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Index to Issues 26–29

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TABLE OF CONTENTS

ADAPTATION
Hormones, Adaptation, and Systemic Reactions 1
Tolerance of mice to various types of hypoxia and X-ray irradiation after exposure to hypoxia. 1
Catalytic properties of monoamine oxidase in adaptation to barochamber hypoxia. 1
International Conferences On Mountain (High Altitude) Medicine, Prague, Czechoslovakia, October 19-23, 1988. 1
Biochemical aspects of human adaptation to the combined effects of head-down tilt, decreased barometric pressure and increased level of O₂. 2
Hygienic Evaluation of Microclimate. 2

AVIATION MEDICINE
The effect of workload on the functional state of flight crews of ship-based aviation. 3
Aviation Medicine. 3
The effects of working in aviation on health status (epidemiological data). 3
Experimental evaluation of the displacement of center of mass of the body in a man-chair system when the head is nodded. 3
Diurnal rhythm of lipids, carbohydrates, and certain hormones in blood plasma in healthy pilots. 4
The category of health as a theoretical problem in aerospace medicine. 4

BIOLOGICAL RHYTHMS
The problem of desynchronosis in space flight. 5
A raster-method for analyzing the periodic structure of biological rhythms. 5
Biological Rhythms In Space Biology and Medicine 5
Free running circadian rhythms in the darkling beetle after space flight. 6
Association of annual biological rhythms in red blood counts in healthy individuals and annual rhythms of changes in solar activity. 6

BIOSPHERICS
Modeling of Space Systems for Studying the Earth's Natural Resources 7

BODY FLUIDS
Body fluid status during a 120-day period of hypokinesia with head-down tilt. 8
Increasing human resistance to headward fluid redistribution. 8
A technique for individual assessment of the level of redistribution of blood in humans during the acute period of adaptation to weightlessness. 8

BOTANY
The effects of single hits by heavy ions of galactic cosmic radiation on Lactuca sativa seeds flown on board Salyut-6 and Salyut-7 space stations. 9
Genetic studies of Arabidopsis seeds on space flights. 9
The effect of the vacuum of space on seeds of lettuce (Lactuca sativa) exposed on COSMOS series biosatellites. 9
Study of the biological effects of heavy charged particles of cosmic radiation on a population of higher plants -- Wolffia arrhiza. 9
The effects of space flight factors on pigment and lipid components of wheat 10
Radiobiology of Plants 10
The significance of the force of gravity in formation and growth of callus tissue in Arabidopsis. 10
CARDIOVASCULAR AND RESPIRATORY SYSTEMS
Tolerance for provocative tests under conditions of a 1-year exposure to hypokinesia with head-down tilt.
A study of orthostatic tolerance and status of central and peripheral hemodynamics in hypertensive subjects undergoing a 7-day period of "dry" immersion.
Functional and metabolic changes in the heart during adaptation to high-altitude hypoxia.
Cardiac contractility in rats after chronic stress and thyroid.
Ca²⁺ reactivity of ventricular actomyosin in rats exposed to gravitational loading.
Central and regional hemodynamics on long-term space flights.
Cardiac contractility of guinea pigs exposed to long-term continuous stress.
Circulation and oxygen pressure in the brains of alert and anesthetized rabbits in a head-down tilt position.
Medical investigations during an 8-month flight on Salyut-7-Soyuz-T.
State of intracardiac and systemic hemodynamics in healthy humans exposed to a weightlessness simulation.
Interaction of cardiorespiratory and metabolic responses of humans to graded exercise.
Lipids in the cell membrane of the heart in rats after multiple exposure to an alternating magnetic field with frequency of 50 Hz.
The use of the method of "dry" immersion in treatment of hypertensive crisis.
Assessment of bioelectric activity of the heart during head-down tilt using traditional and modified EKG leads.
Methods for measuring intracranial blood and cerebrospinal fluid circulation in chronic experiments involving induction of decompression sickness.
Criteria of endurance of a hypercapnic-hypoxic test.
The composition of exhaled air, gas and energy exchange and biochemical parameters in blood and urine of humans under conditions of long-term exposure to hypercapnia and hypoxia.
The phenomenon of adaptive stabilization of the structures and protection of the heart.
Stress and circulation in humans.
Characteristics of the effects of caffeine on circulation and oxygen tension in the brain of alert rabbits undergoing head-down tilt.
Types of hemodynamics in flight crews and their significance for clinical and flight certification practice.
Changes in hemodynamic parameters on long-term space flights.
Endurance of +Gₓ acceleration in humans after a 370-day period of hypokinesia.

DEVELOPMENTAL BIOLOGY
The First Baby Born in Space: The Unique "Incubator-2" Experiment is a Success.
Characteristics of limb and lens regeneration in tritons exposed to space flight.
The growth of oocytes of the Spanish triton in weightlessness.

DIGESTIVE SYSTEM
Digestion and Hypokinesia
ENDOCRINOLOGY
Morphological research on the adrenal glands of rats after flight on COSMOS-1667. 19
Hypothalamus/pituitary neurosecretory system in rats exposed to high-altitude hypoxia. 19
Endocrine response to low frequency electromagnetic fields of continuous and intermittent generation. 19
Hormonal response of the steroid-producing glands of female hamadryas baboons to long-term hypokinesia. 19
Efficacy and realization mechanisms of the protective effects of sidnocarb under conditions of experimental weightlessness and chilling. 20
The responses of the endocrine system and peripheral blood in rats to single and repeated exposure to a pulsed low-frequency electromagnetic field. 20
Hormonal regulators of calcium metabolism after space flights varying in duration. 20
Morphology of the thyroid gland and concentration of thyroid hormones in blood of rats in experiments on COSMOS-1667 and -1887 biosatellites. 20
Functional activity of the pituitary-thyroid system in response to a 370-day period of hypokinesia with head-down tilt. 21
Morphological changes in the ultimobranchial glands of caudate amphibians under conditions of space flight. 21

ENZYMIOLOGY
Changes in activity of mitochondrial oxidative enzymes in skeletal muscles of rats during the recovery period after hypokinesia varying in duration. 22
Neutral peptide hydrolases in the blood serum and lungs under conditions of hypoxia. 22
Activity of digestive enzymes in response to immobilization stress and its pharmacological correction with adrenoreceptor blocking agents. 22
Activity of certain oxidative enzymes and transaminase in the liver of rats during recovery after hypokinesia up to 30 days in duration. 23

EQUIPMENT AND INSTRUMENTATION
Algorithm for automatic recognition of base points on an impedance plethysmogram. 24
State-of-the-art automated evaluation of functional state in cosmonautics and preventive medicine today. 24

EXOBIIOLOGY
Simulation of abiogenic thermal polycondensation of amino acids in the Earth's lithosphere in areas of intense volcanic activity. 25
The Biological Effects of Lunar Soil 25
Abiogenic thermal synthesis of nucleotides in the presence of lunar soil. 25

GENETICS
Cytogenetic consequences of treatment with hyperbaric oxygen. 26

HABITABILITY AND ENVIRONMENT EFFECTS
Thermoregulatory responses in humans to moderate levels of hypercapnia. 27
The functional status of the skin in humans inhabiting pressurized environments of limited size. 27
Habitability and man-rated bioregenerative life support systems 27
Handbook on Space Flight Safety] 28
HEMATOLOGY
Use of a ferrocerone test to measure iron reserves under various living conditions.
The development of radiation damage in the hemopoietic system.
The stimulating effect of chronic irradiation with small dose rates on lymphopoiesis and granulcytopoiesis. (Results of mathematical modeling and experimental data).
Hemostasis in prolonged exposure to g-irradiation at high altitudes.
The hemostasis system under conditions of various levels of hypoxic hypoxia.
Changes in rheological parameters and hemodynamics in response to a 14-day period of hypokinesia with head-down tilt.
Rosette formation in peripheral blood of rats exposed to hypokinesia.
Results of hematological studies in long-term hypokinesia with head-down tilt.

HISTOLOGY
Reactions of skin basophils of rats to exogenous hypoxia: A study of certain correlations.

HUMAN PERFORMANCE
Psychophysical characteristics of sensorimotor performance of an operator after short-term exposure to simulated hypogravity.
Diurnal variations in the efficiency of operator mental performance in shift work.
Apparatus and Methods for Investigating Operator Performance
Evaluation of operator's readiness to act in an emergency
Techniques and means for optimizing functional status of flight school cadets during preflight activity.
The effect of relaxation on perceptual/motor performance of humans.
The effect of various pharmacological agents on general state, heart rhythm, and performance efficiency of operators.
Predicting mental performance of cosmonauts on long-term flights.
A technique of semi-full-scale simulation and its use inflight to increase psychological readiness of cosmonauts.

IMMUNOLOGY
The immune status of individuals suffering from acute altitude sickness.
The effect of smoking on human resistance in a pressurized environment.
On the protective function of the skin.
Humoral immunity in irradiated mammals (Mathematical Model).
Proliferative, suppressor, and cytotoxic activity of splenocytes of rats in the experiment on COSMOS-2044.
LIFE SUPPORT SYSTEMS
Growth and development of one-celled algae as a component of an "algobacterial cenosis - fish" ecosystem under space flight conditions
Investigation of the growth and development of Chlorella exposed to space on COSMOS-1887.
The formation of a wheat microbial cenosis on a manned space flight.
Matter balance during the catalytic oxidation of water mixtures by hydrogen peroxide.
Hygienic evaluation of oxygen produced by a system containing a solid polymer electrolyte.
A hygienic evaluation of certain moisture and carbon dioxide absorbers recommended for cleaning the air of pressurized environments.
A methodology for evaluating and selecting a life support system during the early stages of design.
The higher plant component in man-rated biological (bioregenerative) life support system.
The effect of space flight on the sowing and productive properties of seeds.
A hygienic evaluation of certain moisture and carbon dioxide absorbers recommended for cleaning the air of pressurized environments.
A methodology for evaluating and selecting a life support system during the early stages of design.
The higher plant component in man-rated biological (bioregenerative) life support system.
The effect of space flight on the sowing and productive properties of seeds.

MATHEMATICAL MODELING
Dynamics of critical systems and radiation death of mammals (Mathematical modeling).
A mathematical model of intracranial blood and cerebrospinal fluid circulation system as applied to the study of the effects of extreme conditions.
A model of the caloric response of the semicircular canal.

METABOLISM
Serum proteins and products of nitrogen metabolism in humans undergoing long-term hypokinesia.
Activation of glycolysis, decreased glycogen reserves and lack of glucocorticoid control of enzymes of carbohydrate metabolism in the liver of rats undergoing long-term hypokinetic stress.
Endogenous ethanol in the blood and tissues of rats exposed to hypobaric hypoxia.
Use of the method of thin layer chromatography to study lipid ligands in the serum albumin of athletes.
Activity of NADP-dependent cytoplasmic dehydrogenases in the liver and adipose tissue of rats during recovery after hypokinesia.
Hormonal and metabolic reactions of the human body to long-term fasting.
Parameters of thiamine metabolism in tissues of rats exposed to hypokinesia.

