

Gozhenko A. I., Badyuk N. S., Lebedeva T. L., Goncharenko O. O., Zukow W. Theoretical foundations and innovative model of occupational health. *Journal of Education, Health and Sport*. 2016;6(11):383-389. eISSN 2391-8306. DOI <http://dx.doi.org/10.5281/zenodo.168237>
<http://ojs.ukw.edu.pl/index.php/johs/article/view/4011>
<https://pbn.nauka.gov.pl/sedno-webapp/works/759035>

The journal has had 7 points in Ministry of Science and Higher Education parametric evaluation. Part B item 755 (23.12.2015).
755 Journal of Education, Health and Sport eISSN 2391-8306 7

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The authors declare that there is no conflict of interests regarding the publication of this paper.

Received: 01.11.2016. Revised 12.11.2016. Accepted: 23.11.2016.

Theoretical foundations and innovative model of occupational health

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Abstract

Health is a basic human value. One of the main criteria for health is still a rate of a, which in civilization's countries is constantly decreasing, which causes the lengthening of life.

However, along with this significantly changes the structure of morbidity: reduction of infectious diseases accompanied by increased infectious. All of these diseases can be divided into professional and vocational-conditioned.

Key words: health, disease, occupational diseases, professional diseases due to.

Health is a basic human value. WHO defines it as "Health is not merely the absence of disease or infirmity, a state of complete physical, mental and social well-being". We regard it as follows.

