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GENERAL (UNIVERSAL) STUDY OF ART

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Centuries-old tradition of science linked to an artistic culture has almost always been orientated to separate perception of each of the branches of art study (the main of them are philology, study of art as a science of figurative art and architecture, musicology, drama study, and, from the beginning of XX century – study of the film as well). More and more often the efforts to create a research of adjacent areas of the study of art have been carried out recently. Thus an approach to forming of general (universal) study of art as a science can be observed. This science is aimed for comprehensive coverage of numerous major facts, names, events and trends of words art culture.

This metascience must and can developed on the basis of enormous funds of various observations and generalizations that have been collected within different areas of separate branches of the study of art. And this development can only be performed in one direction that is based on complex artistic researches and integrate comprehension of previous experience that is evinced in integral and system approach to the analysed material.

The formation of universal study of art is correspondent to processes of globalization of human mind which is becoming more and more actual. These processes have been dictated by the historical situation that had completely formed by the beginning of the third millennium: unproductiveness and impossibility of any kind of national reticence, growing interaction of all happening in modern world. In parallel with that a prospect of going out of limits of special scientific discipline to horizons of valid humanist knowledge is being opened. Such an outgoing can be realized by the way of forming the artistic picture of the world that is the ultimate priority of general study of art. Artistic picture of the world is the system of generalized concept of one or another historical era that are formed as a result of comprehension of artistic creation belonging to this period.

As one of the experiment of practical realization of the principles of general (universal) study of art the author of this article carried out a preparation of a solid work called “World artistic culture as a system unit” (published 2009 by the editorship “High school”).

Keywords: general (universal) study of art, principles, methods.

Centuries-old tradition of science linked to an artistic culture has almost always been orientated to separate perception of each of the branches of art study (the main of them are philology, study of art as a science of figurative art and architecture, musicology, drama study, and, from the beginning of XX century – study of the film as well). This “specialization” is absolutely natural since any kind of artistic creativity is specific and it is also absolutely necessary as it provides premises for deeper study of the corresponding area of art.

In a meanwhile among scientists of different specializations an urge towards going out of limits their speciality can be observed more and more often. And also efforts to create a research of adjacent areas of the study of art have been carried out recently. Thus an approach to forming of general (universal) study of art as a science can be ob-

served. This science is aimed for comprehensive coverage of numerous major facts, names, events and trends of words art culture.

We can find partial approaches to this in a number of carried out capital publishing projects that have become popular with addressees *general, worldwide, universal*. First of all those are multivolume “Universal history of art»(figurative art and architecture are implied) and “The history of worldwide literature”.

So how are the general contours of universal study of art seen as some kind of metascience? First of all it must and can developed on the basis of enormous funds of various observations and generalizations that have been collected within different areas of separate branches of the study of art. And this development can only be performed in one direction that is based on complex artis-

tic researches and integrate comprehension of previous experience that is evinced in integral and system approach to the analysed material.

Coverage of all kinds of artistic creativity produced in this period with exclusion of any kinds of barriers and gaps provides for necessary condition of such study. Usual borders between different arts and rubrication of types and genres within them are meant. Besides, the ability of a researcher to rise above a regional specific to that what forms the very essence of world artistic process and is mostly important in it. This does not mean that peculiarities and coloration that are defined by the material of one or another kind of art, the type of mentality and code of traditions of any national School are being ignored. The question is that the accentuation of all these moment should better be correlated with the explosion of general, arterial in the development of spiritual culture, taken in its international cut.

Thus any localization and inevitable boundedness of scientific search can be avoided. Complex approach with its character basis of mutually complementary resources of different kinds of art and different national Schools allows us to make the widest generalizations. The thing is that a distinctive law of compensation almost invariably functions within the area of art. If some kind of creativity reduces its significance then the emerging “deficit” is covered thanks to the other kinds of art that are advancing in this era. Similar satiation can be observed at the level of contribution of different regions into the overall treasury of culture. For example in music this is particularly obvious on its early stages that used to have only scattered monuments and didn't have sufficient independence yet. Or the artistic classics of a number of nations of West that experiences a high rise in middle ages – the time of “dark ages” of European art.

The formation of universal study of art is correspondent to processes of globalization of human mind which is becoming more and more actual. These processes have been dic-

tated by the historical situation that had completely formed by the beginning of the third millennium: unproductiveness and impossibility of any kind of national reticence, growing interaction of all happening in modern world. In parallel with that a prospect of going out of limits of special scientific discipline to horizons of valid humanist knowledge is being opened. Such an outgoing can be realized by the way of forming the artistic picture of the world that is the ultimate priority of general study of art. And in its turn the substantial, idea-conception sides of artistic material that are revealed at this stage turn out to be the uniting base of complex study of the spiritual culture.

Artistic picture of the world is the system of generalized concept of one or another historical era that are formed as a result of comprehension of artistic creation belonging to this period. Behind the seeming illusive-ness of artistic texts an enormous massif of imprinted human being that is showed in wide range of ideas and motives as well as various emotional, intellectual, moral displays character for its era. Thanks to the existence of artistic creativity each stage of the development of civilization leaves a rich fund of historical memory for the following generations. Therefore the formation of knowledge of world and human based on image-semantic system of art is implied.

Nowadays the study of art has closely approached to the conscious desire to see the memories of ages in artistic culture, imprinting of historical experience of evolving humanity, reflection of society and inner world of a man, all the diversity of his existence. The learning of this memory in all its completeness can be possible only provided that complex study of all kind of art that are being developed in this period has been carried out, since while the object and its functions are united every single one of them gives us its special aspects in outlining the general problem. This is what their specific features that define the autonomy of any kind of artistic creativity stand for. While keeping this necessary and very productive specification we

should underline that the generality of trends and attitudes that are determined by the perception of people of the same era which is even more important.

Different kinds of art are united by their correlation with philosophy knowledge and social history in terms of fixing of what is happening with world and human. There are quite a lot of contacts and common moments between artistic memory and scientific picture of being. But most of that reflected in art is presented from oppositely different point of view. Besides a wide range of observations that are usually not studied by historical science, which operates with facts and happenings, is reflected in artistic chronicle. The art introduces such viewpoints of 'spectral analysis' of life processes and such layers of being that are almost inaccessible for understanding from usual positions. The main of them is linked to spiritual world of a man and his emotional sphere either in its typological whole or in myriads of individual unique displays.

We obtain rich and so far little-studied resources of colorful and multidimensional historical memory that allows us to significantly broaden and enrich our knowledge of the descendent, if we understand art as an evidence of era that has created it, value it as a tool of study, outlining its abilities to model an image of the world and humanity.

* * *

As a direction of idea and knowledge universal study of art is self-sufficient. However the true power of any science is shown in its practical application when it transforms from an isolated laboratory discipline into the form of thinking thus obtaining the propriety of its existence and adequacy. This is realized with maximum consistency and regularity by means of general education on its different stages.

What induces us to introduce the range of corresponding knowledge on different stages of education? First of all it is the fact that the very idea of scholarship is absolutely unthinkable without mastering at least minimum knowledge of the main types of art. And

secondly, the contact with the world of artistic images brings its unique aspects into the multi-dimensional system that is usually called taste and interest to life. It is also widely known that familiarization with the treasures of artistic culture makes our feeling more delicate and sensitive and its spectrum becomes more saturated and divided. Besides special research has shown that the development of anthropogenic era needs replenishment from art, since it helps us to overcome inevitable hypertrophy and even lameness of urbanized intellect thanks to the impact of character for artistic creativity impulse of associative thinking, uninhibited imagination, elements of paradoxicality and unpredictability.

The formation of refreshed world outlook that is carried out by general (universal) study of art should be started directly from a person's schooldays. This is what subject "World artistic culture" that has been introduced in 1980-ies in Russia at the level of secondary and special secondary education is meant to do. This subject is now at starting stage of its development, that is why much is still to be done to improve it. But the fact of introduction of such subject itself means understanding of the necessity of complex and integral approach to the study of art.

Today in connection with processes of humanitarization of nowadays education the problem of introduction of this subject in institutes of higher education arises. Teaching of this subject divided in two stages implies its familiarization and description within secondary education institutions (schools, gymnasiums, lyceums, colleges) and its problem summarization within the programmes of higher education institutes. It goes without saying that this material varies depending on age structure of corresponding contingent taking its accessibility and possibility of adequate perception into consideration. Regardless of that complex study of all kinds of artistic creativity (literature, figurative art and architecture, music, theatre, and cinema) seems to be the most preferable. And substantial, idea-semantic aspects, and general style trends must serve as uniting basis of

such teaching. If a sense-creating component is outlined as the main one it is very effective not only as a uniting force, but also as an aspect of maximum communication for audience of any level of erudition.

Teaching of the World artistic culture can be based upon the knowledge that have been acquired by students within separate studying of such subjects as literature, figurative art music etc., but ideally an enlarged single course, that contains all separate disciplines should be created. Even so we should keep in our mind that in this case we don't set target to obtain special knowledge of all categories of artistic creativity. The formation of integral conception of the most significant artistic legacy of the humanity is far more important. The main thing is to put the foundation of knowledge and methodological base, assuming that the rest can be mastered within the process of self-education, including various lacunes.

Speaking of complete system of interaction between the course of the World artistic culture and the subjects of special philological or some other artistic cycle we should say that the solution would be the following (the education within the institute of higher education, where one can use his knowledge of humanities, is meant). The education must be implemented on a basis of successive mastering of large historical periods in their evolutional motion from the ancient days to modern society. This mastering is carried out within complex examination of all necessary parts of artistic culture, and, in maximum, the subjects of social cycle such as history, philosophy, aesthetics and others must be involved.

In this case wide panoramic surveys of the condition of artistic culture of the corresponding historical period are combined with detail consideration of what is usually studied by traditional philology of artistic disciplines. The principle of synchronized education allows us to achieve clear orientation within the facts of "one's own" kind of art in its correlation with general artistic context. Everywhere we can face the fact that the phi-

lology or artistic faculty graduates cannot relate the knowledge of the professional area they have chosen with that what is happening within other kinds of art, since these facts exist in autonomic, separate dimensions for them.

One of the major difficulties in the solution of the problem of upbringing the specialist that is in possession of wide aesthetic horizon is in the lack of sufficient number of corresponding pedagogue staff. So far we can only rely on efforts of independent enthusiasts. Our goal for the nearest future is to provide the training of the tutors of wide specialization that will be able to present universal knowledge of artistic culture at least within one historical period, according to their experience.

* * *

As one of the examples of practical realization of the principles of general (universal) study of art the author of this article prepared a volume work called "World artistic culture as a single whole". This work is an sketch for fundamental monography which he is working on at the moment – "The Universe of word, color, sound" in ten volumes: Volume I – Ancient world and Antiquity (app. before AD), Volume II – Middle ages (up to the middle of XIII century), Volume III – Renaissance (from the middle of XIII century to the middle of XVI century), Volume IV – Baroque (from the middle of XVI century to the middle of XVII century), Volume V – Enlightenment (from the middle of XVII century to the beginning of XVIII century), Volume VI – Romanticism (the first half of the XIX century), Volume VII – Post-Romanticism (second half of XIX century), Volume VIII – Modern I (1890-ies – 1920-ies), Volume IX – Modern II (1930-ies – 1950-ies), Volume X – Modern III (1960-ies – 1980-ies, and a short roundup of artistic creativity of Post-Modern as a going nowadays historical period).

From the position of methods that have been put into the basis of educational textbook "World artistic culture as a system whole", it seems appropriate to give the In-

roduction, that has been prefaced with this work by the editorship that has published the book – “High School”.

The value of this book, that has been prepared by the Doctor of Study of art, professor, Honored figure of Russian art, academician of European Science academy A. I. Demchenko lies in free overview of World artistic culture, considered as a whole both from the position of general historical process and in correlation with different kinds of art (literature, figurative art and architecture, music, theatre, and cinema) that has been carried out. Illustrative material (visual performance and musical fragments) has been given as an attachment to the book on digital carriers.

This publication seems unique for a number of reasons.

First of all, it embraces all periods of the artistic culture evolution – from the origins to the end of the XXth century, being quite compact. Besides, all the main fact have been put into the orbit of the exposition.

Secondly, the usual rubrication to separate national Schools, beginning from the differentiation of domestic and foreign art have been overcome by the author. With this the publication responds to positive trends of nowadays processes of globalization and, with all its consideration of national peculiarities forms the conception of universal treasury of cultural values.

Thirdly, the other usual division of different kinds of art and outlining their genre types and subtypes has also been overcome. This provides for sum, integral view of the events that took place at different stages of the development of art.

The outlined removal of any barriers between different kinds of art and different national Schools requires necessary stipulation. Separate kinds of art as they are and various genres are overviewed and peculiarities of one or another national artistic School are accented, but this doesn't become the main element of the study – it serves as a solid basis for outlining magistral processes that took place in given historical period.

Consecutive and complex research of all kinds of art as a single stream, including belletristic literature (it usually stays out of the sight of such publications, same can be said about music), gives absolutely new quality on the way of forming integrative knowledge of art.

Fundamentally important thing lies in the very study of the material, when everything follows one goal – studying of the World artistic process from the position of outlining artistic ideas and conceptions, leading image-sense lines and layers that are character for corresponding stage of historical evolution. In addition such approach significantly makes the perception of artistic material easier, removing needless difficulties that are linked with the redundant specificity of terminology and analytics of the study of art.

The analysis of definite facts of literature, painting, architecture, music and other areas of artistic culture is notable for its riches of observations and clear commitment. Besides, the selection of the most significant works that give us concentrated image about corresponding historical period, has been carried out.

And the last thing: the belonging of the book to one author provides for inner unity of the material presentation. The principle of overview exposition that has been but into its basis is combined with careful examination of the most demonstrative examples of art. The publication is provided with discs that contain all the images and musical fragment mentioned in the book (the fragments of literature works are cited in text itself. Illustrative material is given in form of attachment on digital carriers.

The publication is addressed to the students of secondary and higher educational institutes, schoolchildren of elder classes in schools, lyceums, gymnasiums, and, of course, the widest range of the connoisseurs of art (as a cognitive reading). Besides, it can be useful for specialists that do problems of the corresponding era, since the text is full with wide generalizations and contains new

approach to studying World artistic process. Clear logics in presentation of the material and its clear structuring allow reader to acquire basic positions of this book without any difficulties.

To sum up we should say that the main idea of these notes is to save World artistic culture as a really World one. That means overcoming national barriers and integral scope of all kinds of art as well as passing usual rubrication into individual styles and genres. Besides, panning of general history of art allows us to select the most valuable and significant from the “treasury of the world» and thus immerse into the aura of the highest artistry.

Such approach actualize international notion of multimedia that has become quite popular recently. In this case it implies the following principles and positions: 1) free circle of all kinds of art and their complex study; 2) coverage of all national Schools significant in this historical period, that al-

lows us to operate with the conception of general, universal, World artistic culture; 3) in educational aspect it is completeness of illustrative supplies (literature texts, audio and visual materials) that provides for complex effect of artistic information.

Total mastering of that created by the creators of art in forms of systemically constructed retrospection of artistic creativity can significantly enrich the inner world of a man and make him closer to the ideal of comprehensively developed personality. The topicality of the studied approach is also defined by the desire to learn and recognize the universal tendencies and natural laws of World civilization trough the universal-integral look to the World artistic process. In other words, develop the ability of an individual to think and feel globally through the formation of a whole, universal view to the World culture, since the prospect of the civilization progress in the III millennium requires it.

ECOLOGICALLY SAFE TECHNOLOGIES FOR GOODS LIFE CYCLE SUPPORT

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New technologies for goods life cycle support are proposed. These technologies are based on the modern approach to the production system concept that represents the goods consisting of the following cycles, production, distribution, consumption and wastes utilization. Proposed methods allow providing ecological safety of the goods during each of these cycles.

Technologies are based on laser application. This entails active surface layer properties modifying that allows to increase machine service life.

The most important concept of proposed technologies is their ecological safety. For example, harmful matter atmosphere apportionment of the proposed technologies is 8 times lower as compared with the cyanidation. Experiments and industrial application indicate that the service life of machines junctions treated according with proposed technologies, increases on 30-40% depending on the working conditions.

The modern approach to the production system concept is based on its consideration as an opened system. Broadened production system, therefore, is considered only together with the concept of the good and represents the complex good with its life cycle. The life cycle, in its turn is divided into several phases variations, but in any case among is the structural constituents there the production of the goods, the goods repair and maintenance and the goods utilization, that is the final life – cycle phase. Just these three phases are supposed to have the most careful approach to the question of the goods ecological safety.

In the goods manufacture and repair, the use of the ecologically harmful and dangerous for the man's health technologies is inevitable. This negative influence manifests in the form of the manufacturing industry wastes (metal chips at grinding, metal dust at grinding and drilling out repaired goods to achieve repairing dimension, etc.) Besides, being

in up-to-date use methods of the goods are not ecological themselves manufacturing and repairing.

In modern mechanical engineering cyanidation (nitro – cementation) widely used for details working surfaces hardening. The essence of this treatment method includes details surface layer saturation by carbon and nitrogen compounds. The nitro – cementation disadvantage is the higher cost of the process as compared with other types of the chemical – thermal treatment. It's caused by the necessity of the strict industrial safety rules observance because of cyanic salts (NaCN and KCN) or gas ($\text{CH}_4 + \text{NH}_3$) high toxicity. Also, expensive equipment for performing this process is necessary needed (hermetic containers, atmosphere – harmful matter content control gages, an isolated ventilation system, a special harmful matter protection for workers, etc.)

It is necessary to emphasis especially the negative influence of this

method, on the environment on in thee other words, the low ecological safety of it. This influence manifests in such important goods life cycle phases as the manufacture, the repair, the maintenance and the utilization. Owing to this there is the necessity of such new technologies working out to provide and support the goods (machines, in particular) life cycle with ecological safety.

In Volgograd state architectural-building university the methods of contacting machines parts surfaces hardening with laser technologies application were worked out. The following laser treatment advantages were brought to light during the investigation:

1. High energy concentration gives the opportunity to treat (according to the special program, id needed) only small volume of undersurface zone without the other volume heating and its structure and properties breaking. This minimizes details war ping owing to residual tension.

2. High speeds of treated material heating and cooling down. This enables to create different structures of the surface working layer from usual tempered structure to high dispersion and even amorphous structure.

3. Possibility of the massive and large – scale details treatment.

4. Absence of the mechanical forces applied to the details during the treatment. This enables to treat thin and breakable details.

5. Respective process automation simplicity and harmful wastes absence.

In addition, it is necessary to mention the more hardened zone depth at the

laser treatment ($h=1-1,5$ mm) as compared with the cyanidation ($h=0.6-1,0$ mm).

The surface laser treatment technology gives an opportunity to modify the active surface layer properties. Such working condition of the thermal treatment are selected that surface hardening is performed without deep material melting. This technology was named the selective laser hardening because there wasn't done the complete treatment of entire surface, but only the thermal-treatment "tracks" were performed. Depending on the direction and configuration of these "tracks" it is possible to increase (immovable junctions, for example) or to reduce (journal bearings and machine - tools slides, for example) the friction coefficient.

The experimental results affirmed these technologies effectiveness. It is determined that the life cycle of the machine treated with this mode use increases at the expense of the phase of the application and the utilization extension. The service life in this way increases on 30-40% depending on the working conditions.

For example, the main service life criterion for the bolt junction is the resistance to shear and deformation. Fig.1 reveals the laser treatment influence on the tangential stiffness of junction and the resistance to shear. The tangential safeness is a function of maximum shear strain τ_{max} before sliding initiates. The tangential stiffness is a reverse function of the asperities presliding shear deformation. The harmful matter atmosphere apporportionment is 8 times lower as compared with the cyanidation.

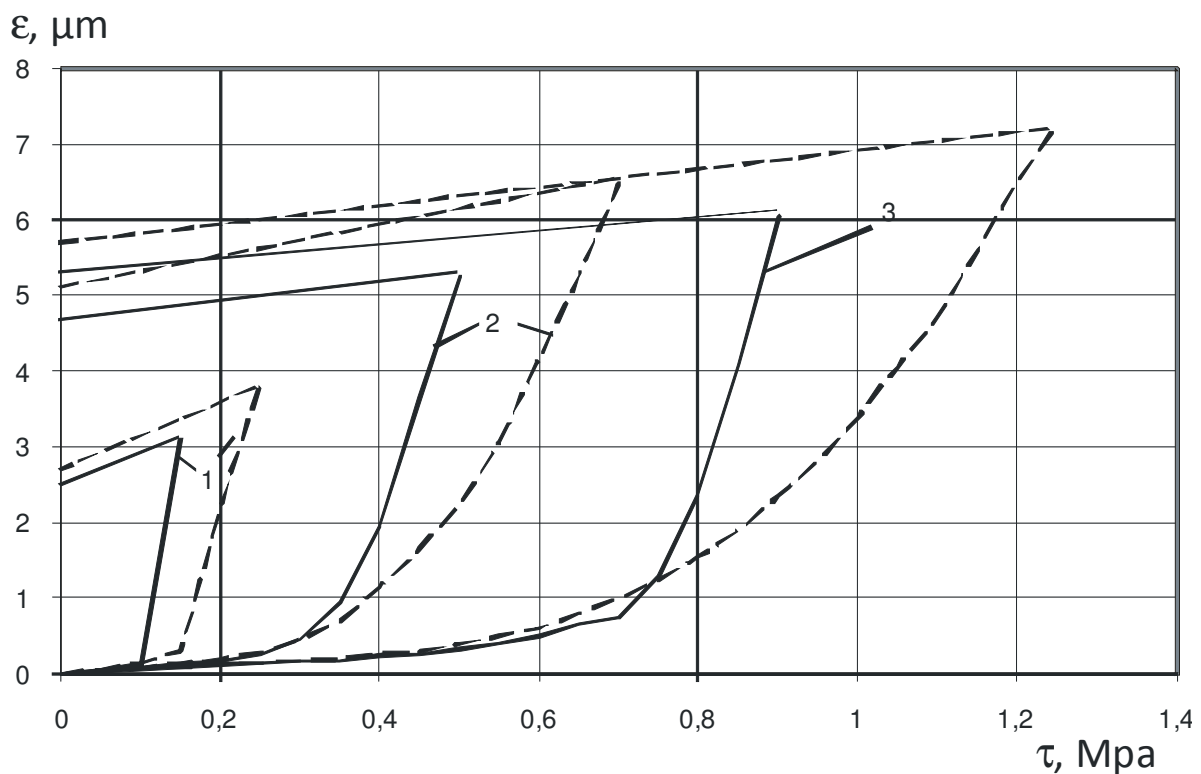


Figure 1. Presliding deformation ε versus shear strain τ for various volumes of normal pressures σ (plane contact of metal parts)

————— no laser treatment;
 - - - - - after laser hardening;
 1 - $\sigma = 1$ MPa; 2 - $\sigma = 2$ MPa; 3 - $\sigma = 3$ MPa.

These technologies application gives the opportunity of the more through realization of the life cycle control main functions: the quality guaranteeing (the phases of the goods manufacture, the application, the utilization), the making (the goods technical preparation and the manufacture), the maintenance (the application and the utilization phase), etc.

Thus, the investigations witness that the laser technologies can become one of the links in the measures system for ecological safety providing not only in the engineering industry, but also in all industry branches associated with the goods life cycle support.

TO A QUESTION OF ADAPTIVE MECHANISM OF LABOR MARKET IN CONDITIONS OF CONTEMPORARY CRISIS IN RUSSIA

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The penetration of national overtone of market opportunities of foreign human resources stock is more felt nowadays against national priorities. The experience of CEE countries in attraction is very specific, because here as a rule minority relations upon experience and technologies are used, change of the essence of the economic system (from raw materials to innovation), transition to a new structure of economics and the development level.

The formed concentrated structure of Russian market is one of the factors decreasing attraction, criteria of high level corporative management, well-established business-model, high quality of assets, developed customer base, qualified management. "Russian accent of crisis" – non standard approaches in solving contemporary problems of a new model of world order, forms of economics support, its energy consumption and low efficiency as criteria for modernization success, real consideration of economics control process taking into account demonstration of adaptive changes in structure elements of separate markets, including labor market. Thereby, competitiveness in the field of expenses control comes to change the extensive growth. In this regard advantages connected with the economies of scale will be considered as a motivation for deals, which is a consequence of the credibility crisis, a gap between company's resources cost and what can be bought at this price appear. Speaking about labor market, average monthly earning grew almost 5 times – 30% increase a year. Russian market is overheated, even by world standards, especially in top-management segment. Similar position with responsibility for the similar type of business in comparison to foreign- this is an economic upturn, a meteoric career, big money. Average work period in a company is decreasing, but special-

ist's cost is growing. Labor market overheat is caused first of all by favorable macroeconomic environment, deficit of necessary specialists. On one side new aims appear, from the other – interpretation of new professions, from the third – approaches to mutual understanding of labor market and education market. Process of retail is growing 20% annually, therefrom deficit of retail specialists and other specialists, and that not always gives equivalent pay-off to salary guarantee, as growing price for specialists vertically is felt, but at the same time the qualification is low, special education is missing, level of education is falling, knowledge and skills of employees correspond to 30-40% of the occupied position. About one million citizens will die in 2009 and up to 2015 there'll be 9 million employable Russian citizens less. We may add laziness and greediness in promotion of salary race. No matter how good you work, they aim to pay less, using different bonus reductions and decreasing coefficient and moreover overbranding appears, that is labor became more expensive because you became more expensive, people become more public, celebrities, well-paid, but not very professional, do not see serious changes, balance of payment and labor efficiency, and therefrom complaints at overstated salary expectations of the graduates, to what head of "EKOPSI" V. Stolin pays attention, suggesting bringing in qualified specialists from abroad, preferring Eastern labor power, as European labor market gives plenty opportunities to Russian companies, qualified specialists are in demand more than unqualified labor power, gives more opportunities to fulfill oneself at managing positions, and that's why migration flow is growing, determines importance of the existing social nets for new migrants supply. In confirmation of this M. Dmitriev,

head of Strategic Development Centre, says that [1] “Russia has to attract resources from foreign markets” as financial sector is not able to support big projects. The author considers that from the final demand stimulation viewpoint the obtained additional money worked badly as people did not want to spend it and inflow into banking system also didn’t give any result. At the same time development in forming one-company towns will lead to local growing of unemployment and general modernization of industry will lead to structure unemployment. It will happen because of general labor shedding in the country and because of that level of training does not correspond to companies’ demands [2], minimization of loss of opportunity [3], new basis of principles evolution modernization of economies in transition [4], classical view of a new theory of values in contemporary sounding [5]. And taking into consideration the 2010 budgeting we should agree with I. Yurgenson, representative of Contemporary Development Institute that «a balance between “social” and “economic” balances should be found» [6], by means of “Moebius band” (decrease of state expenses and taking into consideration decrease of social and political consequences).

Introduction of a system of balanced scorecard significantly popularizes the opportunity to adapt in conditions of formation of regional labor market, predetermines to follow D. Norton and R. Kaplan research. Practice does not give enough right and timely management decisions that is confirmed by the conclusion about balance and market value gap. If in 1978 the gap was 5%, then up to 1998 it was 72%. The reason for such gap was graduate cost increase of non-material assets, including goodwill in the total price of companies that were ignored in the financial statements, and wherefrom estimation units of efficiency in MTSP can be separated according to different components (price changes, efficiency, profitability).

Questions of relations of education system and labor market recently state the fact of inefficiency of the existing system and therefore a problem to overcome the misbalance is set. More and more different authors hold the opinion of the appearing “institutional traps”, opportunities to overcome them in accordance with the economics of agreement, where the agreement is determined by the condition of rational action, and from the other hand- by the requirement to interpretative rationality of the participants of transactions in the market. Economics of agreements suggests considering participants of transactions in the market as a premise of intentions and preferences and therefore considering approaches to variants of agreement correlation, conduce to form institutional construction of education modernization which demands a different approach to using interpretative theory of adaptive mechanism substantiation on the level of both state and region, attraction of new approaches to labor market formation and its structure reorganization. So, in M.P. Burova’s opinion, accretion of power of interregional state and non-governmental structures in attraction of investments into regional economy, also using labor market and education development market. On the one hand this fact can be considered as positive tendency - growth of nation’s education increases quality of country’s human capital assets, on the other hand it reflects the changed motivation of young people who are getting higher education – more often it means obtaining social status, but not “working in the specialty” in the future which is confirmed by the materials of the Third Internet Conference in Petrozavodsk and also by the materials of Best Scientific Book Awards in Sochi, hold by Development of Russian Education Fund among teachers of Higher Education Institutions in 2007.

Merger and acquisition theory, used in many works of different authors recently, shows that the opportunity of quality improvement exists and represents the fact of business environment movement as all the economics on the whole so its separate parts (labor market, assets, lands). In this case the

appearing business process will be efficient and will represent definite advantages in terms of separate elements. Variants of merger and acquisition give ground considering that not only adaptive mechanism of the economy but also adaptive mechanism of the specific market is changed. In I.Yurasov's opinion "formation of process of inclusion and fixation of labor power in industrial organization is taking place" and in M Topilin's opinion dynamic response at places to those changes that occur at regional labor markets, shifting focus from passive aid to unemployment to facilitation in returning to active professional life and therefore labor gets new characteristics in a system of business relations (Ishchenko S., E. Okhara & Ors).

