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**PHYSIOLOGY AND VALEOLOGY:
THEORETICAL AND APPLIED ASPECTS OF INTEGRATION**

**ФІЗІОЛОГІЯ ТА ВАЛЕОЛОГІЯ:
ТЕОРЕТИЧНІ ТА ПРИКЛАДНІ АСПЕКТИ ІНТЕГРАЦІЇ**

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Modern humanity faces a vast row of global problems. Smoking represents one of them. WHO stated about smoking epidemy in people in 2003, this bad habit, only with various substances, has been in a human population from the anciency. One can differentiate active and passive smoking. 95–98% of smoke and its substances are consumed by surrounding people, the remaining ones – by the smokers themselves. Electronic cigarettes were found to be the ones with bigger concentrations of oncogenes in part benzpyrenes causing cancer of respiratory system particularly. These cigarettes are considered to be the most dangerous among the existing. A separate big problem delt to smoking is reflected in obstructive bronchitis and asthma development in part observed in new-borns, babies, children living with smoking parent/s. Smoking unfavorable action to respiratory system and therefore respiration patterns is impossible to be underestimated among other human organism system. It is known that this bad influence

starts even during intra-embryonal development. Taking into account smoking problem globalization, national cross-cultural programs were created in many countries and specialists belonging to various branches of Science – both the theoretical and the applied ones – unite their forces and knowledge to prevent humanity from smoking unfavorable action or at least to decrease it because unfortunately it is impossible to reach the first one while having very significant number of smokers on the Earth. And if this bad habit has been a male habit for so many centuries in the past, it became also the female one, in part during pregnancy, lactation; it became the one of adolescents and even children; it became the one of many medical students and doctors though they should be the followers of a healthy life style at a maximal extent, they should give an example of it to the others and perform sanitary-educative activity. It's a pity because in many countries Valeology lessons were introduced in an education system beginning from secondary school but it did not lead to desirable effect.

Smoking touches all the systems in its unfavorable action at all levels of alive matter organization. The authors will pay the readers' attention only to some of them onto respiratory system. Integration – both intra- and inter-disciplinary – is considered to be one of pedagogical strategies in priority to provide knowledge best survival in the students. Here are some examples of such an integration between Valeology, Physiology and other academic disciplines. Physiologists and histologists open the door into the alveoles structure and function to the students and give the information about surface-active agents or the surfactants – superficially-active substances inside the alveoles decreasing their superficial tension in 10 times that is of crucial importance to preventing the lungs stretch at inspiration and the lungs collapting at expiration. There is a new method – constrained drop surfactometry [1, p. 535–546]. It is impossible to have the 1st inspiration to the new-borns without the surfactants [2, p. 174–179]; the surfactants are used at distress-syndrome in preterm infants [3, p. 584–595]. The lung ultrasound is applied for prediction of surfactant administration in the patients [4, p. 1258–1263]. The surfactants make the gases transport through the alveolar-capillary membrane easier, protect the alveoles against reactive peroxides and activate alveolar macrophages [5, p. 94–101]. belonging to the strongest in a human organism. Why do we mention these data? Because the surfactants biosynthesis gets lowered or interrupted at all in smokers. Are other effects on respiratory system present in the smokers? One can also mention ciliary epithelium damage that makes the air inspired clearance to be impossible. Both restrictive and obstructive respiratory insufficiency can develop in smokers, though the 1st one – at a greater extent. Physiology teachers and the ones at Therapy chairs give the students the information about spirometry physiological bases, analysis principles and diagnostic

possibilities. If to mention another inter-disciplinary integration, it is possible to write about bronchial epithelium structure reporting to the students in Histology and Pathomorphology, bronchial epithelium barrier role with its non-specific and specific defensive mechanisms – in Physiology and this epithelium integrity keeping disturbances in smokers in Valeology.

It is interesting to mention that there exists a discussion about a proper respiration. Joggs consider that it is much better to respire superficially and as rarer as possible. This statement has come from the ancients. Why is it so? Joggs consider that respirational cycle 2–3 respirations per 1 min will help to have effective ventilation of the lungs inferior areas without stagnation phenomena, will not have peroxidative lipids oxidation activation, vasoconstriction with hypertonic disease development and will encourage not to have metabolism exhaustion that will prolong a human life. We share their opinion completely, as physiologists.

The so called congruative reflexes between cardiovascular and respiratory system will help not to have hypertony if to realize respiration delay during expiration and hypotony – inspiration – because of carbonic dioxide vasodilative and oxygen constrictive action [6, p. 425–431.].

A given brief article emphasizes additional time to essentiality to follow healthy life style, rather important constituents of which represent a proper respiration and non-smoking. A healthy life style is described as the diseases prevention during a various clinical academic disciplines managing in our medical university.

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