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SUMMARY

MEDICAL SCIENCE

O. G. Belorukova, E. B. Rudakova

Ectopy of uterine neck and Papillomavirus infection in women of different age groups. Approach to the patient

The peculiarities of interaction between HPV and ectopy of uterine neck, 179 women aged from 19 to 52 years. On the basis of clinical and morphological study developed a differentiated approach to managing patients from different age groups.

Keywords: uterine neck, Papillomavirus infection, ectopy of uterine neck.

A. V. Brusentsova, V. P. Rostikov, S. V. Melnichenko

The impact of quality of potable water to the health of population of Raduzny in 2005–2009

Water used by the population of Raduzny for the potable purposes has deviations from the standards of the hygienic specifications: non-standard tests on microbiological parameters for the period of 2005–2009 makes 1,7 % (Russian Federation 5,9 %), on sanitary-chemical — 71,9 % (Russian Federation 17,9 %). For the period of research, the tendency to decrease the death rate from the main reasons is marked. The leading reasons are taken by illnesses of the system of blood circulation, trauma and poisoning. However, the level of general illness of the population is stabilis, the significant rate of increase is marked by illnesses of the system of blood circulation, illnesses musculoskeletal system by both traumas and poisonings. The significant statistical relation between parameters of the contents of iron in potable water and illnesses of skin and hypodermic tissue, contents of a fluorine and traumas, and also caries, level of a rigidity and illnesses of the system of blood circulation are determined.

Keywords: quality of potable water, Raduzny, morbidity, mortality.

T. F. Volchkova

Neurocognitive deficit and social functioning correlations in patients with schizophrenia

The dynamic analysis of parity of social functioning and neurocognitive deficit of patients with schizophrenia, treated in a day hospital, at use of various medical rehabilitation approaches to the given category of patients.

Keywords: schizophrenia, social functioning, neurocognitive deficit, social adaptation level, psychosocial rehabilitation.

V. V. Dalmatov M. L. Sayfullina, V. L. Stasenکو

The experience of health casualties decrease in Omsk region population with diabetes

The article with the system approach, we consider activities aimed at reducing of health loss in the region (morbidity, disability, mortality) caused by diabetes. The estimation of the effectiveness of the developed regionally-oriented epidemiological surveillance systems pathology is carried out.

Keywords: diabetes mellitus, morbidity, disability, mortality, the control system pathology.

E. V. Elokhina, S. V. Scalskiy, M. B. Kostenko

The analysis of eradication therapy of patients with peptic ulcer disease

The analysis of eradication therapy of patients with peptic ulcer of stomach and duodenal ulcers, treated in the health care institutions of various property forms is done. The data compared with the standards and recommendations for the treatment of this disease.

Keywords: gastric and duodenal ulcer, treatment, standards.

O. V. Zadorozhnaya, Yu. V. Drozdovskiy

The quality of life of schizophrenic patients with concomitant viral hepatitis

The article deals with the factors affecting the quality of life of schizophrenic patients with chronic viral hepatitis in the context of psychopharmacotherapy in hospital environment. Social and demographic status, labour and family adaptation of patients from this group are characterized. Correlations between life quality major indicators and intensity of productive and negative disorders are identified.

Keywords: schizophrenia, hepatitis, life quality, psychopharmacotherapy.

O. I. Lebedev, E. A. Kalizhnikova, V. V. Kovalevskiy, A. E. Yavorskiy
Non-penetrating deep sclerectomy: the analysis of postoperative results

We analyze the differences and relation between the efficacy of modified non-penetrating deep sclerectomy, which is estimated from the magnitude of the true intraocular pressure P after surgery, sex and the age of patients, disease stage and preoperative hypotensive therapy. The results show the presence of various hypotensive effect of surgery, depending on age, sex, and patients adhered to their hypotensive therapy. The data from this study should be considered in the developing recommendations for the treatment of patients with glaucoma and in the daily practice of physicians in the preparation of treatment plan of these patients.

Keywords: non-penetrating deep sclerectomy, age, sex, hypotensive therapy.

N. Yu. Lukina, N. M. Kurch, O. A. Arzamasova, V. E. Vysokogorskiy
Indicators of carbohydrate-protein exchange in chronic alcohol intoxication: clinical and experimental data analysis

The study is to determine the nature of changes in the indices of carbohydrate metabolism and protein complexes in patients with chronic alcoholism during abstinence and at different ages of life prenatally alcoholized animals. In the serum of patients with chronic alcoholism who are hospitalized it is revealed a significant increase in the content mucoproteins, sialic acid, glucuronic acid and glycosaminoglycans. In the simulation of prenatal alcohol intoxication in the offspring of rats it is revealed an increase in the concentration of glucuronic acid, glycosaminoglycans, α -glucuronidase activity, as well as glycoproteins. The analysis of the results allows concluding that the same type of change in metabolism of carbohydrate-containing proteins as in patients with alcoholism during abstinence, and in the tissues of the offspring alcoholized animals. A characteristic feature of these states is the preservation of such violations over an extended period after undergoing alcohol intoxication.

Keywords: alcohol intoxication, carbohydrate-containing biopolymers, intercellular matrix.

T. V. Malyutina, E. V. Lopanova, V. L. Stasenکو

Identification of professional competences and personal characteristics of the future specialists of medical specialization by expert survey

The forthcoming process of changing the system of higher education to the competence teaching will demand from universities an examination and definition of important competences for future profession. In the article, you will find different types of competence classifications, the expert survey analysis of defining main competences for graduating student from medical department.

Keywords: higher education, specialist in medical sphere, educational standards of the 3d generation, competences.

A. V. Mordyk, T. V. Klinyshkova, A. A. Yakovleva, M. A. Plekhanova
Methods of diagnostics of genital tuberculosis in women of genesial age with inflammatory diseases of organs of a small basin

For the purpose of perfection of diagnostics of a genital tuberculosis in 75 women of genital age with inflammatory diseases of organs of a small basin complex investigation concerning tuberculosis verification that is carried over than at half (53,3 %), the diagnosis has been established that testifies to frequently untimely inspection of women of the given group and insufficient awareness of experts on genital tuberculosis. Carrying out full clinical, tool, bacteriological, immunologic, including specific immunologic tests (mRBT from PPD-L, IFN- γ from PPD-L, IFA to MBT: IgM, IgA), quality of diagnostics of extrapulmonary specific process allows to improve inspections.