MICROBIOLOGY
Weightlessness and Elementary Biological Processes
MUSCULOSKELETAL SYSTEM

Mineral density of skeletal bones in humans exposed to simulated microgravity.

Changes in the periodontium in long-term hypodynamia and the use of diphosphonates and siltrane to prevent these changes.

The Skeletal System and Weightlessness

Effects of active metabolites of Vitamin D3 on the bones of rats exposed to different hypokinesia paradigms.

Changes induced by hydroxydimethylaminopropylidene diphosphonate in the response of bone tissue in rats to hypokinesia.

Changes in human bone under conditions of bedrest and weightlessness:

The human skeleton under conditions of bedrest and weightlessness.

Changes in human bone under conditions of bedrest and weightlessness: Bone changes when functional loading of the skeleton is reduced from the standpoint of rapid and slow-developing osteoporosis.

Changes in human bone under conditions of bedrest and weightlessness: General principles of bone changes under conditions of weightlessness and its simulations.

Ultrasound diagnosis of the status of the tibia in humans undergoing a 370-day period of head-down tilt.

The effect of simulated weightlessness on calcium metabolism and state of bone tissue in experimental animals.

The skeletal system of experimental animals under conditions of weightlessness:

The effects of space flight on the weight-bearing bones of rats: Restructuring of bone tissue.

The skeletal system of experimental animals under conditions of weightlessness:

The effects of space flight on the weight-bearing skeleton of rats: State of organic and mineral components.

The skeletal system of experimental animals under conditions of weightlessness:

The effects of space flight on the weight-bearing bones of rats:

Mechanical properties of bone tissue.

The skeletal system of experimental animals under conditions of weightlessness:

The effects of space flight on the weight-bearing bones of rats: Artificial gravity as a means to prevent bone changes in microgravity.

The skeletal system of experimental animals under conditions of weightlessness:

The effects of space flight on non-weight-bearing bones of rats.

The skeletal system of experimental animals under conditions of weightlessness:

The effect of space flight on the skeleton of tortoises.

A computer tomographic investigation of the musculoskeletal system of the spine in humans after long-term space flight.

Morphohistochemical investigation of the skeletal muscles of rats in an experiment on biosatellite COSMOS-1887.
NEUROPHYSIOLOGY

Characteristics of nocturnal sleep in monkeys on the ground and during space flight on COSMOS-1667. 52
A study of the structure of the receptor organs of the vestibular apparatus in rats after flight on COSMOS-1667. 52
Study of the pathogenesis of the neurological form of decompression sickness in rabbits. 52
Change in reflexive vestibular activity in response to orthostatic loading. 52
Specification for an "ideal" drug to prevent space motion sickness (space adaptation syndrome. 52
Remote ultrastructural changes in cerebellar cortex of rats after exposure to accelerated carbon ions. 53
Cerebrovascular effects of motion sickness. 53
Ultrastructural changes in neurons of the arcuate nucleus-medial eminence complex in rats irradiated with carbon ions and g-radiation. 53
On the genesis of postradiation edema of the brain. 54
Structural and metabolic aspects of modification of radiation effects on the central nervous system. 54
Morphological changes in brain neurons in rats irradiated with accelerated charged particles. 54
Correlation between orthostatic tolerance and status of the vestibular function in humans after long-term space flights. 54
The relationship between vertical optokinetic nystagmus and susceptibility to motion sickness in humans. 55
Delta-sleep peptide as a modulator of cardiac activity: Theoretical recommendations for practice. 55
Nystagmus in individuals with asymmetrical afferentiation of the otoliths. 55
The role of glucocorticoids in postvibrational shifts of inhibitory mediation in brain structures. 55
Epidural and subdural recording of intracranial pressure in response to postural tests. 56
Assessment of autonomic homeostasis in the operational medical system for monitoring the health of cosmonauts. 56
The effect of weightlessness on eye movement responses. 56
Anticonvulsants as protective agents in space motion sickness. 57
Psychophysiological characteristics of people susceptible and resistant to motion sickness. 57

NUTRITION

The effect of increased consumption of vegetable protein on calcium metabolism in rats undergoing hypokinesia. 58
Thiamin metabolism in rats with a B1 deficiency exposed to hypokinesia. 58
Hygienic aspects of the use of calorie-deficient diets enriched with wild plants. 58

OPERATIONAL MEDICINE

Prospects for improving pharmacological support of space flights. 59
Do we need a physician on the crew for the Mars mission? 59

PERCEPTION

Spatial orientation of pilots: Psychological Characteristics 60
PERSONNEL SELECTION
Can the psychologically "incompatible" work together? 61
Some new approaches to the problem of medical occupational selection. 61
On psychological selection of cosmonauts for repeated flights. 61

PSYCHOLOGY
Psychological and Psychophysiological Adaptation in Humans] 62
An analysis of factors determining sex differences in the stress responses of white rats. 62
Characteristics of color selection in the Luscher test as an indicator of typical emotional status of flight personnel. 62
The role of typological differences in behavior of animals during adaptation to an extreme stimulus. 63
Risk factors for the occurrence of neuroses and psychosomatic illnesses in flight crews. 63
Psychological determinants of time to complete flight training. 63
Dynamics of parameters of communicative activity in the system for psychological analysis of cosmonaut functional status. 63
A multmethod evaluation of the psychophysiological state and behavior of humans undergoing a 370-day period of hypokinesia with head-down tilt. 64
The study of cosmonauts' sleep in flight on space station Mir. 64

RADIOBIOLOGY
Acid tolerance of erythrocytes exposed to constant magnetic fields varying in rate of induction increase. 65
Certain biochemical mechanisms underlying the combined effects of extreme factors. 65
Possible mechanisms of the radiomodifying effect of exogenous hypoxia on microwave radiation. 65
The Biophysical Bases for the Effects of Cosmic Radiation and Radiation from Accelerators. 65
Periodicity of hemopoiesis during continuous g-irradiation with low dose rates. 66
Cytogenetic damage to mammalian cells after exposure to charged particles with relativistic energy. 66
Methodological approach to determining the biological effects of heavy ions of galactic cosmic radiation. 66
Cataractogenic effectiveness of accelerated charged particles of high energy. 67
Carcinogenic effectiveness of accelerated charged high energy particles. 67
Radioprotectors and the theory of the radioprotective effect. 67
Prospects for using immunomodulators as a means in increase nonspecific resistance in radiation pathology. 67
Documents setting standards for radiation safety for space flight. 68
The effects of combined physical and chemical radiation protection under conditions of simulated hypergravity. 68
The effects of low-frequency electromagnetic fields on physiological systems. 68
Study of changes in the electrical parameters of the skin of irradiated rats. 68
Research on audiogenic reactions of rats after ultraviolet-irradiation of their eyes. 69
Physiological properties of posture (balance) maintenance in dogs during immediate response to radiation. 69
The protective action of mexamine in microwave irradiation of rats. 69
REPRODUCTIVE SYSTEM
The effect of a high intensity magnetic field on the reproductive function of male rats.
The effect of hypergravity on mammals during the period of delivery and birth of offspring.

SPACE BIOLOGY AND MEDICINE
Biological experiments on COSMOS-1887.
370-Day antiorthostatic hypokinesia: Goals and research protocol
On the Pathogenesis of Weightlessness:
Report on Twenty-first Symposium on Space Biology and Medicine
The work of the section on Aviation and Space Medicine of the Moscow Physiological Society.
In the Interests of Public Health
Medical investigations of long-term manned space flight on-board Salyut-7-Soyuz-T.
Review of the major results of medical research during the flight of the second prime crew of the Mir Space Station.
Biomedical Problems in the Support of Space Flight in Light of the Ideas of K.E. Tsiolkovskiy*.
Ninth All-Union Conference on Space Biology and Medicine, Kaluga 18-21 July, 1990

KEY WORD INDEX
HOW TO USE THIS DOCUMENT

The first section of this document provides bibliographic citations and key words for all abstracts published in Issues 26-29 of the USSR Space Life Sciences Digest. Citations are grouped according to the topic area categories under which the corresponding abstracts were originally included and listed within categories according to issue number. Issue numbers are provided as headings and, in addition, the first number in parentheses after abstract number refers to the appropriate Digest issue. As always, topic areas are presented in alphabetical order.

The second section of this document, starting on page 75, is a key word index. Numbers following each entry in the index refer to page number of the present document. Within the key word list, topic area names are printed in bold face, as are the page numbers for the primary topic area listing. Page numbers not in bold following topic area names refer the reader to relevant abstract originally included under other topic areas.
ADAPTATION

ISSUE 27

MONOGRAPH:

M160(27/90) Vinogradov VV.
Gormony, Adaptatsiya i Sistemnyye Reaktsii Organizma; Гормоны, Адаптация и Системные Реакции Организма; [Hormones, Adaptation, and Systemic Reactions.]
[223 pages; 19 Tables; 56 Figures; 538 references]
Affiliation (book): Institute of Biochemistry; Belorussian Academy of Sciences

KEY WORDS: Adaptation; Endocrinology, Hormones, Stress; Biological Rhythms, Seasonal Rhythms; Metabolism; Cardiovascular and Respiratory System

ISSUE 28

PAPERS:

P1239(28/90)* Ivnitskiy YuYu, Moiseyev NYa.,
Tolerance of mice to various types of hypoxia and X-ray irradiation after exposure to hypoxia.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[21 references; 10 in English]

Tolerance, Hypoxia; Radiobiology, X-rays
Mice
Adaptation, Hypoxia

P1281(28/90)** Shatemirova KK, Zelenshchikova VA, Min'ko YuV.
Catalytic properties of monoamine oxidase in adaptation to barochamber hypoxia.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
24(2): 54-56.
(15 references; 5 in English)

Enzymology, Monoamine Oxidase, Mitochondrial Membrane
Rats
Adaptation, Hypoxia

CONFERENCE REVIEW:

CR14(28/90)* Gippenreyter YeB.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.

Key Words: Adaptation, High Altitude, Hypoxia, Personnel Selection, Human Performance
ISSUE 29:

PAPER:

P1328(29/90)** Balandina TN, Nikitin Yel, Kovalenko YeA, Savina VP.  
*Biochemical aspects of human adaptation to the combined effects of head-down tilt, decreased barometric pressure and increased level of O₂*.  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[5 references; 1 in English]

Biochemistry, Metabolism, Lipid Peroxidation; Hematology, Erythrocytes  
Humans, Males  
Adaptation, Head-Down Tilt, Low Barometric Pressure, Hyperoxia, Exercise

BOOK REVIEW:

BR18(29/90) A.A. Azhayev.  
In: Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
24(3): 63; 1990.

