

ΛΟΓΟ



L'ARTE DELLA MENTE SCIENTIFICA

RACCOLTA DI ARTICOLI SCIENTIFICI

CON GLI ATTI DELLA CONFERENZA SCIENTIFICA E PRATICA INTERNAZIONALE

IMPATTO DELL'INNOVAZIONE SULLA SCIENZA: ASPETTI FONDAMENTALI E APPLICATI

26 GIUGNO, 2020 • VERONA, ITALIA 

TOMO 1



DOI 10.36074/26.06.2020.v1
ISBN 978-88-31277-17-4



EUROPEAN
SCIENTIFIC
PLATFORM

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DOI 10.36074/26.06.2020.v1.36

TYPOLOGICAL ASPECTS CONTRIBUTION INTO BIORHYTHMS STUDY

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UKRAINE

Chronobiology as an independent Science has formed in the XXth century second half [1]. Circadian rhythms concept belongs to the most developed. It is considered that practical applications areas comprise particularly: labor physiology, ergonomics (labor and rest regimes optimal organization especially for the shiftwork and night work), medicine (especially therapy of dys-somnias, emotional disorders, chronopharmacology), agriculture (animals and plants productiveness increase). There is a whole circadian timing system representing maintaining and mutual conjugating the organism circadian rhythms. It includes oscillators, conductive systems and specific receptors. Oscillators are organized hierarchically: the higher floor pace-makers have generating autonomic oscillations with a period lasting near 24 hours and imposing or entrainment of the rhythms of oscillators located below. Conductive pathways determine entrainment, they can be nervous (for example, mono-synaptic retinal-hypothalamic pathway in mammals) and humoral (hormones, for instance, melatonin). Receptors belong to the photoreceptors mainly though lower Vertebrates have the extra-retinal ones. These receptors percept time pace-makers signals and serve for organism circadian rhythms coupling to environment 24-houred rhythms.

Circadian rhythms (from “circa” – “near”, “dies” – “day”) – near-24-houred biological rhythms with a period approximately equal to 24 hours. Such rhythms are characteristic for all eukaryotic organisms (and even some prokaryotic) and are realized practically in all life expressions. Their backgrounds represent endogenous oscillations supported at cellular level. They provide entrainment by or synchronicity to astronomic time and determine daily program of metabolism and behavior. Besides, such rhythms provide mutual coupling the life activity different processes inside one organism. Finally, many animals and plants use circadian rhythms as biological clocks. Circadian rhythms de-synchronization or dys-conjugation is unfavorable and can get transformed into pathological syndrome (desynchronosis). This syndrome has following typical symptoms such as: fatigue accumulation, lowering the mental and physical working activity, sleep disorder, digestion disturbances. Neuroses can get developed at chronic desynchronosis. Jet lag syndrome appears after rapid flying through several time meridians due to conflict between organism inert circadian rhythms and new complex of external time pace-makers attached to local astronomic time. Such a reason is also characteristic for shiftwork and night work as well. It is important to remember that desynchronosis can develop without specific de-synchronizing factors, as general adaptation syndrome (stress) link, at some pathological conditions (delt to epiphysis disorders in part in the

old when people don't want to sleep at night and do want to sleep in the day time). It can be the good illustration of age typological aspect contribution in biorhythms study.

Infradian rhythms ("infra" – "lower", "dies" – "day") – biological rhythms with a frequency lower than in circadian rhythms, with periods from some days to year located between circadian and seasonal rhythms in a spectrum. Regular female menstrual cycles belong to this group, represent gender aspect expression as well as females animal's estral ones. If the rhythms duration is from several minutes to 10-12 hours they are known as ultradian (their period is less than for circadian ones, because "ultra" means "out of"). They are located between "physiological" rhythms (cells, organs and systems functioning rhythms with period from milliseconds till minutes, such as for respiration and heart beating) and circadian. There is a consideration that physiological rhythms are modulated by other biological rhythms such as ultradian, 24-houred, seasonal. Ultradian rhythms are expressed in hormones secretion episodes, working activity fluctuations, behavior cyclic character. Ultradian cycle forms sleep cycle or paradoxal (fast-waved, REM-sleep) and orthodoxal (slow-waved) sleep alternation. It lasts 90-100 minutes in human beings. Other examples of it are: alimentary tract contractive activity, emotional states changings, drowsiness periods. 90-minuted rhythms mechanism is linked with two-sided inhibitory interaction between some brain areas neurons as well as brain left and right hemispheres dominating activity alternation.

Italian scientists paid and pay big attention to biorhythms study in theoretical and applied aspects. There is a research about seasonal patterns of peptic ulcer patients hospitalization with three peaks in autumn, winter and spring finding out (taking into account ethno-gender-age typological aspect with the work performance in the country Emilia-Romagna region) [2], aortic diseases in the same region [3]. Biphasic relapses in spring and autumn in severe multiple sclerosis were found in Italian 30-40-year-old men and women [4]. Relapses in multiple sclerosis were found to be age- and time-dependent in Italian patients [5]. Swedish neurologists found the links between season of birth and multiple sclerosis [6]. Italian neurologists established stroke bigger prevalence while walking and in the mornings than during sleep and during afternoon; mentioned circadian rhythms were characteristic both for ischemic and for hemorrhagic stroke; gender belonging and thus gender typological aspect influenced the disease diurnal pattern [7]. Iranian scientists dedicated their works on myocardial infarction chronobiology to circadian, seasonal and circannual variation of acute myocardial infarction occurrence with solar, lunar and Christian months [8, 9].

Thus, Italian scientists together with the ones from other countries paid and pay much attention to biorhythms study while emphasizing that their taking into account has got not only theoretical but big applied significance as well. Ukrainian medical stomatological academy Physiology department has modest contribution into individual minute duration assessing in foreign students from various countries [10].

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DOI 10.36074/26.06.2020.v1.37

ОСОБЛИВОСТІ ДИСТАНЦІЙНОГО НАВЧАННЯ СТУДЕНТІВ-МЕДИКІВ ФАКУЛЬТЕТУ ПІДГОТОВКИ ІНОЗЕМНИХ ГРОМАДЯН ПІД ЧАС КАРАНТИНУ

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УКРАЇНА

На сьогоднішній момент існує кілька поглядів на проблеми дистанційного навчання – від думки, що це нова педагогічна форма надання освітніх послуг, до ідеї розширення можливостей традиційної освітньої системи за рахунок комп'ютерних технологій. Варто зазначити, що дистанційне навчання – це не система самоосвіти, не метод навчання, а її форма, де викладач та студент