Keywords: genital tuberculosis, diagnostics, disturbance of genital function

Yu. A. Novikov, T. I. Dolgikh, M. B. Kidalov, E. V. Radul, S. O. Filippov, T. I. Novgorodova

Diagnosis of neurosyphilis: clinically and serological controversies

Treponema pallidum invades the central nervous system early in the course of disease but causes persistent infection in only a subset of infected persons. Individuals with persistent infection or asymptomatic neurosyphilis are at risk for developing symptomatic neurosyphilis if they are not treated with a drug regimen that achieves sufficient drug levels in cerebrospinal fluid to kill the organism. Serology remains the mainstay of diagnosis of neurosyphilis. It's most important issues are: the clinical interpretation of tests' results. We are comparisons of the clinical picture of the standard serological tests and westernblot results.

As a result, of a comparative study is revealed significant difficulties in the standardization of patient management.

Keywords: neurosyphilis, serological diagnostics, westernblot

E. I. Novikova, S. V. Barinov, S. I. Mozgovoy, L. N. Vasilenko
Current approaches in the diagnosis of genital endometriosis

True diagnosis of genital endometriosis is carried out by a pathomorphological study of biopsy lesions. The density of nerve fibers responsible for the spread of the pathological process and the formation of pain, in the functional layer of the endometrium in women with endometriosis are significantly higher than that in healthy women. According to M. Al-Jefout, accuracy and sensitivity of nerve fibers in endometrium biopsies is close to those of laparoscopy. Thus, the definition of the expression of nerve fibers may be minimally invasive, but can be used in diagnosis of endometriosis.

Keywords: genital endometriosis, nerve fibers, methods of diagnosis

V. A. Okhlopov, O. V. Pravdina, R. V. Gorodilov, E. A. Zykova
Expression of Toll-like receptors 2nd and 4th types in the affected skin of patients with psoriasis

The article presents data on the pathogenetic role of Toll-like receptors in the development of immunopathological reactions in the skin. The authors examined in the distribution and content of Toll-like receptors TLR2, TLR4 in the affected skin of psoriasis patients. They revealed a statistically significant increase in expression of Toll-like receptors TLR2, TLR4, which can play an important role of the inflammatory process.

Keywords: Toll-like receptors, psoriasis, congenital immunity

V. A. Okhlopov, O. V. Pravdina, E. G. Pomorgaylo, O. V. Rogova, E. V. Vilgelm, E. A. Petrova
The study of the role of polymorphism of genes of Toll-like receptors and cytokines in pathogenesis of psoriasis

One of last suppositiones is that the psoriasis is disease with the activated congenital immunity. Studying of polymorphism of genes of family of Toll-like receptors together with TNF- α and IL-1 β is possible and will help to reveal new mechanisms of immunopathological reactions at psoriasis and to develop prognostic criteria of dermatosis, thereby to personalize treatment and to improve quality of life of patients.

Keywords: Toll-like receptors, congenital immunity, polymorphism of genes, TNF- α , IL-1 β , psoriasis

I. V. Savelyeva
Clinical course of pregnancy under metabolic syndrome

In pregnant women with a metabolic syndrome (MS) it is more often in comparison with healthy patients the obstetric complications directly influencing parent both perinatal disease and death rate come to light. Prevailing gestational complication — menacing interruption of pregnancy (81,6 %) and preeclampsia (73,1 %) with a tendency to the early beginning is presented. In sorts there are revealed premature rupture amniotic shel (43,9 %), anomalies of patrimonial activity (57,5 %), bleedings in afterbirth and early postnatal the periods (18,4 %), clinical discrepancy (20,3 %). The majority of the newborns who were born from mothers with MS, have weight of a body 2390,0-3500,0 g (lower in comparison with the similar indicator of control group on 13 %) and in the early neonatal period at them symptoms of ischemic defeat of the central nervous system were registered. Thus, MS is the factor of the raised risk of perinatal and parent disease and demands definition of the complex preventive and medical actions spent in common by the accoucheur-gynecologist and the therapist, since pregravidarny level.

Keywords: pregnancy, a metabolic syndrome, complications.

I. V. Savelyeva, S. V. Barinov, A. A. Letuchikh
Metabolic syndrome and pregnancy: possibilities of the forecast and preventive measures of gestational problems

The analysis of gestational problems in patients with a metabolic syndrome is carried out. It is found out that heavy obstetric problems developed in pregnant women with a low level of the factor of growth of placenta, at hyperproduction autoantibodies to insulin and circulation autoantibodies to insulin receptors that is confirmed by correlation interrelations. Tactics of treatment of patients with a metabolic syndrome with the use of medical ozone and the medicines used in obstetric practice that has allowed to low frequency of complications of pregnancy is offered (preeclampsia — in 1,9 times, placental insufficiency — in 1,8 times), to prevent removing layer by layer in placenta.

Keywords: pregnancy, metabolic syndrome, factor of growth of placenta, autoantibodies, complications.

I. A. Sokhoshko, D. V. Turchaninov, G. A. Ogleznev, V. G. Demchenko, O. P. Goleva, Zh. V. Gudinova, I. I. Novikova
Complex hygienic assessment of an inhabitancy and health of the population of Siberian region

Realization of the hygienic approach in system SGM has allowed to reveal leading pathogenic factors of environment and to define their specific contribution to formation of losses of health of agricultural population of the region. High prevalence among agricultural population of regions of Siberia of infringements of the food status is established. Feed-dependent illnesses made a major part of losses of health of agricultural population. Prevalence of «school illnesses» tends to growth. The integrated assessment of parameters of a way of life of students has shown, that the skills of healthy way of life, as well as demand for their realization are not shaped. Leading factors of working conditions and the inhabitancies influencing growth of professional disease of the population are established. There are developed the multilevel territorially focused control system of pathology of agricultural population connected with an irrational feed, programs of improvement of the children's population and preventive measures of professional disease.

