

mucosal plexus MCB external contour. The MCB mesenteries have the mainline network type, so the MCB muscular layer and the mucous membrane are being acquired the decuduocellular structure: in the habitat of the muscular layers, the simple micro – regions contour networks are being compressed in the arterioles and the venules basal plexuses, the modules are being forced out from their ansae (e.g. into the villi and the muscular layers), and they are being merged into the complex micro – regions – that is, the basal plexuses raisings. The intermuscular plexus is being formed by the small arteries branchings, as the straight (e.g. from the mesenteric arcus), well as the recurrent ones (e.g. from the submucosal plexus), having accompanied their small veins and the lymphatic capillaries by the inflows, the mucosal basal plexus – by the submucosal plexus branches and the inflows. The vessels and their plexuses are being complicated the MCB architectonics, by means of the thickening on the polymorphous basal plexuses and on the microvessels networks, especially in the submucosal basis and on the thin intestine mesenteric edge. The mucous membrane circular folds, the intestinal crypts, and the duodenal glands, the lymphoid nodes and the patches, the plexuses nervosus are also being deformed the MCB.

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#### **THE BEE'S COR AS THE LYMPHATIC VESSEL PROTOTYPE**

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The bee's cor – is the caudad closed polysegmental tube with the cross – striated muscles and with the compound axial valves. Their double valvae are being formed by the cor lateral finger – holes valves at the proximal convergence. The lateral valves couple distal valvae are being formed the caudal segment exit valve, and their proximal valvae – the cranial segment entrance valve. The double valvae intercuspidated canals of the bisegments border valve (e.g. the lateral finger – holes coupled valves) are being opened onto the proximal segment. The valves, having settled in such way, are being regulated the hemolymph axial current between the cor's segments and the interorgan liquid lateral inflow onto the cor from the body cavity with the coelomic epithelium lining retinens rostralis – of the strongly dilatated equicapillary bed: the venous bed reduction is being taken its place at the insects, in comparison with the annelids and the other arthropoda. The cor's valvate apparatus and the body cavity are being supplied it. So, the blood is being carried

only the nutritive and the biologically active matters, the trachea and also its branches themselves are being delivered the oxygen to the organs. Therefore, the insects' cor is quite able to be served the first evolutionary model of the active lymph drainage from the organs, which is much earlier and the nearer to the mammals' lymphatic vessels, than the amphibians' monosegmental lymphatic cor – their intervalvate segment prototype, that is the lymphangion, by L. Ranvier (1875).

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#### **THE ENERGY CONTENT AS THE HUMAN SOCIALLY SIGNIFICANT DISEASES**

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At present, the alcoholism, the drug addiction, the depression, that is the diseases and the illnesses, the aetiology of which is not quite and entirely understandable, are being related to the human socially significant diseases and the illnesses. And the human organism early ageing, which is often being defined not only by the age itself, but by the man's state and the way of his life, it is quite possible to be related to such diseases and the illnesses. We consider, that the man's bioenergetics state, which is being defined not only the oxygen consumption rate at the moment, is the basis of some human socially significant diseases and the illnesses.

So, it is quite well – known, that all these warm – blooded animals energetics is being defined by the metabolic processes intensity in the human organism, and it is quite possible to be calculated by the oxygen to be consumed amount. It is quite actually and the real one, the oxygen consumption intensity is constantly being increased, at the following load rise upon the human organism. However, the carried out numerous observations have been shown, that the different and the various people are being consumed the different and the diverse oxygen amount, at one and the same kind of the work fulfilment. So, the trained sportsmen and the athletes are running the short distance, quite almost not having changed their respiration intensity, though the respiration intensity is sharply being increased at the non – trained man. For all this, the both ones are making one and the same and also the equal kind of the work, having consumed the equal quantity of the energy. Consequently, the sportsman and the athlete much more actively is being included the additional source of his energy – «the energy content», which the man is being used at the rate of his loading. Thus, this content one is being formed also at the expense of the oxygen consumption, but it

is being formed much earlier, and, therefore, it is quite possible to be taken into account only at the energy supply balance calculation for the much prolonged period of time (e.g. during the 24 hours).

The energy content is usually being created in the animal's (e.g. man's) organism, mainly, during the state of his sleep, when the blood circulation just, as in the human brain, well as in the muscles is gradually being lowered. The human organism is being created the energy content, which is being consumed by the cells in the fission process, as the large physical, well as the mental loads during the 8 hours, at the expense of the energy supply decrease just into these human organs. The energy content quantity is being defined by the energy need, having consumed in the interval of the time between the prolonged rest periods (e.g. for the man organism – during the 24 hours). The children, the organism of which is being consumed the energy much more intensively, than at the adult people; they usually sleep much more frequently. Thus, the actively functioning animals' organism has the two sources of the energy. The first source of the energy – is the circulatory system, which is being supplied the nutrients and the oxygen, having entered into the human organism at the respiration, to the cells together with the flow of the blood. The second source of the energy – is the lymphatic system, by which the energy content, in the form of the lymphocytes, having contained the ATP (the adenosine triphosphate), is being supplied to the cells.