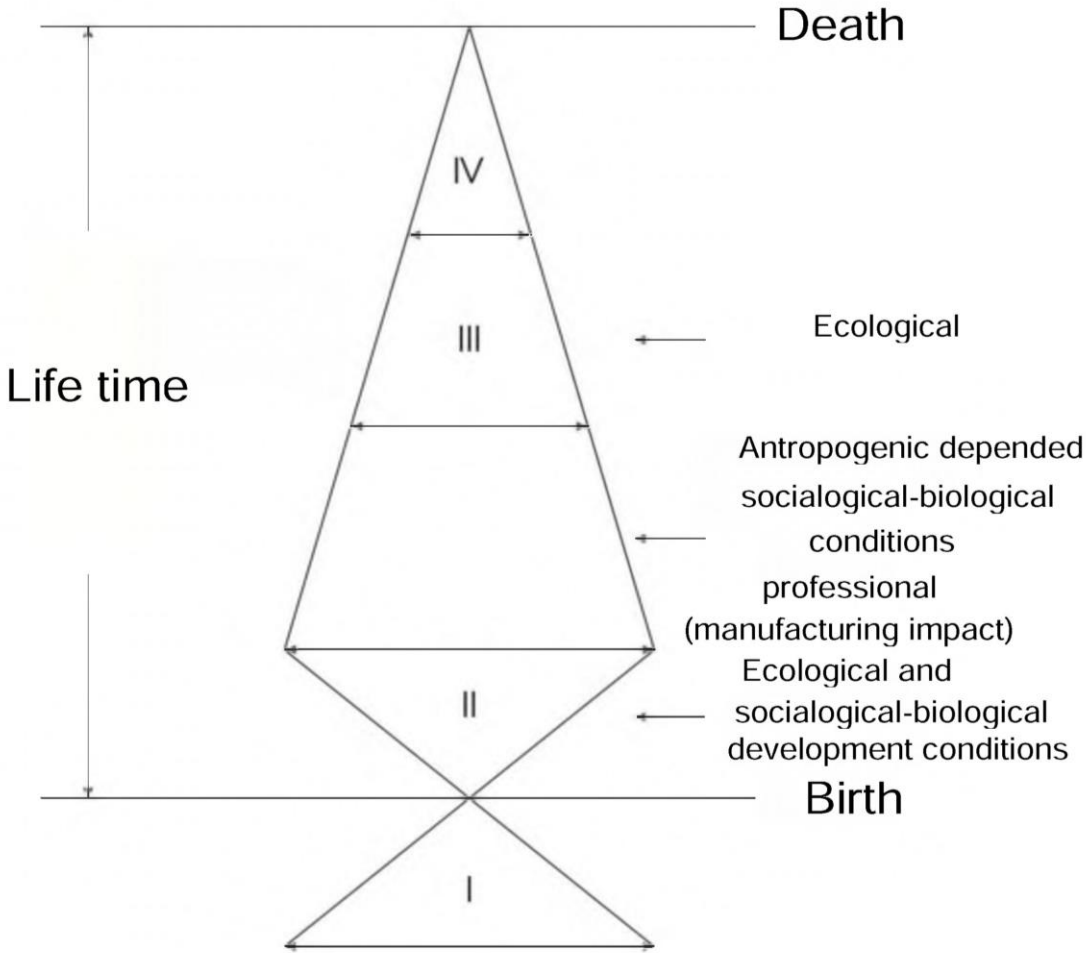


Fig. 1. Spatio-temporal structure of human health

- I - potential genotypic adaptation
- II -phenotypic adaptation capacity
- III - professional care
- IV - potential age

One of the main criteria for health is still a rate of a, which in civilization’s countries is constantly decreasing, which causes the lengthening of life.

However, along with this significantly changes the structure of morbidity: reduction of infectious diseases accompanied by increased infectious. And this against a background of improving living conditions. Among various reasons for this phenomenon should pay attention to the growth of diseases related to exposure to adverse environmental factors and performance conditions of production.

All of these diseases can be divided into professional and vocational caused. In historical terms the most attention originally paid to occupational disease, etiological factors which are the factors of production. Although today the professional disease is very important, but on the prevalence and consequences of a major is the second group of diseases [1].

This group of diseases called environmentally conditioned and professionally dependent diseases, which include the most significant lesions, cardiovascular disease, diabetes , broncho-pulmonary pathology, and others.

The main feature of these diseases is that they do not have lymphoma separation, i.e. specific etiology and pathogenesis. According to existing notions disease only promote negative or manufacturing etiologic factors that increase the rate of a gravity and contribute to the growth of noncommunicable diseases that result from the actions of other etiological factors.

That is, the development of specific regarding the etiology of nosology, and environmental factors do not cause manufacturing factors.

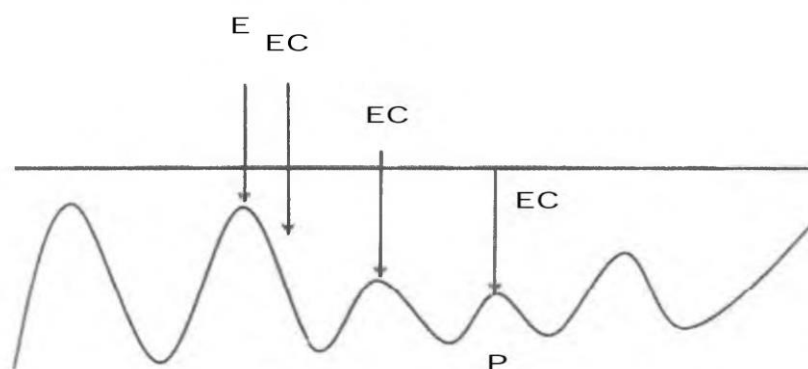


Fig. 2. The influence of external factors on the etiology and pathogenesis

E - etiology

EC - external conditions

P - pathogenesis

Factors that contribute to the development ecodependent and professional due to pathology in nature may be physical, chemical, biological or psychological [5].

However, for a long time know that the action environmental factors can cause considerable time no clinical signs of disease, although it admitted certain changes in the body. Yes, there before pathologic concept, i.e. a state of transition from health to disease, which led to the development of various diagnostic approaches to detect early changes in the body. It should be noted that the consequence of this was the idea, regarding the state of "healthy" or before nosologic state. However, the above requires us to search the changes that occur in the body before the development of disease and determine their arrangements.

Modern data, in our view, to suggest the existence of at least two states on before nosologic period. We must signed that in modern society the number of negative environmental factors and environment constantly is reduced, which is associated with both environmental measures and improvement of production. Meanwhile, the structure is changing and content of work in modern manufacturing is characterized reduced along with the negative impact of the physical and chemical factors that increase emotional tension load of work. Therefore, in our view, in areas where this factor increases in operating violations occur on the mechanism of stress.