Keywords: health, environment, public health, nutrition, working conditions, conditions of training

G. M. Stolyarov, O. I. Lebedev
The influence of the basic hypotensive eye drops on haemodynamical and hydrodynamical parameters of eyes in patients with initial primary open-angle glaucoma

We investigate the influence of hypotensive eye drops of various pharmacological groups on the basic hydrodynamical and haemodynamical parameters of an eye of patients with initial primary open-angle glaucoma. The following substances are used: selective beta-blocker, carbonic anhydrase inhibitor, prostaglandin analogue and the combined drops containing prostaglandin analogues and non-selective beta-blocker. The obtained results confirm the influence various hypotensive drops on uveoscleral outflow of intraocular liquid and pulse volume of blood that is of great importance for increase of efficiency of treatment patients with glaucoma.

Keywords: primary open angle glaucoma, uveoscleral outflow, prostaglandin analogues, beta-blockers, carbonic anhydrase inhibitors, glaucoma treatment.

E. A. Tsygankova, A. V. Mordyk
Age features of clinical implications of tuberculosis in children

The comparative analysis of clinical implications of tuberculosis in 1907 children infected by a tuberculosis from 1986 through 2010 which have been parted in 4 research groups is carried out: 311 patients of early age (from 0 till 3th years), 569 preschool children (from 4 till 6th years), 633 children of younger school age (from 7 till 11th years), 394 patients of an average school or pubertal age (from 12 till 14th years). It is established that the tuberculosis optimum proceeds in patients of preschool age, the adverse current of specific process becomes perceptible at children early and pubertal age.

Keywords: tuberculosis, clinical implications, children, age features.

A. G. Shimanskaya
Possibility of verification of stomach mucosa atrophic changes under recommendations of Russian revision of the International classification of a chronic gastritis in routine practice of the doctor-pathologist

The assessment of possibility of practical use of Russian revision of the International classification of a chronic gastritis in daily practice of the doctor-pathologist is made by calculation of a test of fit. For processing of the received results calculation kappa Cohen by methods both quadratic weighing, and calculation not weighed kappa is used. The reached levels of the interexpert consent, especially high at the analysis not weighed kappa and in cases of identification of a metaplastic atrophy according to recommendations of Atrophy Club allow to consider proved wide practical use of the Visually-analogue scale for work with the International classification of the chronic gastritis.

Keywords: chronic gastritis, classification of a chronic gastritis, atrophy of mucosa of stomach, intestinal metaplasia, kappa-statistics.

S. V. Barinov, O. V. Ivanova, A. A. Novikov, M. A. Khazanov
The research of new efficient method of prevention endometritis in group of puerpera of high infection risk, combining antibiotic-prevention with dynamic distributed ultrasound abdominal effort

A new efficient method of prevention endometritis in group of puerpera of high infection risk, combining antibiotic-prevention with dynamic distributed ultrasound abdominal effort is proposed and analysed. Eighty puerperas are examined. This group contained 28 puerpera which passed

through the antibiotic-prevention combined with efficient method of treatment-ultrasound abdominal effort using «Jarus» device and 52 puerpera which passed through traditional antibiotic-prevention using ceftriaxon. Detected that proposed method of antibiotic-prevention combined with ultrasound effort significantly effective then tradition method.

Keywords: dynamic distributed ultrasound, antibiotic-prevention, endometritis.

A. A. Golovin, N. V. Kataeva

Features of formation of vocational rehabilitation programs in the workplace on the basis of the analysis of total contingent suffered in the workplace due to injuries of the locomotive system of negotiability in Bureau of ITU, Omsk for the period 2009–2011

The work shows the structure of the general population victims of occupational accidents by year, severity depending on age, sex and residence. There are causes that determine the characteristics of vocational rehabilitation programs.

Keywords: locomotive organs, injury, victim rehabilitation program.

A. A. Zalivin, Yu. V. Drozdovskiy

Rehabilitation of border mental disorder suicidents depended of different variants of postsuicide period

The article contains relations and effects of clinical-pathogenic factors in suicide behavior, including different variants of postsuicide period in border mental patients. Dominating influence of microsocial and constitutional-biological factors is stated. Different sides of rehabilitation process, efficacy of the analyzed rehabilitation programs are described. The improvement («A» and «B» status) observed in 79,9 % cases, half improvement («C» status) observed in 12,9 % cases, low level of adaptation improvement («D» status) — in 7,2 %.

Keywords: suicide, border mental disorders, rehabilitation, factors.

N. V. Kataeva

The medical and social aspects of primary disability due to musculoskeletal injuries among the adult population of the Omsk region in 2006–2010

The indicators of primary disability due to musculoskeletal injuries in 2006-2010 are analyzed. It shows the structure of the invalidity recognized for the first time from injury by year, depending on age and place of residence. There are the causes that determine the degree of disability.

Keywords: locomotive organs, injury, disability, level of structure.

D. N. Klypin

The apparatus for human functional state monitoring

The personal apparatus for remote monitoring of human functional state and diagnostics of health diseases is analyzed. New technical solution of such apparatus is offered.

Keywords: monitoring, remote, functional state, wireless, diagnostics, disease

V. V. Kornyakova, V. D. Conway

The role of infringement of metabolism purines in damage of cardiomyocytes in rats under physical activities

The intensive physical activity accompanied by lactoacidosis, reinforcing catabolism by purines to urate is considered. This phenomenon is associated with the intensification of free-radical activity and excessive lipid peroxidation of membrane structures of cardiomyocytes with functional inhibition of antioxidation system.

Keywords: blood, heart, enzymes, physical activity.

