This process of entrainment occurs through regular exposure to daily exogenous environmental cues known as zeitgebers. The most potent zeitgeber is light that activates photoreceptors in the retina inhibiting pineal gland secretion of the sleep-promoting hormone, melatonin.

Polychromatic white light (white light enriched in blue) having a significant impact on this training.

Aim of the study. To explore the influence of screens light exposure on the circadian rhythm in schoolchildren, in particular on the quality and quantity of sleep.

Materials and methods. There were used “PubMed MEDLINE” database to select relevant articles published from 2010 to 2019, using the keywords: “technology use and biological rhythm (sleep)”, light exposure, electronic media and sleep/circadian rhythm.

Results. We identified 24 papers that have investigated the relationship between circadian rhythm/sleep and electronic media in school-aged children, including television viewing, use of computers, electronic gaming, and the internet, mobile telephones, and musicThere have been identified behaviour and sleep-related problems because of internet and telephone overuse, as well as social network activities, game consoles and television viewing, the number of devices in the bedroom and turning-off time. The spectral profile of light emitted by screens impacts on circadian physiology, alertness, cognitive performance levels but also for weight gain, metabolic disorder, depression, mood disorders, cancer and heart disease.

Conclusions. Many schoolchildren used multiple forms of technology late into the night without prudence or restrictions. Subsequently, their ability to stay alert and fully functional throughout the day was impaired.
Both parents and schoolchildren should be informed about the influence of technologies on sleep, effects of blue light exposure, sleep hygiene and early adoption of healthy sleep habits and prevent sleep problems.
Key words: light, gadgets, circadian rhythm, children

271. BLUE LIGHT EFFECT AND ETHNICITY - IN SHADOW OF SKIN PIGMENTATION AND EYE COLOUR

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Introduction. Blue light [wavelength between 400-495nm], from digital sources and artificial lighting in the evening, hence inhibit normal secretion patterns of melatonin causing circadian rhythm and sleep disturbances. There is an inversely proportional relationship between blue light exposure and melatonin secretion. In the same time, blue light can be absorbed by the pigmental layer of the retina that contains melanin. Thereby, the quantity of blue light that will rich the retina can be influenced by the amount of melanin from the eyes.
Aim of the study. The purpose is to appreciate the circadian rhythm and sleep disturbances and depth of blue light effect on melatonin secretion on different ethnical groups, integrating skin and eye pigmentation effects on the same matter;
Materials and methods. An analysis of the latest scientific sources has been carried out using the PubMed search engines, 'HINARI' and Google Academic with the help of keywords: blue light, ethnicity, skin pigmentation and eye colour, sleep quality, sleep consistency, sleep duration.
Results. The role of ethnicity in most aspects of human health is well documented. An example is the inefficiency of certain drugs used in asthma treatment in certain racial groups. Other studies determined a decrease in prevalence and incidence of Parkinson Disease in Americans of African descent compared to Caucasians. Also, shorter sleep was reported in black than in Asian, in Asian than in Hispanic/Latin and in Hispanic/Latin than in White. More sleep quality disturbance was reported in Black than in Asian and in Asian than in Latin. One of the explanations of the influence of ethnicity on sleep is the amount of melanin in the eyes. Some studies have shown that physiological responses to light depend on eye colour and that intraocular light scattering is higher in blue-eyed Caucasians. The percentage of suppression of melatonin secretion two hours after the start of light exposure was significantly more abundant in light-eyed Caucasians than in dark-eyed Asians. In the same time, in a comparative study which analysed the influence of light treatment in Seasonal Affective Disorder (SAD), was found that following six weeks of light therapy, African-American participants with SAD had a lower remission rate than Caucasian participants. Researchers suggested that higher melanin content of the pupil and retinal pigment epithelium in African-Americans may reduce the retinal illuminance in African-American SAD patients during light treatment hence reducing the effect of light therapy. These results suggest that the sensitivity of melatonin to light suppression is influenced by eye pigmentation and can be related to ethnicity, respectively.
Conclusions. In the light of the study, it is evident that eye and skin pigmentation are indeed concerned with melatonin activity and blue light effect varies as many parameters of melatonin