The carried out research experiment shows uncertainty of institutional reforms representation as in labor market theory so in its politics, and intensification of cross-country competition leads to more reorganization of labor market flexibility, represents complex of "bad" institutes by reasons of appearing misbalance in terms of employment programs, systems of unemployment insurance, work time and salary flexibility, employment defense, changes in labor relations, opportunities of introduction of "dou-

ble" institutes. Rise and development of neoliberalism, its limits make not only countries but also labor market mechanisms in terms of positive characteristics of capitalism compete. Contemporary global crisis as a new type of economic system has already predetermined the characteristics of new demonstration in establishment of new mechanism of labor market in the regions (Far East and Asian and Pacific countries), discrimination of Small and Medium Enterprise. [7]

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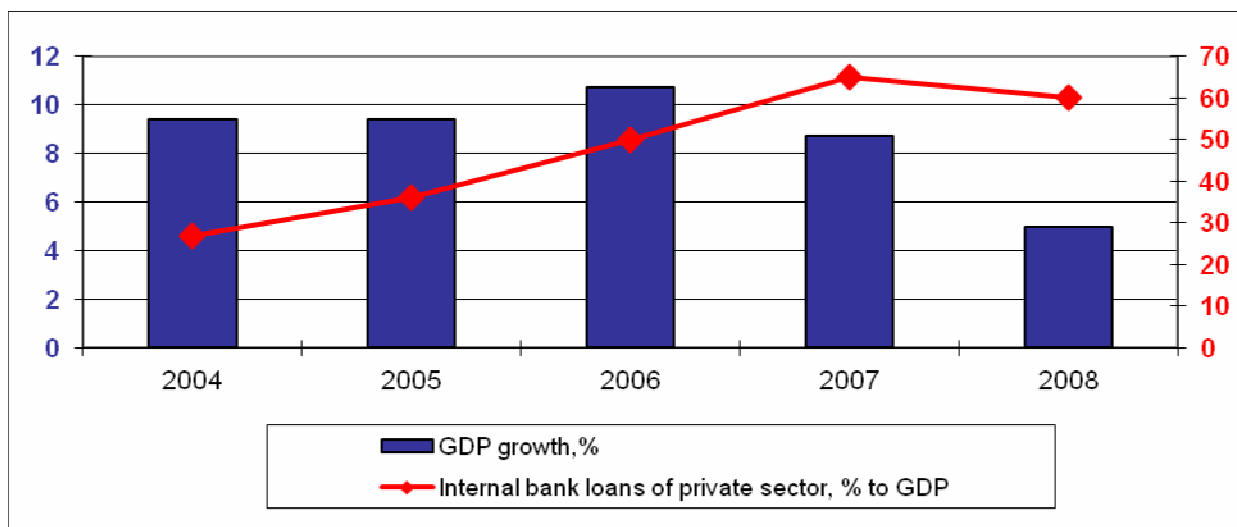
RESEARCH OF INTERACTION OF BANKS AND ENTERPRISES OF REAL SECTOR OF ECONOMY IN REPUBLIC OF KAZAKHSTAN

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For the recent five years there has been noted positive dynamics of the development of the bank system and the real sector enterprise in the economics. From 2004 to 2008 loans accommodated by the banks in gross domestic product rose up to 38.4% as soon as the part of funds at the expense of which these loans were offered, both own funds and taken as deposits also rose up to 8.8% and 24.1% respectively. Meanwhile, according to available data the bank sector of the country has strengthened its positions from the point of view of trust of people to the bank system in general, which is proved by the significant and progressive growth of the deposit part in gross domestic product –

53.7% by the end of 2008. Nevertheless the situation of interaction of bank and real sectors of economics does not show an optimistic picture in both present-day condition of economics, which is affected by the world crisis, and in the aspects of its development. Thus overall part of the external debt of Kazakhstan was 107.8 billion USD, from which the debt of the bank sector made 39.2 billion USD, which is 44% of the gross domestic product of the country. The limit of access of trading banks to foreign funding as the result of the rise in price in the world market caused the slow interaction of banks and real sectors of the economy (graph 1).



Note – drafted by author with respect to [1]

Graph 1. Dynamics of GDP Growth and Bank Loans in Economy in Republic of Kazakhstan from 2004 to 2008

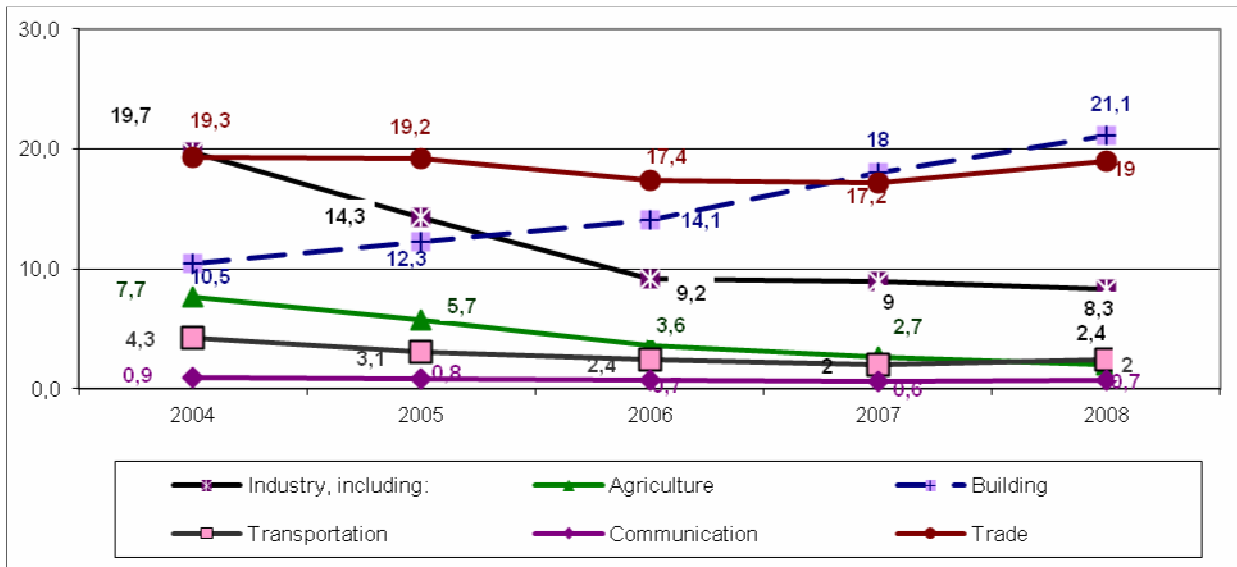
The slow growth of bank loans has influenced the decrease of the production volume index in industry. To a considerable degree the decrease of the production volume index during this period occurred in the

building sector – 16%, which was caused by the crisis in mortgage lending and real estate price reduction. As for the industry in general, the index dropped up to 8% whereas in

manufacturing industry – up to 12% for the whole period.

As a positive one can be regarded the strong tendency of the growth of long term crediting in general structure of bank loan fund the size of which grew up to 4 934 906 million tenge or 14% from 2004 to 2008 making up 5 921 883 million tenge or 80%

by the end of the period mentioned above. At the same time the analysis of the dynamics of long term crediting in the light of the branches of economics shows the reduction of crediting of enterprises in all branches of economy except for the building sector (graph 2).



Note – drafted by author with respect to [3]

Graph 2. Dynamics of Long Term Bank Crediting in Different Branches of Economy from 2004 to 2008

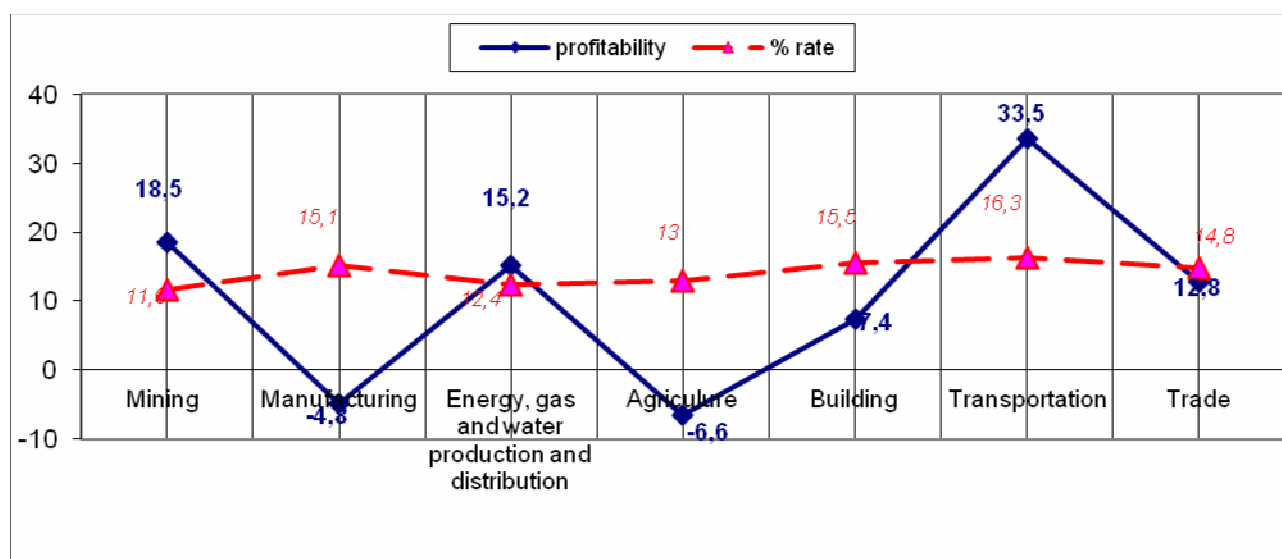
As it is seen in the graph only in building sector there is both the biggest weight of long term crediting in the structure of bank loan fund in branches of economics – 21.1% and its increase during the whole period – 10.6%. This tendency was caused by a high business activity in the building sector of the country both before the world crisis and after it, because almost all started projects were continued. The biggest decrease of long term crediting was in industry – up to 11.4% and agriculture – up to 5.7%.

The analysis of the long term bank crediting in different branches of economy in the light of the units of crediting represents the dominant part of loans granted by the banks used to complete circulating assets the volume of which 14.9% decreased during the

investigated period and made up 26.1% by the end of 2008. Insignificant part of loans granted by the banks used for basic assets did not agree with the needs of the enterprises in reequipment because there was still seen a fair level of accumulated depreciation by the end of 2008 – 40%. As soon as this information is given according to average statistic data of the Agency of Statistics of Republic of Kazakhstan round the country in general, in taken separately regions the level of wear of basic assets is slightly higher.

Not all of the enterprises can afford bank loans because of the increase of bank recourse cost by +1.0% up to 7.6% at the increase of straddle by +0.6% up to 6.2%. At such high loan interest rates the low level of profitability of domestic enterprises, particu-

larly industrial ones, leads to a permanent situation of impossibility not only to cover bank loans but even to have an opportunity to get them (graph 3).



Note – drafted by author with respect to [3]

Graph 3. Comparative Dynamics of Level of Profitability and Loan Interest Rates in Different Branches of Economy in 2008

The evidence of insufficiently effective interaction, which must be directed to get a maximum effect for each of the parts (to reach so-called a synergetic effect), is also a rise of overdue loan overdraft and the deterioration of loan fund of bank sector. The part of standard loans in loan fund of the banks of Kazakhstan fell up to 13.2% from 2004 to 2008, the part of doubtful loans grew up to 11.1%, the part of NPL (the part of idle loans, the calculation on the basis of doubtful loans of the fifth category and hopeless loans) grew up to 2.7% during the same period by the end of 2008, at the recommended value - not higher than 5%. The biggest amount of overdue loan overdraft in crediting belongs to: JSC “Kazkommertsbank” – 202.93 billion tenge, JSC “BTA Bank” – 157.87 billion tenge, JSC “Halyk Bank” – 160.92 billion tenge [4].

The benefit and earnings yield of bank activity along with the problems of the quality of assets and their liquidity considerably decreased. At the same time the drop of yield

during the period of the world crisis from 2007 to 2008 in the bank sector was 85.9%, which is 18.1% more than in the real sector of economy. The main reason of this drop was an intense growth of expenses of supplies formation and reappraisal (mainly at the expense of negative reappraisal of the securities).

According to the analysis of dialectics of the given sectors it follows that the fundamental characteristics of the bank sector finally are determined by the condition of real sector and the economy of the country as a whole. Therefore the condition of the bank sector in general sufficiently shows the reached level of market development of the national economy.

Having examined the modern tendencies of the development of the interaction of bank and real sectors of economy, from the point of view of both the commercial banks and the real sector enterprises we have a possibility to define the potential of sectors interaction with the help of the SWOT analysis:

Strong points:

- Comparatively big part of bank assets in GDP.
- Growth of weight of long term crediting in the structure of bank loan fund.
- Consolidation of bank resources in general due to preemptive growth of natural and juridical person deposits.

Weak points:

- Slowdown of crediting growth, increase of foreign debt, insufficient capitalization and liquidity, and also the decrease of quality of assets of bank sector, as a result of the influence of the world financial and economical crisis.
- Inadequacy of bank crediting potential and needs of enterprises in crediting resources for renewal of basic assets in time and capacity constraints.
- Limited variety of promising resources of formation and consolidation of bank resources and absence of effective mechanisms to transform savings into investments.
- Inadequacy of the rates of loan bank rates and the level of enterprise profitability in real sector (inaccessibility of loan resources for the enterprises).
- High straddle rates at the formation of interest rates caused by a high level of crediting risk and sharp decrease of the level of yield of the bank sector under the crisis conditions.
- Increase of part of overdue loan overdraft in bank loans in such branches as building, industry and agriculture, which led to the growth of the part of idle loans in general structure of the deterioration of loan fund of bank sector.

Threats:

- Formation of huge foreign debts of domestic banks raises the probability of liquidity decrease, crediting potential and financial consistency and reliability of banks,

and also access of enterprises of real sector to bank resources, as the only real source of investment financing from the outside during the period of the crisis.

- Combination of factors which are on the side of enterprises (low profitability, increase of industry risks, growth of overdue loan overdraft, etc.) calls for re-orientation of the bank sector in the direction of other operations in speculative character without taking into consideration the interests of real sector and economy in general.

- Combination of factors which are on the side of banks (limit of access to foreign fund sources because of big foreign debts, deficiency of fund sources, reduction and inadequacy of resources, reduction of long term and appropriate enterprise crediting) limits the access of potential borrowers in the person of enterprises of real sector to bank loans and decreases their business and investment activities.

- Excessive bank sector dependency on foreign fund sources reduces international crediting ratings of both the banks and the country in general, which firstly influences the trust of foreign investors to domestic banks.

- High risk level in bank sector which is connected with the liquidity crisis supports a high level of existence of idle resources in hoarding and their flow-out to the foreign bank accounts. The increase of the size of deposit guarantee of natural persons up to 5 million tenge to hold up the flow-out of deposit resources from banks does not correlate with real abilities. Endowment insurance fund has only about 50 million USD and this sum will be hardly enough to liquidate the deposits of the citizens in 20 biggest banks which is only 55% of all bank system.

- Today's method to limit the usage of pension assets while investing them into different financial activities, as well as into bank

deposits, limits the opportunity of their effective transition into real sector of economy.

Possibilities:

- The development of state and private partnership to provide harmonic cooperation of bank and real sectors of the economy in terms of uniting the resources and improving the effectiveness of methods of regulation and management of this process.

- Improvement of law currently in force in finding the principles of formation and function of the integrated corporate bodies (i.e. bank groups, financial and industrial groups) with the determination of clear and strict prudential standards concerning them from the direction of regulators, which will allow partly to solve the problem of weak bank resources and access of enterprises to inexpensive crediting resources.

- Maximum stimulation of domestic fund sources and formation of more conservative financial types of banks. Particularly

the development of effective mechanism in usage of long term assets of pension funds and insurance companies with the adaptation of state guarantees of their safety with a view to use them further for a specified purpose.

- The usage of adequate complex state approach on the basis of combination of united political, economical and financial decisions while forming the system of interaction of bank and real sectors of the economy as a main motive force of the economical development of the country.

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OLYMPISM AS A SIGNIFICANT CULTURAL FACTOR FOR BRINING CHANGES INTO HUMAN LIFE

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The article looks into the issues connected with Olympic paradigm and development of modern sport mentality. The author speaks of the term olympism' and its evolution as well as about the objectives of olympism. Significant role in the development of preconditions for sport played the emerging of liberal and democratic values.

Keywords: Olimpic games , Olimpic movement, Olimpic charter, Olimpism.

Modern sports are a complicated, full of contradictories, developing process, undergoing the process of integrity revealing its characteristics in the course of long time. Sports do not only mean the realia of modern life, but what it was in the past, in particular in the 20th century. Various phenomena of social life, emerging in the turn of the centuries were its conditions. The powerful impulse was given to the sports by the reviving of the Olympic Games in the end of the 19th century. Olympic Games which brought into life Olympic movement and olympism as a part of spiritual life became immensely important for modern spots as new organic and polymorpheme integrity. In the late XIX century when the system of the ideas of olympism was created by Pierre de Coubertin sports rose up to the level of self-consciousness. This outstanding person managed not only to revive the Olympic Games which had existed nearly one thousand years and then disappeared but to generate and fix in the Olympic Chart a certain system of ideas. They became the basis for the doctrine and brought about powerful movement (olympic) which established the main features of modern sports [1]. The term "olympism" was introduced in 1912 by Pierre de Coubertin himself, who explained it as following:" Olympism unites as a bunch of sun rays all those principles which facili-

tate an individual's perfection". Pierre de Coubertin believed that "the cult of efforts, competition on the edge of risks, love for the Motherland, the spirit of knighthood, contacts with literature and painting are the basis of olympism". According to him Olympic movement is "movement generated by human's aspiration to peace and brotherhood" it became the school for brining up both morality and physical strength" [10]. Olympism is based on humanistic values of sports, competitions and training. The objective of olympism is to make sports the main tool for the developing of an individual to encourage the development of peaceful society which will be tacking care of preserving human dignity. The idea of olympic education comprises physical culture and sports as a means of young people's health improving and what is more important their perfection as citizens who are more honest and strong persons. By creating the Olympic movement Pierre de Coubertin intended to encourage the development of social, pedagogical and moral values based on sports. Pierre de Coubertin made his dream came true having revived the Olympic Games in our era. The new Pierre de Coubertin's Olympic idea was to comprehend as a platform of for political and economic reforms [2]. In the system of education and teaching the Olympic education was a key element. It comprised the integrity of

mind and, skills development and peace in the whole world. Olympism as philosophy which generated Greek culture helped the society in the XXI century. Olympic ideals, symbols, rituals are a big part of modern epoch. Olympism reflects new ideology of sports as an important cultural factor in changing of quality of an individual's life. Olympism becomes self-consciousness and metaphysics, "becoming a part of essence of sports, determining absolute preconditions of sports and translating cultural values outlook of the epoch in the area of sports" [5]. Let us assume that preconditions of modern sports may be singled out in the process of industrial society establishing. The sport historians reveal on the turn of XVIII–XIX centuries emerge and development of many kinds of physical exercises and competitions, which have become the basic components of modern sport life. The researches of doctors, physiologists and teachers, appealing to use physical exercises to strengthen organisms to improve the physical condition influenced much on its development. The games became the most important factors to establish sports. The main thing is not that more and more people are involved in these games but in broadening activities to organize the given sphere its developing institutionalism. Industrialization and development of engineering influenced positively upon the sport development. However it should be mentioned that the influence was not direct and was implemented as a result of development certain spiritual components of the epoch. To some extent the factors of forming of the latter and at the same time of products of reflections about them became protestant ethics, the ideas of liberalism and democracy [3]. Significant role in the development of preconditions for sport played the emerging of liberal and democratic values.

The Olympic Charter takes for the philosophic basis of modern olympic movement

and states the concept of olympism is "philosophy of life" "which unites the merits of body, will and mind". Liberal and democratic values created the preconditions for modern sport. Thus, The Olympic Charter notices that the concept of Olympism is "the philosophy of life", "uniting in the well-balanced entity all merits of body, will and mind" [17]. Reflecting the nature and specific features of Olympism, it is necessary to mention that these ideas have had preconditions in the European history. The humanistic ideas of the Renaissance gave the rise to their formation; which possessed the same ontology and axiology of the body which was typical for holism. Consequently, such preconditions bring together Olympism and the idea that an individual is harmonically developed both spiritually and physically. The idea of reviving the Olympic Games appeared as early as in the time of the Renaissance. The most advanced part of the society tired of the medieval restrictions appealed to the antique ideals again. Noble humanistic ideas, harmonic development of an individual, admiration of a human body and its abilities stimulated the art of that epoch and defined its behavior norms. The contests, called "Olympic Games" were periodically held in Europe in the XIX century [14]. Pierre de Coubertin's revival of the Games in 1896 was the result of the many-century efforts to restore this wonderful tradition. Pierre de Coubertin succeeded not only in reviving the Games, but in giving them more important status and making them regular and really international. But Pierre de Coubertin's most significant achievement was the concept itself constituting the specific meaningful factor of human's activity. It is important that due to the Olympic Charter the great ideals and values of world culture became doctrine and institutional ones. Among them are liberty, creative activity, human's harmonic development, peace, friendship, mutual understanding, re-

spect, communication. Pierre de Coubertin based his Olympic movement on five main values distinguished by German scientist O. Gruppe: “the concept of a developed person; possibility for self-perfection to achieve high sport results; the principle of amateurism as manifestation of self-discipline and rejection of material benefits; forming of sport elite” [4]. The idea uniting the whole world appeared. The system of concepts was created which was equally attractive for all countries and nations, for all strata of population. This concept did not divide people into elite and common ones, into majority and minority, lords and slaves. It was based on the possibility to become better, more beautiful, an individual’s desire to change the measure of a human’s perfection. Owing to the Olympic movement was broken the tendency to develop sport on commercial base. It should be mentioned that the reviving of the Olympic Games dramatically changed the situation in sport connecting it with humanistic, liberal values and motives. The sport started to aim at perception and development those models of the individual in which the sport is interpreted as the unity of body and spirit, psychology and intelligence. Pierre de Coubertin considered moral principles the essence of the Olympic Games. The most attractive in the antique legacy according to Pierre de Coubertin was “one of the most peculiar things of the Greek civilization: the fact that muscles participated in the intellectual development”. It was exactly what he wanted to revive trying to make neo-olympism moral and spiritual [18]. Thus, studying the genesis of modern sport and olympism as a key element the following conclusion can be made. In general the establishing of this phenomenon is indissociable with the conceptual framework of the idea of the development of all individual abilities through physical exercises and competition [8]. Actually olympism is a dominant factor

of modern sport development and consequently it is a doctrine, philosophic concept and spiritual motion of the epoch. Real sport unites people and brings together natural, socio-cultural, spiritual and physical elements of an individual. Consequently sport on theoretical as well as empirical levels of human’s self-consciousness is considered to be one of the factors for solutions of constant contradictions in outer and inner world of an individual [9]. However the idea of olympism does not fill in the whole space of orientations and values. Other ideas, principles and directions oppose it. Two such positions can be singled out. They differ according to their orientations on values of romanticism or pragmatism. While romantic line of olympic consciousness is definitely closer to unity of physical and spiritual, pragmatism tends to comprise those modifications of physical consciousness where material spiritual elements are opposed but material is prevailing. Three phases are distinguished in olympic consciousness. The first one is theological, where sport depends on religion. The second one is metaphysical; its development is connected with Olympic Games’ revival and olympism, where sport is based on the main principles of olympic consciousness. The third phase is defined as positive. Its development is connected with finishing of ideological struggle for abstract ideals and aims of Olympism within the Olympic movement as well as with the fact that socio-political doctrines stopped being opposed. All three of its historic forms are represented in modern Olympic consciousness, where theological and metaphysical forms are close to each other. This fact allows us to define them with one and the same term – “romanticism”. Pragmatism is a positive state of olympic consciousness [5]. Romanticism and pragmatism represent two alternative positions in olympism. It let us assume that the relations within this opposition will determine the

main tendencies in the development of sports thinking in future. Common civilizational basis for establishing of both trends in olympic consciousness is the modern society's entering the anthropogenic stage of the development of industrial civilization. It means that the dominants of public consciousness are moving towards absolute values, and material values, filled with technical gadgets, towards more comfortable welfare due to improvements of things in the constantly changing world. Technology, new knowledge, goods and pleasures are becoming the most important indicators of life. All these processes and modern world are reflected in the public consciousness as well as in the sports one. The development of achievements and orientations are becoming their main facts in sport [11-13]. Anthropogenic stage of industrial society development is characterized by replacing of traditional innovations, striving for something new (knowledge, structures, processes). Sports thinking as well as public consciousness as a whole react to it with cult of records. Records are important in all spheres of life but it is more vivid in sport. Romanticism comprises two types of thinking, which are manifested in different ways: optimistic and pessimistic. Pierre de Coubertin possessed the first one. He was sure that the Olympic Games would become the festival for the young, the festival of "human spring", efforts, ambitions and all sorts of activities of each young generation [10]. Romanticism creates "pure" images of sport, manifests its essence, reveals its ontological features, social functions. Such kind of olympic consciousness together with scientific consciousness which operates with the notion "ideal gas" is able to give clear outlines of sport "in itself" to depict it separately from the factors of the environment. It is the main asset of romanticism. It reminds all the time about the confidence and power people's spirit and their ability to strengthen

them by means of physical perfection. However the weak point of this kind of thinking is that it cuts the ties of the process and the reality where the given process is taking place. Romanticism both in sport and in every day life and especially in the art puts thought above the reality, has illusions and creates utopian images [15]. Presumably because of that a lot of journalists, sportsmen, coaches, theoretical workers of sport define the modern condition of sport as crises. The main reason for the crises is commercialization of the given sphere and that it follows utilitarian and pragmatic purposes and values. It is stated that the high ideals of olympism are in the past and cannot remain in the present [14]. The essence is that sport has stopped being the conditional world. And it means that is mixed with reality of practical life, and absorbs all its problems. Probably because of it sport started to be considered as sphere to satisfy pure practical, utilitarian, out-of-sport interests. Was not it the reason why Olympic movement often is used for ideological and political purposes? Therefore romantic reflection in relation to pragmatic comprehension is necessary. It is it that reminds that technocracy is dangerous for humanism [16].

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**“CONTRACTUAL” COMPETITION
AS AN EXAMPLE OF CRIMINALITY
IN THE AREA OF PROFESSIONAL SPORT**

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In this article a criminality in the area of professional sport is being analyzed. The main attention is paid to the criminality of professional sportsmen linked to their sports activity that means an agreement conclusion about the competition results.

Keywords: criminality, professional sport, agreement, bribery, politics, warning

The research in the area of professional sport hasn't come to nothing more than several scientific works¹. It is quite hard to define numerical and qualitative characteristics of this area: these indexes are not always properly formed by official criminal statistics. Nevertheless, the mentioned conditions only convince us that the development of the subject we have chosen is a matter of necessity.

In this article we will try to analyze crimes, committed by a sportsman that are aimed for the achieving the desired result by interaction with potential rival. One of the examples of this kind of criminality is an illegal conclusion of the agreement that determines the competition result («contractual» competition).

The fact that every professional sportsman has an inner need to defeat the rival, “push himself to the limit” is beyond any doubt. This is a very important and demanded trait of character in sport. Virtually, the victory cannot be achieved without it. But this is also what brings a sportsman to

choice: act in a legitimate way or try various tricks (agreement, bribery, physical neutralization of rival etc.).

Contractual competition can conditionally be defined as following:

Criminal penalty actions – contractual competition, result of which is predetermined because of the agreement between the sportsmen and is makes conditional the tournament profit for one of them. That is linked to illegal receipt of money, equities, or other property or illegal usage of services that have property nature. These crimes are regulated by ch. 3 cause 184 of CC of RF and implicate penalties and even arrest.

Disciplinary penalty actions - contractual competition, result of which is predetermined because of the agreement between the sportsmen and is makes conditional the tournament profit for both of them. No material interest is present, so a disqualification (including life-long) can be implied in accordance with competition regulations².

Contractual matches take place in all championships of all sports. Usually teams that don't pretend to high positions carry out banal exchange: quid pro quo. Web-sites that

¹ E.g.: V. Beletskiy Criminological characteristics and criminality prevention among the sportsmen [Text]: Candidate of juridical science: 12.00.08/ V. Beletskiy. Omsk: Omsk State University, 1996; O. Bobylev Criminal-legal and criminal aspects of fighting crimes among under aged sportsmen [Text]: Candidate of juridical science: 12.00.08 / O. Bobylev, Moscow, 1993 A. Meytin Criminologic characteristics of crimes, committed by football fans and prevention of those [Text]: Candidate of juridical science: 12.00.08 / A. Meytin. Rostov-on-Don, 2004

² E.g.: cause 43 of Disciplinary regulations of Russian football union (RFU). Disciplinary regulations of RFU of the 5th of April 2006 (version of the 24th of April) [Web source] // Russian Football Union: <http://www.rfs.ru/?node=doc-regulation-discipline>

sell information on the coming contractual competition are present in the Internet (“Contractual matches”³, “Contractual matches in Russia”⁴ etc.). Though, as we already found out this kind of activity is illegal.