V. A. Kuznetsov, I. P. Zyrianov, E. P. Gultiaeva, G. I. Nechaeva, T. N. Enina, E. I. Yaroslavskaya, G. S. Pushkarev, A. V. Plyusnin, M. V. Semukhin, V. P. Samoilova, N. A. Musihina

An experience of percutaneous coronary interventions in the Tyumen and Omsk regions

The aim is to evaluate the prevalence and characteristics of percutaneous coronary interventions (PCI) in the Ural and Siberian federal districts (in particular in Tyumen and Omsk regions) in 2010 and to assess the efficiency of PCI in CAD in the real clinical practice by the data of Tyumen Cardiology Center (TCC). In the Omsk region insufficient usage of PCI is noticed (234,6 PCI in 1 million inhabitants compared to the average 364,2 in Russia and 720,4 PCI in the Tyumen region). The efficacy of PCI in patients with CAD is proven in TCC by the improvement of long-term results and patients quality of life especially

if regular medical check-up is performed. The data show that PCI should be used more frequently in the real clinical practice in all Russian regions, and in the Omsk region as well.

Keywords: coronary artery disease, percutaneous coronary interventions, coronary stenting.

S. N. Maltsev

Features of appealability of pension age patients for various kinds of medical treatment and the amount of work for corresponding health services

The analysis of medical activity of the elderly population in Omsk city during 2003–2010 is carried out. It is established that elderly patients consume considerable and constantly increasing resources of public health services, which means that at the subsequent ageing of the population there will be demand in radical reorganization of public health services as subject of economy.

Keywords: elderly people, medical activity, appealability.

A. A. Nikonorov jr., I. V. Alyab'eva, A. A. Safronov, A. A. Nikonorov
The role of free-radical oxidation in structural and functional state of biological membranes disorder inducing by stress in trauma surgery (open reduction, shin bone osteosynthesis)

We estimate the content of lipid peroxidation products (LPO) and the erythrocyte membranes state in blood plasma products by their peroxide and osmotic resistance in dynamics of postoperative period, in experiment. It is shown that the operation against anxiogenic stress (AS) leads to a substantial and long-term raising of LPO products and reduction of peroxide and osmotic resistance of erythrocytes. We come to the conclusion that useage of antioxidant and membranoprotector drugs is necessary in anxious patients during the postoperative period.

Keywords: lipid peroxidation, membrane anxiogenic stress, trauma surgery

V. A. Ostapenko, I. A. Viktorova, I. A. Grishechkina

Psychovegetative aspects of gastroesophageal reflux disease

We examined 71 patients with gastroesophageal reflux disease (GERD), including 29 with erosive reflux disease (ERD), 42 with nonerosive reflux disease (NERD). The diagnosis put on the basis of anamnesis, clinical research, fibrogastroduodenoscopy, condominium exposure pH-metry of the esophagus and stomach. All patients are conducted psychometric study using a scale of situational and personal anxiety Spielberg-Hanin, techniques, diagnostic indicators and forms of aggression and A. Bass, A. Dark, Toronto scale, method for investigating the level of subjective control, a clinical questionnaire for the identification and evaluation of neurotic states, Personality Inventory of Behterev Institute (PIBI) and study the state of the autonomic nervous system (ANS) determined by the level of serotonin in the blood. A group of patients with NERD and ERD varied position locus of control personality, degree of anxiety, irritability, type of relationship to the situation of the disease and the condition of vegetative support of activity ANS.

Keywords: GERD, autonomic nervous system.

O. V. Oschepkova, I. N. Putalova, S. V. Barinov, S. S. Sabitov

The way of treatment of complicated forms of inflammatory diseases of appendages of uterus by application lymphotropic introductions of antibacterial medicine

The treatment of complicated forms of inflammatory diseases of appendages of uterus needs activators of infections those develop stability to antibacterial therapy. As the result of it, there is an infringement of balance between synthesis pro- and anti-inflammatory cytokines. For improvement of the results of treatment it is developed combined way of treatment including operative treatment and lymphotropic introduction of antibacterial medicine.

Keywords: abscess of appendages of uterus, microflora, cytokines status, lymphotropic therapy, operative treatment.

V. V. Pedder, M. V. Naboka, V. K. Kosylenok, L. K. Gerunova, T. V. Boyko, I. A. Simonova, Yu. A. Sizikh, D. S. Durina, V. N. Mironenko, S. P. Popov

Possibilities of endogenous intoxication syndrome correction in oncologic patients applying physical and chemical factors

Authors analyze the syndrome of endogenous intoxication in oncologic patients. The possible ways of pathogenetic correction by applying such physic and chemical factors like ozone, oxide of nitrogen, low frequency ultrasound are proposed.

Keywords: cancerous tumour, syndrome of endogenous intoxication, ozone, monoxide of nitrogen, low frequency ultrasound.

I. V. Poluvshkina

**Problematic aspects of medical and social rehabilitation
in the results of the survey of opinions of people with disabilities
in rural areas of Omsk region**

The paper analyzes the survey on the effectiveness of disabled medical and social rehabilitation in rural areas. To perform the tasks there are designed questionnaires — which forms the basis of analysis. The results of the survey confirmed that the system of complex rehabilitation of the municipal districts of the Omsk region is not adapted adequately to the full implementation of the activities of professional, social and medical rehabilitation.

Keywords: sociological survey, invalids, rehabilitation, the individual program of rehabilitation

BIOLOGICAL SCIENCE

A. Ya. Ryabikov, N. M. Oktyabrev

**Rumen digestion in bull calves of black spotted breed
at six-month age**

In the article specific features of rumen digestion of carbohydrates (cruder fibers) and proteins as well as quantitative composition of infusoria in the rumen of bull calves of Black Spotted breed at the age of six month are described. The rumenopepsia is characterized with the proteins and carbohydrates digestion by means of symbiotic microflora, bacteria, infusoria and microfungi. The article contains methodological guidelines for studying the process of digestion of carbohydrates (cruder fibers) and proteins in rumen as well as instructions for estimating quantitative composition of rumen content. On the base of data obtained it has been found that in average a daily proteolysis rate is 0,0715 g (19,22 % of incubated gluten), a daily cellulose rate is 0,110 g (23,6 % of incubated bulk of cruder fibers), a number of infusoria is 1325362 per 1 ml.

Keywords: digestion of carbohydrates and proteins, rumen, the infusoria symbiotic microflora.