KEY WORDS: Adaptation, Microclimate, Heat, Human Performance, Industrial Hygiene, Countermeasures, Endocrinology, Metabolism, Mineral Metabolism
AVIATION MEDICINE

ISSUE 27

PAPER:

P1230(27/90) Mel'nik SG, Shakula AV, Gladkikh FD.
The effect of workload on the functional state of flight crews of ship-based aviation.
Voyenno-Meditsinskii Zhurnal.
1989(7): 54-57.
[No references]
Authors' Affiliations: USSR Medical Corps
Aviation Medicine, Functional State, Cardiovascular and Respiratory Systems
Humans, Air Crews, Ship-Based Aviation
Human Performance, Workload

BOOK REVIEW:

BR17(27/90)*Gyurdzhian AA.
Aviation Medicine.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.

KEY WORDS: Aviation Medicine, Human Performance, Aviation Psychology, Biodynamics,
Thermal Stress; Biological Rhythms

ISSUE 28

PAPERS:

P1252(28/90)* Vlasov VV, Kopanev VI.
The effects of working in aviation on health status (epidemiological data).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[56 references; 43 in English]
Aviation Medicine, Health Status
Humans, Aviation Personnel
Aviation Professions

P1271(28/90)**Demirchoglan GG, Konakhevich YuG, Petlyuk VKh, Peshkov RV, Khlomenok PN, Sholpo LN, Brazhnik VI.
Experimental evaluation of the displacement of center of mass of the body in a man-chair system when the head is nodded.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[1 references; none in English]
Biomechanics, Displacement of Center of Mass, Head Nodding
Humans
Aviation Medicine, Ejection Sear
**AVIATION MEDICINE**

P1270(28/90)** Nikolayevskiy YeYe.  
*Diurnal rhythm of lipids, carbohydrates, and certain hormones in blood plasma in healthy pilots.*  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[22 references; 6 in English]

Metabolism, Lipids, Carbohydrates; Endocrinology  
Aviation Medicine, Humans, Pilots  
Biological Rhythms, Diurnal Rhythms

**ISSUE 29:**

**PAPER:**

P1294(29/90)* Ponomarenko VA.  
*The category of health as a theoretical problem in aerospace medicine.*  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[15 references; none in English]

Aviation Medicine, Human Performance, Health, Prophylaxis  
Humans, Flight Personnel; Research Program, Equipment and Instrumentation,  
Computer Systems  
Extreme Factors, Countermeasures, Neurophysiology, Neurotransmitters, Nutrition,  
Drugs, Non-Traditional Medicine, Immunology, Psychology, Stress, Stress Protectors,  
Metabolism, Endocrinology
PAPERS:

P1193(26/90) Alyakrinskii BS.
*The problem of desynchronosis in space flight.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
23(5):4-8; 1989.
[33 references; 5 in English]

Biological Rhythms, Desynchronosis; Circadian Rhythms, Work Schedules
Humans, Cosmonauts, Animals
Space Flight; Adaptation Syndrome

P1187(26/89) Alpatov AM.
*A raster-method for analyzing the periodic structure of biological rhythms.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[4 references; 1 in English]

Biological Rhythms, Periodic Structure
Theoretical Article
Mathematical Modeling, Raster Method

MONOGRAPH:

M158(26/90) Gazenko OG, Editor.
Bioritmologicheskiye issledovaniya v kosmicheskoy biologii i meditsine
Биоритмологические исследования в космической биологии и медицине
[Biological Rhythms In Space Biology and Medicine;]
Volume 64 In series: Problemy Kosmicheskoy Biologii,
[197 pages]

KEY WORDS: Biological Rhythms; Adaptation, Space Flight, Metabolism, Fat, Carbohydrates;
Stress; Cardiovascular and Respiratory Systems; Human Performance, Shift Work,
Endocrinology, Thyroid
ISSUE 27

PAPER:

P1204(27/90)\* Alpatov Am, Yevstratov YuA., Chernyshev VB, Lebedev MI, Zotov VA. Free running circadian rhythms in the darkling beetle after space flight. Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(6): 31-33; 1989. [9 references; 5 in English]

Biological Rhythms, Circadian Rhythms, Free-Running, Motor Activity, Beetles, Darkling, Space Flight, COSMOS-1887

ISSUE 29:

PAPER:


Biological Rhythms, Hematology, Red Blood Counts, Humans, Males and Females
MONOGRAPH:

M161(27/9) Khantseverov FR, Ostroukhov VV. Modelirovanie Kosmicheskikh Sistem Izucheniya Prirodnykh Resursov Zemli; Моделирование Космических Систем Изучения Природных Ресурсов Земли; [Modeling of Space Systems for Studying the Earth's Natural Resources]
Moscow: Mashinostroyenie; 1989.
[264 pages; 69 Figures]

KEY WORDS: Biospherics, Mathematical Modeling, Space Systems, Remote Sensing, Natural Resources
BODY FLUIDS

ISSUE 26

PAPER:

P1180(26/90) Lobachik VI, Zhidkov VV, Abrosimov SV.

Body fluid status during a 120-day period of hypokinesia with head-down tilt.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[6 references; none in English]

Body Fluids, Hydration, Extracellular Fluid; Metabolism, Mineral, Fats
Humans
Hypokinesia With Head-Down Tilt, Long-Term; Pharmacological Countermeasures, Physical
Exercise, Ultraviolet Therapy

ISSUE 29:

PAPERS:

P1338(29/90) Zavadovskiy AF, Korotayev MM, Vavakin YuN.

Increasing human resistance to headward fluid redistribution.
In: Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
Tezisy Dokladov IX Vsesoyuznoy Konferentsii. KOSMICHESKAYA BIOLOGIYA I AVIAKOSMI
Meditsina. Tezisy Dokladov IX Vsesoyuznoy Konferentsii. [Space Biology and Aerospace Medicine: IXth All-Union Conference]
Affiliation: Scientific Council on Space Biology and Physiology, USSR Academy of Sciences;
Institute of Biomedical Problems, USSR Ministry of Health
Page 63.

Body Fluids, Headward Fluid Shifts, Cardiovascular and Respiratory Systems, Cerebral
Hemodynamics
Humans, Age Differences, Patients, Atherosclerosis
Countermeasures, Head-Down Tilt, Repeated Exposure

P1331(29/90) Abashev VYu, Andriyako LYa, Bubeyev YuA, Degtyarev VA, Remisov YuV.

A technique for individual assessment of the level of redistribution of blood in
humans during the acute period of adaptation to weightlessness.
In: Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
Tezisy Dokladov IX Vsesoyuznoy Konferentsii. KOSMICHESKAYA BIOLOGIYA I AVIAKOSMI
Meditsina. Tezisy Dokladov IX Vsesoyuznoy Konferentsii. [Space Biology and Aerospace Medicine: IXth All-Union Conference]
Affiliation: Scientific Council on Space Biology and Physiology, USSR Academy of Sciences;
Institute of Biomedical Problems, USSR Ministry of Health
Pages 5-6.

Body Fluids, Fluid Redistribution, Cardiovascular and Respiratory Systems
Humans, Males
Assessment Technique, Tilt Test, Composite Index
ISSUE 27

PAPER:

P1213(27/90)* Nevzgodina LV, Maksimova YeN, Kaminskaya YeV.
*The effects of single hits by heavy ions of galactic cosmic radiation on Lactuca sativa seeds flown on board Salyut-6 and Salyut-7 space stations.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[15 references; 6 in English]

Genetics, Aberrations
Botany, Lettuce, Seeds
Space Flight, Long-term, Salyut-6, Salyut-7; Radiobiology, Heavy Ions

ISSUE 28

PAPERS:

P1235 (28/90)* Anikeyeva ID.
*Genetic studies of Arabidopsis seeds on space flights.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[14 references; 4 in English]

Genetics, Damage, Mutations, Accelerated Aging
Botany, Arabidopsis, Seeds
Space Flight, Short-Term, Long-Term; Zond-8, Soyuz, COSMOS, Salyut; Radiobiology, Cosmic Radiation

P1236(28/90)*Nevzgodina LV, Maksimova YeN, Akatov YuA, Kaminskaya YeV, Marennyy AM.
The effect of the vacuum of space on seeds of lettuce (Lactuca sativa) exposed on COSMOS series biosatellites.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[10 references; 4 in English]

Genetics, Cytogenetic Effects
Botany, Lettuce Seeds
Space Flight, COSMOS-1129, -1514, -1760; Radiobiology, Cosmic Radiation, Solar Radiation

P1253(28/90) Abramova VM, Vasil'yeva NG, Verigo VV, Marennyy AM, Portman AI.
*Study of the biological effects of heavy charged particles of cosmic radiation on a population of higher plants -- Wolffia arrhiza.*
Pages 562-563.
Authors' affiliation Institute of Biomedical Problems, USSR Ministry of Health.

Botany, Biological Effects
Wolffia arrhiza, Duckweed
Radiobiology, HZE Particles
P1249(28/98)* Rumyantseva VB, Merzlyak MN, Mashinskiy AL, Nechitaylo GS.
*The effects of space flight factors on the pigment and lipid components of wheat plants.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[15 references; 7 in English]

Botany, Pigment, Lipid Components
Wheat
Space Flight, Mir

MONOGRAPH:

M162(28/90) Grodzinskiy DM
Radiobiologiya Rasteniy, *Radiobiology of Plants*.
[384 pages; 85 Figures; 7 Tables; 800 references]
Affiliation: N.G. Kholodnyy Botanical Institute, Ukrainian Academy of Sciences.