Many sport associations take measures to prevent such facts. For example: on 18th of April 2008 an agreement has been signed in Zurich (Switzerland) between National association of bookmaker offices and International federation of football associations for a long-term collaboration on prevention of the “unfair” football matches within the selection tournaments of world football championship 2010⁵. However, all that is more complicated since it is quite difficult to prove the fact of handing the match in because rivals carry out the negotiations in private and do not put forth any demands to each other.

Nevertheless, there are several indirect signs, that can help us to uncover the agreement between the sportsmen. Thus, if a team that has won the competition ahead of schedule shows a really poor performance in a play with outsider that struggles for saving his place in the league, we can suppose that it has some kind of interest in this cause. However, a poor performance by a champion can be explained other ways: absence of motivation for a victory, since the result is not really important; a game has been played by reserve instead of the main membership; etc.

³ The only site, that gives information for check [Web source] // Contractual matches: <http://www.fixed-bet.ru/index.shtml>

⁴ The only site, that gives information for check [Web source] // Contractual matches: <http://www.fixed-bet.ru/index.shtml>

⁵ International Federation of Football Associations (FIFA) and National association of bookmakers (NAB) signed the agreement of long-term collaboration [Web source]: Press-release of National associations of bookmakers f 28th of April 2008 // National Association of Bookmakers (NAB): <http://www.nasb.ru/index/2008/658>

Accordingly, different methods of proving should be used in every single suspicious cause. That can be an approval of guilt and the results of special technical means usage⁶ (listening in, operative filming etc.). The exposed episodes must not stay unpunished since not only the idea of fair play but also a great number of fans suffer. As a fact, a roguish activity is being carried out versus them, especially those that have made bets for their favourite team (player) in a bookmaker office.

An action of some different levels competition participants of an agreement becomes a common sense nowadays. Within out research⁷ we tried to define the character structure of a sportsman who can commit such crime in order to understand a prevention work contingent. In common it is a man aged 16-29, married, has secondary of special secondary education, who has no remorse, and has mercenary traits of character.

Moreover, we have found out that 28% of interviewed sportsmen had broken the rules at least once.

There are two main reasons why some sportsmen make an agreement for some defined competition result: material and tournament interest.

A number of measures has to be made in order to prevent the studied criminal processes. The most important of those are patri-

⁶ E.g.: The fact of bribery of three players of football club “Valanciena” by football club “Marseille”. One of the bribed players – Jaque Glassmann – has informed his club command of the bribe and it has informed the leadership of a national football league. Law machinery has got involved. As a result of the trial football club “Marseille” has been deprived of his title of champion in season 1992-1993, that hasn’t been given to anyone, and has been sent the second division. The president of “Marseille” Bernar Tapi was sentenced to two years in prison, 2/3 of those, however he has served nominally.

⁷ Our conclusions are based on the results of online survey that has been carried out in 2004-2009 among professional sportsmen, coaches, the institutions of professional sportsmen training leaders, and football fans of Moscow, Voronezh, Rostov-on-Don, and Volgograd.

otic and legal education of sportsmen for whom an honor of his country must be more valuable than a material profit. Even more so that any kind of material stimulation of a sportsman in order to change the event result is a criminal-penalty action that is regulated by ch.1 and ch.3 cause 184 of CC of RF. And sportsmen should understand the meaning of these actions and the heaviness of the consequences.

These measures must be aimed for making an opportunity to present Russia on international competitions a matter of pride. Regretfully, this feeling cannot be formed within a year or five. It has to be inculcated to sportsman since his childhood. That is

why a development of positive personal qualities of a teenager must be carried out together with physical exercises and training, that is not a common notice nowadays.

After Russia has obtained the right to hold the Olympics in Sochi in 2014 our country should get down to the problem of criminality prevention in the area of professional sport more carefully. We have all opportunities to solve this problem: powerful scientific potential, qualified staff and, main of all, - political will to solve the set goals that are linked both with the big-time sport but also the health of children and youth, the future of Russia.

IS IT POSSIBLE THAT FOOD RICH IN CALORIES PREDISPOSES TO HEART ATTACK?

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Acute myocardial infarction (AMI) is a highly dynamic event, which is associated with marked neuroendocrinological dysfunction apart from heart damage. The immediate trigger for heart attack is not known exactly. There is a marked increase in sympathetic activity, oxidative stress and deficiency of minerals as well as antioxidants, during heart attack. Clinical studies have reported an increased incidence of reinfarction, sudden death, coronary constriction, myocardial ischaemia and angina, during first quarter of the day when there is rapid withdrawal of vagal activity and increase in sympathetic tone.

Keywords: large meals, breakfast, trans fatty acids, cytokines, lipoproteins, glucose.

Introduction

In one case control study, among 202 patients of heart attack, there was a significant ($P < 0.02$) increase in cardiac events in the second quarter of the day (6-12 hours) compared to other quarters respectively (16.8%, 41.0%, 13.8%, 28.2%). This characteristic remained common in both men and women and among patients with and without known heart attack ($n=52$), diabetes ($n=53$) and hypertension ($n=75$). Triggers of heart attack were noted among 162 (82.2%) of the patients. Brain related and psychological mechanisms were; emotional stress (45.5%), sleep deprivation (27.7%), cold climate (29.2%), hot climate (24.7%), large meals (47.5%) and physical exertion (31.2%). These triggering factors are known to enhance sympathetic activity and decrease vagal tone, resulting into increased secretion of plasma cortisol, noradrenaline, aldosterone, angiotension converting enzyme, interleukin-1,2,6,18 and tumor necrosis factor-alpha, that are pro-inflammatory. There is also a deficiency in the serum levels of vitamin A, E, C, coenzyme Q10 and magnesium, potassium, melatonin, interleukin-10 (anti-inflammatory) and increase in TBARS,

MDA and diene conjugates, TNF-alpha and IL-6 which are indicators of oxidative damage and pro-inflammatory respectively. It is not clear whether the predisposition of ACS is due to size of the meals or proinflammatory content of meals.

The exact mechanism and the immediate triggers for acute heart attack and brain attacks are not known. Clinical manifestations of these attacks also do not occur at random times but according to a time structure [1-7]. It is possible that certain external activities, known as triggers, play a major role in the occurrence of these attacks. In one study [5], half of all heart attack patients reported a temporal relationship between characteristic activities and occurrence of the attack. Emotional stress, sleep deprivation, large meals, mild and heavy physical exertion were the most frequently reported triggering factors of heart attacks in various studies [1-7, 11-13].

There appears to be a powerful evidence of a link between these triggers and the sequences of cellular and pathophysiological events that are postulated as being responsible for poor supply of blood in the heart. The morning increase in platelet aggregability is a

most frequent trigger of heart attack, which may be the result of increased secretion of cortisol, aldosterone, catecholamines, angiotensin, free fatty acids, triglycerides [7-11] and decreased vagal tone that are known to be enhanced by food and benefited by fasting. Apart from above triggers, presence of risk factors of low heart rate variability, such as excess fat, more insulin resistant, obesity and pollution may also act by enhancing triggers and trigger-induced brain-related and hormonal mechanisms in the development of poor supply of blood to heart [1]. Both clinical and biochemical factors may be related to a molecular clock present in the brains suprachiasmatic nucleus.

The triggers of acute coronary syndromes

Heart attack is a highly dynamic event, which is associated with marked neuroendocrinological dysfunction apart from heart damage. The immediate trigger for heart attack is not known exactly. Studies conducted by various investigators [2-7, 11-13], have demonstrated, a marked increase in sympathetic activity, oxidative stress and a decrease in parasympathetic activity in association with increase in catecholamines, cortisol and decrease in 1). melatonin [1]. In one case control study by Singh et al [5], among 202 patients of ACS, brain related and psychological mechanisms were observed as given : emotional stress (45.5%), sleep deprivation (27.7%), cold climate (29.2%), hot climate (24.7%), large meals (47.5%) and physical exertion (31.2%). These triggering factors are known to enhance sympathetic activity and decrease vagal tone, resulting into adverse biochemical environment in the body tissues. In another study, by Singh et al, among 54 patients, that were included in this study, 41 patients had full heart attack, 5 patients possible 2nd stage, 8 cases first stage. The control subjects (n=85) were randomly selected from the population of the city of Moradabad drawn from a similar age range of subjects after exclusion of heart attack (n=9), diabetes(n=6) and excess intake

of trans fatty acids (n=20). Large breakfast was a predisposing factor of heart events in the second quarter of the day and it was significantly associated with metabolic reactions. The findings indicate that acute reactions as a result or as circadian rhythms appear to be important in the pathogenesis of complications in heart attack and that a large breakfast in association with nitrite deficiency, may further trigger the circadian rhythms. However more studies in a large number of subjects would be necessary to confirm our findings. The TRIMM [6] and the MILIS study [3] also showed that large meals is a trigger for ACS.

Circadian rhythmicity

Clinical studies have reported an increased incidence of attacks, sudden death and poor blood supply to heart, during first quarter of the day when there is rapid withdrawal of vagal activity and increase in sympathetic tone. In one case control study by Singh et al [5], among 202 patients of heart attack, there was a significant ($P < 0.02$) increase in cardiac events in the second quarter of the day (6-12 hours) compared to other quarters respectively (16.8%, 41.0%, 13.8%, 28.2%). This characteristic remained common in both men and women and among patients with and without known heart attack (n=52), diabetes (n=53) and hypertension (n=75). In another study, by Singh et al [4] among 54 patients with ACS, there was a significant greater incidence of cardiovascular events in the second quarter of the day (6.00 AM to 12.00 noon) compared to 3rd quarter. In another study, by Singh et al [4] among 54 patients with ACS. Circadian rhythmicity of cardiovascular events have also been reported in the TRIMM study as well as in the MILIS Study.

Biochemical mechanisms

There is evidence that there is increased secretion of plasma cortisol, noradrenaline, aldosterone, angiotensin converting enzyme, interleukin-1,2,6,18 and tumor necrosis factor-alpha, that are pro-

inflammatory during ACS [1-7]. There is also a deficiency in the serum levels of vitamin A, E, C, coenzyme Q and magnesium, potassium, melatonin, interleukin-10 (anti-inflammatory) [4, 5, 12, 13]. In our studies [4, 5, 7], we found a decrease in magnesium, potassium, vitamin A, E, C and beta carotene and increase in TBARS, MDA and diene conjugates, TNF-alpha and IL-6 which are indicators of oxidative damage and pro-inflammatory, respectively. Mean lipoprotein(a), total cholesterol and triglycerides were significantly higher and mean nitrite level, lower in the ACS group, compared to control group [5]. Lp(a), triglycerides, blood glucose, plasma insulin, malondialdehyde, diene conjugates, TBARS and TNF-alpha and IL-6 which were significantly greater during acute phase, showed a significant decline, and serum nitrite and coenzyme Q, an increase, at 4 weeks of follow up, when the acute reactions evoked by ACS, were controlled [4].

Large meals and acute coronary syndromes

There is little information on the role of nutrition in the onset of acute reactions and ACS. Several workers observed that subjects consuming large breakfast and meals especially dinner were more common victims

of attacks, compared to apparently healthy subjects of same age and sex [2-6]. Higher intake of hydrogenated fat was also more common among ACS patients in one study which is known to have adverse effects of lipids and inflammation(4). It is known that different types of fatty acids and refined carbohydrates in the diet, influence different physiologically relevant mechanisms, especially those concerned with haemostasis and inflammation in the body [19-21].

As the role of various factors, influencing clot formation in the coronary artery and thrombosis on risk of heart and stroke are more firmly established, our knowledge concerning the effects of different types of nutrients on these factors remains limited. A recent study, showed that postprandial leptin response was lower after a carbohydrate meal in obese women, than in lean controls, suggesting an impairment of such response of leptin regulation due to obesity. It is known that postprandial leptin changes are higher after carbohydrate meal than after a fat meal similar to insulin changes.

We found that consumption of a large breakfast was associated with greater pro-inflammatory cytokines; TNF-alpha and IL-6, than in subjects consuming low energy breakfast (Table 1, 2).

Table 1. Food intakes among patients and control subjects (reference 4)

Foods intake (g/day)	Before acute coronary syndrome (n=54)	Controls (n=85)
Antiatherogenic foods(g/day)		
Wheat, rice and millets	345 ± 43.3*	486 ± 69.6
Roots and tubers	49.5 ± 4.2	52.1 ± 5.2
Fruits and vegetables	161 ± 13.2*	221 ± 25.4
Legumes and pulses	35 ± 6.7*	53 ± 9.1
Almonds and walnuts	0.5 ± 0.2*	1.5 ± 1.2
Fish	10 ± 5.9*	16.7 ± 6.6
Mustered oil	10 ± 4.4*	18 ± 6.9

Foods intake (g/day)	Before acute coronary syndrome (n=54)	Controls (n=85)
Proatherogenic foods(g/day)		
Butter, Indian ghee, hydrogenated oils.	38.0 ± 10.0**	16.7 ± 5.9
Oils rich in omega-6 fatty acids	22.5 ± 4.7*	11.8 ± 3.5
Total visible fat	70.5 ± 14.6*	46.5 ± 11.7
Sugar, bread, biscuits	208 ± 57.8**	115 ± 29.6
Meats(chicken, beef, gote, eggs)	27 ± 10.7**	40 ± 12.8
Milk and it products	152 ± 34.6*	112 ± 22.5

Values are mean(standard deviation). * = P < 0.05, ** P < 0.01; P values were obtained by Student, s t test for continuous variables.

Table 2. Association of size of meals with biochemical risk factors of coronary syndromes.

Biochemical data	Large breakfast, n=22		Small breakfast (n=32)	
	Baseline	After 4 weeks	Baseline	After 4 weeks
Triglycerides (mmol/L)	1.88 ± 0.61	1.70 ± 0.38*	1.81 ± 0.60	1.64 ± 0.32*
Blood glucose (mmol/l)	7.7 ± 1.6	6.0 ± 1.2*	6.6 ± 1.4*	5.5 ± 0.30*
Plasma insulin(mg/dl)	47.5 ± 11.3	36.3 ± 5.6**	43.2 ± 8.8*	27.6 ± 3.5*
TBARS(pmol/l)	1.87 ± 0.46	1.32 ± 0.33*	1.77 ± 0.42	1.30 ± 0.31*
Malondialdehyde(pmol/l)	2.68 ± 0.34	2.02 ± 0.21*	2.66 ± 0.33	2.01 ± 0.21*
Diene conjugate(OD)	27.5 ± 4.2	24.6 ± 4.0*	26.2 ± 4.1	24.2 ± 3.5*
Coenzyme Q10(ug/ml)	0.21 ± 0.02	0.32 ± 0.23*	0.23 ± 0.03	0.45 ± 0.24*
Interleukin-6(pg/ml)	32.6 ± 6.2	22.5 ± 4.3*	27.5 ± 5.2*	20.6 ± 0.22*
TNF-alpha(ug/dl)	42.5 ± 12.8	23.6 ± 4.1*	38.2 ± 10.6*	19.6 ± 0.18*
Lipoprotein(a) Ug/ml	23.1 ± 5.4	20.1 ± 4.2*	22.5 ± 4.6	19.7 ± 4.1*

Values are mean standard deviation. * = P < 0.05, ** = P < 0.01. P values were obtained by analysis of variance by comparison of large breakfast verses small breakfast groups.

Increased levels of TNF-alpha and IL-6 have been observed in patients with obesity, type 2 diabetes insulin resistance, glucose intolerance, hypertriglyceridemia, hyperleptinemia and heart attack, which could be greater in patients with attacks. There is no previous evidence that people consuming large breakfast have greater proinflammatory cytokines, as observed in our study. There is potential evidence, however, that ACS may be associated with greater levels of proinflammatory

cytokines due to metabolic reactions such as catecholamines, cortisol, serotonin, hyperinsulinemia, hypertriglyceridemia and hyperglycemia that are common in patients with attacks. It is possible that people consuming large, fatty breakfast enhance the release of catecholamines, glucose, insulin, triglycerides which may have an adverse effects on cardiovascular function.

However, A few studies just published [14-18] provides added evidence that feeding

at the “wrong time” can lead to weight gain. These recent findings on mice were extended to humans in 1973 [17]. A start with nutraceuticals indicates that in a person investigated by varying the administration times of coenzyme Q10 (CoQ10), the circadian stage played an important role [14, 18]. It is possible that a heavy breakfast as well as a heavy dinner, both may have adverse effects.

Experiments in animals indicate that ventromedial hypothalamic (VMH) lesion in the brain, in rats induces hyperphagia, and excessive weight gain, fasting hyperglycemia, hyperinsulinemia, hypertriglyceridemia and glucose intolerance [19]. There may be suppressed splenic natural killer cell activity, when the animals are hyperphagic and obese. There is increased release of interferon-alpha, IL-1, IL-2 and TNF in response to non-inflammatory and inflammatory stresses. Longterm infusion of norepinephrine plus serotonin into the VMH part of brain, impaired pancreatic islet cell function in as much as these abnormalities are observed in insulin resistant animals by several researchers [19]. It is possible, that heart attack is associated with high level of psychological and hormonal stress, which may have caused the release of proinflammatory cytokines which can damage heart and endothelial cells resulting into increased susceptibility to clot formation and ACS and heart failure.

Adverse effect of diet

Dietary fat composition can also influence platelet function and platelet aggregation and blood clotting [25]. Recent evidence indicate that dietary butter or coconut, increase the sensitivity of platelets to aggregation and clot formation and enhances the release of harmful catecholamines [25]. Hypercholesterolemia is known to be associated with an increased sensitivity of platelets to aggregating agents. A large breakfast rich in fat may enhance platelet aggregation and clotting resulting into heart attack, as noted in our study. Reduction in the saturated fat in the diet may decrease, platelet aggregation and catecholamines resulting into decrease in

blood pressure and heart rate. A diet rich in n-3 fatty acids may decrease cytokines and hence may be beneficial because it is cardioprotective as well as neuroprotective [19-25].

Role of fasting or low energy indo-mediterranean diet

We have found that subjects eating low energy diet had low blood pressure, lower glucose, insulin, cholesterol, triglycerides and cytokines. In 32 subjects, on no breakfast, fruits and vegetables in the lunch and normal dinner, we observed a very low blood pressure no vascular variability and no overweight and obesity, compared to subjects eating normal meals. It is possible that no breakfast or small amount of breakfast, and small frequent meals including dinner containing protective foods such as almonds, walnuts and black raisins, whole grains bread, legumes, fruits, vegetables and salads, 5-6 times in a day, may have a beneficial effect on the harmful body chemistry that occurs during the 2nd and 4th quarters of the day [25]. It is suggested that take small breakfast and dinner and normal lunch and supper to avoid the adverse effects of foods during circadian rhythms of our body and prevention of heart attacks. Recent studies also indicate that fasting for few hours is also cardio and neuroprotective.

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PURINE METABOLISM IN BLOOD OF PATIENTS WITH CHRONIC PYELONEPHRITIS ASSOCIATED WITH ARTERIAL HYPERTENSION

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Changes in concentration purine metabolites in blood plasma of patients are investigated at arterial hypertension (AH), chronic pyelonephritis (ChP) and a pyelonephritis associated with arterial hypertension (ChP+AH). The concentration of uric acid in blood plasma of patients with ChP and isolated AH is higher than a control parameter of 25 % and 42 % accordingly.

The expressed increase in concentration of adenine is established both at arterial hypertension and at chronic pyelonephritis. There is fixed authentic growth of xantine and hypoxantine in blood plasma of patients with AH and ChP+AH. It can be the precondition of damage of endothelium and of development of AH.

Keywords: chronic pyelonephritis, arterial hypertension, purine metabolism an exchange

Now one of the most significant directions of medical and biologic researches is studying of the role of extracellular products of purine metabolism in maintenance of normal ability to live of an organism and in development of pathological conditions. For example, the increase in concentration of uric acid in blood is considered as one of steps of atherosclerosis and diabetes mellitus pathogenesis [1, 2, 3, 4]. There are data on that superfluous accumulation of adenine nucleotides in plasma induces change of platelets functions in blood of patients with a diabetes [5]. Extracellular purine act as pro-inflammatory or anti-inflammatory mediators. Increase in level of adenosine in blood plasma of spontaneously hypertensive rats has allowed to assume its participation in mechanisms of development of an arterial hypertension [6]. The opinion about adenosine vasa-construction influence on renal microcirculation and about its probable synergism with renin-dependent mechanisms of regulation of arterial pressure is stated [7, 8].

In this connection is especially interesting to study the condition of contents of purine and their metabolites in blood of pa-

tients with a chronic pyelonephritis and secondary arterial hypertension.

Patients and methods

Patients have been included in 3 groups. The first group included 23 patients with chronic pyelonephritis (ChP). The second group was made by 15 patients with the arterial hypertension (AH) which has been not connected to a pathology of kidneys. 10 patients with an arterial hypertension and chronic pyelonephritis (AH+ChP) were included in third group. As the control blood of clinically healthy 15 donors was investigated.

All patients were inspected physically and by tools that were based on routine (interview, objective research, including palpation, percussion, auscultation of internal organs) and additional (measurement of blood arterial pressure (BP), electrocardiogram (ECG), special probes of urine by Nechiporenko and Zimnitskiy) methods. Arterial pressure was defined on Korotkov's standard method. The arterial hypertension was diagnosed as on the basis of results of measurement of BP during surveys, and also on the basis of studying the anamnesis and official medical documents (epicrisis, reports of inspection, including daily monitoring the BP).

Authenticity of a self-estimation and self-checking of patients with constant AH of 2-3 degrees was studied also.

The arterial hypertension was classified on degrees according to criteria of experts of World Health Organization (WHO). The surveyed patients had 2-d (160-180 mm Hg of systolic BP and 90-105 mm Hg of diastolic BP) or 3-d (over 180 mm Hg of systolic BP and is higher than 105 mm Hg of diastolic BP) degrees AH.

Stratification of risks of vascular events was carried out according to recommendations of the NY Heart association (NYHA), maintained the WHO. Groups of risk to which the surveyed patients concerned, were identified as 3-d (86% of patients) and 4-d (14% of patients). Obligatory researches were the general analyses of blood and urine, biochemical tests for activity of transaminases, levels of blood plasma creatinine and urea. Estimation of speed glomerular filtrations and tubular reabsorption were carried out by method Reberg-Tareyev. Also the approaches that had been suggested of *Cocroft-Gault* were used

Diagnostics of a chronic pyelonephritis was carried out on the basis of the criteria offered by O.L. Tikinskiy (1990), T.Z. Sejsembekov (1984,1995), I.A. Borisov (1997).

The maintenance of purine metabolites in blood plasma was defined on I.V. Madjanov method [9]. A level of a uric acid was defined with the help of sets of firm Lahema.

Results processed a method of variational statistics with use of Student's criterion.

Results and their discussion

It is established, that in blood plasma of patients with arterial hypertension at absence of kidney pathology the guanine level exceeded control on 42% ($p < 0,05$) whereas the adenine concentration was higher than the control over 91% ($p < 0,001$).

The levels of hypoxantine and xantine in blood plasma of patients with AH was

higher than at healthy persons 42% and 38% accordingly ($p < 0,05$).

At patients with a chronic pyelonephritis the same parameters of guanine and adenine were higher than the control accordingly 21% and 42% ($p < 0,05$). At the same time levels hypoxantine and xantine not so considerably exceeded control parameters - on the average on 20% - if to compare their ratio in the first and control groups.

Guanine and adenine plasma concentration at pyelonephritis associated with arterial hypertension was higher than the control over 30% ($p < 0,05$) and 36% ($p < 0,05$). Levels of hypoxantine and xantine were higher than control parameters 33,3% and 28% accordingly ($p < 0,05$).

The concentration of uric acid in plasma of blood of patients with ChP was higher, than in control group on 25%. At patients with arterial hypertension this parameter exceeded norm on 42% ($p < 0,05$). At ChP in combination to arterial hypertension concentration of uric acid insignificantly exceeded control group level.

The phenomenon of more expressed increase in concentration of adenine in patients' blood both is established by arterial hypertension, and chronic pyelonephritis. At ChP, associated with an arterial hypertension, the degree of increase of adenine and guanine concentration is comparable with each other. In blood plasma of patients with AH and ChP+AH authentic growth of hypoxantine and xantine is fixed, that has negative value owing to vessel constrictive effect of these metabolites and abilities to damage endothelial barrier [10]. In this context the big interest causes the found out trend of increase xantine and hypoxantine concentration in blood plasma of ChP- patients. Obviously, it is necessary to consider this fact as the precondition of damage of epithelial tissue and development of AH. As xantine is a substratum for xantinaxidase so increase in its concentration is possible to serve as the indicator of growing generation of superoxidanions which are capable to induce microvascular

dysfunction and development of oxidizing stress.

The increase in uric acid in blood plasma is considered as an independent risk factor of development of kidney dysfunctions at patients with arterial hypertension [11, 12]. It is shown, that at reduction in initially raised level of uric acid in blood plasma of patients with kidney dysfunction, the control of arterial pressure improves and rates of progressing of kidneys illness are slowed down [13]. On the other hand, the uric acid, being one of low-molecular non-enzyme antioxidants of blood plasma, can render protective effect, limiting development of the oxidizing stress caused by superfluous generation of superoxidanions [14].

Such ambiguity of effects of uric acid demands carrying out of the further researches role of purine metabolites in development of defeats of kidneys and arterial dysfunction.

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THE INITIAL STAGES OF DEVELOPMENT OF LYMPH NODE CAPSULE IN HUMAN

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The lymph nodes take part in regulation of active lymph transport by means of muscle cells in capsule of the node. They could be found during the first half of human foetal development. During the second half of the development their maturation is underway – the enlargement of muscle cells together with the increase in their quantity leads to formation of the multi-layered capsule.

Keywords: lymph node, capsule, muscle cells.

Condition of the problem

The structural basis for lymph flow has been a subject of numerous studies, but mostly performed on humans and different mammals lymphatic vessels. Lymph nodes are investigated usually as lymphoid organs [1]. But their capsules contain muscle cells, which provide the energy of phasic contractions to propel lymph downstream towards the central veins as muscle cuff of lymphoid lymphangion [2]. The prenatal development of human lymphatic system did not attract enough attention of the lymphatic researchers due to the understandable difficulties to work with human tissues. E.Klein [4] described their origin from fat tissue. F. Sabin [5] and O. Kampmeier [6] marked that lymphoid tissue appears in walls and partitions of lymphatic sacs from mesenchyme. O. Hertwig [7] described lymph node anlage in human embryos of first months as plexuses of primordial blood and lymphatic vessels with many mesenchymal cells in their loops. They transform into reticulate and lymphoid cells which isolate as compact mass. On periphery of lymph nodes afferent lymphatic vessels and marginal sinus are formed from lymphatic capillaries. P. Fusardi [8] considered that marginal sinus of the node appears at first after its capsule and parenchyma. According electrone microscope data of R. Markgraf et al. [9], development of human lymph nodes begins from mesenchyme condensation in foetuses of 12-14 weeks. Such

anlage consists of mesenchymal cells and capillaries. It invaginates in lymphatic sac lumen. A.Landsberger [10] discerned few fuses in development of lymph nodes: anlage – compact condensations of mesenchymal cells near wall of one or between walls of two lymphatic vessels; primary differentiation – lymph node anlage invaginates in lymphatic vessel lumen, capsule, marginal sinus and parenchyme are formed; secondary differentiation – appearing of lymphoid nodules and medullary sinuses. R. Baily and L. Weiss [11] discovered invaginations of connective tissue with endothelial covering in lymphatic sac of human embryos 30-37 mm lengths with its dividing into net of spaces. The invaginations contain reticulate cells, macrofages and blood vessels. In human embryos 43-48 mm lengths immature lymph nodes are formed. In their strome lymphocytes are accumulated. In human embryos more 75 mm length mature lymph nodes are appeared – capsule differentiates, ammount of lymphocytes increases. Even existence of muscular structures in capsule of lymph node is discussed in the literature and their development didn't is described.

Material and methods

The work was carried out on 400 both sexes human embryos and foetuses of 4-36 weeks old without pathology. Material was fixed in 10% solution of neutral formalin. Part of material was stained in paraffin with

following production of serial longitudinal and transverse sections of 5-10 mkm in thickness. Sections were stained by hematoxylin and eosin, picrofuxine, azane, silver nitrate, orseinum. Lymph node capsules' total preparations from some foetuses of 19-36 weeks were stained by gallocyanin.