V. V. Korniyakova

**Antioxidant defense system in the brain of rats at different modes
of physical activities**

Intensive physical activities lead to intensification in the brain free radical processes and inhibition of enzymes activity of the antioxidant system. Optimal physical activities do not reduce efficiency of antioxidant protection in the brain.

Keywords: blood, brain, enzymes, physical activity.

L. V. German

**Taxonomic composition of the phytoplankton of the lake Kalach
(Kalachinsk, Omsk Region)**

The taxonomic composition of phytoplankton of the lake Kalach is described in 2009–2011. By the methods of bioindication is found that the lake is polluted with organic substances and «blooming» of water.

Keywords: phytoplankton, taxonomic composition, eutrophication, «blooming» of water.

E. A. Zubareva

**Change of the bioelectrical activity in skeletal muscles of trained
horses before and after exercise**

In this article is briefly described the new method is designed for the analysis of the bioelectrical activity of skeletal muscles (method of electromyography — EMG). Using this method for analysis of surface by EMG of m. extensor carpi ulnaris is registered in trained horses before and after exercise. On the base of data collected there are revealed features of activation of motor unit action potentials and there are built the static and dynamic physical models of muscle activity before and after exercise (under fatigue).

Keywords: surface EMG, exercise, fatigue, motor unit action potential, physical model, horse

AGRICULTURAL SCIENCE

I. A. Bobrenko, N. V. Goman, N. V. Shuvalova

**Effectiveness of zinc fertilization for wheat on meadow-chernozem
soils of Western Siberia**

In field experiments on meadow-chernozem soil it is established that plants of wheat grain crops positively respond on entering of zinc fertilizers. Agrochemical standard parameters of a mineral food of wheat and rye are defined.

Keywords: wheat, meadow-chernozem soils, productivity, quality, zinc fertilization.

L. V. Berezin, M. R. Shayakhmetov

**Methodological basis of the study of natural-resource potential
of the region**

A number of regularities based on of the use of categorical and systematic approaches of methodological analysis of extensive experimental data of the regional scientific teams have been established. In particular, the interaction between the pendulum-type positive and negative results, both the application of land reclamation techniques, and theoretical analysis of space information for its use in forecasting of complex land reclamation effectiveness of the Siberian region is presented.

Keywords: methodology of science, categorical and systematic analysis, trends in soil cover, remote sensing of the Earth

Yu. I. Ermokhin, V. N. Obukhov

**Mathematical models of communication in system
«soil–fertilizer – a plant» and efficiency of application
of fertilizers under naked barley**

In the article the complex approach to analysis of naked barley in fertilizers and statistical method of the analysis of system «soil – a plant – fertilizer» developing mathematical models are considered allowing to connect formation of crop with doses and of applied fertilizers.

Keywords: diagnostics, nitric and phosphoric mineral fertilizers, crop.

Y. I. Ermokhin, N.K. Trubina, O. D. Shoykin

**The real and practical relations of the doses of applied fertilizers
with chemical soil composition in the process of growing
of medical motherwort**

Real and practical relations on nitrogen and phosphorus in the system soil — fertilizers are revealed. Studying the effect of fertilizers on motherwort (*Leonurus quinquelobatus* Gilib.) through the soil is carried out.

Keywords: field experience, optimum level, nitrogen fertilizers.

Yu. I. Ermokhin, O. D. Shoykin

**The determination of the most efficient doses and combinations
of the mineral fertilizers for motherwort
(*Leonurus quinquelobatus* Gilib.)**

The affect of fertilizers on motherwort (*Leonurus quinquelobatus* Gilib.) is studied. Relations between general plant biomass and the doses of applied fertilizers show optimal levels of composition and correlations of nutrient elements for motherwort.

Keywords: motherwort (*Leonurus quinquelobatus* Gilib.), nutrient elements.

V. P. Kazantsev

**Productivity of perennial legumes in the hay used
in the non-chernozem belt of Western Siberia**

The results of studies on changes in the productivity of perennial legumes in six years of grass hay. The advantage of the yield of green mass, dry matter feed units and the exchange energy of goat's rue for 6 years as compared to known herbs. Alfalfa high productivity and economic efficiency provides for three years, with two years of red clover and sweet clover hay yellow with a one-year use.

Keywords: clover, alfalfa, sweet clover, goat's rue, productivity, profitability.

V. P. Kazantsev, Yu. P. Grigoriev

**Technological features of growing spring wheat
in the non-chernozem belt of Western Siberia**

Studies in non-chernozem belt of Western Siberia has shown that higher yields of spring wheat cultivar has Tarskaya 6, providing grain yield from 1 ha of sown 1,76 m when planted on May 10. The most optimal seeding rate of wheat germinating grains of 6 million hectares of crops in a while to harvest stem 265 is formed on a yield of 2,65 m² t / ha, at a cost of 1 ton of grain 3,0 thousand rubles. and profitability of 71 %.

Keywords: wheat, cultivar, sowing date, yield, seeding rate, profitability, return on investment.

Yu. S. Larionov, A. P. Gorbataya

**Biochemical evaluation of legume varieties for cultivation
and selection in the Omsk region**

The analysis of yield and quality of legume protein shows that a grain bean is a promising legume culture for Western Siberia due to its higher

stability and protein yield in comparison to soybean and pea. Furthermore, the quality of bean protein exceeds the quality of protein from pea, the most common cultivated legume. Amino acid composition of bean protein suggests possibilities for further improvement of breeding efficiency of this culture. This could be an important approach to solve the problem of food and feed protein in Western Siberia.

Keywords: seed, sort, bean, soybean, pea, fiber.

S. L. Petukhovskiy, Ya. R. Reyngard
The influence of natural and anthropogenic factors on the yield of grain crops in Omsk region

In this paper we consider the influence of major natural and social factors and hydrothermal resources: wind, topography, soil quality and degradation. The agricultural use of soils on the yield of wheat and cereals, as well as forecast potential economic performance of anti-degradation measures is analyzed for cropland of the Omsk region.

Keywords: natural and social factors, soil cover, erosion, deflation, anti-degradation activities, yield.