The scientists and the scholars have been supposing long ago, that, just in the human organism, the energy content is being existed in the form of the ATP molecules, which, in their turn, are being provided all the biochemical reactions in the human organism cells by the energy. But, the ATP molecules depot has not yet been found out in the human organism. Some of them have assumed, that the ATP molecules are being transmitted by the flow of the blood, but, at the same time, all these formations are being absent in the blood. However, the ATP molecules are quite able to be supplied to the cells, by means of the gap junction, which has been discovered by the American scientists and the scholars in the 1958 year. The carried out numerous observations have been shown, that the inorganic ions and the other molecules, which their mass is being achieved up to the 1,500 dalton, are quite able to be transited from one cell into the other cytoplasm, through the formed gap, having had about 3 mkm width. This transition is practically being carried out through the neighboring cells membranes nexuses, which are being formed the continuous water canal, having had the comparatively small diameter [1], at the interface junction. Through the gap junctions, the cells are quite able to be exchanged by the ATP molecules, which their mass is equal to about 500 dalton. Thus, cells, which are being needed badly in the energy, are quite able to be received the ATP molecules directly just from the other cells, which are quite able

to be carried out the energy carriers functions. So, the cells, having provided the energy transition, must be numerous ones, and to have the small diameter, and also to have the mitochondrial bioenergetics system, which is quite able to be synthesized the ATP ones. The small lymphocytes, which are quite able to be penetrated, practically, into the every points and the places of the multicellular human organism, are being suited the best of all for such kind of such mission carrying out. The lymphoid nodes are being appeared already at the fetation, and they are present just in all the human organism tissues. The overwhelming majority cells in the early embryos are being intercommunicated through the gap junctions [2]. The lymphoid formation laying in the bone marrow and in the human embryo thymus gland is being fallen on the embryogenesis fourth – fifth week, in the spleen and in the lymphoid nodes it is being fallen on the fifth – sixth week. So, the lymphoid nodes appearance, which are regarded as the reproduction centers, is usually observed just on the embryogenesis sixteenth – twentieth week. So, it is being accepted to be considered up to date, that the lymphocytes are being carried out only the immune function in the human organism. Then, it is not quite clearly, why the human immune system is being developed at the embryogenesis early stages, when the developing fetus is under the immune system protection of the maternal human organism. However, it is everything easily being explained, if to be accepted into the consideration, that the lymphocytes are quite able to be provided the developing human organism energy demands. In the human organism development early period, when the intensively dividing cells energy demands are quite able to be considerably passed ahead of the hematopoietic system formation intensity, the energy address transition is quite able to be rather efficient through the gap junctions.

The energy, which the human organism is being reserved during the state of its sleeping, is being constantly needed the further realization. Therefore, the awoken child is not able to be sat and to be played with himself quietly; he must certainly to be constantly moved around. The child, who is practically being deprived of his intensive movement possibility, he is growing up much worse, and he, moreover, is quite behind of his further development. So, the depressive reaction state is often being appeared at the children, whom the parents are constantly making to be learnt and to be limited their mobility. This depressive reaction state is being easily taken off, if the child is going in for sports, the outdoor games, and the interesting walking tours and the trips. The child's depressive reaction state is being easily taken off and also at the various and the different chemical preparations use: the alcohol, the drugs, and also the psychotropic substances. The cells are being begun their active work on the further destruction and also all these substances removal from the human organism, for what the considerable energy is being spent by them,

at the foreign substances (e.g. xenobiotics) entrance into the human organism. All this process is being resulted in the depressive reaction state to be easily taken it off. The alcohol, the drugs, and the psychotropic and also the psychoactive substances much easy accessibility is being developed the quick psychical and the mental dependence, and also the dependence – producing drugs at the children. And the children very often are being preferred the alcohol, the drugs, and the psychotropic and also the psychoactive substances, instead of the outdoor games and the sports and games. The children movable leisure and the spare time organization, which is being to be permitted to spend the energy content without the alcohol, the drugs, and the psychotropic and also the psychoactive substances is the children drug addiction prophylaxis and the necessary preventive measures.

If the depressive reaction state is quite character and the typical for the children just from the excess energy, then the adult people much frequently are suffering from the energy content insufficiency. The large energy content is being created in the young human organism, as the growing human organism must to be provided the dividing cells by the energy. Just after the 240 months or the 20 years passing, when the man's human organism has been stopped to be grown up, the demand in the energy is gradually being lowered, and step by step the human organism is being lowered the stored energy quantity. So, the prolonged sleeping necessity is gradually being lowered with the age at the man, and the insomnia is often being developed just in the old age. So, the sleeplessness is being resulted in the energy content further lowering, that it is being resulted in the cells' regenerative capability further lowering, and also, moreover, in the human organism ageing. Thus, the different and the various traumas are being cured much slower; the man's hu-

man organism and the animals' recovery process is usually being proceeded in much worse in the old ages. The stability to the different diseases and the various illnesses is constantly being lowered at the man. Thus, it is quite well – known to everybody, that the temperature is being increased, when the man is having caught the disease; the febrile states are usually being appeared at the man's disease and his illness. The temperature rise – is the human organism protective reaction from the infection. The temperature rise – is being brought to the infection death, and the human organism following recovery. The temperature rise – is being observed very seldom, at the elderly and the senior people's diseases and their illnesses, and the diseases and their illnesses are usually being proceeded in much longer. Thus, the old ageing prophylaxis and the preventive measures are the elderly and the senior man's human organism high level motor activity, which are quite necessary for the successful struggle against the insomnia and the sleeplessness, the large energy content accumulation, and the elderly and the senior man's human organism life security increase.

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