Results

Anlage of lymph nodes could be determined in human embryos of 28-30 mm length (the ending of week 8): during the dilatation of the paired jugular lymphatic sac the adjoining blood vessels including external coat in their thick walls invaginate into sac's lumen together with its thin endothelial wall and intermediate connective tissue. In result sac's lumen around the inaginate (stromal anlage of lymph node) narrows and becomes twisted (primary marginal sinus of the node). This process extends on all regions of human foetuses of third month (Fig. 1). Increasing anlage of lymph node is founded on the path of lymph flow and acumulates fragments of degenerating embryonic structures bringing with lymph. Possibly therefore macrofages and lymphocytes migrate from the blood microvessels into stromal anlage of lymph node which becomes lymphoid anlage (Fig. 2). Thus basic lymph collector is divided on the marginal sinuses of lymph nodes and their afferent and efferent lymphatic vessels. Between them could be found border valves. The capsule of lymph node is formed such as walls of its connected lymphatic vessels. Primary capsule represented as very thin adventitial layer covering endothelium of primary marginal sinus in foetuses of 3-4 months contains network of thin reticular fibers. During the month 4-5 the thickness of the capsule increases and its ad-

ventitial layer could be divided on two parts: the thin subendothelial layer, which is full of thin reticular fibers, and the thicker outer layer, which is rich by blood capillaries, thick reticular and collagen fibers. The muscle cells are mostly located in between of subendothelial and outer adventitial layer of the capsule (Fig. 3, 4). In this stage of development branches of the capsule and marginal sinus grow into lymphoid parenchyma of lymph node with formation of thin trabeculae and intermediate sinuses. Thickness of the capsule increases especially around blood vessels in the base of the invaginate (hilum of lymph node). In external part of lymph node parenchyma lymphocytes form clots – the primary lymphoid nodules. During month 5-6 the layer of myocytes is still interrupted, and mostly single myocytes or small groups of them could be determined in the capsule. However these cells are getting bigger and denser, particularly in hilum thickening of the capsule and around mouths of the afferent lymphatic vessels. Together with thin elastic fibers the myocytes form a thin medium layer of the capsule. Thick outer layer of the capsule consists of bundles of thick collagen fibers and elastic fibers. In this stage of human development the lymph node parenchyma divides on the cortex and medulla with cortical and medullary sinuses. Their endothelium extends very much and becomes very thin and perforating. All structures of the capsule including muscle bundles continue in the walls of afferent and efferent lymphatic vessels of lymph node. In foetuses of months 7-9 single myocytes could be determined in external layer of capsule and trabeculae of lymph node. Thus is planned formation of the multi-layered capsule.

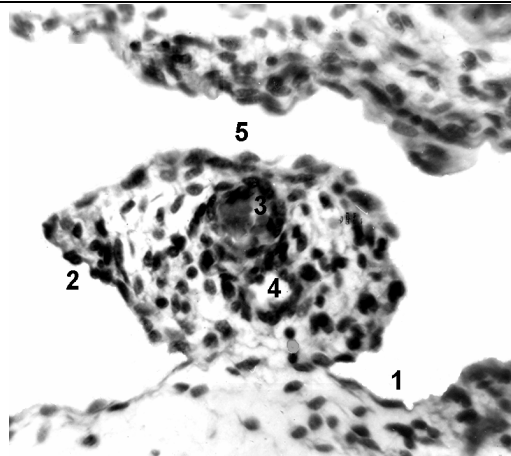


Figure 1. Human foetus week 10.5, cross section: 1 – endothelial wall of posterior pancreaticoduodenal lymphatic vessel; 2 – endothelial cover of stromal anlage of pancreaticoduodenal lymph node; 3,4 – arteriola and venule; 5 – primary marginal sinus of lymph node. Hematoxylin / eosin staining. Light microscopy, magnification – 400X.

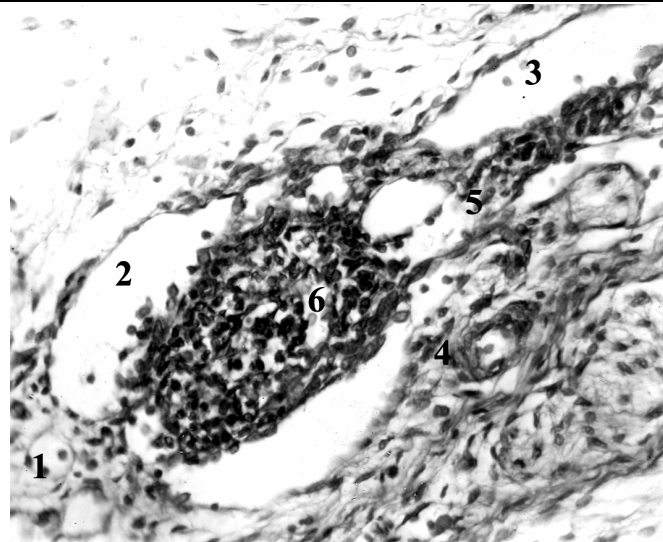


Figure 2. Human foetus week 13, cross section: 1,3 – afferent and efferent lymphatic vessels of pancreaticoduodenal lymph node; 2 – its primary marginal sinus; 4,5 – arteriola and venule; 6 – lymphoid anlage of lymph node. Hematoxylin / eosin staining. Light microscopy, magnification – 240X.

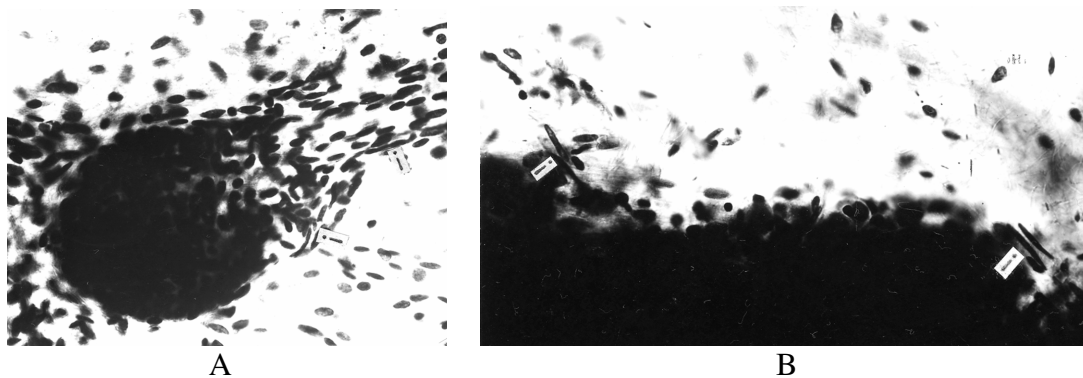


Figure 3. Human foetus week 22, total preparations of lymph node capsules, superior mesenteric (A) and lumbar (B). Arrows are shown myocytes in the lymph node capsule and in the walls of its lymphatic vessel. Gallocyanin. Light microscopy, magnification – 400X.

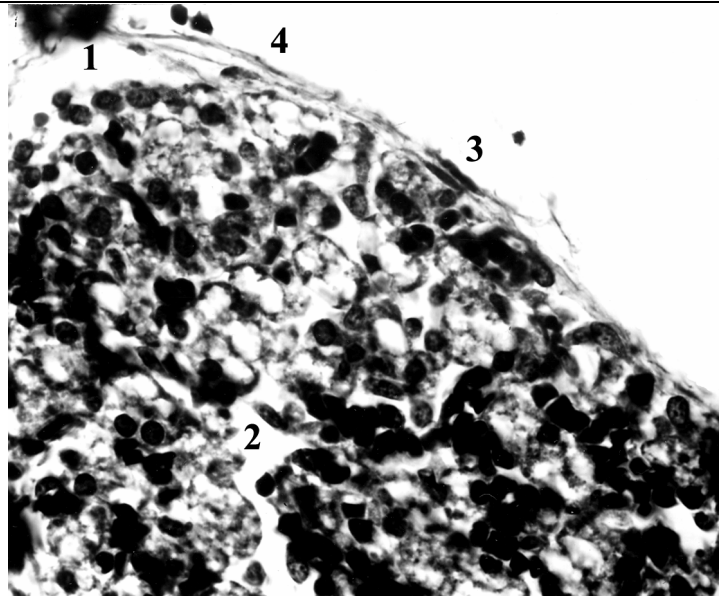


Figure 4. Lumbar lymph node of human foetus week 29, cross section: 1,2 – marginal (subcapsular) and cortical sinuses; 3,4 – bundles of smooth myocytes and elastic fibers in capsule. Orseinum. Light microscopy, magnification – 600X.

Conclusion

The lymph nodes arise from embryonic lymphatic collectors including sacs which form together with blood vessels complexes with intimate connections from ending of human embryogenesis. From anlage lymph node develops in intimate connection with its afferent and efferent lymphatic vessels moreover the inner structure of the node capsule develops such as vessels walls [3]. The capsule differentiates as thin layer of loose connective tissue with thin reticular fibers covering endothelium of primary marginal sinus in foetuses of 3-4 months. The structural basis of the active lymph transport – muscle cells and valves – could be found in the lymph node capsule already during the first half of the foetal development in humans. At the beginning the valves are appeared, the muscle cells – later. Valves could be found only on entrance in subcapsular sinus of lymph node and on exit of its hilum sinus. Muscular bundles pass from the wall of lymphatic vessels into lymph node capsule and to the contrary. During the second half of the development the maturation of these basic elements of lymphatic pumping is underway – the enlargement of muscle cells to-

gether with increases in their quantity leads to formation of the multi-layered capsule of lymph node with more and more thick muscle net in the middle layer.

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CONGENITAL HYDRONEPHROSIS IN CHILDREN WITH DIFFERENT TYPES OF SPINAL DYSRAPHIAS: CLINIC-MORPHOLOGICAL CHARACTERISTICS

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The authors treated 117 patients 5-15 years old with different types of spinal dysraphias, 22,22% of which had co morbidity – congenital hydronephrotic transformation. All patients were operated on kidney after correction of neurosurgery pathology. The peculiarities of the diagnosed and studied by the authors structural changes of pelvic-ureteral segment speak in favor of the applied excision methods of heroic organ-saving operative therapy of congenital hydronephrosis in children with this pathology.

Keywords: spinal dysraphia, congenital hydronephrosis, morphology, operative therapy, children

A number of questions of aetiopathogenesis, diagnostics and treatment of congenital hydronephrosis (CH) are still important, and first of all – questions of choice of appropriate method of operative therapy with children [4, 6, 10]. Uncertainty of the information in literature (excision methods with pyeloureteral anastomosis overlap or plastics of local tissues?) occasioned for our research. Hydronephrosis is anatomically characterized by steady distension of kidney pelvicalyceal system, atrophy of organo-specific tissue, its medullar-cortical layers, and clinically characterized by progressive worsening of basic renal functions in consequence of urine outflow disorder at pelvic-ureteral segment level and hemocirculation disorder in kidneys [12, 16]. Hydronephrotic transformation may appear against acquired obstructive uropathy [4, 3, 5, 17] and as a result of genetous obstructions of pelvic-ureteral segment, which appears more often in childhood [3,8,10]. Moreover genetous obstructions of urinary system generally and CH in particularly are often combined with different types of spinal dysraphias wich in its turn constituted a ground to suppose one mechanism of formation of kidney abnormal development and axial skeleton abnormal development[14]. Moreover that comparison of the combined diseases and vertebral-cerebrospinal abnor-

malities disposition allowed supposing that assident deviation in development is often settled in zones or organs, innervated from the segments that are responsible for innervations of faulty spondyles. For example, abnormalities of urinary tracts [14] are usually met with spinal pathology, settled at Th7-L4 spondyle level and reach 76%.

Overlay of different complications is possible in the course of CH- urolithiasis, arterial hypertension, chronic kidney disease, but especially often and early complication of congenital hydronephrosis in children is obstructive pyelonephritis which greatly worsens the course and worsens prognosis of basic pathology and creates additional difficulties in treatment of such patients [1, 2, 7, 9, 18]. However, we haven't met works, dedicated to research of the reasons and pathomorphological peculiarities of hydronephrosis in patients with spinal dysraphias.

We examined and treated 117 patients: 98 children with spina bifida and 19 patients with latent forms of spinal dysraphias - spina bifida occulta (9 patients with dermal sinus, 5 — with diastematomyelia and 5 — with lipomyelocele); there were 26 patients (22,22%) with kidney hydronephrotic transformations. They were all made operative correction of neurosurgery pathology

(3 patients with lipomyelocele, 2 — with dermal sinus, 1 — with diastematomyelia and 20 with different forms of myelocele). There were 17 boys and 9 girls. Age of the patients was from 5 to 15 years, though according to K.U.Ashcraft and T.M. Holder [1], 50% of patients with spina bifida should appear signs of affect of upper urinary tracts during the first 5 years.

The patients' anamnesis data and clinical results were studied, neurologic and somatic status was examined, ultrasonic examination of kidneys and spinal canal content was made and also excretory urography, which generally was combined with the estimation of radiography of spine; for cause traditional X-ray methods were complemented with tomographic. Moreover measurements of daily urine and urine relative density were made, content of protein, protein fractions, BUN in blood serum, creatinine in serum and urine, extraction ratio of endogenic creatinine, water tubular reabsorption were measured, measures of periferic blood were examined. The control group in this research was 93 almost healthy children of the same age. The operated material of those patients who underwent surgery was histologically examined.

26 children who underwent surgery with CH were not diagnosed strict hereditary load concerning urinary system diseases. 54,5% of children were diagnosed two-sided, 45,5% — left-sided hydronephrosis 2-3 degree (according to Lopatkin N.A. classification), in one case among those hydronephrosis was diagnosed in double kidney. All the patients in the process of complex treatment were undergone reparative operation — resection of pelviureteric segment with pyeloureteral anastomosis overlap according to Andersen-Heins (more often with resection of pelvis according to Kuchera). Macroscopically, according to our data, the reason of hydronephrotic transformation development in patients with myelocele was pelviureteric segment stenosis, in a patient with lipomyelocele- presence of embryonal adnations, constricting this part of ureter. All these rea-

sons lead to overdistension of kidney pyelocaliceal system with urina, to difficult inrush of urina from receiving tube of pyramid of medulla and to its atrophy, to difficult filtration of myelocele, excision of bone septum of spinal canal when diastematomyelia, disintegration of epi- and subdural parts of lipoma when lipomyelocele.

The resected part of ureter was thoroughly pathohistologically examined. The material was fixed in 10% neutral formalin, carried through rising proof of alcohols, covered with wax. Sections with thickness 5 μm were colored with hematoxylin and eosin, picrofuxin according to Van Gizon, Goldman and Romanovsky (for blood elements). Perls reaction for iron was conducted. Histologic changes of pelviureteric segment was characterized in the most cases by different intensity of the ureter tissue fibrous dysplasia processes, its metaplasia in its other types, to different maturity degrees of fibrous tissue (young- rich in vessels and delicate fibers, mature- with expressed processes of vessel reduction and formation of tough collagen fibers with sclerosis and hyalinosis). We [15] and some other authors [8, 10, 11] have already stated similar changes. In separate cases metaplasia of urinary system's epithelium into single-layered and one-row was detected in the resected segments, and also atrophy with flattening and desquamation. Besides, equivalents of chronic inflammatory process- lymphohistiocytic infiltrates- were detected in parietes of the studied resected pelviureteric segment, in a number of observations lymphoid tissue at different stages of its formation was visualized, more rare haemosiderophagus or deposition of haemosiderine shapeless mass (trace of extravasates).

The obtained morphological data may be interpreted as evidence of different intensity of fibrous dysplasia of pelviureteric segment, denervation of segments of pelviureteric complex and signs of chronic inflammatoru process in the latest. All this proves in favor of the used excision methods of heroic organ-saving operative therapy of

congenital hydronephrosis with children of the category after correction of genitourinary pathology.

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ON THE WAY TO PERSONALISED CORRECTION OF THE OXIDIZING HOMEOSTASIS DISTURBANCES WITH ACUTE PANCREATITIS

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The results of the induced chemoluminescence blood serum study of patients with different forms of acute pancreatitis have been presented. The presence of reliable differences in the condition of peroxide homeostasis within patients with edematous pancreatitis, sterile and infected pancreatolysis, that can be linked with intensive consumption of active forms of hydrogen have been shown. Original conception of pathogenic rational ozon-therapy that implies individual selection of oxidant dose and its dynamic correction under the control of free-radical oxidation intensity and antioxidant activity of blood serum has been suggested.

Introduction

It is known, that hypoxia and linked with it redundant activation of peroxide oxidation of lipids on a background of insufficient antioxidant system play key role in the mechanisms of the development of pathological process with acute pancreatitis [1, 3, 5]. Methods of the correction of insufficient antioxidant system function that are based on introduction of oxidants or inductors of active hydrogen forms into the organism are being improved actively introduced into clinic practice. The success and safety of medical treatment in this case are defined by the adequacy of the introduced oxidant dosage. The range of recommended therapy doses of preparations and methods of the introduction is oriented for average statistic biochemical measures and does not allow us to take nosological form of acute pancreatitis, age, patient body mass, individual indexes of lipid peroxidation intensity at the moment of treatment, that can vary in a wide range, into consideration [2, 6, 7, 8]. All mentioned above has been a foundation for searching new possibilities of pathogenic therapy of acute pancreatitis. The goal of the study is to improve the results of patients with acute pancreatitis treatment by implementation of new method of rational oxide correction.

Method and materials

160 patients with different forms of acute pancreatitis aged 22-76 years were under our supervision in clinic. Retrospective analysis included 54 patients with acute pancreatitis that had been treated in the clinic of general surgery of Krasnoyarsk State Medical academy in the period of 2002-2004 and that made up the first group. Prospective study has been carried out and in the period of 2005-2009 and it included 106 patients. The method of ozon-therapy has been used within complex treatment. In a meanwhile the traditional method of ozon-therapy was implemented within 50 patients that formed the second group and the original method of rational ozon-therapy was used among 56 patients of the third group.

Among patients there were 96 men (60%), and 64 women (40%). In 61,3% of observations acute pancreatitis had an alcohol genesis, in 19,4% the cause was the diseases of gall tracts, within 11,9% of patients the development of acute pancreatitis was conditional from alimentary factor. Among the other causes trauma of grand has been noticed within 1,3% of cases, and the cause has not been found within 6,3% of patients. An edematous pancreatitis was found among 77 (48,1%) patients, sterile pancreatolysis – among 43 (26,9%), among 40 (25%) an in-

ected pancreatolysis has been found. The method of gull-induced luminal-dependant chemoluminescence serum with usage of biochemiluminometer BCHL-06M has been used for estimation of peroxide homeostasis condition. The objects of the chemoluminescence research were erythrocytes and blood serum.

Complex infusive therapy aimed for suppression of the pancreas gull exocrine function and decrease in level of pancreatogene toxemia have been carried out in the department. The method of intravenous ozon-therapy has been additionally implemented for the patients of the second and the third group. Ozonized physiological solution of sodium chloride with ozon concentration of 2-8 mg/l was prepared by the barbotage of isotonic solution of sodium chloride by ozon-hydrogen gas mix with the installation UOTA-60-01-“Medozon”. Standard scheme of ozon therapy was used among the patients of the second group: intravenous drip introduction of ozonized physiological solution with concentration of 2-8 mg/l I the amount of 200 mg every other day within 7-10 days. Within the treatment of the third group patients an original method of rational ozon therapy was implemented with individual section of ozon dose.

Methods of descriptive and variation statistics have been used for statistic processing of the results. The main characteristics of descriptive statistic were arithmetic average (M) and standard (σ) deviation. The check of the analysed parameters correspondence to normal distribution was carried out with the criterion of the accordance (χ^2). In case of distribution that differs from normal the Wilkison criterion was implemented for linked selections and Mann-Witney – for unlinked selections. Statistic package Microsoft Excel for operational system Windows XP and program Statistica 6.0 (StatSoft, Inc.) were used for calculations.

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Results and discussion

Maximum value of intensity of chemoluminescence (I max) was registered within the patients with sterile pancreatolysis at the moment of their arrival. The level of I max exceeded the age norm values within the first week of stationary treatment and reliably decreased only after 20 days with traditional therapy.

Among the patients with diagnosed infected pancreatolysis very low value of the intensity of chemoluminescence, was present within the first week of stationary treatment. It did not exceed 30 mV independent on gender and age of patient. The criterion of the solution of infection process among the patients with pancreatolysis was the increase in the content of hydroperoxides in blood serum (3,8 times according to index I max) and the increase of sum anti-oxidant activity according to chemoluminescence analysis.

According to modern notions, the process of free-radical oxidation has physiological character and always accompanies the process of healthy cell vital functions. That is why deep disturbances of oxidation homeostasis that are registered among patients infected by pancreatolysis on early terms of the disease signal us of massive volume of necrosis, forming of superantigen, and the conjunction of bacterial infection that require high consumption of active oxygen forms.

Method of intravenous ozon therapy was implemented among the patients of the second and the third group. The algorithm of rational ozon therapy that was used within the patients of the third group, implied the estimation of different concentrations of ozon for the intensity of free-radical oxidation in model systems and the selection of ozon dose, with the addition of which the parameters of chemoluminescence that were the closest to the age norm were registered. Ozonised physiological solution, that contained ozon of the selected dose, was introduced intravenously in drips in the amount of

200 ml every other day for 7-10 days. The implementation of ozon therapy among the patients with acute pancreatitis was controlled by the method of induced chemoluminescence. The absence of positive dynamics of the parameters of active chemoluminescence after two sessions of ozon therapy required recurring correction of ozon dose.

Under the impact of intravenous ozon therapy with empiric selection of ozon dose short-term activation of free-radical oxidation took place. That was displayed by statistically substantial exceeding of malonic dialdehyde in comparison with the norm after three days of treatment. Individual selection of ozon dose allowed us to minimize its pro-oxide impact that was conducive to early activation of antioxidant system. The most significant differences in the results of ozon therapy implementation among the patients with pancreatitis were registered by luminol-dependent gull-induced chemoluminescence of blood serum.

At the moment of the arrival to hospital the maximum amplitude of activated glow and coefficient K, that reflects antioxidant potential of the serum, did not have reliable differences among the groups. After the first session of ozon therapy an increase in the chemoluminescence intensity started within the patients of the second group. This displays internal activation of free-radical oxidation. At the same time a reinforcement of serum activity was pointed out. It provides for the stabilization of peroxide processes and the end of stationary treatment.

Carrying out the algorithm of the selection of individual therapeutic dose of ozon for patients with edematous pancreatitis allowed us to define an adequate amount of the oxidant, that is necessary for breaking the cascade of free-radical oxidation without its internal induction. According to literature data the mechanism of such influence is the ability of ozon to participate in the reaction of radical annihilation that leads to the breaking of chains and the creation of molecular oxygen [4]. By the moment of third group patients discharge from hospital, the antioxi-

dant activity of blood serum exceeded control values almost two times, thus compensating preserved hyperproduction of active oxygen forms.

A decrease in concentration of malonic dialdehyde was observed after seven days of stationary treatment among the patients with destructive pancreatitis, and within the third group the values of this indicator were reliably lower than internal ones and those registered in the comparison groups. After the end of ozon therapy session a gradual increase in malonic dialdehyde concentration was registered among the patients with destructive pancreatitis of the second group, its peak was registered on the 14th day. Pending all period of the research steadfast decrease of lipid peroxidation products concentration was observed among the third group patients independently on the ending of ozon therapy sessions. According to the results of chemoluminescence serum analysis the implementation of individual ozon doses provided for early activation of antioxidant system and normalization of peroxide oxidation processes. Besides in difference with the first group the alterations mentioned above had a prolonged character and stayed preserved after the end of ozon therapy session.

The introduction of rational ozon therapy algorithm into the complex of acute destructive pancreatitis treatment allowed us to decrease after-operational lethality from 32,1% to 20,7%. The lethality structure did not have reliable differences among the groups. The most common causes of death among patients in early terms were poli-organ deficiency (31,8%), and abdominal sepsis in late terms (22,7%).

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INNOVATIONS AS A STRATEGIC DIRECTION OF PEDAGOGIC SCIENCE AND PRACTICE DEVELOPMENT

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A conception of “social innovative environment” is explained in this article, a short description of the innovations research in a foreign literature condition is given as well as the description of the approaches to the innovations theory creation in our domestic pedagogic science, the creative style of a tutor’s activity as a part of pedagogic novelties in an organization of innovative education.

In connection with accelerated development of all parts of the society and nowadays contradictions, authors pay special attention to the tutor’s and student’s personality from the position of innovative education.

Keywords: innovation, social innovative environment, innovations theory, creative pedagogic style, innovative education.

Nowaday stage of innovative processes development in pedagogic science can be characterized as a tendency to the closing the gap between the perception processes, their adequate valuation and implementation in practice, and also overcoming the antagonisms between the spontaneity of these processes and the necessity of their conscious control.

The idea of “social innovative environment” has a great importance in studying innovative processes in pedagogy and education. Innovative processes arise and are put into effect around it. That idea can be studied within three aspects: social-economic, psychologic, and organizational-administrative. They characterize different conditions of innovative processes behavior, the climate that is either favourable, or hinder them.

The research of innovations usually has pragmatic nature in foreign pedagogy. An effort to substantiate the pedagogic innovations, give practical recommendations for their mastering has been made in a number of works (A. Adams, J. Vasset, A. Nickoles). Moreover, an analysis of alterations organization in education, the reality of pedagogic innovations, the conditions needed for innovations functioning, their planning and disseminations has been made by some pedagogues (H. Varnet, D. Hamilton, N. Gross, N. Dickinson, M. Miles, A. Haberman and others.)

Some approaches to the creation of innovation theories have also been outlined in

our domestic pedagogy. The system-activity concept, that emphasize different levels of innovations: general scientific, general methodological, and applied, is used in this case. Within the forming theory of innovations the structure of innovative processes, main parameters of innovations, initial ideas (such as novelties, life cycle of innovations, innovation efficiency etc.) are explained.

Nowadays pedagogic innovations are presented by:

- pedagogic neology – the teaching of the creation of new within the educational system and pedagogic science;
- teaching of perception of new by pedagogic society;
- theory of pedagogic innovations implementation.

Pedagogic neology is the part innovation science that studies the process of creation of new as well as its mastering and practical usage. Outlining neology as a separate scientific area is necessary since the problem of new in pedagogy has become actual recently and the need for the valuation of novelties has arisen. The analysis of that new that spring up within the practice of education and upbringing from the position of neology has a great meaning in the contemporary conditions. Moreover, we see aiming for the valuation of new in practice as a main goal of neology.

The study of the perception of new is linked to the conception of “pedagogic community”. It reflects the variety of subjects of

pedagogic creativity, organizers and practitioners of educational process. It also includes the representatives of pedagogic science who are professionally connected to educative and upbringing processes. Pedagogic community is a collective conception that is why not only professional unity of people that are involved is reflected in it but also all the variety of their difference in age, the level of professional training, abilities, world outlook, attitude to different pedagogic areas etc. The antagonism between the different groups of people involved into the pedagogic community defines the versatility of this conception. It is pedagogic community that creates, implements and interprets pedagogic novelties.

When K. Angelovski [1], says "acceptance of novelties" he means by that phrase the readiness of pedagogues to perception of innovations, valuation them as necessary, and readiness to their implementation. Thereupon a classification, according to which five groups of pedagogues are being outlined (A. Rodgers), becomes the one of great interest. Those five groups are:

Pedagogues – innovators that have an expressive innovative spirit and are always first to perceive new, implement it and distribute;

Pacemakers – those that are on the frontlines of perception of new, implement it willingly;

Moderates, so to say "golden middle". They neither seek to be the first nor the last ones, support the novelties only when they are perceived by the majority;

Penultimates – the ones in doubt when choosing between the new and traditional and incline to innovations only when the common opinion is formed;

The last ones – those that are tightly connected with old, conservative, decide to perceive novelties last.

The theory of the pedagogic novelties implementation is on the stage of formation nowadays. In pedagogic literature the readiness for new is more and more often regarded as a display of creative activity style that combines anti-conformism of intellect,

certain personal orientation (the need for the implementation of new), and practical ability to realize new methods and forms of carrying out the professional activity. This component of creative activity can be considered as practical behavior, aimed for a full-fledged usage of new, the continuation of creative actions of its making.

Global innovative processes are accompanied by the rhythm of the development of all social life areas, that sharpen and deepen the antagonism between the rates of social and individual development. We should link the possibilities of overcoming these antagonisms with two strategies of education organization as we study the functions of nowadays educational system.

First way is a traditional strategy, that does not change the role and the place of a man in culture, the degree of his readiness for changes in his life, since the formed system of educational organization stays in force. The components of this system are only modernized and updated. But regardless to all these alterations the destructive role of the educational institutions against to the personality is being strengthened: social alienation, breaking the educative values etc. The readiness for the positive changes of the society is not being provided by this strategy.

Innovative training creates new type of educational process that emancipates the personality of pedagogue and student. This type of education stimulates active response for the problem situations uprising either before a man or the society on a whole besides supporting the existing traditions.

Starting from the idea of developing education, V. Lyaudis [2] suggested the model of innovative education and its functions of the personality development. The author outlined the situation of joint productive and creative activity of the educational process subjects in the content of this model. Besides she showed that the principal difference of innovative education is in the reorientation of meaning and order of all educational process organization: outlining productive and creative goals that are ahead of re-

productive goals for a leading role at all stages. The solution of creative goals by a student in cooperation with a pedagogue changes the psychological structure of educational situation on a whole, since the system of inner stimulation of the widest range of interactions, relations, communication between a pedagogue and a student, between students, within the pedagogue team is being created.