KEY WORDS: Botany, Radiobiology, Ionizing Radiation, Genetics, Mutagenesis, Cell Death

ISSUE 29:

PAPER:

P1292(29/90) Laurinavichyus RS, Kenstavichene PF.
*The significance of the force of gravity in formation and growth of callus tissue in Arabidopsis.*
In: M164(29/90) Flom TV (editor)
Труды XXII Чтений Посвященных Разработке Научного Наследия и Развитию Идей К.Э. Циолковского. Секция «Проблемы Космической Медицины и Биологии» Медико-Биологические Проблемы Обеспечения Космических Полетов в Свете Идей К.Э. Циолковского
Affiliation: Commission on Development of the Scientific Heritage of K.E. Tsiolkovskiy, USSR Academy of Sciences; K.E. Tsiolkovskiy State Museum on the History of Cosmonautics
Pages 65-70.
[6 references; 3 in English]

Morphology, Cytology, Plant Tissue Culture, Callus Tissue, Dedifferentiation, Developmental Biology
Botany, *Arabidopsis*
Space Flight, Salyut-7, Weightlessness Simulation, Horizontal Clinostatting
PAPERS:

P1179(26/90)* Mikhailov VM, Machinskiy GV, Buzulina VP, Geogriyevskiy VS, Nechayeva EN, Kryutchenko SG.
Tolerance for provocative tests under conditions of a 1-year exposure to hypokinesia with head-down tilt.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
23(5): 54-56; 1989.
[7 references; none in English]

Cardiovascular and Respiratory Systems, Orthostatic Intolerance, Aerobic Capacity
Humans, Males
Hypokinesia with Head-down Tilt, Prophylactic Countermeasures, Physical Exercise, Drugs,
Anti-g Suit; Provocative Tests, Tilt, Exercise Loading

P1181(260)* Yevdokimova AG, Radzevich AE, Solovyeva FB, Vinokhodova TV, Mamayev VI,
Belayev SM, Ovchinnikova LK.
A study of orthostatic tolerance and status of central and peripheral hemodynamics in hypertensive subjects undergoing a 7-day period of "dry" immersion.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[9 references; 2 in English]

Cardiovascular and Respiratory Systems, Hemodynamics, Central and Peripheral, Orthostatic Tolerance
Humans, Males, Patients, Hypertension
Immersion, Dry; Tilt Test

P1182(26/90)* Varosyan MA.
Functional and metabolic changes in the heart during adaptation to high-altitude hypoxia.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[11 references; 3 in English]

Cardiovascular and Respiratory Systems, Cardiac Hypertrophy, Metabolism, Heart, Nucleic Acids
Rabbits
Adaptation, High Altitude Hypoxia

P1186(26/90) Kuznetsov VI.
Cardiac contractility in rats after chronic stress and thyroid.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[33 references; 8 in English]

Cardiovascular and Respiratory Systems, Cardiac Contractility
Rats, Female
Stress, Immobilization, Coarctation; Endocrinology, Thyroid Hormones
P1190(26/90) Tikunov BA, Kayfadzhyan MA, Oganesyan SS.
Ca$^{2+}$ reactivity of ventricular actomyosin in rats exposed to gravitational loading.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[8 references; 3 in English]

Cardiovascular and Respiratory Systems, Ca$^{2+}$ Reactivity, Ventricular Actomyosin
Rats, Male
Hypergravity, Acceleration

ISSUE 27

PAPERS:

P1202(27/90)* Turchaninova VF, Yegorov AD, Domracheva MV.
Central and regional hemodynamics on long-term space flights.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[20 references; 6 in English]

Cardiovascular and Respiratory Systems, Hemodynamics, Central, Regional
Humans, Cosmonauts
Space Flight, Long-term, Salyut-6, Salyut-7, Exercise

P1208(27/90)* Kuznetsov VI.
Cardiac contractility of guinea pigs exposed to long-term continuous stress.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[18 references; 3 in English]

Cardiovascular and Respiratory Systems, Cardiac Contractility
Guinea Pigs
Psychology, Stress

P1226(27/90) Beketov AI, Konyayeva Yel.
Circulation and oxygen pressure in the brains of alert and anesthetized rabbits in a head-down tilt position.
Fiziologicheskiy Zhurnal SSSR im I.M. Sechenova
75(11): 1548-1553.
Authors' affiliations: Medical Institute of Crimea, Simferopol; Sechenov Institute of Evolutionary Physiology and Biochemistry, Leningrad

Cardiovascular and Respiratory Systems, Circulation, Oxygen Pressure, Brain
Rabbits, Alert, Anesthetized
Head-Down Tilt
CARDIOVASCULAR AND RESPIRATORY SYSTEMS

ISSUE 28

PAPERS:

P1231(28/90)* Gazenko OG, Shulzhenko YeV, Grigor'yeV Al, Atkov OYu, Yegorov AD. Medical investigations during an 8-month flight on Salyut-7-Soyuz-T. Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 24(1): 9-14. [16 references; 7 in English]

Cardiovascular and Respiratory Systems, Neurophysiology, Vestibular System, Perception, Sensory Systems, Body Fluids, Endocrinology, Metabolism, Nutrition Humans, Cosmonauts Space Flight, Long-Term, Salyut-7, Prophylactic Countermeasures, EVA


Cardiovascular and Respiratory Systems, Hemodynamics, Intracardiac and Systemic Humans, Males Weightlessness Simulations, Immersion, Hypokinesia with Head-Down Tilt


Cardiovascular and Respiratory Systems, Metabolism Humans, Males Physical Exercise, Graded, Horizontal

P1238(28/90)* Chernysheva ON. Lipids in the cell membrane of the heart in rats after multiple exposure to an alternating magnetic field with frequency of 50 Hz. Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 24(1):30-31; 1990. [12 references; 2 in English]

Cardiovascular and Respiratory Systems, Cell Membrane of the Heart Rats Radiobiology, Magnetic Field, Alternating
P1243(28/90)* Ivanov SG, Markova Li.
[16 references; 1 in English]

Cardiovascular and Respiratory Systems, Hypertensive Crisis
Humans, Patients, Essential Hypertension, Males and Females
Dry Immersion, Treatment

P1243(28/90)* Turbasov VD, Artamonova NP, Nechayeva Yel.
[12 references; 3 in English]

Cardiovascular and Respiratory Systems, Bioelectric Activity of the Heart
Humans, Males, Patients, Atherosclerosis
Hypokinesia with Head-Down Tilt, Countermeasures, Exercise, Muscle Stimulation, Drugs, Equipment and Instrumentation, EKG Leads

P1245(28/90)* Korolev AB.
[2 references; 1 in English]

Cardiovascular and Respiratory Systems, Circulation, Blood, Neurophysiology, Brain, Cerebrospinal Fluid
Rabbits
Decompression Sickness

[3 references; none in English]

Cardiovascular and Respiratory Systems, Endurance Criteria
Humans, Men, Individual Differences
Hyperoxia, Hypercapnia
P1279(28/90)** Savina VP, Ryzhkova VYe, Nikitin Yel, Balandina TN, Bragin LKh, Sivuk AK, Bychkov VP, Bobrova GG.
The composition of exhaled air, gas and energy exchange and biochemical parameters in blood and urine of humans under conditions of long-term exposure to hypercapnia and hypoxia.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[11 references; none in English]

Cardiovascular and Respiratory Systems, Exhaled Gas, External Respiration, Biochemical Parameters, Metabolism, Lipid Peroxidation, Nitrogen Metabolism
Humans, Males, Older Subjects
Hypercapnia, Hypoxia, Pressurized Environment, Long-Term

ISSUE 29:

PAPERS:

P1296(29/90)*Meyerson FZ.
The phenomenon of adaptive stabilization of the structures and protection of the heart.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[57 references; 31 in English]

Cardiovascular and Respiratory Systems, Cardiac Structures, Protection
Rats, Isolated Hearts
Adaptation, Preadaptation, Stress, Immobilization, Ischemia, Reperfusion, Endocrinology, Adrenergic System, Calcium

P1297(29/90)* Fedorov BM, Sebekina TV, Sinitsyna TM, Streltsova YeN, Vakulenko VM, Nikolayeva TG.
Stress and circulation in humans.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
24(3): 35-40; 1990.
[36 references; 16 in English]

Cardiovascular and Respiratory Systems, Hemodynamics, General, Cerebral
Humans, Males
Human Performance, Mental Work, Stress, Hypokinesia

P1307(29/90)* Beketov AI, Konyayeva Yel.
Characteristics of the effects of caffeine on circulation and oxygen tension in the brain of alert rabbits undergoing head-down tilt.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
24(3): 64; 1990.

Cardiovascular and Respiratory Systems, Neurophysiology, Brain Circulation, Oxygen Circulation
Rabbits
Head-Down Tilt, Caffeine
CARDIOVASCULAR AND RESPIRATORY SYSTEMS

P1323(29/90)** Suvorov PM, Doroshev VG, Ivanchikov AP, Sidorova KA.
Types of hemodynamics in flight crews and their significance for clinical and flight certification practice.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[18 references; 1 in English]
Cardiovascular and Respiratory Systems, Hemodynamics, Typology
Humans, Flight Crews, Patients, Neurocirculatory Asthenia, Myocardial Dystrophy, Myocardial Sclerosis, Essential Hypertension, Age Effects
Aviation Medicine

P1332(29/90) Alferov IV, Anashkin OD, Voronova OK, Poyedintsev GM.
Changes in hemodynamic parameters on long-term space flights.
Affiliation: Scientific Council on Space Biology and Physiology, USSR Academy of Sciences; Institute of Biomedical Problems, USSR Ministry of Health
Pages 8-9.
Cardiovascular and Respiratory Systems, Hemodynamic Parameters, Typology
Humans, Males, Cosmonauts
Space Flight, Repeated Flights

P1335(29/90) Vil'-Vilyams IF, Kotovskaya AR, Kokova NI, Sukhanov YuV.
Endurance of +Gx acceleration in humans after a 370-day period of hypokinesia.
Affiliation: Scientific Council on Space Biology and Physiology, USSR Academy of Sciences; Institute of Biomedical Problems, USSR Ministry of Health
Pages 31-32.
Cardiovascular and Respiratory Systems, Acceleration Tolerance, +Gx
Humans, Males
Hypokinesia With Head-Down Tilt, Long-Term, 370 Day, Countermeasures, Exercise
SPECIAL FEATURE: The First Baby Born in Space: The Unique “Incubator-2” Experiment is a Success

Translation of an article by I. Nekhamkin in Sovetskiy Soyuz: June 1990

ISSUE 29:

PAPERS:


Developmental Biology, Regeneration, Limbs, Lens Amphibians, Tritons Space Flight, COSMOS-1667, -1887, -2044


Developmental Biology, Oocyte Growth, Genetics, Delayed Effects Amphibians, Spanish Tritons Space Flight, COSMOS-1887, -939
M165(29/90) Smirnov KV.
Pishchevareniye i Gipokinesiya [Digestion and Hypokinesia].