L. Ya. Plotnikova, R. I. Rutz, N. A. Zharkov, M. G. Evdokimov, L. A. Gorodetskaya
Resistance to leaf rust of common wheat breeding material performed by interspecific hybridization between *Triticum aestivum* x *T. durum*

The report about genetic control of durum wheat resistance to leaf rust is represented. The results were obtained on examples of tetraploid forms selected from the F2 progeny of *Triticum aestivum* x *T. durum* hybrids. Durum wheat varieties are defended against disease on seedling stage by 2–3 race-specific genes and complex of nonspecific factors. The information is valuable for breeding of varieties with durable resistance to rust.

Keywords: leaf rust, durum wheat, common wheat, resistance genes.

N. A. Popolzhukhina, I. G. Makushina, E. N. Ozyakova, L. V. Omeľyanyuk, A. V. Obukhova
The influence of development of photosynthetic device on tuber growing ability and productivity of peas sowing in the conditions of southern forest-steppe of Western Siberia

On phases of development of plants of peas sowing dynamics of accumulation of a biomass, formation of a sheet surface are studied. The interrelation of the influence of hydrothermal conditions, cultivation conditions on photosynthetic indicators and formation of the symbiotic device is shown. The perspective grades combining high indicators of tuber growing, photosynthesis and productivity in the conditions of southern forest-steppe of Western Siberia are revealed.

Keywords: grades and lines of peas sowing, the symbiotic device, photosynthetic indicators, productivity.

N. A. Popolzhukhina, R. I. Rutz, L. A. Krotova, V. V. Leushkina, O. A. Shmakova, N. G. Mazepa
Creation of adaptive sort of spring soft wheat for West-Siberian region

The described sort of the spring soft wheat has high productivity grain. Good flour-milling ability is proved. It is resistant to drought, defeat hard, dusty head and borax by rust.

Keywords: spring soft wheat, adaptive sort, mutagenesis.

A. F. Stepanov, A. V. Milashenko, A. S. Garagul
Effective methods of crop protection of indigo woad against weedage

Information about the agronomic and chemical methods of crop rotation of indigo woad is presented in the article. Multiple application of protection tools (trellan + furora super + top cutting) allows to decrease weediness of indigo woad seeds in 8 times and to increase its green mass' productivity up to 137 % in comparison with control.

Keywords: indigo woad, weedage, weediness, top cutting, herbicides, capacity.

Yu. A. Azarenko, Ya. R. Reingard
Composition of microelements in soils and soil-geochemical zoning of Omsk oblast

The composition of microelements in soils of different zones of Omsk oblast is investigated. Soil-geochemical zoning of the territory is carried out allocating 10 soil-geochemical regions. The significant differences of microelement composition of soils of regions are established and

taken into account in the conduct of agrochemical measures and environmental monitoring.

Keywords: microelements, soils, soil-geochemical region.

A. A. Langlets, A. S. Garagul
Soil need for spring false flax fertilizer and crop quality on ordinary chernozem in the steppe zone of Western Siberia

The materials of field experience and on the basis of diagnostics of soil derived and presented formulas for calculating the optimal doses of mineral fertilizers to obtain high yields of spring false flax are presented. As the formula for estimating the fat content in seeds of false flax, depending on the doses of fertilizers is obtained.

Keywords: spring false flax, soil diagnosis, level of mineral nutrition, yield forecasting and quality of oilseeds.

L. V. Omeľyanyuk, A. H. Tanakulov, A. M. Asanov
Productivity of early ripening varieties and soybean lines in dependence on changed conditions of growth

Research has shown that the greatest interest for using in production in the zone of southern forest-steppe of Omsk region is represented by early hi-tech examples: sympathetic on favorable hydrothermal provision of vegetative period — sort Eldorado zoned in 2010 and the line 42/06, also the sort Zolotistaya standing the state seeds' test in and the line 55/07 which have the high productivity of seeds both in stressful and favorable weather conditions.

Keywords: soybean, varieties, vegetative period, productivity, technology, drought tolerance

V. L. Ershov, V. G. Kholmov
Agrotechnologies barley cultivation in the forest-steppe agrolandscape in Western Siberia

The results of long-term steady-state experiments, the use of minimal treatment of soil and chemicals for cultivation of barley on the black earth soils, forest-steppe of Western Siberia. Improved agricultural technologies based on barley resource-saving system and combined soil-tillage, with integrated use of fertilizers and herbicides are introduced.

Keywords: fertility of soil, tillage, ploughing, minimal tillage, herbicides, fertilizer, the yield of barley.

VETERINARY SCIENCE

V. I. Gerunov, T. V. Gerunov
Pathomorphological characteristic of lambda-cyhalothrin-induced toxic effects

It is learned toxic effects of synthetic pirethroid lambda-cyhalothrin by means of morphological methods of research. The pesticide preparation is entered to rats into the stomach in the dose 500 mg/kg body weight unitary. It is established increasing of relative weight of internal organs. With fat accumulation in cytoplasm of hepatocytes the rate of glycogen, RNA and protein is decreased. The signs of the catarrhal inflammation are marked in gastrointestinal tract. There is hypostasis and emphysema in the lungs. Heart cavities are expanded, a cardiac muscle is in condition of dystrophia. Vascular disturbances prevail in kidneys, spleen and pancreas. Glomerular and bundle zones of adrenal glands are expanded. There are cells with wrinkled nucleus and foamy cytoplasm in sight of the microscope. Authors consider the necessary of strict observance of regulations of pesticides application.

Keywords: toxic effects, poisoning, lambda-cyhalothrin, pathomorphology.

V. P. Dorofeeva, I. N. Myagkov
Usage of combined drugs in the treatment of rickets in puppies

Based on the results obtained through experiments, the high therapeutic effect is noted with the use of Artroglycan as well as Calfoset, in combination with Trivit during treatment of rickets in puppies. Although in our opinion, Artroglycan has more pronounced therapeutic effect over Calfoset. Evidently, this is due to the amino-polysaccharides that are present in Artroglycan; in addition orally taken drug is less traumatic than intravenous, which is used for introduction of Calfoset.