In its turn we consider possible to outline the system of sequentially forms of interactions in the situation of joint creative activity. That combines: introducing into the activity; actions, divided between a pedagogue and a student; imitative actions; supported actions; self-regulated actions; self-induced actions; self-organized actions; partnership. We should underline that the level of self-organization, methods of understanding the situation and means of communication change as one form is replaced by another one, the degree of a education subject's freedom not only to accept the goals and mean-

ing of his activity but also to reform them, put new goals and meanings. The subject transforms into the leading initiative partner from the following one. The possibility of partnership is a display of the highest and developed form of self-organization.

Thus an organization of innovative education is conducive to raising the individuality, obtaining the autonomy and independence. In its psychological role this kind of education develops a productive person. But productivity means that a man feels himself as a reformer of his own powers and as an effective force; that he feels the unity with his powers and they are not aliened from him since the main subject of the productivity is a man himself.

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RATING BASED EVALUATION OF STUDENTS' KNOWLEDGE AS A PART OF KNOWLEDGE QUALITY CONTROL SYSTEM IN THE CHILDREN'S DISEASE LEARNING COURSES

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Rating system for the evaluation of students' knowledge quality is a form of the continuous control of the educational process on the "Pediatrics" discipline. The system is required to achieve the manageability of the education process for both a teacher and a student. The rating includes three control blocks: theoretical, practical and organizational, and also allows to accumulate the results when taking into account all kinds of educational activity to calculate the final rating. The continuous and objective monitoring during the whole process of studying the discipline encourages students to regular and systematic educational activity during the lessons and in the form of independent studies and allows to use various forms of awards for the results. The following kinds of ratings are being used: current, boundary, semestrial, examination and a final rating. The introduction of the system resulted in increased number of "good" and "excellent" qualifications on the discipline.

Keywords: university, education, children's disease, quality control

In the modern life higher education institutions are becoming increasingly dependent on the quality of their students' learning, as such institutions are affected by the fierce competition among them, by the feedback from the job market and employers' requirements, by their students' preferences towards more quality education and better experience valuable for the future employment and by the international students exchange programs. International Standards Organization defines quality (standard ISO-8402) as the set of characteristics of an entity that give that entity the ability to satisfy expressed and implicit needs [1].

The modern theory of knowledge management asserts that university's product is the knowledge received by a student. And this knowledge must not be in the form of written lectures' abstracts only, but must be the firm set of knowledge confirmed by the number of tests, exams and graduation qualifications taken by the student himself on practice. On the other side, the clients of the university are it's students first, then the society that delivered these students to receive the education, and in the end - the state that finances educational process [2].

With that being said the establishment of a properly documented knowledge quality control management system is a very impor-

tant task, but it's just the tip of the iceberg - the system must be used effectively and evolve constantly, and the regular monitoring of the students' knowledge and skills must be the central part of it [3]. One of the possible forms of such monitoring is the rating based system of students evaluation - the system for the educational process management on the pediatrics speciality. The system includes structuring of the contents of each educational subject and regular monitoring of the student's knowledge and skills using the current checks covering the single topic and the final check covering the whole branch of learning.

To give the student non-surgical knowledge and experience required to attend both healthy and ill children he is being taught the whole number of subjects: general child care, healthy child course, propaedeutics of children's diseases, children's diseases, children's infectious diseases, polyclinical pediatrics.

The preparation of students on the pediatrics discipline includes a number of classical educational resources (lectures, practical courses, exams), independent educational resources with teacher's supervision (supervised independent process), unassisted self-reliant courses without the supervision (electronic and printed books, internet resources).

Organization and supply level of such resources is documented in the methodical materials developed on the basis of the general learning plan. To establish the monolithic approach to knowledge control, to increase the quality of education and to motivate students towards the constant work and improvement during the period of education it was necessary to introduce the rating based system - quantitative assessment of student's understanding of the learning material. The primary target of the system, including its universal approach, is to achieve the maintainability of the educational process for both a teacher and a student. It allows to accumulate results of the education as the final rat-

ing, taking all aspects of the learning process into account. It allows for the constant and objective monitoring throughout the whole process of learning the discipline, motivates students to work regularly both with teacher and independently, and also allows to use different ways of encouragement for the knowledge mastered.

In the course of pediatrics the following types of ratings are being used: current, boundary, semestrial, rated results of exam (test) and final rating. Maximum value for the each type of ratings is 100 points. Student's results are evaluated according to the following set of blocks (see table 1).

Table 1. Rating blocks used in the rating system of knowledge control

Block	Kind of work being rated	Target of the rating
Theoretical	All kinds of work	Theoretical knowledge of the discipline
Practical	The level of practical knowledge and skills	Practical knowledge and skills
Organizational	Lectures, practices	Attendance level

The knowledge control in the current rating for the theoretical block is based on the initial and final control during the lesson.

Initial control evaluates the level of students' preparedness on the subject of the lesson. It is based on the questions and problems compiled from the previously available methodical materials for the practical lessons on the subject. These questions and problems do not require additional discussions or explanations and can be successfully solved using the autonomous educational resources.

Final control is based on the individual situation-based problem being given to every student for the written answer. Unlike the initial control, the final control must evaluate student's ability to apply his knowledge on the subject to the given situation - be it a diagnostic, differential diagnostic, medical or prophylactic one. Only after the thorough discussion of the patient, evaluation of the diagnostic importance of the results of additional examination and the discussion of the amount of treatment with regards to patient's

age and condition it is possible to solve the problem correctly.

Evaluation of knowledge in the practical block is based on the student's demonstration of his skills in the clinical examinations, reading the results of the laboratory tests, performing instrumental examination and a number of additional tasks (the full list of the required tasks to be mastered is documented in the "List of practical knowledge and skills" available for the students with their methodical materials). The evaluation is performed during the independent (but supervised by the teacher) examination of the healthy and ill children by the student with his following report in front of his class on children's condition and any detected indicators of the disease (conforming to the requirement of medical privacy, of course). Sometimes it is allowed to use excerpts from the child's history and his disease history (the full list of required skills and the structure of the practical lesson is also available in the

methodic recommendations for the practical lessons on the subject).

To the end of the practical lesson the rating is the average of the ratings received by the student for his theoretical and practical blocks. The final rating of all lessons can be calculated as the sum of all ratings divided by the total number of the lessons.

As the student progresses to the more advanced stages of the course, his current rating includes a number of additional evaluations, e.g. to confirm his skills in the proper documentation of the disease history, medical prescriptions, his ability to work independently on duty in the clinics. This is one of the possible forms of the supervised (in this case - by the clinics' on-duty personnel) independent work during the learning course on children's diseases. When the student reports on his results the following of his abilities can be evaluated:

1. to see the indicators in child's condition those require intervention;
2. to separate and define syndromes explaining the condition and to monitor their progress and dynamics;
3. to interview child's parents to receive any necessary information from them;
4. to prepare medical documentation on the patient;
5. to report on the patient to his colleagues.

Boundary rating also includes three control blocks: theoretical, practical and organizational.

Theoretical knowledge control is usually based on the sufficient amount of exams or tests (not less than 50) for the individual evaluation and interviews on the situational problems. Practical control block should display student's level of experience with the practical skills, the full list of which is available in the practical records book on every subject. Organizational block for each rating

is based on student's attendance level at the lectures and practical lessons, his timely completion of all necessary control points and resolution of unsuccessful tests, and should display the level of student's organization and discipline. This block can result in both positive and negative ratings.

Semestrial rating is a weighted sum of current and boundary ratings, with relative weights set by department's management. For the subjects those have a final exam in their learning schedules exam rating is also introduced, and being added to the semestrial rating it gives the final rating (on the subjects without the final exam the final rating is equal to the semestrial one). Final exam on any subject must consist of three stages: final test, demonstration of the practical skills and theoretical interview. Relative weights of these stages in the final rating are being set by the management's decision.

As any other technology, this system must be analyzed to determine its effectiveness. Results of the final state certification on the pediatrics discipline can be used as the preliminary indicator: in the course of the last two years the amount of "excellent" grades increased from 30% to 37%, and the amount of "good" grades increased from 46% to 53%. To get more significant and detailed analysis additional sociological studies are required, those are the subject of the next development stage of this technology.

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GENERAL SCHEME OF VISUAL PRESENTATION WITH ACCOUNT OF PARALLEL DATA PROCESSING

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A structure of graphic visualization systems was researched. A model, showing up foundational information relations between system elements, is suggested. Several model schemes were analyzed.

Introduction

Nowadays systems of visual presentation (SVP) are actively widening their influence on different spheres of people's activity. Moreover, in contemporary conditions of work of such systems a tendency to increasing volume of processing data and complexity of its analysis is emphasised. That's why when engineering SVP, a component of parallel data processing should be taken into consideration as necessary and be researched as of *current interest*.

An object of mathematic description of a structure of pointed media is considered in the work. The worked-out model of a system admits processing data with technologies of parallel computing, without a demand of conceptual changes in central blocks.

Assumption. Building models without orientation at specific subject field, claiming for universal schemes, promotes *separating new and researching known properties of SVP*, it also provides basis for new system development, which is the *aim* of the work.

Analysis of SVP structure

Having considered variety of 3D display systems, we separate three objects, the presence of which is necessary and functioning is most important. The forth object, fulfilling the possibility of parallel computing is also included in the list of the necessary ones. Let's mark that the obligatory including of parallel component into SVP model is not practically a rule, it's rather a relative research novelty, sustained by the studied tendencies of the field.

So, speaking software language, the separated objects represent the following:

Terminal for entering user's commands, choice of accessible actions over the

system. It serves as interface to fulfill basic *user's tasks*: download of new data, indication of necessary characteristics. Let's mark, that such inherent tasks as analysis and result interpretation are already beyond the model's framework;

Interface for data exchange with *Data base management system* or *special format file set*. Graphic data processing is also done here;

Program, giving opportunity of parallel and distribute computing by fixed protocols (mechanisms) such as MPI and etc.;

Rendering tool – is a program set, fulfilling *tasks of preparing and monitor displaying* of the necessary information. First of all the set consists of program codes of the selected methods of engineering from incoming – for the object – data of 3D information display with desired conditions.

So we have four principally different (from the functional point of view) data flows. In diagram form we can imagine them as rays, aiming to unite to fulfill tasks, and that predetermines separation of *central part* in a model, different from the named objects.

Projecting the separated regularities of intersystem parallel computing work at SVP system with parallel data computing we come to separating model's finite structures.

The proposed schemes

In the process of further analysis we come to three possible model schemes.

Scheme 1. Each of the four objects coordinates directly with only one of the special modules (SM), being part of system's kernel. In these program interfaces data and managing information transformation into incoming data takes place for the center of model ker-

nel. From there transfer to another ray takes place, again through conversion.

Doubtless advantage of the scheme is the fact that information- managing body is separated from the processing layer as recommendations demand, as, for instance, in [1], based on survey research. As disadvantages we may mark absence of direct relations between SM, that's why central module can be overloaded when simple data communication without difficult conversions is needed.

Scheme 2. Unlike the first variant, now each of the basic SM has several other subordinate units. Their function is resolution of subtasks to deallocate basic SM that is regulating task fulfillment generally on the current ray. In fact, the structure resembles hierarchical organization management model with department division. To prove vitality of such model in the describing field we'll refer to a work [2]. A task of building optimal hierarchical structure over intended multitude of executers is considered in the article. An important point is marked: tasks of building optimal organization structure and organization of parallel computing schemes development are *alike*.

Among scheme advantages we'll mark: deallocation of SM from categoric download during task fulfillment; more flexible, in comparison to the first scheme, mechanisms of resolution finding. Disadvantage of the *scheme 2* is excessiveness of possible relations between modules, as when there're complicated transformations the cost of the hierarchical building may be too high.

Scheme 3 has the same abstraction from data domain and abstractiveness of information-logic compound from algorithmic. It gives rich opportunities for an exchange between SM, as connections in a kernel take place without direct transit through center link interpreter. Separated internal *types* of

connections: 1) between any two modules of a kernel; 2) between two SM, between center module and SM. Vivid description of the said is all five kernel objects which are in the same information field.

Advantage of the obtained system is unified language inside a kernel framework. As a result-we have efforts cutting for data and managing information, circulating in the system, transformation.

In our opinion, the third scheme has the most valuable characteristics. Let's consider it more thoroughly.

Model formalization

We can speak about four sets, coordinated among each other and the set, representing central unit, that is:

Iu - specifies instructions which can be entered from a *user*;

Iq – identifies *quests* to the saved data and data base structure;

Ip – consists of a set of tasks, fulfilling exchange with the *parallel* computing organization system;

Iv – gives access to information stream of cooperation with the programming system of *visualization*.

Introduction of one more unit is driven by the demand of aim inside the carrier system. As it was already mentioned, the fifth body in a kernel is the central one. *Uc* describes the managing structure of kernel center.

Let's return to consideration of multitude coordination among each other. Let's emphasize the assumption once again that in the third scheme it's possible to bring cooperations in the kernel to two types: between information sets; between this set and *Uc*.

According to this distribution full information-management structure *S* can be presented in two ways:

$$S_i: \{Iu, Iq, Ip, Iv\}, Uc, \text{ where we get } S: \{S_i, Uc\} \quad (1)$$

or

$$S: \{Iu, Iq, Ip, Iv, Uc\} \quad (2)$$

If taking into consideration that every I is initially peculiar type of data (domain), then we can speak about a system of data sets $S = (I_i, i \in \Gamma)$ [3]. Where Γ is a set of domain names.

As we are talking in terms of sets, it is supposed that some operations can be conducted with data, determined as:

Combinations of 4-ary and 2-ary operations, according to (1);

5-ary operations, according to (2).

They have categorical character, for example: high-level concatenation of results of separate modules responses.

Model description if formed into algebra. More profound analysis of its characteristics will continue the research of the obtained model.

Conclusion

System SVP in the shape of information-managing model is presented in the work. Three alternative general schemes, *reflecting main principles of cooperation of system objects*, are suggested.

Further model research, suggested characteristics of algebra with widening of its operations and images promotes development of SVP field.

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Materials of Conferences

**«THE MAN AND NOOSPHERE»
IN THE SCIENTIFIC HERITAGE
AFTER V.E. VERNADSKY**

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V.E. Vernadsky has used the noosphere notion for the future stage designation in the biosphere further development, when it would become possible the whole mankind consolidation, on the basis of the humanistic principles, and also, when the mankind's Collective Mind would be acted by the mankind's further evolution dominating factor in the organic unity with the nature. The transition from the biosphere to the noosphere, in which the ordered sustained development would come to replace the Earth's living and the bone components interaction in the face of the nature, having rested upon the Mind, is the law – governed process, by Vernadsky [1]. So, it is quite impossible to be recognized, that the biosphere structure has, in essence, been changed, because of the one type meaningfulness disproportionate strengthening, and, moreover, the fact, that the biosphere self-regulation processes potential has been become smaller and smaller. And, that is why, it is necessary to be comprehended by the mankind, that it had already been entered into the Earth development new epoch, on which V.E. Vernadsky told, the biosphere transition into the noosphere, that is the sphere, having created by the human Mind, and also, having incarnated by, as the science, well as the technique.

The V.E. Vernadsky's teaching is rather optimistically. So, the moral component and the constituent part of his conception on the noosphere are being revealed, in the first place, in the standing, having affirmed the fact, that the noosphere formation laws are not being opposed to the biosphere evolution laws. V.E. Vernadsky has repeatedly emphasized the biosphere and the noosphere generality, and the fact that the biosphere has been bearing from the noosphere. The man and the mankind emergence, by the V.E. Vernadsky's opinion – this is, absolutely, the law – governed period in the biosphere development, only the one from the components and the constituent parts organization of the living material and the organized matter. The mankind's unification into the integration has been conditioned by the noosphere formation. The ethical – morally component and the constituent part of his teaching are also being revealed and in this. The defining significance during the biosphere evolution in the Mind sphere is being belonged to the ethical – morally mind of the unified mankind, and not only to the science. Thus, the science, the technique, and the man's ethical mind are being integrated together in the noosphere.

The noosphere and the scientific knowledge industrial and the technical application for V.E. Vernadsky are not quite identical and the same ones, the mind, as such in its essence, is not the scientific, and it is not the technocratic one. This is the ethical Mind, having realized, as in the science, well as in the technique. The good and the beauty are quite inseparable in the noosphere conception. The Vernadsky's optimism background and its origins are quite being noticeable both in his historical – philosophically point of view and in his position's scientific direction and the orientation.

The teaching on the noosphere is being connected with the man, and it is no mere chance. It, moreover, is impossible to be characterized by the objective signs and the indications, which are quite inherent in the defined and the specified period nature. The principally new type of the nature and the man connection – is the main thing and, very likely, the most considerable one for the noosphere.

However, he states on such development probability and the possible perspectives and the further prospects sufficiently with the caution, though the governed development idea is being tracked in the early period in the V.E. Vernadsky's noosphere theory. He, moreover, told, that human mind is quite responsible for the society and the biosphere further development. For all this, he does not express on any peremptory judgments on the specific mechanisms content, which are quite necessary for the purposes of this responsibility implementation into the life, in the contrast, for example, to the soviet Marxism supporters. It is to be done for the mankind, no better than, to be taught and also to be capable of their own needs correlation with the biosphere potential. This is, in its essence, the theory rather of the directed development, but not the governed one. V.E. Vernadsky has not ever specified and clarified it out, how exactly to be realized the given coordination, so it then, the directed development, what kind of the efforts are needed to be used, and what kind of the organizing solutions it is necessary to be accepted.

Thus, the noosphere notion is being acquired its own special meaning, only in the correlation with the biosphere and the technosphere analogous conceptions. All these notions are not being meant the periods names in the planet's history, having changed each other. Certainly, the defined and the specified chronological periods are being separated the biosphere emergence from the technosphere formation time, but the main essence of their relations to the time sequence is not being combined and aggregated. It is necessary to be noted, that the historical situation complexity is being concluded for the contemporary humanity in the fact, that it has been involved in all kinds of interrelations and the mutual relations with

the nature, having defined by the biosphere, the technosphere, and also the noosphere notions.

The man is the biosphere's part, that the most complex structured system, which, has been creating and forming many millions and millions years and its further development is being continuing in these latter days. V.E. Vernadsky makes his statements against the man's study, as the separate object, and also he is against his superfluous autonomy and his excessive isolation. It is also quite possible to be spoken on such analysis applicability restricted limits, as, in the main, the man – is «the planet's living material part»[2]. Undoubtedly, the man's situation itself has already been changed: his relations with the nature are being become, to an even greater degree, the indirect ones, in the result of the civilizational and the historical humanity development, but, after all, they are being left. On the whole, the human society existence is quite possible, as soon as in the nature preservation limits, and the man is invariably being left interconnected with it. All these above – mentioned phenomena give the possibility to be formulated some regulations of the world vision and the outlook character:

1) It would be excessively the large assumption to be carried out the development social form analysis, as the over-natural one, and also to be considered the man, independently from the nature. It would be the incorrect one, and, may be, quite possible only in the consciousness.

2) The biosphere, or the Earth's geological crust, has been modifying in the peculiar time behavior, sufficient slowly. Nevertheless, the humanity is being felt on itself their actions, independently from the fact, that the mankind is quite to be known on all these changes, and it is quite known something, in general.

3) It is quite possible the interrelations and the mutual relations with the biosphere to be added on to the main moments and the focal points of the social development in all its stages, and it is invariably exorbitantly, having had the whole its instability.

It is necessary to be noted, that the genuine threat is being emerged to be turned out his world outlook attitudes and the world-view purposes, having gone beyond biosphere's limits notion, if not to be made out and not to be tested up to the end the whole its significance for the society and for the man, excessively to be taken a great interest in the latest and the up-to-date notions, having changed the range of the interests. It is no mere chance, V.E. Vernadsky has defined it, «*as the specific biosphere's state*», having said on the noosphere [3].

So, it is quite possible the movement to the noosphere from the various positions to be considered substantially. Indisputably, it is necessary to continue those tendencies in the scientific inquiries and the scientific researches to be developed, which have already been specified earlier. This permits to be achieved the nature phenomena and the human society by the

deeper study. The given direction development at the qualitatively new level is being conditioned by the idea, «as the planetary phenomenon», as V.E. Vernadsky quite often defines noosphere in his transactions, having considered the future mankind's challenges [4]. Thus, it is quite possible to be permitted the fact, that the noosphere creation has already been begun, and even then, this notion is being disposed by the defined and the specified bases, but still, having spoken on the noosphere, it is quite possible to be defined it, as the humanity's prognostic future. The development ways acknowledgement challenge, the space elaboration, in which the man would be able to be survived, not having exerted the pernicious and the harmful impact upon the nature, is being considered, here, in this paper. Thus, the development tragic prospects and the perspectives, having considered, as the history end [5], and, having found their positive solution in it, are completely absent in the conception on the noosphere.

This is of no small importance to be realized for us, that it is quite impossible to be characterized the noosphere, as the objective state. Above all things, this time is being defined by our consciousness. The noosphere is supposed the new paradigm development in the cognition and the activity directions, and the consequent ones its image variations from this, as it is the new type of the society with the nature interaction. In other words, the noosphere implementation into the life has already been conditioned by the man himself development. The noosphere content is being included in itself the outdated standings reconsideration necessity, as it is not quite able to be only the independent intellectual initiative consequence. The valuables recognition of the existing all forms and the man's intention and the tendency to give the feasible help in their preservation and the further development is the absolute anthropocentrism opposite. This activity's final results, which has already been emerged, are being raised the optimism. It is necessary to be noted, that the man himself is obliged to be recognized his complete dependence from the nature, and the civilizational development to be considered, as the one from its alternatives. Thus, it is not necessary to be absolutized the standard model of the man and the nature opposition, as the subject – the object, on the contrary, it is necessary to be formed the cognition quite new model, in which it would be taken into consideration the man's inseparable organic participation in all the natural processes. And when it will be reconsidered and will be expanded the man's comprehension itself, then and such events further development may be the highly probable one.

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**EXPERIMENTAL LEARNING
OF DOSE-RELATED INFLUENCE
OF PHENOTROPIL ON HUMORAL LINK
OF IMMUNOGENESIS**

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Nootropics is a popular group in treating many diseases of central nervous system. Phenotropil which is of interest is characterized by multicomponent drug-induced effects. Taking into consideration the fact of immunoreactivity changes while the majority of pathologic processes in CNS, we regard learning of

phenotropil’s immunocorrective activity of current concern.

Objective of the work is to learn influence of phenotropil on humoral link of immunogenesis in conditions of experimental immunodepression.

The experiment is conducted in 50 mice with SVA line of both genders 3–4 months old. Immune deficiency was modulated by intraperitoneal introduction of cyclophosphamide 100 mg/kg. Humoral immunoreactivity was estimated on the basis of reactions of direct hemagglutination. Sheep erythrocytes were used as antigenetic stimulation pulse. The experimental animals were divided into groups (n=10): control #1 (physiological saline), control #2 (mice with immunosuppression); experiment groups – immunodepressive animals who got phenotropil 25mg/kg, 50 mg/kg, or 100 mg/kg ip. All manipulations with animals were conducted keeping international principles of Declaration of Helsinki. The results were statistically processed using Student t-test.

It is established in the course of the work that single intraperitoneal introduction of phenotropil in all tested doses enables reconditioning of the level of antierythrocytic antibody against introduction of immunodepressant, positively increasing the index more than 50% in comparison to the corresponding characteristics in control #2. The most effective were doses 25mg/kg and 50 mg/kg, when using them titer of antibody reached baseline level in control #1.

Thus the obtained data allow concluding that phenotropil shows expressed immunocorrective action, eliminating cyclophosphamide induced disorders of antibody response which is of interest in the context of following learning of neuroimmunotropic effects of the medication.

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Materials of Conferences

**PROSPECTS OF APPLICATION
OF NANO-ELECTRODE EQUIPMENT
ON THE BASIS OF POROUS CERAMICS**

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Preservation of nation's health where there's multifactor environment influence, worsening ecology, usage of new-generation medications and methods of treatment (nanotechnology, cell-technology) demands development of new approaches and safe methods of profound examination of human body, allowing examining repeatedly and during long time for dynamic monitoring.

It is known that biopotentials (constant, slow-changing, high frequent) reflect metabolic processes in cells, organs, tissues and organism systems of a human. Electric phenomena which are called biopotentials appear in the process of exchange between different biological structures.

Getting positive information about biopotentials depends first of all on the quality of medical electrodes [1].

Medical nanoelectrodes are most perspective for research of bioelectric activity of different organs and tissues. We developed the nanoelectrodes as part of the Russian Foundation for Basic Research project №08-08-99069 "Development of scientific basis of low-noise high-resistant nonpolarizable transition "electronic-ionic conduction" on the basis of porous ceramics" [2].

The main advantages of nanoelectrodes:

1. High stability of electrode potential — 0,001 uV/sec
2. Low resistance - ≤ 100 Ohm.
3. Almost do not polarize with currents $\leq 0,5$ μ A.
4. Have low contact potentials in transition "electrode-electrolyte- skin" with and without current.

5. The variety of difference of electrode potentials is deciles of mV; internal noises within frequency range 0–1000Hz do not exceed tens of uV.

High metrological characteristics of the developed nanoelectrodes will allow measuring biopotentials, starting from direct current, with and without direct current influence aiming to research polarization properties of biological tissues.

At present time constructions of nanoelectrodes for heart, brain, muscles, eyes and skin examination, both for static and dynamic examinations, are developed.

Multifunctional equipment on the basis of application of medical nanoelectrodes with high resolving power and expanded frequency interval (0-10000) Hz for heart, brain, muscle, eyes and skin examination is being developed.

Application of medical nanoelectrodes will allow deepening knowledge about principles of different organs and tissues functioning, create fundamental basis of people's health preservation, prolonging active period of man's life and securing his professional longevity.

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Materials of Conferences

CONVERGATION OF LYMPHATIC AND LYMPHOID SYSTEMS IN VERTEBRATE EVOLUTION

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The lowest vertebrata have parallel development of lymphatic and lymphoid systems on the basis of venous bed. Cyclostomes' arteries invaginate into widening vein lumen. The side pockets separation in fish leads to formation of lymph tube (LT) net. At these stages of evolution diffuse lymphadenoids contact with venous sinusoids. Reptiles and birds have inspissations of lymphoid tissue on sides of LT. Lymphatic and lymphoid systems converge at periphery, where LT and blood vessels interweave. Their intervessel connective tissue is transforming into lymphoid around blood microvessels and appear surrounded by LT. Birds and mammals have the same formation of lymph nodes (LN). LN function as counter-current flow system: through LT antigens come to its substance, and through vessels - blood cells. Into parenchyma of the majority of lymphoid organs antigens, other immunogenesis exciters come not through LT but, for example, through tissue channels into tonsil crypto-lymphon. Progressive intensification of metabolism, speed of histogenesis and organ growing in vertebrate evolution lead to uneven growth and differentiation of vessel net, formation of LT and LN.

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ABOUT ORIGIN OF CONGENITAL INTERNAL OCCLUSION IN HUMAN DUODENUM AND ITS PREVENTION

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4-6 weeks old embryos' epithelium proliferates surrounded by thick mesenchyma and fills duodenum (DD) cavity. Epithelial "plugs" are formed under Wirsung's duct entrances (area of DD lower flexure) and in duodenojejunal flexure. As a result of the turn of pancreas anlagen and umbilical intestinal loop, uneven growth of the head of pancreas, these segments of DD are narrowed. Moreover, the mesentery is rotated, where superior mesenteric artery and vein are. The artery and its branches invaginate into vein cavity, narrow and dismember its peripheral

part into lateral recess in 6,5 -8 week old embryos, which troubles blood flow out and causes ischemia of DD paries. Disturbing factors may predicated the excessiveness of DD and vein deformation, ischemia of paries and death of DD epithelium cells, pullulation of connective tissue through its defects into DD cavity, formation of its congenital internal occlusion. As a norm such critical situation in DD development is solve by initiation of lymphatic channel: central channel of superior mesenteric vein gets extima, lateral recess are separate in the form of lymphatic clefts with endothelial lining. In 8,5-9 week old foetuses they converge into mesenteric lymph tubes, which improve DD paries' drainage.

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STRUCTURE AND TOPOGRAPHY OF MESENTERY LYMPHATIC POSTCAPILLARIES

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Lymphatic postcapillaries (LPC) in small bowel mesentery pass through lymphatic (LC) and blood capillaries from one side and lymphatic vessels (LV) in fascicles with main arteriolas and venules or their big branches and tributaries from the other side. LC have endothelial side, lie between hemocapillary blocks or near postcapillary venules. LPC are defined on the territory of polymorphic location of microcirculatory bloodstream, between their metabolic blocks (precapillary- hemocapillary, LC - postcapillary venules) and contour microvessels. In LPC sides connective tissue may miss, but interrupted basic membrane and valvules appear. Such LPCs go independently or near postcapillary venules, in sides of which very thin film of connective tissue is defined. LPC of the following levels with connective tissue in sides go along gathering venules or independently as part of venules. In thickening sides of gathering venules and the first LV Smooth Muscle Cells appear, but they do not form complete muscular layer. LPC have variable structure and topography relevant to their origin from collateral of embryonal veins, function of additional organs' drainage and pressure in the cavity, which goes down in a row (arteriola → venule → LV → LPC).