KEY WORDS: Digestive System, Hypersecretory Stomach, Dysbacteriosis, Hypokinesia
PAPERS:

P1203(27/90)* Prodan NG (USSR) and Baranska V (Poland).
*Morphological research on the adrenal glands of rats after flight on COSMOS-1667.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[15 references; 1 in English]

Endocrinology, Adrenal Glands, Morphology
Rats, Males
Space Flight, COSMOS-1667

P1211(27/90)* Yangalycheva EA.
*Hypothalamus/pituitary neurosecretory system in rats exposed to high-altitude hypoxia.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
23(6): 54-62; 1990.
[21 references; 3 in English]

Endocrinology, Hypothalamus, Pituitary; Neurophysiology, Neurosecretory Apparatus; Morphology
Rats
Adaptation, Hypoxia, High-Altitude

P1219(27/90)* Zagorskaya YeA.
*Endocrine response to low frequency electromagnetic fields of continuous and intermittent generation.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
23(6): 4-15; 1990.
[126 references; 54 in English]

Endocrinology, Endocrine Response
Humans and Animals, Review Article
Radiobiology, Low-Frequency Electromagnetic Fields, Constant, Intermittent

ISSUE 28

PAPERS:

P1275(28/90)**Goncharov SS, Shekhoiva AN.
*Hormonal response of the steroid-producing glands of female hamadryas baboons to long-term hypokinesia.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[12 references; 4 in English]

Endocrinology, Reproductive System, Steroids, Biological Rhythms, Menstrual Cycle, Diurnal Rhythms
Primates, Hadryas Baboons, Female
Hypokinesia, Long-Term
ENDOCRINOLOGY

P1277(28/90)** Lakota NG, Kvasova MM, Larina IM, Vorob'ev DV, Ostrovskaya GZ. 
Efficacy and realization mechanisms of the protective effects of sidnocarb under 
conditions of experimental weightlessness and chilling. 
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 
[43 references; 16 in English] 

Endocrinology, Catecholamines, Thermal Protection 
Humans 
Immersion, Chilling, Pharmacological Countermeasures, Sidnocarb, Neurophysiology 

P1282(28/90)** Zagorskaya YeA., Rodina GP. 
The responses of the endocrine system and peripheral blood in rats to single and 
repeated exposure to a pulsed low-frequency electromagnetic field. 
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 
24(2): 56-60; 1990. 
[25 references; 11 in English] 

Endocrinology, Adrenal Cortex, Thyroid, Testes 
Rats 
Radiobiology, Electromagnetic Field, Pulsed, Low Frequency; Immobilization Stress 

ISSUE 29: 
PAPERS: 
P13012(29/90** Pozharskaya LG, Noskov VB. 
Hormonal regulators of calcium metabolism after space flights varying in 
duration. 
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 
[13 references; 5 in English] 

Endocrinology, Hormonal Regulators, Calcitonin, Gastrin, PTH. Metabolism, Calcium, Body 
Fluids, Fluid-Electrolyte Balance 
Humans, Cosmonauts 
Space Flights, Short and Long-Term 

P1315(29/90)** Plakhuta-Plakutina, GI, Kabitskiy YeN, Dmitriyeva NP, Amirkhanyan YeA. 
Morphology of the thyroid gland and concentration of thyroid hormones in blood of 
rats in experiments on COSMOS-1667 and -1887 biosatellites. 
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 
[15 references; 2 in English] 

Endocrinology, Thyroid, Morphology, Hormone Levels 
Rats 
Space Flight, Short-Term, COSMOS-1667, -1887, Adaptation, Initial, Transitional
P1316(29/90) Kabitskiy YeN.
*Functional activity of the pituitary-thyroid system in response to a 370-day period of hypokinesia with head-down tilt.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[15 references; 8 in English]

Endocrinology, Pituitary-Thyroid System
Humans, Males
Hypokinesia, Head-Down Tilt, Countermeasures, Exercise

P1346(29/90) Besova NV, Savel'yev SV.
*Morphological changes in the ultimobranchial glands of caudate amphibians under conditions of space flight.*
In: Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
Tezisy Dokladov IX Vsesoyuznoy Konferentsii. Космическая Биология и Авиакосмическая Медицина.Тезисы Докладов IX Всесоюзной Конференции. [Space Biology and Aerospace Medicine: IXth All-Union Conference]
Affiliation: Scientific Council on Space Biology and Physiology, USSR Academy of Sciences; Institute of Biomedical Problems, USSR Ministry of Health
Pages 288-289.

Endocrinology, Ultimobranchial Glands, Morphology
Amphibians, Tritons
Space Flight, COSMOS, Foton
ISSUE 26

PAPERS:

P1182(26/90)* Potapov PP.
Changes in activity of mitochondrial oxidative enzymes in skeletal muscles of rats during the recovery period after hypokinesia varying in duration.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[12 references; 1 in English]

Enzymology, Oxidative Enzymes; Musculoskeletal System, Skeletal Muscles, Mitochondria
Rats
Hypokinesia, Long- and Short-term, Recovery Period

P1183(26/90)* Ivashkevich AA, Nosar' VI, Kurbakov LA.
Neutral peptide hydrolases in the blood serum and lungs under conditions of hypoxia.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
23(5): 70-75; 1989.
[18 references; none in English]

Enzymology, Peptide Hydrolases, Blood Serum, Lungs, Proteolysis, Tissue Respiration
Rats, Males
Cardiovascular and Respiratory System, Hypoxia; Adaptation, Barochamber Training

ISSUE 27

PAPER:

P1225(27/90) Shepotinovskiy VI, Rogoznyaya NA, Mikashinovich Zl.
Activity of digestive enzymes in response to Immobilization stress and its pharmacological correction with adrenoreceptor blocking agents.
Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya.
[10 references; none in English]
Authors' Affiliation: Central Scientific Research Laboratory, Rostov Medical Institute

Enzymology, Digestive Enzymes; Gastrointestinal System
Rats
Adaptation; Immobilization Stress; Pharmacological Countermeasures; Adrenoblockers
P1234(28/90)* Potapov PP. 
Activity of certain oxidative enzymes and transaminase in the liver of rats during recovery after hypokinesia up to 30 days in duration.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[16 references; 1 in English]

Enzymology, Oxidative Enzymes, Transaminase, Liver
Rats
Hypokinesia, Immobilization Cages
EQUIPMENT AND INSTRUMENTATION

ISSUE 28

PAPER:

P1244(28/90)* Demina GN, Kirichenko GI.
Algorithm for automatic recognition of base points on an impedance plethysmogram.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[8 references; none in English]

Cardiovascular and Respiratory Systems
Humans
Equipment and Instrumentation, Impedance Plethysmography, Base Points

ISSUE 29:

PAPER:

P1311(29/90)** Adamovich BA, Bayevskiy RM, Berseneva AP, Funtova II.
State-of-the-art automated evaluation of functional state in cosmonautics and preventive medicine today.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
24(4): 11-18; 1990.
[26 references; 1 in English]

Equipment and Instrumentation, Automated Diagnosis and Prognosis, Avtosan-83, Kontrol, Vita, Ritm
Humans
Operational Medicine, Space Medicine, Preventive Medicine
P1194*26/90) Larentyev GA, Rakitin LYu, Piskunova LA.

Simulation of abiogenic thermal polycondensation of amino acids in the Earth's lithosphere in areas of intense volcanic activity.
[13 references; 11 in English]
Authors' Affiliation: A.N. Bakh Institute of Biochemistry, USSR Academy of Sciences

Exobiology, Abiogenesis, Thermal Polycondensation
Amino Acids
Lithosphere, Simulation, Volcanic Activity

M156(26/90) Kustov VV, Belkin VI, Kruglikov GG.
Biologicheskiye Effekty Lunnogo Grunta; Биологические Эффекты Лунного Грунта; [The Biological Effects of Lunar Soil]
[103 pages; 47 references; 6 in English]

KEY WORDS: Exobiology, Lunar Soil, Biological Effects, Fibrogenesis

ISSUE 27

PAPER:

P1229(27/90) Kuzicheva YeA, Malko IL.

Abiogenic thermal synthesis of nucleotides in the presence of lunar soil.
[13 references; 4 in English]
Authors' Affiliation: Institute of Cytology, USSR Academy of Sciences, Leningrad

Exobiology; Abiogenic Synthesis; Thermal
Nucleotides
Lunar Soil
GENETICS

ISSUE 29:

PAPERS:


Cytogenetic consequences of treatment with hyperbaric oxygen.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[29 references; 17 in English]

Genetics, Cytogenetic Mutations, Hematology, Lymphocytes
Humans, Patients
Hyperbaric Oxygenation
HABITABILITY AND ENVIRONMENT EFFECTS

ISSUE 27

PAPER:

P1210(27/90)* Mukhamediyeva LN, Savina VP, Nikitin Yel.
Thermoregulatory responses in humans to moderate levels of hypercapnia.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
23(6): 51-54; 1990.
[20 references; 7 in English]

Thermoregulatory Response
Humans, Males
Habitability and Environment Effects, Hypercapnia; Pressurized Environment

ISSUE 28

PAPER:

P1280(28/90)**Berlin AA.
The functional status of the skin in humans inhabiting pressurized environments of limited size.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
24(2): 52-54; 1990.
[9 references; none in English]

Skin, Protective Function, Desquamation
Humans, Males, Females
Habitability and Environment Effects, Pressurized Environment, Personal Hygiene

ISSUE 29:

PAPERS:

P1293(29/90*)Gazenko OG, Grigor'ev AI, Meleshko GI, Shepelev YeYa.
Habitability and man-rated bioregenerative life support systems
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
24(3): 12-17; 1990.
[24 references; 3 in English]

Habitability and Environment Effects, Biospherics, Ecological Specifications, Human Ecology
Theoretical Article, Humans
Life Support Systems, Bioregenerative, CELSS, Space Flights, Long-Term, Mars Mission
HABITABILITY AND ENVIRONMENT EFFECTS

MONOGRAPH:

M163(29/90) Beregovoy GT, Yarpolov VI, Baranetskiy II, Vysokanov VA, Shatov YaT.
Spravochnik po Bezopasnosti Kosmicheskikh Poletov
Справочник по Безопасности Космических Полетов
[Handbook on Space Flight Safety]
Moscow: Mashinostroyeniye; 1989.
[366 pages; 68 Figures; 30 Tables; 63 References; 2 in English]

KEY WORDS: Habitability and Environmental Effects, Space Flight, Safety, Radiobiology, Equipment and Instrumentation, Cosmonaut Selection, Cosmonaut Training, Human Performance, Contingency Situations, Survival
PAPER:

P1215(27/90)* Orlova TA, Kiselev RK.

Use of a ferrocerone test to measure iron reserves under various living conditions.

Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.

23(6): 77-81; 1990.

[15 references; 2 in English]

Hematology, Nutrition, Blood Iron; Ferrocerone Test
Humans
Hypokinesia with Head-Down Tilt

ISSUE 28

PAPERS:

P1257(28/90) Gubin AT, Sakovich VA, Shafirkin AV.

The development of radiation damage in the hemopoietic system.


Pages: 904-905.

Authors' affiliation: Institute of Biomedical Problems, USSR Ministry of Health

Hematology, Hemopoietic System
Mathematical Modeling
Radiobiology, Radiation Damage

P1259(28/90) Smirnova OA, Zikhbaya TM.

The stimulating effect of chronic irradiation with small dose rates on lymphopoiesis and granulocytopoiesis. (Results of mathematical modeling and experimental data).


Pages: 923-924.