Keywords: rickets, dogs, Calfoset, Artroglycan.

L. V. Fomenko, G. A. Khonin
The histological structure of arterial vessels of shoulder area in chicken and guineafowl

It is studied histological of the structure of walls of main vessels of the shoulder in chicken and guineafowl. On the basis morphometric analysis

there are revealed correlation dependence on environment of the vessels to the thickness of their walls.

Keywords: birds, histology, arterial vessels.

M. V. Pervenetskaya

The morphology of lungs in hen, duck and goose

The author examines the lungs in hen, duck and goose. It is described their anatomical structure, topography and species characteristics. Morphometric analysis of linear indices of the lungs are performed.

Keywords: lungs, porta pulmonis, topography, the ventral ridge.

I. Yu. Shestakov, D. K. Ovchinnikov, S. I. Shvedov, L. V. Krasnikova

Morphological aspects of growth of intestines in hens of breed «Siberian» and «Rhodonite-2»

In the article comparative dynamics of growth of weight of a body and linear indicators of intestines and its parts in hens of breed «Siberian» and «Rhodonite-2» in the postnatal ontogenesis is carried out.

Keywords: chickens breed «Siberian», chickens breed «Rhodonite-2», intestines, age, body weight.

ECOLOGY

O. P. Bazhenova, L. V. German, O. O. Krents, V. E. Shakhovai,

A. A. Vakhrushev

Ecological state and recreational value of polytypic lakes in the Omsk region

Ecological state of lakes of different types in Omsk region is estimated with bioindication methods of indicators for the development of phytoplankton. Trophic level of lakes and water quality are established. Recreational value of lakes in Omsk region is estimated with the level of development of cyanoprokaryotes and the presence of toxic species first.

Keywords: bioindication, phytoplankton, water quality, toxic cyanoprokaryota, recreation, Omsk region

Yu. Yu. Goloshchapova, N. A. Kalinenko

The influence of fire on organic composition of dark gray forest soils

The article examines the impact fire on organic composition of dark gray forest soils. The composition of humus and post-fire changes in the morphology of dark-gray soils is examined.

Keywords: forest fire, dark gray forest soils, birch forest, morphology of dark gray soil.

G. K. Khodzhaeva, E. A. Sliva

The influence of oil contamination on the environment of Nizhnevartovsk region

During development and operation of oil-trunk pipeline network on the territory of Khanty-Mansiysk Autonomous region there is significant anthropogenic impact on environment. In the article zoning territory of Nizhnevartovsk region on the area and volume of oil pollution after accidents is resulted.

Keywords: oil pollution, license sites, oil-trunk pipelines, accidents, floods of oil

EARTH SCIENCE

L. N. Gilyova

Ecological-economic zoning as the basis for sustainable development of northern territories

The article highlights the issues of ecological-economic zoning, as activities to promote sustainable development and optimization of land

and natural resources of the northern territories. The given the methodology of ecological-economic zoning designs eco-economic zones in the Pur district of the Yamalo-Nenets Autonomous Region.

Keywords: sustainable development, environmental and economic zoning, the greening of land and natural resources, optimization of natural resources, the territory of traditional natural resources, indigenous peoples of the North.

Z. F. Kochergina

Features of the structure of man-made landscapes of suburban zone of Omsk, and their ecological status and the impact on the ecological and economic use

The studies on the formation of structure in anthropogenic landscapes of suburban zone of Omsk in the spatial-historical aspect are done. Optimal parameters of the ratio of the major classes of man-made landscapes are developed.

Keywords: man-made landscapes, the structure of landscapes, the optimal parameters, the classes of landscapes.

Z. F. Kochergina, L. N. Gilyova

Methodological development of environmental-economic framework for sustainable development of northern territories

The article highlights the challenges of sustainable development in the northern areas and address the issues the feasibility of such development through the creation of eco-economic framework. The given the methodology of forming environmental and economic framework and presents the developed ecological-economic framework of Pur district of the Yamalo-Nenets Autonomous Region.

Keywords: sustainable development, environmental and economic framework, the natural-resource potential, traditional land use, building blocks environmental and economic framework.

V. S. Mogileva, V. M. Valov

To the problem of spatial organization of farms

This article considers organization and location of farms and its interference with the environment. The classification of farms is represented by the following types: industrial, functional, architecture and landscape planning, area of the land used, geographical location. The harmful effect of different industrial farms on the elements of the environment such as underground waters, soil and ambient air is proven. A set of engineering and technical measures are taken for prevention or lowering the harmful effect caused by farms and providing rational usage of the nature source.

Keywords: farm, environment, landscape, agricultural production, soil pollution, air pollution, water pollution.

Yu. V. Stolbov, S. Yu. Stolbova, D. O. Nagaev, K. S. Kokulenko

Geodetic research of accuracy of high-rise location of the bottom coat layer of the highway at different steps of leveling

The research of accuracy of high-rise location (a deviation of vertical marks from design and amplitudes of vertical marks) surfaces of the bottom coat layer of the highway is executed. Statistical characteristics of accuracy of high-rise location of the bottom coat layer of the highway from porous asphalt concrete are calculated at leveling steps through 5 and 10 m. The assessment of convergence of empirical distribution of deviations of the actual amplitudes (algebraic differences of marks) from normalized with theoretical (under the normal law of distribution) is carried out. It is offered to carry out at the device of the bottom coat layer of the highway leveling with a step through 10 m.

Keywords: accuracy of measurement, vertical marks, amplitudes, coat layers, highway.

ТРЕБОВАНИЯ К ОФОРМЛЕНИЮ НАУЧНЫХ СТАТЕЙ, НАПРАВЛЯЕМЫХ В «ОМСКИЙ НАУЧНЫЙ ВЕСТНИК»

О содержании. Статья должна содержать только оригинальный материал, отражающий результаты исследований автора.

В аннотации (3–5 предложений), раскрывающей основное содержание статьи, и в заключительной части статьи необходимо отразить новизну результатов исследования, их практическую значимость. Просим авторов-омичей акцентировать полезность научных разработок для Омского региона.