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*Materials of Conferences***THE HIGHLY SKILLED ACROBATS
MORPHOLOGICAL PECULIARITIES
AND SPECIAL FEATURES**

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At present, the morphological peculiarities and the special features are being given and counted for the great deal in the sporting acrobatics, as the human constitutional traits, the human body weight characteristics, the human body proportions are being defined the specific specialization and the sportsmanship manifestation success and its efficiency.

So, the interconnection between the human constitutional traits and the sporting – technical results has been described in the methodological and the scientific literature.

The highly skilled and qualified acrobats (e.g. 29 masters of sports and the candidates in the masters of sports), having had the specializations on the jumps on the acrobatic path and the double mini – tramp, have taken their part in the study and the research. The examined age has been in the range of from the 15 up to 19 years.

All these observations have been carried out during the training and the instructional studies on the KGUFKST and SDUSOR № 1 basis of the Krasnodar town.

It, moreover, has been determined, that the dolichomorphic and the mesomorphic types are quite typical for the acrobats – jumpers, at the human body proportions types study and the further examination by P.N. Bashkirov.

The following regularity has been registered at the acrobats' human body weight composition components analysis, depending on the sporting qualification: and the muscular component is being increased, the fat component is being decreased, with the sportsmanship rise. In its turn, the bone component is not practically being changed.

We had carried out the researches, which showed, that the «mean – armed» and the «long – armed» types are being predominated over at the acrobats – jumpers, having taken into consideration the upper and the lower extremities' lengths significance.

Thus, the morphological peculiarities and the special features, and also the indications, having limited the acrobats' high – level sportsmanship and their efficiency achievement exposure, will be allowed to be conducted the reserve of the full value preparation for the combined teams already at the specialized preparation stage.

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**FUNCTIONAL ACTIVITY OF
THROMBOCYTES WHEN Q-FEVER**

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All over body distribution and bright polymorphism of a clinical picture are specific for Q-fever. There is information in literature that *Coxiella burnetii* has an initiating role in the development of thrombophlebitis, aneurysm in convalescents. Maybe, heterogeneity of Q-fever symptomatology and the development of complications are due to abnormalities of hemostasis system.

The work is dedicated to the study of functional activity of thrombocytes (Tr) when Q-fever during different periods of the disease. During period 2006- 2009 there were examined 69 patients aged $41,7 \pm 3,2$ with the diagnosis of Q-fever, confirmed in all cases by serological methods and PCR. The aggregative activity of blood platelets was detected on aggregation analyzer SPF BIOLA (model 230 LA) with AGG software.

In the period of height of disease in 73% of cases the quantity of Tr decreased to $95,4 \pm 4,8 \times 10^9/l$. Influenced by adenosinediphosphate aggregation inductor in concentration $2,5 \mu m$, the aggregation extent was four times lower than normal ranges, but aggregation speed was 1,5 times higher. Aggregate radius reached $4,8 \pm 0,27$ and that 1,3times less the control one. In the majority of cases (83,4%) aggregatograms were two-wave, but the duration of functional activity of Tr decreased $3'14''$. In the period of recovery the quantity of Tr was restored to normal ranges, but the aggregation extent was 2 times increased and speed -7 times comparing with the control one. Sizes of aggregates were growing substantially.

Thus, thrombocytic hemostasis link changes, connected not only with the blood platelets quantity decrease, but also their functional activity change, is specific when Q-fever. For the period of height of disease decrease of their functional activity is specific, and in the period of resolution of clinical symptoms of the disease- increase, which may be initiating agent to thrombogenesis.

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PECULIARITIES OF THE FUNCTIONAL CONDITION OF THE CENTRAL NERVOUS SYSTEM OF SCHOOLCHILDREN WITH DIFFERENT DEAFNESS LEVELS

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Adaptation of a child with auditory deprivation to environmental conditions is achieved by active participation of central nervous system (CNS), sensory system, among which visual analyzer, vestibular system, proprioceptive sensibility, providing accurate and speed characteristic of movements and also maintaining of body position, play an important role.

Aim of the work is the research of the functional condition of the central nervous system of schoolchildren with different deafness levels.

47 schoolchildren with different deafness levels aged 8 -12 years, studying in special (corrective) educational institutions "Boarding schools I-II type" of Krasnodar region, were examined.

To characterize functional condition of CNS in children with auditory deprivation tapping-test was used by filling in maximum dots on a sheet of a paper with 6 squares upon visual command. After calculating dots in squares the lability of nervous processes was estimated (T-10- dot quantity during first 10 sec, T-30 – 30 sec, T-mark – tapping test estimation in marks), speed endurance (T-60 – 60 sec), results of nervous processes strength and fatigability (Q – coefficient of fatigability) (V.A. Romanenko, 2005).

As a result of the undertaken research it was determined that hearing-impaired schoolchildren in comparison to a group of almost healthy peers had lower ($p < 0,05$) tapping-test results (T-10, T-30, T-mark). The same data were obtained while analyzing speed endurance results ($p < 0,001$). In its turn fatigability coefficient in children with auditory deprivation was higher than in healthy peers ($p < 0,05$).

Thus, the undertaken research detected that children with different deafness levels have low endurance level and speed- strength characters of complex-coordination CNS activity.

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ENZYMIC PROFILE IN PATIENTS WITH NEURODYSTROPHIC FORM OF LUMBAR ISCHIALGIA AND OSTEOCHONDROSIS OF LUMBAR SPINE

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It is known that every fifth inhabitant of our planet aged after 30 suffers from these or those presentations of spinal osteochondrosis, and at the age of 60 and older spinal osteochondrosis appears in almost 100% of cases (Antonov I.P., 1985). Osteochondrosis occupies first place among reasons of temporary disablement (Yumashev G.S. and etc., 1984). Moreover, immune-biochemical blood status in comparison to other internal diseases is not enough studied and pathogenetic mechanisms of osteochondrosis and the pain syndromes are in many ways unknown.

Aim of the work: to study activity of some enzymes of purine metabolism and antioxidant hemic system in patients with neurodystrophic form of lumbar ischialgia and osteochondrosis of lumbar spine.

Material and methods. There were 47 patients with neurodystrophic form of lumbar ischialgia and osteochondrosis of lumbar spine. The diagnosis was verified on the basis of anamnesis, complaints, data of clinical examination and roentgenologic, functional and reovasographic testing results. According to Russian classification of osteochondrosis of lumbar spine (Veselovsky V.P., 1977) all patients were detected neurodystrophic form of lumbar ischialgia (special gathering of patients). Men dominated among the patients (72,3%). Average age -43,7+ 1,1 years, disease duration - 5,28 +_ 0,2 years. Progredient type was detected with 16 patients, stable – with 25 and regredient – with 6 patients.

Enzym activity: xanthine oxidase (XO), xanthine dehydrogenase (XDH), guanase (G), purinenucleosidephosphorylase (PNP), adenosine desaminase (ADA), adenosine monophosphate- deaminases (AMPDA), superoxide dismutase (SOD), glutathione peroxidase (GP), glutathione reductase (GR), content of malondialdehyde (MDA), uric acid (UA) were detected in blood serum and hemolysate with the help of standard methods (Caraway W., 1966; Martinek R., 1963; Robertson B. et al., 1973; Lankin V.I. and others 1983; Chevri S. and others 1985).

Research results. In blood serum of healthy people activity of ADA was $8,02 \pm 0,16$ IU, AMPDA - $1,98 \pm 0,12$ IU, G - $1,27 \pm 0,13$ IU, PNP - $0,76 \pm 0,07$ micromole/l/min, XO - $3,75 \pm 0,06$ micromole/l/min, XDH - $5,81 \pm 0,1$ micromole/l/min, SOD in erythrocytes $36,9 \pm 1,5$ units, SOD in plasma- $5,15 \pm 0,09$ units, GP in erythrocytes

141,1±5,98 units, GP in plasma -0,97±0,04 units, GR in erythrocytes- 141,1±5,98 units, GR in plasma -1,69±0,06 units, content of MDA 3,46±1,08 nmole/ml, UA - 0,29±0,01 mmole/l.

In patients with neurodystrophic form of lumbar ischialgia it was detected in blood serum: increased activity G (p<0,05), PNP (p<0,001), XO (p<0,001), GP in plasma (p<0,001), decreased activity ADA (p<0,001), AMPDA (p<0,001), SOD in erythrocytes (p<0,05), SOD in plasma (p<0,05), GR in plasma (p<0,01), increased content of MDA (p<0,05) and UA (p<0,05). Progredient type of course was characterized by the increase of activity in blood serum of G (p<0,05), PNP (p<0,001), XO (p<0,001), content of MDA (p<0,05), UA (p<0,05), in blood serum decrease of activity ADA (p<0,001), AMPDA (p<0,001), XDH (p<0,05), SOD in erythrocytes (p<0,01) and GR in plasma (p<0,01). In stable course activity ADA (p<0,001), AMPDA (p<0,05), GR in plasma (p<0,05) is lower in comparison to healthy ones and activity PNP (p<0,001), XO (p<0,001), GP in plasma (p<0,001) is higher. In regredient course only activity XDH in blood serum was higher (p<0,05). In patients with progredient course activity in blood serum ADA (p<0,001), AMPDA (p<0,001), SOD in erythrocytes (p<0,001) and GR in plasma (p<0,05) was lower in comparison to stable course, but activity PNP (p<0,001), XO (p<0,001), MDA level (p<0,001), UA (p<0,01) was higher. In comparison to regredient course activity in blood serum G (p<0,05), PNP (p<0,001), XO (p<0,01), MDA level (p<0,001), UA (p<0,001) was higher, activity ADA (p<0,001), AMPDA (p<0,001), SOD in erythrocytes (p<0,001), SOD in plasma (p<0,05) and GR in plasma (p<0,05) was lower. In patients with stable course activity in blood serum G (p<0,05), PNP (p<0,01), was higher in comparison to regredient, but activity ADA (p<0,01), AMPDA (p<0,001), XDH was lower.

Conclusion. The undertaken research of patients with neurodystrophic form of lumbar ischialgia detected the decreased activity of enzymes of antioxidant blood system, strengthening of the lipid peroxidation process, catabolism of purine bases and activity increase of proinflammatory enzyme – XO, conducting to hyperproduction of superoxide radical that may be one of the pathogenetic mechanisms of osteochondrosis of lumbar spine. The studied enzyme blood data conduce to specification of the character of disease course and ordering suitable therapy.

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PERIVASCULAR LYMPHOID NODULES IN MESENTERY

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Pervascular lymphoid nodules (PVLN) do not comprise of any microdistrict of mesentery hemolymph microvasculature (HLMV). Their quantity, sizes, forms, structure and topography are very variable. PVLN surround gathering venule and its tributaries. PVLN can be dissipated all around the microdistrict, not approaching the edge (main arteriola and venule) or concentrate boundaries (prenodules) or formed, are often specified around postcapillary venule. All listed lymphadenoids can be in one microdistrict – stages of PVLN morphogenesis when functional load increase and proper alteration of HLMV. PVLN is situated between terminal arteriola and gathering venule, and all together with their branches and tributaries compose a complex, “immune” module of HLMV. PVLN may function as counterflow system: antigens come through interstitially channels or lymph capillary with endothelial walls without basal membrane and lymphocytes from postcapillary venule. Inflow of their great quantity in these venules with antigen stimulation may be through arteriola-venule anastomosis, by-passing capillary net with stenopaic. Increase of blood inflow to forming PVLN brings to local growth and magistralization of HLMV.

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CITROCARD INFLUENCE ON NEUTROPHIL PHAGOCYTOSIS OF PERIPHERAL BLOOD

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Taking into consideration an important role of immune disorders in genesis of different pathological processes from the side of central immune system, pharmacological research of psychotropic medication, showing immune modulating properties becomes up to date. Citrocard prepared on the basis of phenibut, is of interest as a psychoimmunomodifier.

Objective of the work is experimental learning of Citrocard influence on neutrophil phagocytosis activity of peripheral blood.

The experiment is conducted in 40 mice with SVA line of both genders 3-4 months old. The neutrophil phagocytosis activity was latex tested. The ani-

mals were taken out of the experiment a day after a single intraperitoneal introduction of the test substance. All manipulations with animals were conducted keeping international principals of Declaration of Helsinki. The results were statistically processed using Student t-test.

Table. Citrocard influence on neutrophil phagocytosis activity

Experiment groups (n=10)	Phagocytic index, M±m, %	Phagocytic number, M±m
control (physiological saline)	35,9 ± 1,7	6,5 ± 0,5
Citrocard (15 mg/kg)	44,3 ± 3,2*	9,4 ± 0,4*
Citrocard (75 mg/kg)	39,5 ± 3,2	8,2 ± 0,6
Citrocard (375 mg/kg)	49,0 ± 3,5*	9,5 ± 0,4*

Degree of credibility concerning control (* - $p_1 < 0,05$)

It is established in the course of the experiment that Citrocard in all used doses has a stimulating effect on non-specific link of immunogenesis: in doses 15 mg/kg and 375 mg/kg the medication enables positive increase of neutrophils, able for phagocytosis, and also of latex elements, phagocytosed by neutrophils, dose 75 mg/kg is less effective, but also causes positive changes of phagocytosis index in comparison to control group results.

Based on the obtained data it has been concluded that Citrocard has phagocytosis stimulating characteristics which can be the basis of the following development of the medication as an immunomodifier.

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CLINIC APPEARANCES OF THE SEVERE ACUTE COMMUNITY-ACQUIRED PNEUMONIA

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In order to obtain actual clinic image of severe acute pneumonia an analysis of 185 hospital patients of age 18–87 years with pneumonia has been carried out. Among them – 136 men (73,5%) and 49 women (26,5%). Average age – 52,7 years. Among the patients 38 of them were ones of middle acuteness and 147 of hard acuteness, 85 of those – with fatal outcome. The verification diagnose was carried out in accordance with the criterions of Russian respiratory society. The results of the research has shown that the situation in lungs with acute pneumonia in average was displayed in: double-sided process in 55,4%, lobar, polilobar pneumonia in 10,8%, destructive process in 44,2%, lungs abscess in 3,9%, pleurisy in

29,9%, and pleura empyema in 4,1% of cases. In a number of fatal outcomes the part of focal pneumonia was 33,8%. The concomitant diseases that predispose to acute pneumonia were: COPD in 66%, IHD in 23%, chronic alcohol intoxication in 50,3%, insular diabetes in 6,8%, renal impairment in 10,2% of cases.

The following clinic displays has been registered with acute pneumonia (in parts): infection-toxic shock in 21,8%, hyperthermia in 38,2%, disturbances of arterial pressure in 65,5% (among those hypotension in 40,3%), cardiotropic index increase in 83,7%, acute respiratory shortage in 85,1%, diuresis decrease in 86,7% (among those – oliguria of less than 500ml a day in 28,8%), tachycardia in 85,3% of cases. Other reliable parameter alterations that reflect the complicity of other systems (blood-making (erithropenia), excretory (azotemia), hepatobiliary (bilirubinemia), endocrine (hyperglycemia), central nervous system (consciousness disturbances) etc.) were exposed. The cardiac failure preceded pneumonia within 62,7% of patients, in the course of pneumonia it was revealed in the small circle within 62,7% of patients, and within 100% of those with fatal outcome and in cases of inner organs dystrophy or edema, including lungs and brain.

Laboratory facts at the day of hospitalization were certainly different between the pneumonia of middle and hard acuteness in: the number of leukocyte - $12,06 \pm 0,79$ and $14,7 \pm 0,69$; the value of leucopenia - $4,93 \pm 0,36$ и $3,51 \pm 0,24$; index of stab shift - $5,63 \pm 1,07\%$ и $15,95 \pm 1,61\%$; the measure of leukocytal index of intoxication (LII) - $2,15 \pm 0,37$ и $6,45 \pm 0,66$, and indexes of asparate aminotransferase - $32,65 \pm 7,1$ u/L. и $102,95 \pm 15,9$ u/L. and analine aminotransferase - $26,8 \pm 3,9$ u/L. и $58,24 \pm 6,33$ u/L.; thrombocytopenia - $106,44 \pm 7,94 \cdot 10^9$ and $146,33 \pm 12,26 \cdot 10^9$.

The predictors of the pneumonia progress were outlined as: male sex, age over 40, mainly physical activity, lack of higher education. Specifically the

predictor of acute pneumonia was “passive” social status of patients (homeless persons, unemployed, invalids, retirees, lone ones) in 39,2% of cases. The hospitalization within the first 3 days was carried out within 22,1% of cases, in 60% of cases the pneumonia was not identified as “acute” by doctors, the patients got into resuscitation only in 44,1% of cases.

Thus, acute pneumonia is a special form of pneumonia that has its clinical peculiarities in the scale of lungs damage, often has comorbidity pathology of respiratory and cardiovascular system with the

progress of organism damage in forms of poli-organ pathology, that is mainly present within socially-depressed persons and is linked to the number of clinical-organisation defects (inopportuneness of hospitalization and transferring into the resuscitation block) of the treatment of them.

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*Materials of Conferences***THE SCHOOL DEVELOPING SPACE,
AS THE FACTOR, HAVING PROMOTED WITH
THE JUNIOR SCHOOLCHILDREN MENTAL
DEVELOPMENT**

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In the last years, the investigations' much attention is being given to the developing space challenge in the education, having introduced into the scientific turn of the speech comparatively recently. This phenomenon investigation is practically being continued in the several directions at present: the developing space is being considered, as the pedagogical category (e.g. Novikova L.E. Gavrilin A.V., Andreeva V.V.) and, as the child person development condition (e.g. Selivanova N.L.). «The childhood space» (E.D. Demakova), «the teenager school existence everyday life developing space» (D.V. Grigorjev); the kindergarten developing space (Kabanova E.V.), and the class (Perova V.E.) phenomena have been described.

Such notion, as «the school developing medium» is also being described rather in detail in the literature. The address to the medium study has been aroused by the attention to the social development process and the personality formation, which, as S.A. Belicheva considers, is not added up only to the family, the school, and the other educational Institutes well – directed efforts. The «medium» notion is being defined, as the social and the living conditions, the setting, and also the people totality, having connected by all these conditions community (e.g. S.E. Ozhegov). Thus, having considered the medium, it is quite possible to speak on, that the human personality development is appeared, as the interaction result with it.

M.E. Mazur has given such kind of the definition, having comprehended the subject's immediate surrounding under the developing medium, in the interaction with which he is being formed and is revealed his characteristics and the specific features.

So, the developing space, by the V.A. Sitarov's definition, is presented, as the multilevel, the hierarchically ready – built space, having purposefully organized the human personality development, by means of the natural, the social, the pedagogical and the personality resources activation of the natural environment, the socium or the society, and the man, that is being expressed in the relations, the social roles and the activity new types mastering change and the further reformation.

Having investigated this challenge, a number of the scientists and the scholars (e.g. F.N. Gonobolin, V.A. Sitarov, M. Lukyanova, E. Pufal – Struzik and etc.) have already drawn their conclusion on the fact, that «the developing space» and «the developing me-

dium» of the school notions – are the completely identical ones and the same.

If to compare the school developing space with the similar notions, then the educational space in the education system is being considered, as the educational system component, having provided the child personality development and the self – development successfulness, by means of the various activity, the communities creation, the favorable atmosphere, the self – government, having promoted the schoolchildren mental activity successful development (e.g. Karakovsky V.A., Novikova L.E., Rozhkov M.E., Selivanova N.L., Sergeeva V.P., Sozonov V.P., Stepanov E.N.).

The developing medium (e.g. the developing space) of the educational Institution is being defined the junior schoolchildren mental education process, and, for all this, the conditions for the teachers' professionalism and their competence development, their pedagogical and the educational culture in the field of the junior forms and the grades schoolchildren mental and the intellectual development are being taken into the consideration.

The school developing medium – this is the creative pedagogical communication and the pedagogical influence sphere, having promoted with the junior schoolchildren all – round and the harmonious development and the mental and their intellectual abilities (N.Yu. Postalyuk, and et al.).

The school developing medium is being aimed at the schoolchildren harmonious development and the mental and the intellectual abilities self – development provision at the in – curricular and the extra – curricular time. It is being taken into consideration the children self – education factor, but they are not found themselves directly under the teachers' influence (e.g. the circles by their interests, the informative and the educational excursions and etc.).

A.N. Tubelsky practically uses the «developing space style and the setup» specific notion, under which he comprehends such all elements self – organization of the teaching and the educational process, which is set up the regularities, the style, the peculiarities and the specific features of the schoolchildren all – round intellectual development organization, at the developing space consideration.

There is one more the «developing space» notion – that is, the environmental conditions, the setting, having pedagogically characterized the favorable or non – favorable medium's creation for the schoolchildren mental and the intellectual development (e.g. Trinitantskaya O.G.).

Exactly, the pedagogical influence aspect, as the causal process of the school developing space formation and the personality in it, is the essential difference from the other authors' definitions, not having included this aspect into the developing space notion

(e.g. N.B. Krylov, E.A. Alexandrova, and et al.). If the school developing space to be considered, as the main conditions, which are quite necessary for the personality intellectual abilities development, then the developing conditions are being considered, as the purposeful selection result, the elements, the content, the methods construction and their application of the education (e.g. the upbringing, and the teaching, and the training) organizing and the communicative forms for the pedagogical targets achievement in the science.

So, the teachers define the school premises reorganization tasks, the teaching and the educational activity organization in the schoolchildren forms and the grades, and also the curriculums, the study, and the training programs' and the plans' transformation and the reorganization on the diversity, the variability, and the alternativeness principles, in accordance with the school educational activity analysis in the school developing space. It is being given the possibility to the teachers to increase the activity effectiveness, having directed at the schoolchildren intellectual level rise, as the senior, well as the junior forms and the grades under the comprehensive secondary school conditions.

The school developing space is being presented the components integral, dynamical system – the axiological, the basic, the generating – functionally and the practical – objectively ones, – having found in the defined and the specified hierarchical dependence. The educational organization developing space is being formed in the process of the humanistic ideas and the valuables provision, having perceived in the given pedagogical community and having taken into consideration the schoolchildren's parents interests, the needs, and the demands.

The developing space value component is axiologically conditioned its basic components, having interacted with each other. The contemporary school and the developing space its creation is much significant the conditions complex: the psychological, the material and the social ones, having provided the schoolchildren mental and the intellectual development process for the teaching and the training tasks realization.

The school developing space is being formed by the educational system subjects in the process of their interaction, having influenced, in their turn, upon their own further development. The methods diversity and the work technologies have been chosen by the teachers' staff, in accordance with their individual peculiarities and the specific features, the targets and the tasks of the educational process, and also the schoolchildren peculiarities and the specific features. The orientation for the pedagogical activity and the work forms content renewal, the intention drive to the perfection of their vocational and personality qualities and the abilities, having based on the pedagogical ideas, are being defined the further development process of the school developing medium.

The school developing space formation process is being formed from the two stages. The innovation team is being formed; the model, the project, and the specific actions program are being developed; the school staff challenges are being revealed at the seminars and meetings; the activity correction is being made, by means of the participation in the projects at the first stage. The school developing space proper development is being carried out, by means of the various specialists' and the experts' activity organization on the basis of the developed mechanisms at the second stage.

The formation technology and the school developing space development is being proceeded from the logics of its essential structural components the series connection into the pedagogical process subjects interaction process. It is being connected in itself together the two private and the particular technologies, and exactly: the school developing medium formation process organization (e.g. the developing medium development start – up procedure, its designing) and also its functioning process provision (e.g. the mechanisms, the development ways).

The school developing space comprehension, as the conditions totality, having promoted the child personality successful development and the self – development, the schoolchildren mental and the intellectual development level rise, is being proved the introduction necessity into the school practice of the obligatory its designing, that will be able to be reflected in «The School Educational Program» and «The Educational Organization Development Program».

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**FUTURE SPECIALIST'S PERSONAL
AND PROFESSIONAL DEVELOPMENT
IN THE UNIVERSITY**

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Future specialist's training in the university is behind of demands of quickly changing education and training practice of students under conditions of domestic education modernization. First of all it is caused by the absence of fundamental research and, as a result, the majority of problems, connected with specialists' professional training, is solved not by scientists, managers and professors in university, but by bureaucracy.

To reveal the degree of influence of professional pedagogical training in university on dynamics of students' personality development, process of his individuality and readiness for professional work in modern conditions, to know the attitude of a future specialist to the content and technologies of professional activity training, we conducted research in Nevinnomyssk State Institute of Liberal Arts and Technical Education.

The object of the research was a definition of student's social and demographic, psychological and pedagogical characteristics and an estimation of the degree of influence of the content and technologies of higher education on personal and professional development of a future specialist. To achieve the stated object we had to make an integrated research with the participation of teachers, psychologists, sociologists. At the same time, a pedagogical component is integrating and complexing, because the conditions and the degree of the influence of professional training and education on future specialist's personal development, on his cognitive, value, creative, communicative, operational and activity potential are studied.

The research was made upon the Department of Engineering, Education and Polytechnic Departments of Nevinnomyssk State Institute of Liberal Arts and Technical Education and included about 200 first-year students and graduates. While starting the work we suggested a hypothesis that students' successful study, efficiency of their professional competence formation depended on how the complex of student's social and demographic, biological and physiological, psychological and pedagogical characteristics was taken into consideration in the process of educational space engineering. Among the variety of indices, defining his social portrait, the most significant were the following: place of residence, family role and composition, type of educational institution, which future student finished, level of health, causes of university and supposed profession choice, level of self-concept, claims, formation of personal and professional value orientations, type of out-of-school interests, their width and etc.

In the course of the research the following methods were applied: questionnaire, interview, analysis of students' study results and etc.

Let's illustrate the results of the demonstrative step of the research on the basis of two departments.

Social and demographic characteristics of students' families turned out to be quite predictable and expected. Social, material and educational level of students' parents of Polytechnic Department is considerably higher. On Education and Engineering Department there are 31, 56% first-year students from the families of office workers, and 68, 44% - from the families of workers, but on Polytechnic Department – 87, 23% of students, whose parents are office workers and business owners and only 12, 77% - workers. Also on Polytechnic Department there are 67, 35% of students from the town and 32, 65% - from countryside, but on Education and Engineering Department there are only 32, 27% of students from the town, the rest 67, 73% - from countryside.

However the students of Education and Engineering Department finished lyceums, gymnasiums, classes with advanced study of different subjects, but on Polytechnic Department – 21, 11% of first-year students are the school-leavers of innovative educational institutions and 78, 89 % - of traditional schools.

But the analysis of students' academic progress didn't reveal any convincing connection between the type of educational institution, which a school-leaver finished and the marks, which were received on the exams. A direct dependence of the academic progress level on students' physical condition wasn't revealed.

The most important factor, traditionally defining students' advancement in educational process, is motivation. The incentives, directing students' education, were distributed the following way: a motive to acquire deep and sound knowledge – 66, 42%, an urge to take a respectable social place – 60, 54%, communication opportunity – 47, 31%, an aspiration for getting an important profession, which is claimed in modern society - 40, 26%, to learn how to widen knowledge on one's own – 22, 45%, to do a research activity – 3, 27%.

The basic motives, making students study, are: a motive to pass exams successfully – 78, 31%, to prepare for lessons well – 31, 21%, to see friends – 27, 18%. Unfortunately, a motive to acquire knowledge have only 4, 17% of examined students. Questionnaire, discussions, interviews showed that first-year students poorly imagine the connection between the received knowledge and future professional activity. This circumstance causes the dominance of outer motives of cognitive activity: attendance in accordance with previously formed interests, subject enthusiasm, positive attitude towards the teacher, need for communication and etc.

Preliminary results of the research and the analysis of publications about the problem show that educational situation, formed in modern institute of higher education, favours little with personal formation of a student in educational activity. With that students' educational and scientific activities aren't stimulated enough, situation of social development, typical age characteristics (contradictoriness of value orientations, criticality and instability of self-appraisal and claim level, tendency to solve different problems on one's own and a fear of personal responsibility, initiative, readiness for risk, personal, civic, professional self-determination and etc) aren't taken into consideration.

Graduates (5 year students), as a rule, besides study solve other problems: they strive for a work, connected with the major, settle down to married life, determine personal, civic, social and political priorities. Everything taken together come into conflict with regulated enough university activity and make difficulties for a development of professional self-consciousness, cognitive processes, communicative culture – leading types of activity and psychic new formations, typical for the students as a specific age, social and professional group. These circumstances exactly can explain students' study interest drop from year to year [1].

Everyone knows that half of graduates doesn't work in education, and this fact in a great measure reflects a dynamics of students' professional motivation and there are the causes both of social, economical and psychological, pedagogical character. Irregularity of the process of future specialist formation, expressing in professional crises, among which are the crises of search and profession choice, professional education crises, can be referred to the last mentioned causes.

The preliminary results of our research let us make a conclusion that educational process in modern institute of higher education doesn't stimulate enough personal and professional development of a student. It might be supposed that the orientation on diagnostics of students' social, demographic, psychological and cognitive peculiarities makes possible the realization of personal oriented approaches to a future specialist training.