Authors' affiliation: Institute of Biomedical Problems, USSR Ministry of Health

Hematology, Granulocytopoiesis, Lymphocytopoiesis, Chalone Mechanism
Mathematical Modeling, Mammals, Rats
Irradiation, Chronic, Low Dose
HEMATOLOGY

P1251(28/90)* Rachkov AG, Rachkova LG, Daniyarov SB.
*Hemostasis in prolonged exposure to γ-irradiation at high altitudes.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[10 references; none in English]

Hematology, Hemostasis
Dogs
Radiobiology, γ-Irradiation, High Altitudes

P1285(28/90)** Pak GD, Sverchkova VS, Danilevskaya TN.
The hemostasis system under conditions of various levels of hypoxic hypoxia.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
24(2): 4-9; 1990.
[62 references; 18 in English]

Hematology, Hemostasis
Literature Review
Hypoxia, Hypoxic

ISSUE 29:

PAPER:

P1317(29/90)** Ivanov AP, Goncharov IB, Repenkova LG.
Changes in rheological parameters and hemodynamics in response to a 14-day period of hypokinesia with head-down tilt.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
24(4): 30-32; 1990.
[19 references; 7 in English]

Hematology, Rheological Parameters, Cardiovascular and Respiratory Systems, Hemodynamics
Humans, Males
Hypokinesia, Head-Down Tilt

P1329(29/90)** Belchenko DI.
Rosette formation in peripheral blood of rats exposed to hypokinesia.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[12 references; none in English]

Hematology, Rosette Formation, Macrophages, Histology
Rats, Males
Hypokinesia, Immobilization Cages
Results of hematological studies in long-term hypokinesia with head-down tilt.

In: Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. Tezisy Dokladov IX Vsesoyuznoy Konferentsii. Космическая Биология и Авиакосмическая Медицина. Тезисы Докладов IX Всесоюзной Конференции. [Space Biology and Aerospace Medicine: IXth All-Union Conference]
Affiliation: Scientific Council on Space Biology and Physiology, USSR Academy of Sciences; Institute of Biomedical Problems, USSR Ministry of Health
Pages 76-77.

Hematology, Blood Parameters, Immunology
Humans, Males
Hypokinesia, Head-Down Tilt, Long-Term, 370 Days
P1189(26/90) Kirzhner VM, Kordenko AN, Ushakov IB. 
Reactions of skin basophils of rats to exogenous hypoxia: A study of certain correlations. 
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 
[1 references; none in English] 

Histology, Skin Basophils 
Rats 
Hypoxia
HUMAN PERFORMANCE

ISSUE 26

PAPERS:

P1169(26/90) *Ponomarenko VA, Lapa VV, Nikitin IS.
Psychophysical characteristics of sensorimotor performance of an operator after short-term exposure to simulated hypogravity.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(5): 9-12; 1989.
[[11 references; none in English]

Human Performance, Sensorimotor Performance; Neurophysiology, Proprioception Humans, Operators Hypokinesia with Head-down Tilt, Immersion

P1199(26/90) Bobko NA.
Diurnal variations in the efficiency of operator mental performance in shift work.
[20 references; 4 in English]

Author's Affiliation: Research Institute of Occupational Hygiene and Diseases, Ukrainian Ministry of Public Health

Human Performance, Shift Work; Cognitive Task Humans, Operators Biological Rhythms, Diurnal Variations

MONOGRAPH:

M155(26/90) Frolov AA.
Apparatura i Metody Issledovaniya Deyatelnosti Operatorov; [Apparatus and Methods for Investigating Operator Performance;]
Moscow: Nauka; 1989.
[112 pages]
Affiliation: Institute of Higher Nervous Activity and Neurophysiology, USSR Academy of Sciences

KEY WORDS: Human Performance; Humans; Operators; Equipment and Instrumentation; Research Apparatus; Research Methods; Psychology; Neurophysiology
HUMAN PERFORMANCE

ISSUE 28

PAPERS:

P1248(28/90)* Yegorov SV, Kostrina VG.
_**Evaluation of operator’s readiness to act in an emergency**_
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[4 references; none in English]

Human Performance, Evaluation, Emergency Response
Human, Operator
Monotony

P1269(28/90)** Ivanov VI, Ivanov VI.
_**Techniques and means for optimizing functional status of flight school cadets during preflight activity.**_
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[37 references; none in English]

Human Performance, Optimization, Functional Status
Humans, Flight School Cadets
Preflight Training, Exercise, Feedback

P1283(28/90)** Matseychik Ya, Terelyak Ya (Poland).
_**The effect of relaxation on perceptual/motor performance of humans.**_
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[6 references; 3 in English]

Human Performance, Perception, Perceptual/Motor Performance
Humans
Autogenic Training, Relaxation

ISSUE 29:

PAPERS:

P1308(29/90)* Sapova NI, Grozov VM.
_**The effect of various pharmacological agents on general state, heart rhythm , and performance efficiency of operators.**_
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
24(3): 64; 1990.

Human Performance, Performance Efficiency, Cardiovascular and Respiratory Systems, Heart Rhythm
Humans, Males, Operators
Mental Tasks, Pharmacological Agents
HUMAN PERFORMANCE

P1342(29/90) Ioseliani KK, Khisambeyev ShR.
Predicting mental performance of cosmonauts on long-term flights.
In: Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
Tezisy Dokladov IX Vsesoyuznoy Konferentsii. Космическая Биология и Авиакосмическая Медицина. IX Tezisy Dokladov IX Всесоюзной Конференции. [Space Biology and Aerospace Medicine: IXth All-Union Conference]
Affiliation: Scientific Council on Space Biology and Physiology, USSR Academy of Sciences; Institute of Biomedical Problems, USSR Ministry of Health
Pages 236-237.

Human Performance, Mental Tasks,
Humans, Males, Cosmonauts
Space Flight, Long-Term, Equipment and Instrumentation, Pleven-87

P1345(29/90) Salnytskiy VP, Shevchenko AG, Dudukin AV, Ryabov EV, Nikonov AV.
A technique of semi-full-scale simulation and its use inflight to increase psychological readiness of cosmonauts.
In: Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
Tezisy Dokladov IX Vsesoyuznoy Konferentsii. Космическая Биология и Авиакосмическая Медицина. IX Tezisy Dokladov IX Всесоюзной Конференции. [Space Biology and Aerospace Medicine: IXth All-Union Conference]
Affiliation: Scientific Council on Space Biology and Physiology, USSR Academy of Sciences; Institute of Biomedical Problems, USSR Ministry of Health
Pages 271-273.

Human Performance, Psychological Readiness
Humans, Males, Cosmonauts
ISSUE 27

PAPERS:

P1212(27/90) Mirrakhimov MM, Kitayev MI, Tokhtabayev AG. 
The immune status of individuals suffering from acute altitude sickness. Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(6): 62-66; 1990. [18 references; 9 in English]

Immunology, Immune Status 
Humans, Males, Individual Differences 
Adaptation, High Altitude Sickness

P1216(27/90)* Novikov VS, Bortinovskiy VN. 
The effect of smoking on human resistance in a pressurized environment. Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(6): 81-85; 1990. [20 references; 8 in English]

Immunology, Resistance; Cardiovascular and Respiratory Systems; Exercise Tolerance 
Humans, Men 
Smoking, Habitability and Environment Effects; Pressurized Environment

P1220(27/90)* Ignatova OV, Berlin AA, Pak ZP, Popov IG. 
On the protective function of the skin. Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(6): 15-19; 1990. [36 references; 17 in English]

Immunology, Skin, Protective Function 
Humans 
Operational Medicine

ISSUE 28

PAPER:

P1260(28/90) Smirnova OA. 
Pages: 924-925. 
Authors' affiliation: Institute of Biomedical Problems, USSR Ministry of Health

Immunology, Humoral Immunity 
Mathematical Modeling, Mammals 
Radiobiology, Irradiation
P1348(29/90) Lesnyak AT, Vorotnikova I Ye, Rykova MP, Meshkov DO.

**Proliferative, suppressor, and cytotoxic activity of splenocytes of rats in the experiment on COSMOS-2044.**


Affiliation: Scientific Council on Space Biology and Physiology, USSR Academy of Sciences; Institute of Biomedical Problems, USSR Ministry of Health

Page 320-321.

Immunology, Splenocytes, Proliferation, Suppressor, Cytotoxic
Rats
Space Flight, COSMOS-2044, Tail Suspension
PAPERS:

P1173(26/90)* Levinskikh MA, Sychev VN.  
_Growth and development of one-celled algae as a component of an "algobacterial cenosis - fish" ecosystem under space flight conditions_
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[12 references; 1 in English]

Life Support System, CELSS; Algobacterial Cenosis-Fish Ecosystem  
Microbiology, Algae, _Chlorella_; Fish  
Space Flight; COSMOS-1187

P1174(26/90)* Sychev VN, Levinskikh MA, Livanskaya OG.  
_Investigation of the growth and development of Chlorella exposed to space on COSMOS-1887._  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[9 references; none in English]

Life Support System, CELSS  
Microbiology, Algae, _Chlorella_  
Space Flight, COSMOS-1887

P1175(26/90)* Drugova NA, Chernova LS, Mashinskiy AL.  
_The formation of a wheat microbial cenosis on a manned space flight._  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[10 references; 1 in English]

Life Support Systems, CELSS  
Botany, Wheat, Microbiology  
Space Flight, Manned

P1185(26/90)* Vasilenko II, Shevel' NM, Sinyak YuYe.  
_Matter balance during the catalytic oxidation of water mixtures by hydrogen peroxide._  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
23(5) 75-78; 1989.  
[11 references; 2 in English]

Life Support System, Water Regeneration, Catalytic Oxidation, Low Temperature  
Hydrogen Peroxide  
Matter Balance
ISSUE 28

PAPER:

P1242(28/90)* Kozyarin IP, Suk VG, Maslenko AA, Khil'ko OK.

**Hygienic evaluation of oxygen produced by a system containing a solid polymer electrolyte.**
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina
[20 references; none in English.]

Evaluation, Oxygen
Rats, Humans
Life Support System, Solid Polymer Electrolyte

ISSUE 29:

PAPERS:

P1299(29/90)* Kozyarin IP.

**A hygienic evaluation of certain moisture and carbon dioxide absorbers recommended for cleaning the air of pressurized environments**
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina
[12 references; none in English.]

Hygienic Evaluation, Microbiology
Moisture and Carbon Dioxide Absorbers, Zeolite, Silica Gel
Life Support Systems, Air Cleaning, Pressurized Environments

P1304(29/90)* Adamovich BA, Ratner GS.

**A methodology for evaluating and selecting a life support system during the early stages of design.**
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina
24(3): pp. 56-57; 1990
[9 references; 1 in English.]

Life Support Systems, Regenerative, Evaluation, Selection
Theoretical Article
Mathematical Modeling

P1322(29/90)**Ivanova l'Ye, Derednyayeva TA, Alekhina TP, Shaydarov Yul.