The first phase - offset and dysregulation state. Regarding the first, it often occurs as a result of action of physical and chemical factors. However, there are cell damage, some of which perishes, but the overall function of the organ or tissue is sufficient for the development of adaptive responses by first intensifying function of existing cells, and then and the formation of long-term adaptive responses by hypertrophy and hyperplasia [2-4]. Good example can be the results of our research in the effects of heavy metals on the kidneys. In these experiments (1980-2015 yy.) Showed that kidney heavy metals always cause damage, including primarily concerned proximal renal tubules. But depending on the degree of damage occurs or acute kidney damage in output from acute renal failure, or by compensatory reactions, kidney function is restored. That is, compensation hides first injury which clinically manifested this condition corresponds to the concept of "practically healthy" But in further dynamic adaptive reactions go into damaging and there are secondary mechanisms of kidney damage, which causes the formation of chronic kidney disease with progressive symptoms of kidney failure. We proposed to identify this condition using compensation determining functional renal reserve and with the reduction even in the absence of pathological changes in kidney function to diagnose the presence of disturbances. Thus we can detect changes in

kidney before nosologic, that before pathologic diagnose kidney. These experimental data allowed us to develop a diagnostic test for clinical practice and identify functional renal reserve in patients with toxic nephropathy, hypertension and diabetes, which revealed hidden offset breach kidney to the appearance of clinical signs of pathology in these diseases.

That before nosologic states this is compensated by the phase of pathology arising from the damaging effects of physical and chemical environmental factors to identify which methodology should be used to identify the maximum functionality of the systems functional diagnostics by reserves. For preventive medicine, this may allow to detect very initial phase of the damaging effect ecologically unfavorable and professional hazards, and clinical practice - to diagnose the initial clinical manifestations of the disease and to monitor them in the future.

More complex seems mechanism of forming disturbances in the body by the action of psychological factors psycho-emotional stress. This is very important because it is these factors are leading professional in the modern workplace.

On the growing role of emotional stress on the body of employees paid attention Kundiyeu YI and Nagorna AM in his monograph [1]. The result is the development of tension stress how important main chain in the pathogenesis of many professional-caused diseases. Therefore, the motto of World Day in 2016 was: "Stress in the workplace: a collective challenge".

It should be noted that stress in the workplace occurs not only because of emotional stress, but also in its development role with others, especially physical factors : electromagnetic radiation, noise, changing light and temperature, vibration and so on.

It is important to emphasize that all were gone researchers concluded that the effect of these factors is the primary body injury. However, it still changes were recorded in the functional state of people affected by an extreme or longtime working psycho-emotional factors. For an understanding of these disorders Kryzhanovsky GN dysregulation states proposed the theory when the human body there is no damage, but changing regulatory systems, which leads to the appearance of the first functional abnormalities that cause instead dysregulation development of pathological conditions [6]. That is, psycho-emotional stress, and especially over-dysregulation mechanism etiology cause changes in the regulatory systems and dysregulation pathology. In general psycho-emotional overload often seen as a psycho-emotional stress. This is considered a major dysregulation hyperactivation hypothalamic-adrenal system, which causes imbalance and damaging adaptive responses, which was continued in the concept allostasis [7]. Periodic psycho-emotional overload alter

the function of regulatory systems and form a trace reactions considered as "allostatic goods" which are charges for adaptation.

However, it should be noted that the state allostasis resulting damage in psycho-emotional stress when there are endogenous signaling molecules damage (alarmine).

However, in terms of the production of stress in the workplace rarely causes direct damage. Probably not often allostasis phenomenon, as indicated by the development of vocational diseases caused by 10 - 15 professional activities. Meanwhile, dysregulation violation probably occur and trigger a process of adaptation - disregulation.

This may be the basis of those disorders that arise in working on the production of high powering work. That also may explain progressive cardiovascular pathology, pathology of the gastrointestinal tract, immune system suppression, vegetative-vascular dystonia, psychopathy until the development of burnout with significant professional emotional stress [8-10].

Importantly, in our opinion, the formation of trace reactions due to regulatory surge helps that the psycho-emotional overload accompanied by a decrease physical support. It is known that the activation of a usual regulatory environments formed in animals and people as the beginning of a comprehensive activation of adaptive responses in the form of increased functional responses with increasing muscle work function of the cardiovascular, respiratory system, liver, kidneys, blood and so on.

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