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THE INTEGRATION APPROACH IN THE HIGHER EDUCATION CONTEMPORARY CONCEPTION

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The situation, having been formed at the commercial labor market, against the background of the deep economic crisis, today, however, is not being permitted to be spoken on the personnel need reduction in the geological orientation specialists and the experts. The private subsoil – users are constantly needed in the geological specialties graduating seniors, having possessed their occupational and the vocational qualities, and also, having adapted to the contemporary technical, engineering, technological – methodically and economic production conditions. This is being defined the educational process progressive movement necessity, the characteristics of which will be defined by the higher occupational and the vocational education actual tasks. At present, the teacher's activity of the Institute of the higher education, the College and the University must be combined in itself the three main components:

(1) the pedagogical component, which is being suggested the knowledge transfer to the students. The above – indicated component is being implied not only the high volume courses of the lectures preparation, but and the teaching process transformation into the absorbing activity for the pupils. This is quite often being succeeded by the Geological Department teachers of the SSU, in spite of their considerable teaching load. As the Department's elders, well as the young teachers practically use the already tested methods, and they, moreover, are finding the new ones for the students' interest attraction to the science. As the Department's elders, well as the young teachers practically use the already tested methods, and they, moreover, are finding the new ones for the students' interest attraction to the science. So, it should be specially mentioned the recently resumed student groups and the parties, in the work of which the educational, the scientific and the research activities, and also the production process junction is being found their reflection among the educational process numerous forms types, having used in the SSU. So, the priority peculiarity and the specific feature is being consisted in the fact, that the students are being attracted and are being enlisted in the real geological researches under the guidance of the competent specialists and the experienced experts, for all this, having performed the wide activities spectrum at all the research stages: the field observations, the received data interpretation, the geological reports working out. This is principally being differed the student groups and the parties from, as the field experiences, well as the work practices, where it is much acceptable the students participation in the various separate operations.

(2) scientific and the research activities component is quite possible to be really realized by the teacher, as individually, well as jointly with the Scientific and Research units or the corresponding organizations graduates or the workers and the employees. Namely, the integration scientific and the research projects, which are repeatedly being increased the Institute of the higher education, the College, and the University innovation potential have the great significance in the further development of the higher occupational and the vocational education. Thus, it is quite possible to be noted the RF received patents for the inventions, as such projects realization final results in the SSU: “The Oil – and – Gas Content Forecast Technology”, “The Gas and the Gas – Condensate Deposits Searching Method”, “The Emergency Situations Prognostication Method at the Oil – and – Gas Producing Wells Building”; and also the Certifications on the State Registration of the “Mineral Searcher” (MS) programs.

It is necessary to be noted, that the exclusive rights possession by the Institutes of the higher education, the Colleges, and the Universities to the intellectual and the mental activity it is being seen today especially actual, with due regard for the putting the Federal Law into the effect on 02.08.2009, which is being opened the possibilities for the scientific workings out, having provided the mechanisms, their transformation into the competitive commercial product. The introduction perspectives of their workings out into the practice, their application searching in the economy and the social sphere are being opened, with the new Law acceptance for the Institute of the higher education, the College, and the University, and, as the consequence of this, the independent means earnings for the existence and their structures development, the additional incomes receiving, which are so necessary at the poor fiscal provision.

So, to – day, the scientific cooperation is not quite able, and it should not be restricted by our country’s boundaries limits, having entered on the level of the international one. The students and the graduates, the teachers and the lecturers are constantly raising the national education competitiveness, having taken their part in the international conferences, and also having placed their publications in the foreign issues. In particular, the teachers’ and the lecturers’ scientific studies and their transactions of the SSU Geological Department have already been presented in the framework of the Annual Palaeontological Conferences in Glasgow, Great Britain. They have also been published in such journals, as “The Journal of Vertebrate Paleontology”; “The Paleontological Journal”; “THE INTERNATIONAL JOURNAL OF APPLIED AND FUNDAMENTAL RESEARCH”. In addition, the Department people have been the participants of the scientific and the research expedition to the Spitsbergen Island. So, among the other SSU international cooperation forms with the foreign Institutes of the

higher education, the foreign Colleges, and the foreign Universities, it is quite possible to be noted the scheduled Geological and the Palaeontological researches and investigations carrying out jointed with the Islamic Republic of Iran University centers on the Southern European Russia territories.

(3) the teacher’s and the lecturer’s activity next component – is the scientific and the research activity, the design and the survey works carrying out, on the basis of the economic contracts and the agreements with the Institutions and the organizations, that is, such kind of technologies and the projects development and the further introduction and the implementation, which will be wanted and claimed by the country’s manufacturing enterprises. It is quite impossible to be named the new phenomenon for the higher occupational and the vocational education the scientific developments practical introduction and the further implementation, which now, it will be scheduled to be made in the framework of the small business and the small – sized enterprise. Such kind of the activity in the field of geology, for example, is being carried out by the SSU, on the basis of the cooperation, as with the industrial geological organizations (e.g. the “KogalymSRPioil” LLC, the “Universalbuilding” LLC), well as with the Scientific and Research Institutions (e.g. the “Paleontology, Stratigraphy and Sedimentology SRI” LLC).

Obviously, the teacher’s and the lecturer’s productive activity all the three components realization is quite impossible under the Institute of the higher education, the College, and the University isolation conditions from the other educational, the scientific and the production organizations. So, it has been become quite possible to be integrated the educational, the scientific and the production activity only in the process of the joint projects realization, that is the obligatory prerequisite of the students’ occupational preparation and the professional training quality improvement at the Institute of the higher education, the College, and the University education innovation stage. The Institute of the higher education, the College, and the University cooperation shining and the striking example with the research organization – is the SSU Geological Department relationship of many years with the FSMN of the Lower – Volzhsky Geology and Geophysics Scientific and Research Institute.

The Institute people are regularly being invited for the Geological Department students teaching, in particular, a number of the special academic disciplines in the field of the hydrocarbons searching and the exploration new technologies; the oil formation theory; the geochemical and the geophysical fields in the zones of the hydrocarbonic accumulations influence. So, the specialists and the experts are imparting the new scientific ideas and the opinions for the students, they are helping them to be in the course of the last geological researches and the investigations, they are getting to be known by them with their personal

work results, having exchanged with them by their rich and the wide experience, having conditioned by the scientific challenges breadth of visions and the views.

The positive contribution of the similar educational studies activity in the teaching process at the Geological Department is quite evident. However, the time deficiency objective factor, which is quite able to be given for the teaching by the practical workers, is being caused the organizing difficulties in the educational process. So, the challenge solution is being seen in the cooperation such form realization, as the master – classes, having included in the principal studies timetable. The master – classes, having conducted with the scientific and research, and also the production organizations leading specialists' and the experts' participation, will have to become by the students' educational activity inalienable and the integral part. Besides, such master – classes participation by the teachers, the lecturers, and the graduates, will be provided the possibility by the last ones to get to be known with the newest methods, the technologies and also to become the contemporary geological ideas and the visions, and the views bearers.

The higher educational school is being acquired the functional purpose the wider, than the future specialists preparation and the experts and the training in the various and the different fields of the society's life and the vital activity, on the basis of the already available knowledge under the innovative society development conditions with the marketably orientated economy form. Today, exactly the Institutes of the higher education, the Colleges, and the Universities, in many aspects, respects and ways, are being formed, are being realized, and they are being developed their technical and scientifically innovation potential, including having directed at practical needs satisfaction, as the separately taken region (e.g. the Volga Region further economic and the social development, in many aspects, respects and ways, is being depended on the researching effectiveness increase and on the oil exploration and the gas prospect), well as the country, on the whole.

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Material of conference

STEREOTYPES
IN RUSSIAN AND CHINESE LANGUAGES

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Any language serves all social and cultural needs of its native speakers. Languages and culture of other people can always be considered as a component of the general spiritual culture.

The experience of teaching of Russian as foreign testifies that possession of structure of language, knowledge of elements of culture served by it. The national-cultural specificity of the organization of the most speech dialogue, sold in stereotypic for the given ethnos situations of dialogue, in many respects reflecting in the mental dialogue («ethnic rhythms») (L. Gumilev), creates «communicative noise, handicaps», complicating dialogue (Prokhorov J.U.E., Akishina A.A.).

Stereotype is a kind of mental «pictures» of the world (stereotypes-images and stereotypes - situations) which influence communicative behavior. Stereotypes appear as the minimized representation, a variant. They are stored in memory as a cliché, as stamps of consciousness.

The realizations of interrelation of language and culture during mastering by a modern language as means of dialogue entered in mutual relations of thinking and language, and persons are really shown in dialogue through these mutual relations. The given theory is probably considered in a mentally-linguistic model, in a complex, which is presented by three parts — by thinking, consciousness and language, which we understand like a «functioning on the basis of a human brain organized as an information system which provides perception, understanding, estimation, storage, transformation, generation and transfer of the information» (Morkovkin, 1994).

It's necessary to say that such position is important for basic conviction in an opportunity of speech dialogue of representatives of different languages and cultures. Ethnic language considers as the form of realization of the general for all people of genetic language, as process of imposing some information, mentally-linguistic integrity, a complex of corresponding «sound» language during familiarizing the language, the person with the world of the natural objects included in its activity or in the activity of previous generations.

The mentality of language as reflections of social and cultural environments of realization of speech dialogue is shown in the choice of the language means accepted in the given society for expression of an estimation of the certain phenomenon or social influence on participants of dialogue.

Thus, we agree with J.U.E. Prokhorov, who understands a stereotype of speech dialogue as a social and cultural mentally-linguistic unit, a complex of the representative of ethno culture which is realized in speech dialogue in the form of normative local association to standard for the given culture.

We would like to consider some stereotypes - images describing qualities of the person from the point of view of Russian and Chinese national-cultural mentality.

So, for example, in Russian language a stereotype-image:

1. SNAKES: it is used for describing of:

- an artful person capable of treachery, cold, prudent: the person under its bad, spiteful attitude to world around; (not language, and a snake sting; well, has hissed, the snake);
- the person on its behavior in the certain situations, deals with behavior of the snake (the snake is flexible and resourceful; possesses «ability» to hypnotize the victim);
- appearance of the person, a subject, feeling or a situation, foretelling dangerously.

The situations which cause associations with one of displays of the snake:

- a viper - the characteristic of the person artful, ungrateful, dangerous;
- green snake - personification of alcohol, alcoholic dependence.
- snakes - the tempter:
 - 1) the characteristic of the person persuading the interlocutor to make any act, promising compensation and-or the various blessings;
 - 2) the characteristic of the man-temper;
 - wise snakes, wise as serpent - the characteristic of the person, differing the mind, owning special knowledge;
 - to warm the snake on a breast - to assist, protection the person artful, to consider as its friend and to test owing to its treachery the deepest disappointment.

2. THE RAVEN - concerns to number of the most ancient mythological images; acts as a stereotypic image; it can be used for the characteristic of the person or a situation.

- in national representations - dirty (devil) and the ominous bird connected with the world dead.

In modern Russian there are a lot of words and expressions connected with **a raven**.

- about color of a black wing <a black wing> - considerably black color.
- the person is beautiful, smooth, young, and *with black hair* on temples.
- about «to croak»[troubles] - to draw words of trouble; it is based on a stereotypic image and it is connected with the most ancient representation that

the word is business and that the word possesses magic force.

Chinese people name **SNAKE** in such expressions:

- «a small dragon», symbolized happiness.

In a national fairy -tale the snake is a good subject designates that the ancestor has sent snakes to destroy danger in the house. But on the other hand the snake is one of five most poisonous animals (the snake, a scorpion, a toad).

- «To slam grasses, to let out the snake»- to work not carefully;

- «a head of a tiger - a tail of the snake» is used when people lose patience;

- «to draw luxury on the snake» is Russian synonym of this expression – «it's necessary like as a dog needs the fifth leg».

THE HORSE. The horse in the Chinese national culture has taken a very high place, has a series symbolizing value:

- the talented person, wise man;
- military force during ancient time;
- «uncontrollable and prompt run of ten thousand horses» - to scale of mass activity huge and hot;
- «the black horse» - unexpected won person;
- «to clap the horse's back», designates what to toady someone;
- «the old horse always remembers road» when people wish to express that the person skilled.

3. THE COCK. All expressions with words of «cock» has «ignoble» and «mean» values. During ancient time people use cocks to guess and expel harm.

- «the crane costs among the hen» - appearance and talent of one person is much better than the others have;

- fallen asleep as the wooden cock;
- both «the hen has departed, and eggs were broke», designate achieved nothing.

Thus, generalizing results of the given analysis of stereotypes, we come to the defined conclusions:

1) the stereotype is standard of social and cultural unit of speech dialogue of representatives of ethnos;

2) the stereotype can be shown in the form of a speech cliché or like a consciousness stamp;

3) the stereotype - mental unit, a complex of the representative of ethnos; steady and marked local social and cultural association in a certain situation of the dialogue which studying is rather actual and important as they are the representatives of peoples' cultures in its wide understanding and a reliable support of the language person in dialogue interaction.

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Material of conference

**THE NATURAL, UNIVERSAL
AND PERSONALITY OBJECTIVE REALITY
UNITY IN THE LIGHT OF THE ECOLOGICAL
CONSCIOUSNESS**

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The human activity on the world's comprehension and its creation (e.g. and, consequently, he himself making, unfolding just from the idea into the reality) is being qualified, as the reasonable one, under the condition, if it has been conformed to the universe objective reality reasonableness. So, the man is being realized himself, he is actualizing his own essence and his existence significance and only in such spiritual – intellectually and the object – perceptually practice. Exactly the intellect, having come out by the human existence and his relations regulation and the normalization necessary method with the human environment, will have to be the human and the Universe co – evolution motive power, the bio– and the noosphere relations harmonization factor, in order to be justified the noosphere and the man himself essence and the destination.

The presentation on the connections' and the relations' multitude, having fastened the various objective reality manifestations, the forms and the levels in the living – dialectically unity, in the folded way, is being rooted in the mankind's collective unconscious, as the archetype of the some primordial integrity and the perfection – the genuine actualization ideal. Therefore, the human *ecological consciousness* formation will have to become the most significant constituent part of the educational process in the modern school. This task realization is quite practicable, in particular, during the protective – ecologically activity, in respect

of the nature, as *the living creature, having needed in the care and the love.*

The ecological consciousness is being acted, as the human world and the Universe integrity and the interdependency reflection and, correspondingly, the personal *responsibility* feeling for the objective reality, its preservation, and the actualization. «Having answered» by his real actions for the nature necessities in the specific nature conservation arrangements practice, the man is realizing such hypostases of his human — abstractly essence, as the reasonableness, the activity, the creativity, having harmonically combined them with such ones, as the mercifulness, the care, and the love. The man is turning into the integrity and the meaning actualization subject, as the universal, well as the personal objective reality, having objectified the love spiral unfolding process from himself to the Another and, further, to the Nature, the Outer Space, to the every life manifestations in the free creative activity.

The ecological consciousness essence is being expressed in the statement of that fact, that the equilibration in the «Man – World» binding is being needed the mankind's amorous volitional *participation* in the objective reality integrity formation, and exactly to the man, as the Universe fractal part, it is incumbent on him to be taken the responsibility for himself for the outer space world order formation from the natural chaos, the natural, the universal and the human objective reality co – evolution, for the integrated personal-ity and the outer space existence senses actualization.

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*Materials of Conferences***THE PERSONALITY ABNORMAL
CHANGEABILITY UNDER THE VARIOUS
LIFE AND VITAL ACTIVITY MEDIUM
CONDITIONS**

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The life and the vital activity medium are quite able to be transformed the personality feelings and the emotional experience that do not give rise to doubt. However, the personality and the psychological feelings and the emotional experience degree of the manifestation, behavioral stereotype are specifically being depended on the teenager personality psycho-type structure and on the test human subject disposition in the continual – constitutionally space. So, it is quite necessary methodologically in the correct way to be formed the psychological – experimentally researches, which would be confirmed or be disproved the personality changeability dynamics, depending on the various life and the vital activity medium at the modern psycho – mathematical demonstrative and the conclusive level.

The sampling researches of the 224 teenagers in the Stavropol and the Nevinnomyssk towns have been carried out by us. So, 76 test human subjects had been in the investigative isolation ward from them (e.g. the pre – trial prison of the closed type – the 1 – st group, the town of Stavropol), at whom the pathological deviant behavior preliminary formation by the criminal variant and the 78 teenagers – the test human subjects, having lived in the ecologically unfavorable region (e.g. the town of Nevinnomyssk – the 2 – nd group), were objectified. The First group psychological and the personality feelings and the emotional experience had been defined mainly by the socio – psychological and the constitutional factors interaction and the interdependency, which were resulted in the pathological deviant behavior criminal stereotype. The Second group analogous personality feelings and the emotional experience, except the registered factors, have been defining and what is more by the long – term exposure upon the human organism of the organic and inorganic origin chemical – ecologically factors, having influenced upon the brain neuro-metabolism. Then, the Third group had been singled out, the teenagers (e.g. the 70 test human subjects), having taken from the life and the vital activity social environment of the Stavropol and the Nevinnomyssk towns, at whom the psychological, the psychical and the personality anomalies were not observed, that was permitted to be related them to the psychological accentuation – standard range in the continual – constitutionally space. Thus, all the test human subjects

have been divided into the 4 main basic psycho-types. Now, we have presented the teenagers comparative psychological – experimentally results with the personality psycho – type schizoid structure, correspondingly the 19 test human subjects – the 1–st group, the 22 – the 2–nd group, and the 18 test human subjects – the 3–rd group in the present paper.

The research methods are the following: the personality ones (e.g. the patho-characterological diagnostic inventory – PDI, the Aizenka and Taylor methods, the neurotization and the psychopathization level) and the clinical inventory (e.g. the test human subject neuroticism grades), the multi-vector psychological analysis with the X – square criterion use, having proceeded from the null hypothesis, that there is not any difference between the comparable groups and the discriminant analysis, as the non – parametric mathematical statistics method.

So, in the emancipation scales indices teenagers first group – E, the delinquency – d, the psychological propensity for the alcoholization – V, the masculinization – the M scale are considerably being exceeded the average analogous indices (e.g. $p < 0,01$) of the second group teenagers. So, it should be mentioned the psychopathization scale increase – P against the masculinization intensity (e.g. $p < 0,01$) background. The feminization scales – F, the vegetative instability – VI, the situational and the necrotic anxiety – SA, NA, ecar-, the intra-version – E – I have reliably been appeared to be the less expressed ones (e.g. $p < 0,01$).

The research results visualization analysis has been shown on the sufficiently specific «alloy» of the characterological – personally and the psychological indices, which are peculiar to the teenagers with the behavior pathological criminal stereo-type, when against the background of the constitutionally - conditioned psycho-typological predisposition and the defined psychoneuroendocrine predisposition (e.g. the M scale), in combination with the stressful social life and vital activity environment, the pathological deviant behavior formation is being taken its place. So, it is necessary to be emphasized, that the F scale decrease (e.g. $p < 0,01$) is reliably being resulted in the anxiety lowering, as the situational, well as the constitutional one, together with the vegetative instability (e.g. $p < 0,001$), «having opened the way» for the incremental psychopathization, which is closely «soldered» with the emancipation, the delinquency, and also the alcoholization. The psychoneuroendocrine predisposition intensity (e.g. the M scale) is being corresponded probably with the male sex hormones increase, which are higher the average norm, having promoted the psychopathization manifestations incrementation (e.g. the P scale), that in combination with the personality psycho-type structure, in our point of view, is being stabilized the behavior criminal stereo-type in the encouraging social environment with the consciousness

low legal level. Consequently, the teenagers with the constitutionally – conditioned psycho–typological predisposition, having interacted with the unfavorable legal – socially life and the vital activity medium, are being revealed the marked tendency to the negative personality drift to the range side of the abnormal personality changeability in the continual – constitutionally space, that is being revealed by the constitutional protection mechanisms frustration, having expressed in the deviant behavior formation, in particular of the pathological criminal stereo–type.

Thus, in the Second group, the human environment of which had been notable for the steady chemical – ecologically factors presence, were expressed by the scales indices average values of the extra-version – the intra-version – E – I, the neurotic anxiety – NA, the psychopathization – P, the vegetative instability – the VI scale, the behavior hysterical stereo–type – H and the feminization – the F scale. So, the neurotization scale indices – N have been reliably less expressed. The male sex hormones level lowering is being connected with the F scale index following increase that is the psychoneuroendocrine predisposition, which is lower the average norm that, may be, it is being closely connected with the chemical – ecologically factors of the influence upon the human organism. So, it is quite possible to be explained the Second group teenagers' androgens lowering only by the above – indicated pathogenetic interconnection, as, on the whole, the social life and the vital activity medium is quite analogous to the First group teenagers. The androgens level lowering at the teenagers with the schizoid psycho–type is being resulted in the manifested neurotic feelings and the emotional experience and also in the moderate psychopathic conducts with the reaction hysterical forms predominance, the vegetative instability and the extroversion, that it should be considered prognostically quite unfavorable. When at the teenagers with the psycho–type schizoid structure, the hysterical behavioral reaction forms are being appeared, not having corresponded with the initial basic psycho–type, then this fact is being reflected the tendency to the negative behavioral drift.

The psychopathization indices incrementation in the unfavorable chemical – ecologically life and the vital activity medium at the teenagers is being taken its place, at the expense, most probably, of the brain neurometabolism abnormal change, having emphasized the moderately manifested processes of the brain's organic changes, that is, the organic predisposition aggravation of the central nervous system (CNS). So, the present discussions and the reasoning are being confirmed, increasingly, by the constitutional anxiety (e.g. the CA scale) strengthening, in combination with the steady vegetative instability (e.g. the V.I. scale).

«The closed disk» is being formed, when the prolonged unfavorable chemical – ecologically influences upon the human organism, on the one hand, are

being resulted in the androgens decrease with the incremental neurotization, on the other hand, they are being promoted the anxiety status comorbidus psychopathization and the behavior hysterical stereo–type manifestations.

Thus, not only the psycho–typological predisposition, but and the predispositions are being revealed at the teenagers, having lived in the social life and the vital activity medium with the unfavorable chemical – ecologically factors predominance, which, on the whole, are being resulted in the negative personality drift from the psychological accentuation – norm range into the borderline abnormal personality (BAP) range.

The Third group teenagers, initially having placed in the psychological accentuation – norm range, are being interacted with the analogous unfavorable factors of the social life and the vital activity medium, but, for all this, we do not practically reveal the tendencies to the abnormal personality and the psychological changeability.

So, the last aspect is practically being proved the psycho–typological predisposition constitutional determination, when the personality protection constitutional mechanisms frustration is being appeared at the teenagers defined and the specified group under the social stressors influence, having emphasized the tolerance not high level to the external stressors, that, in their turn, is being opened the way to the more latent constitutional predispositions actualization, in particular, to the psychoneuroendocrine and the organic ones.

The congenital psycho–typological predisposition absence (e.g. the norm range group) is not being resulted in the negative psycho–typological drift even under the interaction conditions with the significant social stressors, having confirmed the stability, the constitutional mechanisms high – level tolerance of the person's psychological and the personality protection, with respect to the life and the vital activity medium external factors.

The mathematical – psychologically discriminant analysis has been permitted to be defined the psychological markers mutual combination, having taken part in the First and the Second groups differential diagnostics. Such types of the markers with their specific percentage contribution (e.g. not less, than 5%) into the discrimination have been appeared to be the following: the neurotization scales – 19%, the situational anxiety – 16%, the B index (e.g. minimum brain dysfunction) – H%, the emancipation – 11,5%, the psychological propensity for the delinquency – 7%, the feminization – 10%, the asthenization – 10%. Thus, it is quite possible to be delimited the both comparable groups representatives, having directed towards the above – listed psychological markers.

The mathematical – psychological differentiation model has been built, in the form of the linear discriminant function, having permitted, at the high

reliable level, to be attributed to the specific teenager research results to the one from the comparable groups:

$$Y = 3,1735X_1 - 2,2002X_2 - 0,8976X_3 - 0,3978X_4 - 1,0404X_5 - 0,4811X_6 + 0,0584X_7 - 0,0039X_8 - 0,7927X_9 - 0,3599X_{10} - 0,2326X_{11} - 1,9659X_{12} - 0,2742X_{13} + 0,0719X_{14} - 0,1747X_{15} + 0,6145X_{16} - 0,0372X_{17},$$

where X – the specific psychological index value.

The Y specific value will be more, than the Я discriminant index, if after the X substitution, then the examined teenager results would be attributed to the special group with the pathological criminal behavior. If the Y value is quite less, than the Я discriminant index, then it would be attributed to the teenager group, on whom the chemical – ecologically factors are exerting the primary destructive influence. The mistakes probable percentage of the differential diagnostics is being corresponded to the zero.

So, the all received data have been confirmed by the Mahalanobis square value, which is equal to the 28 standard units, that is, if to be projected the average values of the psychological centers indices of the comparable groups into the three – dimensional space, then, the more the distance between them, the more differentiation reliability degree of the all received results with the differentiation mistakes minimization.

The teenagers research already received psychological – experimentally results analysis with the personal psycho-type schizoid structure, having mutually interacted with the different life and the various vital activity mediums, will be given the basis to be confirmed the following. The teenagers, having initially placed in the continual – constitutionally psychological accentuation – standard range, are being differed from the others by the personal compensation, and by the behavioral adaptation, and by the psycho-typological personal structure stability mechanisms stability that is being provided the considerable tolerance to the destructive information effects and the impacts at the interaction with the unfavorable factors

of the life and the vital activity medium. The teenagers, having placed in the BAP range with the congenital psycho-typological predisposition symptoms to the delinquent behavior stereo-type are being characterized by the abnormal personality changeability formation under the destructive information medium influence not only in the BAP range, but and by the negative personal drift to the psychopathy range side (e.g. the personality disorders), in the form of the delinquent – criminal behavior stereo-type continuum. The similar drift is being reflected the not high psychological and the personal tolerance to the social factors of the life and the vital activity medium, the protection constitutional mechanisms instability, that is being resulted, as the final result, in the psycho-typological interconnections weakening in the personal stereo-type structure with the following abnormal or the pathological changeability formation of the psychological and the psychical, and the mental health by the «pathology – standard» vector.

The teenagers, having had not only the congenital constitutional psycho-typological predisposition, but and the psychoneuroendocrine one, having combined with the CNS organic predisposition, and having worsened by the interaction with the destructive ecological factors of the life and the vital activity medium, are being characterized by the negative drift from the psychological accentuation – standard range into the continual – constitutionally range of the borderline abnormal personality. The borderline psychical disfunctions and the mental disorders formation risk is being increased by the «disease – health» vector, against the background of the psychological and the personality tolerance reduction to the external factors, the protection constitutional mechanisms weakening.

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*Material of Conference***ELECTROCARDIOGRAPH
ON NANO-ELECTRODES**

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Science-innovation sphere is vital part of the economy, without development of which it's impossible to increase country's competitiveness at world markets.

Questions of higher education science development, its result implementation into national economy are important issues nowadays.

It is important to use science-innovation potential of Russia's Higher School more actively by strengthening relations between higher education institutions and industry.

The issue of commercial usage of the results of scientific research of educational institutions is quite important [1].

On the basis of research institute of introscopy of Tomsk Polytechnic Institute there's developed an electrocardiograph on nanoelectrodes for monitoring according to the method of Halter with higher resolving power for early diacrisis of heart-vascular system and detection of ischemic changes of myocardium by estimation of ST-segment shift.

The project has social meaning and is directed to improve quality of electrocardiographic research.

Halter monitoring is an obligatory method of cardio patient examination and is widely used nowadays.

ST-segment shifts as possible sign of ischemic changes of myocardium are thoroughly estimated. Analysis of ST-segment is connected with big technical difficulties and almost always a doctor should not rely on automatic measurement of ST-segment changes without medical control of fiducial points [2].

Accuracy in measurement of ST-segment shift is very important for qualified estimation of ischemic changes of ECG. It's ideal when it's no worse than 10 ± 15 μ V. Systems with accuracy in measurement of ST-segment shift at level 40 ± 50 μ V may make it difficult to detect slight shift as diacritically important ST-segment shift is 100 μ V [3].

Quality, with which Halter monitors register ECG, depends on frequency interval, capacity of analog-to-digital converter (ADC). Using 8-digit ADC, as it is in a number of systems, accuracy in measurement of amplitudes can't be better than 40 ± 50 μ V, and it is not enough for estimation of low-amplitude components of ECG (P waves, ST-segment), that's why such monitors can be used only for rough estimations of rhythm disturbance [3].

There's a great variety of electrocardiological equipment at world and Russian markets. Electrocardiographs work in narrow band and have restrictions for low frequency (from $0,05$ Hz and more) and for high frequency (20 Hz, 40 Hz, 75 Hz, 100 Hz) because usually metallic electrodes are used for ECG in hospitals and polyclinics. These electrodes are polarized under the influence of direct current and have essential drift on direct current and mush.

Ideal cardiogram should be done in frequency band from 0 to 100 Hz without filters in acceptance band, including barrier filter 50 Hz.

Filter of high frequency leads to mutilation of ECG-signal in the field of low frequency and to mistakes detecting ischemic heart disease, patients with which usually have enstrophe of S-T complex of cardiogram.

High quality of electrocardiogram is necessary first of all in polyclinics, where there's main stream of patients and where detection of pathologic processes at the beginning stage of heart disease is needed.