**The higher plant component in man-rated biological (bioregenerative) life support system.**
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[18 references; none in English.]

Functional Characteristics
Botany, Higher Plants, Wheat, Peas, Carrots, Beets, Cabbage
Life Support System, Bioregenerative, CELSS, Higher Plants-Man-Mineralization
P1347(29/90) Ivanov IYe, Derendyayeva TA, Mashinskiy AL, Nechitaylo GS.
_The effect of space flight on the sowing and productive properties of seeds._
In: Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
Affiliation: Scientific Council on Space Biology and Physiology, USSR Academy of Sciences; Institute of Biomedical Problems, USSR Ministry of Health
Developmental Biology, Plant Development, Genetics, Mutations
Botany, Plants, Seeds, Lettuce, Dill, Radish, Garden Cress
Life Support Systems, Space Flight, Long-Term, Mir, Radiobiology

P1299(29/90)* Kozyarin IP.
_A hygienic evaluation of certain moisture and carbon dioxide absorbers recommended for cleaning the air of pressurized environments._
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina
[12 references; none in English]

Hygienic Evaluation, Microbiology
Moisture and Carbon Dioxide Absorbers, Zeolite, Silica Gel
Life Support Systems, Air Cleaning, Pressurized Environments

P1304(29/90)* Adamovich BA, Ratner GS.
_A methodology for evaluating and selecting a life support system during the early stages of design._
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina
24 (3): pp. 56-57; 1990
[9 references; 1 in English]

Life Support Systems, Regenerative, Evaluation, Selection
Theoretical Article
Mathematical Modeling

P1322(29/90)**Ivanova IYe, Derednyayeva TA, Alekhina TP, Shaydarov Yul.
_The higher plant component in man-rated biological (bioregenerative) life support system._
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[18 references; none in English]

Functional Characteristics
Botany, Higher Plants, Wheat, Peas, Carrots, Beets, Cabbage
Life Support System, Bioregenerative, CELSS, Higher Plants-Man-Mineralization
P1347(29/90) Ivanov IYe, Derendyayeva TA, Mashinskiy AL, Nechitaylo GS.
The effect of space flight on the sowing and productive properties of seeds.
In: Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
Tezisy Dokladov IX Vsesoyuznoy Konferentsii. Космическая Биология и Авиакосмическая
Медицина.Тезисы Докладов IX Всесоюзной Конференции. [Space Biology and Aerospace
Medicine: IXth All-Union Conference]
Affiliation: Scientific Council on Space Biology and Physiology, USSR Academy of Sciences;
Institute of Biomedical Problems, USSR Ministry of Health
Page 307-9

Developmental Biology, Plant Development, Genetics, Mutations
Botany, Plants, Seeds, Lettuce, Dill, Radish, Garden Cress
Life Support Systems, Space Flight, Long-Term, Mir, Radiobiology
PAPERS:

P1258(28/90) Smirnova OA.
*Dynamics of critical systems and radiation death of mammals (Mathematical modeling).*
Pages: 922-923.
Authors’ affiliation: Institute of Biomedical Problems, USSR Ministry of Health

Radiobiology, Radiation Death, Hematology, Hemopoiesis; Gastrointestinal System, Intestinal Follicles
Mammals
Mathematical Modeling

P1272(28/90)** Grigoryan SS, Simonov LG, Tsaturyan AK.
*A mathematical model of intracranial blood and cerebrospinal fluid circulation system as applied to the study of the effects of extreme conditions.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[27 references; 14 in English]

Cardiovascular and Respiratory Systems, Circulation, Blood, Neurophysiology, Body Fluids, Cerebrospinal Fluid
Mathematical Modeling, Humans
Extreme Conditions, Tilt Tests, Provocative Tests

ISSUE 29:

PAPER:

P1298(29/90)*Kondrachuk AV, Sirenko SP.
*A model of the caloric response of the semicircular canal.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
24(3): 40-43; 1990.
[11 references; 6 in English]

Neurophysiology, Semicircular Canal
Mathematical Modeling
Caloric Response, Space Conditions
PAPERS:

P1178(26/90)* Zaytsev LB, Larina ON, Popova IA. *Serum proteins and products of nitrogen metabolism in humans undergoing long-term hypokinesia.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(5): 50-53; 1989. [7 references; 6 in English]

**Metabolism, Nitrogen; Serum Proteins**  
Humans  
Hypokinesia With Head-down Tilt, Long-Term; Countermeasures; Drugs; Physical Exercise

Authors’ Affiliations: Department of Biochemistry, Vitebsk Medical Institute.

**Metabolism, Carbohydrate; Glycolysis; Enzymology**  
Rats, Males  
Hypokinesia, Long-Term; Immobilization Stress

ISSUE 27

PAPERS:

P1209(27/90)* Tarasov YuA, Ostovskiy YuM, Satanovskaya VI, Liopo Av, Velichko MG, Abakumov GZ. *Endogenous ethanol in the blood and tissues of rats exposed to hypobaric hypoxia.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(6): 47-51; 1990. [29 references; 11 in English]

**Metabolism, Endogenous Ethanol**  
Rats  
Hypoxia, Hypobaric
**METABOLISM**

P1217(27/90)* Tolkacheva NV, Levachev MM, Kobozev GV, Safronova LG, Sorokina AG.  
*Use of the method of thin layer chromatography to study lipid ligands in the serum albumin of athletes.*  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[23 references; 2 in English]

Metabolism, Lipid Peroxidation, Serum Ligands  
Humans, Athletes  
Exercise

P1218(27/90)* Potapov PP.  
*Activity of NADP-dependent cytoplasmic dehydrogenases in the liver and adipose tissue of rats during recovery after hypokinesia.*  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[11 references; none in English]

Metabolism, Cytoplasmic Dehydrogenases, Liver, Fat  
Rats  
Hypokinesia, Recovery

**ISSUE 29:**  
PAPERS:

P1301(29/90)* Gorozhanin VS, Lobkov VV.  
*Hormonal and metabolic reactions of the human body to long-term fasting.*  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
24(3): 47-50; 1990.  
[18 references; 3 in English]

Metabolism, Endocrinology  
Humans, Males  
Nutrition, Fasting, Long-Term

P1305(29/90)* Klimovich VV, Lukashik NK.  
*Parameters of thiamine metabolism in tissues of rats exposed to hypokinesia.*  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[17 references; 7 in English]

Metabolism, Thiamin  
Rats, Males  
Hypokinesia, Immobilization Cages
M152 (26/90) Parfenov GP.
Невесомость и Элементарные Биологические Процессы; Nevesomost' i Elementarnyye Biologicheskiye Biologicheskiye Protsessy, [Weightlessness and Elementary Biological Processes;]
Volume 57 in series: Problemy Kosmicheskoy Biologii,
[272 pages; 46 Tables; 26 Figures; 631 references]

KEY WORDS: Microbiology, Precellular Organisms, One-Celled Organisms, Botany, Plant and Animal Cells, Cytology, Histology, Tissue Cultures; Space Flight, Radiobiology, Ionizing Radiation
MUSCULOSKELETAL SYSTEM

ISSUE 26

PAPERS:

P1176(26/90)* Oganov VS, Rakhmanov AS, Ternovoy SK, Novikov VYe, Dubonos SL. 
Mineral density of skeletal bones in humans exposed to simulated microgravity. 
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 
[21 references; 11 in English]

Musculoskeletal System, Skeletal Bones, Mineral Density 
Humans 
Hypokinesia With Head-Down Tilt; Countermeasures; Physical Exercise

P1196(26/9) Volozhin AI, Amelkina.GV. 
Changes in the periodontium in long-term hypodynamia and the use of 
diposphonates and silatran to prevent these changes. 
Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya. 
[12 references; 1 in English]. 
Authors' Affiliation: N.A. Semashko Moscow Medical Stomatological Institute

Musculoskeletal System, Periodontium 
Rats, Males 
Tail Suspension; Prophylactic Countermeasures; Silicon; Diphosphonates

MONOGRAPH:

M157(26/90) Stupakov GP, Volozhin AI. 
Kostnaya Sistema i Nevesomost'; Kostnaq Sistema i Nevesomost; 
[The Skeletal System and Weightlessness]. 
Volume 63 in series: Problemy Kosmicheskoy Biologii, 
[184 pages; 27 Tables; 44 Figures; 317 References; 201 in English]

Musculoskeletal System, Skeletal System 
Humans, Cosmonauts; Rats, Tortoises 
Space Flight, Long-Term

ISSUE 27

PAPERS:

P1206(27/90)* Belakovskiy MS, Khaidakov MS. 
Effects of active metabolites of Vitamin D3 on the bones of rats exposed to 
different hypokinesia paradigms. 
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 
[18 references; 11 in English]

Musculoskeletal System, Bones; Metabolism, Calcium, Phosphorus 
Rats, Male 
Nutrition, Vitamin D3 Metabolites, Hypokinesia, Tail Suspension, Immobilization Cages
MUSCULOSKELETAL SYSTEM


Musculoskeletal System, Bone Tissue; Metabolism, Calcium Rats, Male Hypokinesia, Immobilization Cages, Hydroxymethyl Aminopropylidene Diphosphonate


Musculoskeletal System, Bone; Mechanical Properties; Bone Minerals Humans, Cosmonauts, Patients, Osteoporosis Space Flight, Salyut-6, Bedrest


Musculoskeletal System, Bone Humans Reduced Functional Loading, Osteoporosis, Rapid and SlowDeveloping
MUSCULOSKELETAL SYSTEM

P1224(27/90) Stupakov GP, Volozhin AI. 
*Changes in human bone under conditions of bedrest and weightlessness: General principles of bone changes under conditions of weightlessness and its simulations.*
150-158.
In: M157(26/90) Stupakov GP, Volozhin AI.
Kostnaya Sistema i Nevesomost'; Kostnaya Sistema i Nevesomosty [The Skeletal System and Weightlessness].
Volume 63 in series: Problemy Kosmicheskoj Biologii,

Musculoskeletal System, Bone; Metabolism, Metabolic Rate, Calcium
Humans, Rats, Dogs
Weightlessness, Simulated Weightlessness

ISSUE 28

PAPERS:

P1273(28/90)** Tatarinov AM, Dubonos SL, Yanson KhA, Oganov VS, Dzenis VV, Rakhmanov AS.
*Ultrasound diagnosis of the status of the tibia in humans undergoing a 370-day period of head-down tilt.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[15 references; 6 in English]

Musculoskeletal System, Tibia Bone, Ultrasound
Humans
Hypokinesia With Head-Down Tilt, 370-Day, Prophylactic Countermeasures, Exercise