О рассмотрении поступивших материалов. В редакции все поступившие статьи направляются на рецензирование. Высказанные замечания передаются автору. После доработки материалы вновь рассматривает рецензент, после чего принимается решение о направлении в печать.

Об оформлении. Статью необходимо набрать в текстовом редакторе Word (**кроме Word-2007 (*.docx)**) (шрифт — Times New Roman Cyr 14 пт, абзацный отступ — 0,5 см, межстрочный интервал — полуторный, **без переносов в словах**). Распечатать на бумаге форматом А4 (210×297 мм). Оригинал должен быть чистым, не согнутым, без ручных правок, страницы пронумерованы карандашом на обороте. Окончательный вариант статьи должен содержать не более 12 страниц (включая рисунки и таблицы). В редакцию необходимо предоставить распечатанный вариант статьи (с личной подписью автора/авторов) и электронную версию на любом из перечисленных носителей: CD-, DVD-дисках, запоминающем устройстве Flash drive (или отправить по электронной почте: onv@omgtu.ru).

Поля: сверху и снизу — по 2,5; слева и справа — по 2 см.

Заголовок. В верхнем левом углу листа проставляется УДК. Далее, по центру, печатается название статьи (**прописная буква только первая**), ниже — инициалы, фамилия автора (ов), строкой ниже — полное название организации (через запятую необходимо указать город, если этого не следует из названия). Ниже через строку помещаются текст аннотации и ключевые слова на русском языке.

Через строку **на английском языке** приводятся инициалы и фамилия автора (ов), название статьи, аннотация и ключевые слова. Еще через строку помещают основной текст статьи.

Ключевые слова на русском и английском языках располагают под соответствующей аннотацией. Слева печатается словосочетание «Ключевые слова: ...» или «Keywords: ...» и через запятую приводятся ключевые слова (не более шести слов/словосочетаний).

Если в тексте есть **примечания**, то после основного текста перед библиографическим списком набирается по центру заглавие «Примечания» и через строку помещаются тексты примечаний, пронумерованные числом в виде верхнего индекса (например, ¹⁾ в порядке ссылок по тексту. **Ссылка на примечание** в основном тексте оформляется жирным шрифтом числом в виде верхнего индекса (например, ... модели.¹⁾). Автоматическая нумерация примечаний не допускается.

Формулы. Простые внутрострочные и однострочные формулы должны быть набраны символами без использования специальных редакторов (допускается использование специальных символов из шрифтов Symbol, Greek Math Symbols, Math-PS, Math A, Mathematica BTT). Сложные и многострочные формулы должны быть **целиком** набраны в редакторе формул Microsoft Equation 2.0, 3.0. **Не допускается набор части формулы символами, а части — в редакторе формул.** В случаях, когда написание строчных и прописных букв совпадает и отличается только размером, в распечатанном варианте прописные буквы должны быть подчеркнуты простым карандашом двумя чертами снизу, строчные буквы — двумя чертами сверху. Индексы поясняются или дубли-

руются простым карандашом на полях. Если в тексте статьи формулы нумеруются, то эту нумерацию следует выполнить набором чисел. Автоматическая нумерация не допускается.

Библиографический список. В тексте должны содержаться ссылки на источники информации. Ниже основного текста (или текстов примечаний) печатается по центру заглавие «Библиографический список» и через строку помещается пронумерованный перечень источников в порядке ссылок по тексту в соответствии с действующими требованиями к библиографическому описанию. В одном пункте перечня следует указывать только один источник информации.

Ссылки на источники информации оформляются числами, заключенными в квадратные скобки (например, [1]). Библиографические описания оформляются в соответствии с ГОСТ 7.1-2003 и тщательно выверяются. Если ссылка на источник информации в тексте статьи повторяется, то повторно в квадратных скобках указывается его номер из списка (без использования в библиографическом списке следующего порядкового номера и ссылки «Там же»). В случае, когда ссылаются на различные материалы из одного источника, в квадратных скобках указывают каждый раз еще и номер страницы, например, [1, с. 17] или [1, с. 28–29].

Таблицы помещаются на новой странице после библиографического списка. Нумерация таблиц производится в порядке ссылок по тексту. Нумерационный заголовок таблицы набирается жирным шрифтом с выравниванием по правому краю (например, **Таблица 1**). Тематический заголовок (если имеется) набирается на следующей строке жирным шрифтом с выравниванием по центру. Ссылка на таблицу в основном тексте оформляется жирным шрифтом в скобках — например, (**табл. 1**). Если таблица имеет большой объем, она может быть помещена на отдельной странице, а в том случае, когда она имеет значительную ширину, — на странице с альбомной ориентацией.

Рисунки последовательно размещаются на новой странице после таблиц (или библиографического списка). Нумерация рисунков производится в порядке ссылок по тексту. Нумерационный заголовок набирается жирным шрифтом с выравниванием по центру (например, **Рис. 1**). Тематический заголовок (если имеется) — в той же строке сразу же после нумерационного (например, **Рис. 1. Зависимость...**). Ссылка на рисунок в основном тексте оформляется жирным шрифтом в скобках — например, (**рис. 1**). Если рисунок имеет большой формат, он должен быть помещен на отдельной странице, а в том случае, когда он имеет значительную ширину, — на странице с альбомной ориентацией. Рисунки могут быть сканированными с оригинала (150 dpi в градациях серого) или выполнены средствами компьютерной графики. Допускается, а в случае с иллюстрациями большого объема (файла) приветствуется, размещение рисунков в отдельном файле электронной версии. Подписи к рисункам должны быть выполнены непосредственно под рисунком.

На последней странице указать следующие **сведения об авторе**: фамилия, имя, отчество; ученая степень, звание, должность, место работы, номер телефона (не публикуется); адрес для переписки; для иногородних авторов — почтовый адрес, на который отправляется журнал, в случае публикации их статьи; две заверенные **рецензии** специалистов с ученой степенью (внутреннюю и внешнюю); **экспертное заключение** о возможности открытого опубликования.

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