Contemporary achievements in the field of nanotechnologies and nanomaterials allowed developing nanotechnologies in a number of applied fields of science and engineering. One of the examples is the development of medical nanoelectrodes on the basis of porous ceramics, created in research institute of introscopy.

By using nanoelements of silver in chlorine-argentic electrodes on the basis of porous ceramics we got the following characteristics of nanoelectrodes on direct current [4]:

- drift of electrode-electrolyte-electrode system with DC strain ≤ 1 nA – $0,005$ μ V/sec;
- drift of electrode-electrolyte-electrode system with DC strain 100 nA – $(0,05-0,1)$ μ V/sec;

Nanoelectrodes almost do not polarize with currents up to $0,5$ μ mA and have low contact potential.

When examining heart during 20 heart cycles isoline drift with current 1 nA will be $0,1$ μ V; with current 100 nA – $(1-2)$ μ V; change of electrode potential difference is no more than $2-3$ mV with current influence 100 nA.

The carried out preliminary technical and medical researches of electrocardiograph and nanoelectrodes models showed the ability to research ECG-signal without using low frequency filters, limiting signals in the field of low frequency, blocking filters 50 Hz, with currents over 1 nA and less 100 nA, and in frequency interval $0-100$ Hz.

Contemporary electrocardiographic equipment, based on the most top quality high-resistant electrodes (nanoelectrodes), PC and software which will provide timely high quality express-diagnostics of heart-vascular system in on-line mode should be used in polyclinics.

The development of portative small-sized electrocardiographic equipment which will allow register true electric heart activity distortionlessly, estimate ST-segment drift as possible sign of ischemic changes of myocardium will allow improve quality of electrographic examination.

Medicine is a field, where product commercialization has its own specificity, is connected with high responsibility for patient's health and life.

Developments made by Higher Education Institutes are in demand and lead to decreasing buying expensive foreign equipment.

Role of science-research and innovation activity of Higher Education Institutes is great. Science-innovation potential of Higher Education Institutes is the most important element, providing development and production in university R&D, thus increasing competitive positions of Russia at world market.

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THE SOCIAL INFORMATION IN THE SOCIAL COMMUNICATION SYSTEM

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The defined and the specified presentations on the information are being formed in the social communication conceptions [1].

The environment, through which the communication is being conducted, is the communicative one. If, for example, the communication is being carried out by the electromagnetic waves (e.g. the radio waves), then they are made the environment in the defined and the specified space. The environmental air is such kind of the environment for the information transmission between the people by means of the articulated speech.

When the environment is being served, only for the information transmission realization, then it, in the full measure, is being corresponded to the name of the communicative one. If the environment is being used not only for the transmission, but and for the information storage, then such environment, with the good reason, it is quite possible to be named the communicative one. The social memory material elements are being formed in such kind of the environment. Thus, this environment is being evolved, and the social memory material cells and the informational environment are being improved, and they are being perfected.

As A.V. Petrov [1] notes, the informational environment evolution has historically been passed in the space unification forms: if the branch points' quantity has been defined by the big cities and the metropolises geographical location for the flag telegraph, then the electrical telegraph has already multiplied the connection points' quantity. Subsequently, the telephony has been making up the «homogenous» space, including the cellular communications, which almost completely is being removed the subscriber's location challenge, having organized the necessary «information» access to the man in his house, in his apartment, at his work, in his car... in the quite various and the different places.

The whole physically realized network complexity is being acquired the one measurement, when the space structure significance is being disappeared (e.g. the special differences have already been leveled hardwarily, by means of the peculiar cells, or «the honeycombs»): the devices are being gotten more complex and sophisticated, which, in their turn, «are being leveled» the geological and the municipal relief.

So, and the human contact character is constantly being changed together with the information network formation. When the messenger carries the letter, he is being restricted in his own possibilities to be accelerated the message transfer by the horse power (e.g. the speed). So, the telephone has already been restricted, owing to the large quantity of the «operating» points at the early stage of its development. The connections inside the network are being depended on the telephone «young lady's» manual dexterity, but on the telephone talkers' comprehension – in the telephone contact sphere. As the information transmission must be left the functional one (e.g. the network, which is being passed the information, having left behind the telephone talkers' comprehension, is not carried out its main function), then the network development potential is being realized in its further internal improvement and the perfection. There are the main optimization resources, here, as the information transmission velocity, well as the contact quality. So, the technique is begun to be withdrawn the man from the intermediary events sphere. If the distance, at which the message is being passed, is the great one, but the quality must be excluded the natural noise,

which is being created by the electrical interferences, then the man, who is being involved in the information transmission process, does not already quite directly have his influence upon the necessary communication parameters. In the end, his role is more and more came to the network physical components maintenance, and that is why, he is completely excluded from the «channels switching» process.

The disruption is being taken its place between the comfort, the offering services satisfactory quality, the actual essence for the user and the consumer, and also the internal processes complexity of the communication provision in the process of the informational environment evolution. So, the man is losing his presentation on the fact that is being taken its place during the whole communication extent: simply, he is not quite needed in such kind of knowledge. The communication process itself is being perceived by the consumer, as the contact with the interlocutor, though the technical forms, having provided the information transmission quality, are being gotten more complex and more complicated, and they are being differentiated during the whole length of the informational «space». Thus, it has gradually become quite clear, that the evolution at the network borders is being proceeded much slower, than its internal further development.

And so, the code status is being changed with the following internal complexity rise. So, the messages are being created, sent and accepted, which are not intended for the user, and they are not interpreted by him in any way in the technical sphere, with the devices advent, which are being made the selection operations (e.g. the control and the routing). Hence, there is more the one significant result. Thus, the informational environment has already become uncommonly multi-dimensional in the evolution process: the flows of the «additional» (e.g. technical) communications are being organized for the enhancement and the further quality improvement of the transmitted information, which are more and more being jointed with the information, having come from outside and having gone away of the network physical world abroad with the computer engineering development. So, the information «program unity» has been emerged – that is the new environment, which is being increased the self-reference (e.g. from the Latin language *referre* – «communicate») flows part in the communication – the information on the necessary information (e.g. the programs for the other programs). In the end, the users Internet chat are not transmitting anything to each other, except the program products, in the Internet chat, which are being situationally «distorted» by their user interference (e.g. the E-Mail message text). The code, having rolled out the intelligent text for the user, itself is being realized only in the operation system (OS) shell (e.g. of the other codes) in the E-Mail message; the message has not already been able to be read

(e.g. to be perceived and to be comprehended) outside of it.

A.V. Petrov, having considered the informational environment natural evolution, has found out that the network service and maintenance methods, and also the informatization process, on the whole, are getting more complex and are getting more complicated. This is being depended, in many respects, the aspects, and the ways on the control for the information content, and on the communication structure control system. The technical workers have to use the information, which only the network itself is quite able to be provided, having tested its proper space, in order to be increased physical disorders removal velocity. Practically, the man begins to be entered into the dialogue with the information environment, having asked the questions, and having received the answers «from the inside part» of the system. So, the contacts zone is being formed in such a way, for which it is not any longer the «the man (e.g. the homo sapiens) – the machine (e.g. the unreasonable mechanism)» the non – actually communicative sides' inequality. That is why, the direct man's conversation with the technique is quite absurd, but it is being acquired the fantastic sense-making, owing to the mediation phenomenon, or to the interface, by means of the information environment.

The interface – this is one of the most products, which the specific character and the specificity are usually being revealed in the dimensionality. The specific objects have already been organized, especially for the man in the sphere of his activity, which, in their turn, are being permitted, in order them to be perceived, as the real ones (e.g. the «usual» key buttons in the every program), but the actions, having performed by all these objects, are being transformed into the codes, which are being processed by the special programs «independently» from the fact, what kind of the reality from they are being transmitted. So, the interface has the same main function, which is the multi-dimensional one: it has been designed to be provided the coincidence and the combination between the man and «the program». The interface is being provided that kind of activity, which has been earlier the only man's prerogative to the information environment, and, moreover, this activity, possibly, has already been much exceeded the user's activity.

Thus, it has already been turned out, that the information phenomenon is not being made up into the «data» notion any more; it, in its turn, is being entered into the great number of the technical, the cultural, and the social contexts, it has become the factor even of the interpersonal communication. Also, it is quite possible to be said, that there is the possibility to be designed its «interface» for the every contact in the information culture.

How to be described the symbiosis, which has already been appeared? How much is this kind of information universal for all the relations' types, which

are not only the complex ones, but as well the simple ones? Is it really the Universe constantly being evaluated, owing to all the new subsequent relations «increments», which are quite possible to be acknowledged the information ones? And, at last, how the information general theory can to be simplified the dialogue between the various sciences, having collided in the renewed world? Here you are, all those challenges, which are the most actual ones for the contemporary further development [2].

For all this, the people informational needs and the data requirements are constantly being increased, and the more and more attention is being concentrated upon the information axiological qualities. Such valuable parameters of the social information have been become the most priority ones, as the following: the actuality, the novelty, the truthfulness, the completeness degree, the intensity, the reliability, and the accessibility.

Thus, the scientific knowledge, having accumulated to the second half of the XX – th century, is already permitted long ago to be stated that fact, that the information in the nature is constantly being transmitted beyond the dependence on that, the highly developed consciousness is being or not existed. The insects «reasonable» behavior, the heredity and the

DNA, the chaotic molecular processes study and the research are being provided the affirmation on the information manifestations omnipresence or the universality. But, at the same time, the same phenomenon is being asked and the other question before the informationalism epoch, is it possible to be created the description, which, at long last, is organically being incorporated the human consciousness into the inanimate and the inorganic nature world within the framework of the information general theory.

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Short Report

**THE CALENDAR VOCABULARY AS A STUDY
SOURCE OF ANCIENT CULTURAL-
LINGUISTIC CONTACTS OF SIBERIAN
INDIGENOUS PEOPLES (TO THE PROBLEM
OF THE ORIGIN OF THE WORDS “SPRING”,
“WINTER»IN THE SELKUP AND THE KET
LANGUAGES)**

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Different ethnic groups had been living, moving, assimilating on the territory of Western Siberia for a long time. Economic and cultural contacts between representatives of these groups had been arising during many years. The relations and the two-way influence of two peoples – the Samoyeds and Yeniseys (ancestors of modern Selkups and Kets) - is one example of such contacts. Samoyed-yenisey lexical equivalents demonstrated by some researchers may be given as the results of their relationship [1]. The correspondence between some words there is in languages of the modern Selkups and Kets too. The words “spring”, “winter” belong to such words. There are some different opinions about the origin of these words in the Selkup and Ket languages. Therefore it is reasonable to analyse peculiarities of the forming of the names for conceptions “spring”, “winter” in these languages.

1) Spring

The Selkup people used the word Ytid (ödeD and other phonetic variants), the Ket people used the word yed' for the conception “spring”. The famous hungarian researcher Haidu P. supposed, that the selkup word has been borrowed from the Yenisey languages: nen. djotti, selk. ödeD < ket. Yed (spring) [2].

The prominent researcher of the Yenisey languages Joki A. expressed the same opinion, that the samoyed words with the meaning “spring” has been borrowed from the Yenisey languages, there are the following correspondence at that: selk. ödəD - ket - yed', yedi - tib. - dpyid [2].

The well known researcher K. Bouda has the opposite view on the borrowing direction, namely: yen. yed(i); kott. iji - spring < sam. ytid [3].

2) Winter

The words with the meaning “winter” were fixed in the Samoyed and the Yenisey languages. There is the supposition, that the selkup kä, ke, kam. khä had been borrowed from Yenisey. From the E. Levi's point of view there are the equivalents: ket. kete, kott. kēti, tib. dgun [2]. Some researchers express the contrary idea: the yenisey root had been borrowed from the Samoyed language [4, 5].

Thus, contradictory linguistic data concerning the borrowing processes of words “spring”, “winter” in the Samoyed and the Yenisey languages have been demonstrated above. Concerning some opinions about

relations of the Samoyeds and Yeniseys it may be supposed the following peculiarities of the origin of the names for conceptions “spring”, “winter” in the Samoyed (Selkup) and the Yenisey (Ket) languages:

1) The words “winter”, “spring” had been borrowed by native speakers from each other during the period of the existence of Samoyed and Yenisey linguistic communities.

2) The words “winter”, “spring” had been borrowed by native speakers from each other after the disintegration of indicated linguistic communities (or one of them).

3) The words “winter”, “spring” have been borrowed by native speakers not from each other, but from another source.

It is known that there are many words in Selkup and Ket borrowed from other, unrelated languages. For example, words from Russian and Turkic have been fixed in the Selkup language. A whole number of common words of Ket and Chinese have been revealed as well [3]. The hypothesis about the connection of the Yenisey and the Tibetan-Chinese languages, based on the study of similar words, has been supported by many authors [6]. The famous researcher of aboriginal Siberian languages A.P. Dulzon has noted the correspondence between the words of the Ket and the Hun languages in addition [7].

The observed lexical equivalence and correspondences are the basis for the supposition about the available contacts between native speakers of above stated languages. There is the opinion about the connection between the Kets and the Chinese, the Kets and the Huns, (in addition between the Kets and American Indians too), etc. [7]

From the other side there is the supposition that the Samoyed and the Yenisey had the common ancient ancestral home situated in the south Siberia [8]. There is the idea about the single ancient cultural-linguistic community of Selkups and Kets [6].

It is possible to think about possible ancient contacts not only between the Yenisey (Kets) and Tibetans, Chinese, Huns, but between the Samoyeds and these three peoples. Therefore the words “winter”, “spring” in Samoyed (and in Yenisey) could be borrowed from languages of Tibetans, Chinese, Huns.

4) The above mentioned words “winter”, “spring” are unrelated.

There is the assumption that the Samoyed word roots with the meaning “winter” (selk. kə, kamas. khä) have nothing to do with the yenisey root *gəte – “winter” [4].

So, the research of the calendar names with the meaning “winter”, “spring” in Samoyed (Selkup) and Yenisey (Ket) are connected with some different and sometimes conflicting conclusions.

Thus, it is impossible to identify the true origin of calendar names in above mentioned pre-literate languages on the basis of only linguistic data. The

forming of words with the meaning “winter”, “spring» can be found out by means of the integrated approach. This approach consists in the synthesis of many different techniques and data, concerning: linguistic, ethnographical, historical, philosophical etc. This approach covers both the Samoyed (Selkup) and the Yenisey (Ket) (and other peoples). It means the detailed study of the vocabulary, semantic, phonetic, borrowing and other processes in languages of these peoples, the comparative research of their social and economical structure, of the material culture traits, of the thinking type, of the territorial and climate life peculiarities, the investigation of the ancient relations between the pre-literate Siberian peoples and the analysis of many other facts. This method will permit to understand the true origin of indicated words. So, the research of calendar names in the Selkup and the Ket languages causes the general study of many-sided ancient cultural-linguistic contacts of many Siberian indigenous peoples.

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ABBREVIATIONS

- yen. –Yenisey
kam. – Kamass
kot. - Kot
nen. - Nenets
sam. - Samoyed
selk. - Selkup
tib. - Tibetan

Short Report

PREVENTION OF WOUND COMPLICATIONS IN PATIENTS WITH POSTOPERATIVE VENTRAL HERNIAS

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Summary: The article presents the estimation of wound complication prevention efficacy in allohernioplasty in 152 patients aged 33-76 years old with large postoperative ventral hernias with the use of three techniques of wound drainage – Rendon’s traditional vacuum drainage, Blake Drains and drainage system UnoVac.

Keywords: postoperative ventral hernias, complication, low vacuum drainage systems, Blake Drains, UnoVac, Ulmer.

The problem of postoperative ventral hernias repair has not lost its actuality. In the postoperative period after hernioplasty various wound complications are often seen, their rate reaching 20.9-49.2% [1, 2, 4, 5].

Prevention of infectious wound complications in hernioplasty, especially in cases of large and giant postoperative ventral hernias, is one of the main strategic issues of their complex operative repair [3, 6, 7].

The aim of our investigation is to assess wound complication prevention efficacy in allohernioplasty in cases of large and giant postoperative ventral hernias with the use of three techniques – traditional vacuum wound drainage with Rendon’s drain, Blake Drains and drainage system UnoVac.

Materials and methods

Since 2005 till 2007 in the Krasnoyarsk City Clinical hospital № 7 152 patients aged 33-76 years old were operated on for large postoperative ventral hernias. There were 105 females (69%) and 47(31%) males. All the patients had postoperative ventral hernias of large size (the defect of aponeurosis was 15 to 20 cm in diameter). Hernioplasty in these patients was performed with the help of Rives’ and Stoppa’s techniques into the position “sublay”. In all the patients prolene net “Ethicon” was used for allohernioplasty.

For qualitative indices a share error, median and fractils Me [P25; P75] were presented. In determining difference significance on complication development rates Pierson’s Chi-square or accurate Fischer’s criterion were used.

Depending on the drainage techniques all the patients were divided into three groups. These groups were matched in age, sex, and hernia size. In the first group (50 patients) wound drainage was carried out in a traditional way with the help of Rendon’s vacuum drain.

In the second group (51 patients) drainage was performed with Blake Drains (Fig. 1). This drain was inserted in the same positions as in case of drainage with Rendon’s drain.



Figure 1. General view of Blake Drains

In the third group the drainage of the postoperative wound was done with a special low-vacuum drainage system UnoVac. The drainage tubes were placed in the area of implanted prolene net and in the subcutaneous fat. With the help of stylets the drainage tubes were withdrawn outside the postoperative wound and after connecting with a special T-joint they were attached to the vacuum system.

The postoperative wound drainage efficacy in all three groups was carried out with the help of ultrasonic investigation.

Results and discussion

Analyzing the received results we revealed the following complications (table 1) which differed in prevalence in the groups under investigation.

Table 1. Prevalence of complications in patients with postoperative ventral hernias (+ m)

Complications	Specific structure of complications in the groups under investigation					
	I (n=51)		II (n=50)		III (n=50)	
	n	%	n	%	n	%
Seroma	7	14.0 + 4.9	3	6.0 + 3.4	2	4.0 + 2.8

Complications	Specific structure of complications in the groups under investigation					
	I (n=51)		II (n=50)		III (n=50)	
	n	%	n	%	n	%
Infiltrate in the area of postoperative wound	3	9.0 + 4.0	1	2.0 + 2.0	0	0
Wound infection	2	4.0 + 2.7	0	0	0	0
Total	12	27.0 + 6.2*	4	8.0 + 3.8**	2	4.0 + 2.8***

Note: *P1-2=0.005; **P2-3=0.68; ***P1-3=0.15.

In the first group serous exudation from the wound was seen in 21+6.9% of patients for 5-7 days. Formation of seroma was noted in 14+4.9% of patients with long exudation from the wound for 14-16 days. On ultrasonography accumulation of serous fluid (about 60 to 90 ml) was visualized in the subcutaneous fat, which demanded performing multiple (3-5 times) punctures. The drains were removed on the 7-9th day. Infiltrate in the area of the postoperative wound was seen in three (9+4.0%) patients. In two (4+2.7%) patients superficial postoperative wound infection was noted that is why the gauze implant was not removed. Length of hospital stay of the patients of the first group was 13 days [12, 14].

In the second group serous exudation from the wound for 3-4 days was seen in five (10+4.2%) out of 50 patients for 3-4 days, seroma was formed in 6 + 3.4% of cases with exudation from the wound for 5 days. On control ultrasonic examination limited accumulation of serous fluid was not visualized. The drain was removed on the 5-7th day. There was no suppuration in this group of patients. Infiltrate in the area of the postoperative wound was seen in one (2+2.8%) patient. It was eliminated with the help of conservative treatment. Length of hospital stay of the patients of the second group was 10 days on the average [10, 12].

In the third group serous exudation from the wound was also seen for 3-4 days in four (8+3.8%) patients, seroma being formed in two (4+2.8%) of the patients with exudation from the wound for 5-6 days. On control ultrasonic examination limited accumulation of serous fluid was not visualized. The drain was removed on the 5-6th day. There was no suppuration in this group of patients. There was no infiltrate in the area of the postoperative wound. Length of hospital stay of the patients of the third group was 10 days [9, 10].

As it is seen from table 1, there are some significant differences as for complication prevalence both among all three groups (criterion Chi-square $p=0.012$), and between the first and the second groups (accurate Fischer's criterion $p=0.05$), between the second and the third groups ($p=0.678$), between the first and the third groups ($p=0.15$).

Thus, early postoperative period after alloherioplasty for large postoperative ventral hernias is accompanied with profuse serous exudation from the wound, which requires adequate vacuum drainage aimed at prevention of pyo-inflammatory wound complications. Traditional drainage techniques do not yield adequate drainage of the postoperative wound, which results in high wound complication rates. The use of drainage system UnoVac and Blake Drains due to constant and even rarefaction helps to significantly decrease length of serous exudation from the wound, to prevent seroma formation and postoperative wound infection and, in that way, to significantly improve short-term and follow-up results of repair, to decrease length of hospital stay of patients.

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Short report

**CONSTRUCTION AND THE ANALYSIS
OF MATHEMATICAL MODELS
OF EDUCATION**

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Mathematics modeling plays key role in analysis of one of the most important problems – the problem of education. The question of training and obtaining mathematical knowledge is particularly interesting. The main goal of the research is the construction of model hierarchy. It has been defined what level of models should be used in different cases. The model of linear differential equations has become the basic mathematical model [2]. Then this system has got more complicated and transformed into the dynamic model of non-linear equations.

The study of constructed models plays important role together with the construction of mathematical model. One of the methods of analyzing the models that use systems of differential equations is the analysis of the solution stability. There are several methods of the examination of the stability of the differential equations solutions. The stability of solutions in terms of Lyapunov has been used in this article. The stability in terms of Lyapunov implies the study of the endless time interval. The question of asymptotic stability is being analysed in the article since we

are interested not only in final interval during higher education, but also saving the residual knowledge.

Let us divide a set of students into three groups. The first one consists of the students that are strong at studies, the second one – of those that are average at it, and the third group consists of weak students. This distribution is conditional, it doesn't reflect the degree of natural gifts, internal preparation, diligence, motivation. However the study of even such simple model allows us to obtain interesting qualitative material.

In the first model let us assume that the knowledge is distributed equally within all three groups.

Let us designate the level of knowledge within students in group i as $N_i(t)$, $i = 1, 2, 3$, and the operating influence on group i as $U_i(t)$. The operating influence can be persistent, discrete (control measures), or of combined type. Let us introduce coefficients: α_i - the coefficient of knowledge within group i , β_i - the coefficient of the forgetting of school material, δ_i - the coefficient of the controllability of group i , ε_i - the coefficient of the controllability of group i depending on the tutor's qualification level, γ_{ij} - the coefficient of the impact of group i upon group j . As a result we have simple model:

$$\frac{dN_i}{dt} = (\alpha_i - \beta_i) N_i + \sum_{j=1}^3 \gamma_{ij} N_j + (\delta_i + \varepsilon_i) U_i(t), \quad i = 1, 2, 3. \quad (1)$$

As initial conditions we take initial preparation of group. \sum implies the summing on $i \neq j$.

Let us introduce some accurate definitions into the model (1). Coefficients $\alpha_i(t)$, $\beta_i(t)$, $\gamma_{ij}(t)$ are dependent on time. We will take the effect of satiation into consideration, according to which the amount of knowledge within every group cannot exceed some

utmost value N_i^* , that is special for every group. Finally, for every group there is a limit of operating influence that we will designate as U_i^* . Considering this remarks, the model will take on form:

$$\frac{dN_i(t)}{dt} = \left((\alpha_i(t) - \beta_i(t)) N_i(t) + \sum_{j=1}^3 \gamma_{ij}(t) N_j(t) + (\delta_i(t) + \varepsilon_i) U_i(t) \left(1 - \frac{U_i(t)}{U_i^*} \right) \right) \left(1 - \frac{N_i(t)}{N_i^*} \right). \quad (2)$$

The initial conditions are the same as for model (1).

In models (1) and (2) it was supposed that the knowledge had been distributed equally within the group. Let us renounce this supposition, assuming that

the distribution of knowledge is going on according to parameter r . For the strongest student $r = 0$. Then the model will take on form:

$$\frac{dN_i(t)}{dt} = \left((\alpha_i(t) - \beta_i(t)) N_i(t) + \sum_{j=1}^3 \gamma_{ij}(t) N_j(t) + (\delta_i(t) + \varepsilon_i) U_i(t) \left(1 - \frac{U_i(t)}{U_i^*} \right) \right) \left(1 - \frac{N_i(t)}{N_i^*} \right) +$$

$$+ \frac{d}{dr} \left(\eta_i(r, t) \frac{dN_i}{dr} \right), \quad i = 1, 2, 3. \quad (3)$$

$\eta_i(r, t)$ here is the coefficient of knowledge transmission in group i . The level of initial preparation is taken as initial values in model (3).

Let us study the dynamics of the educational processes, that has been obtained in numerical realization of models (1)-(3).

In simple model (1) $N_i(t)$ ($i = 1, 2, 3$) shows the level of knowledge within the students of group i at the temporal moment t . If we define coefficients $\alpha_i - \beta_i = k_i$, then the model will take on form:

$$\frac{dN_i}{dt} = k_i N_i + \sum_{j=1}^3 \gamma_{ij} N_j.$$

This system can be also put down as:

$$\frac{dN}{dt} = AN$$

The solution of this system should be searched in form:

$$N_1(t) = p_1 e^{\lambda_1 t}, \quad N_2(t) = p_2 e^{\lambda_2 t}, \quad N_3(t) = p_3 e^{\lambda_3 t},$$

where λ_i are characteristics of the number of matrix A , p_{ij} are coordinates of inherent vectors.

Fundamental system of the solutions takes on form:

$$\begin{aligned} N_1(t) &= C_1 p_{11} e^{\lambda_1 t} + C_2 p_{12} e^{\lambda_2 t} + C_3 p_{13} e^{\lambda_3 t}, \\ N_2(t) &= C_1 p_{21} e^{\lambda_1 t} + C_2 p_{22} e^{\lambda_2 t} + C_3 p_{23} e^{\lambda_3 t}, \\ N_3(t) &= C_1 p_{31} e^{\lambda_1 t} + C_2 p_{32} e^{\lambda_2 t} + C_3 p_{33} e^{\lambda_3 t}. \end{aligned}$$

The permanent integrations of C_1, C_2, C_3 can be found from the condition $N_i(0) = N_{i0}$ - the initial amount of knowledge in the beginning of education. As we adjust the coefficient of operating influ-

ence δ_i , we will obtain different images of the system outgoing.

Let us study the dynamics of the educational process considering satiation. This phenomenon is described in work [1]. Let us introduce one more definition:

$$\delta_i(t) U_i(t) \left(1 - \frac{U_i(t)}{U_i^*} \right) = Z_i.$$

Model (2) will take on form:

$$\frac{dN_i(t)}{dt} = \left(k_i(t) N_i(t) + \sum_{j=1}^3 \gamma_{ij}(t) N_j(t) + Z_i(t) \right) \left(1 - \frac{N_i(t)}{N_i^*} \right).$$

In general view the system looks that way:

$$\frac{dN_i(t)}{dt} = f_i(t, N_1, N_2, N_3) \quad (i = 1, 2, 3).$$

The solution is being searched in the following form:

$$N_1 = N_1(t), \quad N_2 = N_2(t), \quad N_3 = N_3(t),$$

where t is independent variable (time).

Comparing the results of the realization of models (1) and (2) we can notice that in the first case the amount of knowledge grows unreservedly and within the second model the process of satiation takes place and the amount of knowledge doesn't exceed definite limit. Such picture is more realistic so it is reasonable to use model (2).

The research of the stability of the solutions of various models comes to study of the system of non-linear differential equations [3]. The analysis of the

$$\frac{dN_i}{dt} = (\alpha_i - \beta_i)N_i + \sum_{j=1}^3 \gamma_{ij}N_j, \quad i=1,2,3. \quad (4)$$

Let us study the little deviation from the special point:

$$\vec{N}(t) = \vec{N}^*(t) + \Delta\vec{N}(t).$$

As we decompose this function into the lines of Taylor, we have:

$$N_i^*(t) + \Delta N_i(t) = (\alpha_i - \beta_i)N_i^* + \sum_{j=1}^3 \gamma_{ij}N_j + A\Delta N_i(t) + G_i(\Delta N_i).$$

Jacobian matrix A , function G are formed by non-linear to ΔN terms of decomposition. We use the first method of the study of stability according to Lyapunov. Matrix A does not have inherent values with zero valid parts and multiple to inherent values, that is why while studying the stability if solution \vec{N}^*

stability of non-linear problems comes to study of the stability of linear equation solutions.

Let the stability of stationary solution of the system of non-linear differential equations of type (1) $\vec{N}(t)$. Vector $\vec{N}^*(t)$ is called the point of balance or the special point if the tutorial influence on the educational process is not considered. The equations system takes on form:

the rest of line $\vec{G}(\Delta N)$ can be set aside. In work by I.V. Boykov [5] the theorem about the stability of systems of differential equations is proved is the condition is met:

$$\Lambda(B(T, \gamma)) < 0,$$

where Λ is logarithmic norm. The solution is stable, if the roots of characteristic equation lie in left half-plane. As we move to new basis we come to linear system of differential equations. $\text{Re } \lambda_k < 0$. The valid part of inherent values is less than zero and the state of balance will be stable.

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