P1274(28/90)** Morukov VB, Orlov Ol, Belakovskiy MS, Kazeykin VS, Zaychik VYe, Shvets VN, Tumanova IYu.
*The effect of simulated weightlessness on calcium metabolism and state of bone tissue in experimental animals.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
24(2): 31-34.
[25 references; 13 in English]

Musculoskeletal System, Bone; Metabolism, Calcium; Endocrinology
Rats, Male
Hypokinesia, Immobilization Cages; Hypodynamia, Tail Suspension
MUSCULOSKELETAL SYSTEM

P1286(28/90) Stupakov GP, Volozhin.
The skeletal system of experimental animals under conditions of weightlessness: The effects of space flight on the weight-bearing bones of rats: Restructuring of bone tissue.
In: M157(26/90) Stupakov GP, Volozhin Al.
Kostnaya Sistema i Nevesomost'; Костная Система и Невесомость [The Skeletal System and Weightlessness].
Pages: 49-61.
Musculoskeletal System, Weight-Bearing Bones, Femur, Tibia, Brachium Rats Space Flight, COSMOS-615, -782, -936, 1129

P1287(28/90) Stupakov GP, Volozhin.
The skeletal system of experimental animals under conditions of weightlessness: The effects of space flight on the weight-bearing skeleton of rats: State of organic and mineral components.
In: M157(26/90) Stupakov GP, Volozhin Al.
Kostnaya Sistema i Nevesomost'; Костная Система и Невесомость [The Skeletal System and Weightlessness].
Pages: 61-65.
Musculoskeletal System, Weight-Bearing Bones, Vertebrae, Femur, Organic and Mineral Components Rats Space Flight, COSMOS-936, -1129

P1288(28/90) Stupakov GP, Volozhin.
The skeletal system of experimental animals under conditions of weightlessness: The effects of space flight on the weight-bearing bones of rats: Mechanical properties of bone tissue.
In: M157(26/90) Stupakov GP, Volozhin Al.
Kostnaya Sistema i Nevesomost'; Костная Система и Невесомость [The Skeletal System and Weightlessness].
Pages: 65-76.
Musculoskeletal System, Weight-Bearing Bones, Femur, Tibia, Humerus; Mechanical Properties Rats Space Flight, COSMOS-615, -782, -936, -1129
MUSCULOSKELETAL SYSTEM

P1289(28/90) Stupakov GP, Volozhin.
*The skeletal system of experimental animals under conditions of weightlessness: The effects of space flight on the weight-bearing bones of rats: Artificial gravity as a means to prevent bone changes in microgravity.*
In: M157(26/90) Stupakov GP, Volozhin Al.
Kostnaya Sistema i Nevesomost'; Костная Система и Невесомость [The Skeletal System and Weightlessness].
Pages: 76-79.

Musculoskeletal System, Weight-Bearing Bones, Tibia Rats
Space Flight, COSMOS-936; Artificial Gravity

P1290(28/90) Stupakov GP, Volozhin.
*The skeletal system of experimental animals under conditions of weightlessness: The effects of space flight on non-weight-bearing bones of rats.*
In: M157(26/90) Stupakov GP, Volozhin Al.
Kostnaya Sistema i Nevesomost'; Костная Система и Невесомость [The Skeletal System and Weightlessness].
Pages: 79-82.

Musculoskeletal System, Non-weight-bearing Bones, Ribs, Jaw, Teeth Rats
Space Flight, COSMOS-936, -1129

ISSUE 29:

PAPERS:

P1291(29/90) Stupakov GP, Volozhin Al.
*The bone system of experimental animals under conditions of weightlessness: The effect of space flight on the skeleton of tortoises.*
In: M157(26/90) Stupakov GP, Volozhin Al.
Kostnaya Sistema i Nevesomost'; Костная Система и Невесомость [The Skeletal System and Weightlessness].
Pages: 82-90.

Musculoskeletal System, Bones, Skeleton; Metabolism, Low Tortoises
Space Flight, Short- and Long-Term, COSMOS-782, -605, -613, Soyuz-20
MUSCULOSKELETAL SYSTEM

P1313(29/90)** Oganov VS, Cann C, Rakhmanov AS, Ternovoy SK
A computer tomographic investigation of the musculoskeletal system of the spine in humans after long-term space flight.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[11 references; 6 in English]

Musculoskeletal System, Bones, Spine, Computer Tomography, Muscle Density; Mineral Loss
Humans, Cosmonauts
Space Flight, Long-Term, Salyut-7, Hypokinesia with Head-Down Tilt

P1314(29/90)** Il’in-Kakuyeva Yel.
Morphohistochemical investigation of the skeletal muscles of rats in an experiment on biosatellite COSMOS-1887.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[21 references; 9 in English]

Musculoskeletal System, Skeletal Muscles, Morphohistochemical Analysis, Fast-Twitch; Slow-Twitch
Rats
Space Flights, COSMOS-1887
P1170(26/90) Shlyk GG, Rotenberg MA, Shirvinskaya MA, Korol'kov VI, Magedov VS. *Characteristics of nocturnal sleep in monkeys on the ground and during space flight on COSMOS-1667.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(5): 12-17; 1989. [12 references; 9 in English]

Neurophysiology, Sleep
Monkeys
Space Flight, COSMOS-1667

P1171(26/90) Lychakov DV, Pashchin AN, Boyadzhieva-Mikhaylova A, Khristov I. (Latter two are Bulgarian) *A study of the structure of the receptor organs of the vestibular apparatus in rats after flight on COSMOS-1667.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(5): 17-26; 1989. [43 references; 25 in English]

Neurophysiology, Vestibular System; Morphology; Receptor Organs
Rats, Male
Space Flight, COSMOS-1667

P1192(26/90)* Korolev AB. *Study of the pathogenesis of the neurological form of decompression sickness in rabbits.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(5): 92-93; 1989. [9 references; 6 in English]

Neurophysiology, Pathogenesis; Brain
Rabbits
Decompression Sickness


Author's Affiliation: Belorussian Research Institute on Neurology, Neurosurgery and Physiotherapy, Minsk

Neurophysiology, Vestibular Activity
Humans, Males
Orthostatic Loading, Stand Test, Tilt Test
PAPERS:

P1205(27/90)* Karkishchenko NN. 
*Specification for an "ideal" drug to prevent space motion sickness (space adaptation syndrome. 
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 
[16 references; 3 in English]

Neurophysiology, Space Adaptation Syndrome; Human Performance, Mental Work Capacity 
Humans, Patients, Vestibular Tolerance, Diminished Rotation, Pharmacological Countermeasures

P1214(27/90)* Verbitskaya LB, Fedorenko VS, Kabitsyna RA.. 
*Remote ultrastructural changes in cerebellar cortex of rats after exposure to accelerated carbon ions. 
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 
[2 references; 1 in English]

Neurophysiology, Cerebral Cortex 
Rats 
Radiobiology, Accelerated Carbon Ions, γ-Radiation; Remote Effects

P1227(27/90) Moskalenko YuYe, Beketov AI, Maksimiuk VF, Skoromnyy NA. 
*Cerebrovascular effects of motion sickness. 
Fiziologicheskiy Zhurnal SSSR im I.M.Sechenova. 
[12 references; 2 in English]

Authors' Affiliations: Institute of Evolutionary Physiology and Biochemistry, Leningrad; 
Crimean Medical Institute, Simferopol

Neurophysiology, Cerebrovascular Effects; Cardiovascular and Respiratory Systems, Cerebral Circulation 
Rabbits 
Motion Sickness, Head-Down Tilt

ISSUE 28

PAPERS:

P1240(28/90)*Gitsov LG, Burneva VG, Verbitskaya LB, Kabitsyna RA, Fedorenko VS. 
*Ultrastructural changes in neurons of the arcuate nucleus-medial eminence complex in rats irradiated with carbon ions and γ-radiation. 
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 
[6 references; none in English]

Neurophysiology, Neurons, Arcuate Nucleus, Medial Eminence 
Rats, Female 
Radiobiology, Carbon Ions, γ-Radiation
NEUROPHYSIOLOGY

P1254(28/90) Yegorov AYe, Prosvernitsyn SA.

On the genesis of postradiation edema of the brain.


Pages: 873-874.

Authors' affiliation: Scientific Research Institute of Military Medicine

Neurophysiology, Brain, Edema, Blood-Brain Barrier

Rats, Males

Radiobiology, γ-Irradiation; High Doses

P1255(28/90) Antipov VV, Fedorov VP, Ushakov IB.

Structural and metabolic aspects of modification of radiation effects on the central nervous system.


Pages: 861-862.

Authors' affiliation: Institute of Biomedical Problems, USSR Ministry of Health; Voronezh Medical Institute

Neurophysiology, Central Nervous System, Metabolism

Rats, Dogs

Radiobiology, Radiation; Modifiers, Hypoxia, Hyperoxia, Alcohol, Acceleration, Vibration

P1256(28/90) Fedorenko BS, Kabintsyna RA, Smirnova OA, Krivitskaya GN, Verbitskaya LB, Derevyagin VM, Gitsov L, Burneva V, Popov VI, Portman AI.

Morphological changes in brain neurons in rats irradiated with accelerated charged particles.


Pages: 895-896.

Authors' affiliation: Institute of Biomedical Problems, USSR Ministry of Health; Brain Institute, USSR Academy of Medicine; Institute for the Study of the Brain, Sofia, Bulgaria

Neurophysiology, Brain Neurons

Rats

Radiobiology, Accelerated Charged Particles

P1246(28/90)* Mikhaylov VM, Kornilova LN, Zhernakov AF, Voskresenskiy AD, Pometov YuD, Alekseyev VN.

Correlation between orthostatic tolerance and status of the vestibular function in humans after long-term space flights.

Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.


[9 references; 1 in English]

Neurophysiology, Vestibular Function, Orthostatic Tolerance

Humans, Cosmonauts

Space Flight, Long-Term, Salyut-6
NEUROPHYSIOLOGY

P1247(28/90)* Vorob'ev OA, Zaritskaya VV, Krylov YuV.  
*The relationship between vertical optokinetic nystagmus and susceptibility to motion sickness in humans.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[12 references; 7 in English]

Neurophysiology, Vertical Optokinetic Nystagmus  
Humans, Males, Individual Differences  
Motion Sickness

ISSUE 29:

PAPERS:

P1295(29/90) Ul'ianskiy LS, Ivanov VT, Mikhaleva II, Sudakov KV.  
*Delta-sleep peptide as a modulator of cardiac activity: Theoretical recommendations for practice.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[24 references; 4 in English]

Cardiovascular and Respiratory Systems, Cardiac Activity, Protective Effects  
Rats, Rabbits  
Neurophysiology, Parasympathetic Nervous System, Vagus Nerve, Enzymology, Delta-Sleep Peptide, Psychology, Stress, Immobilization Effects

P1303(29/90)* Stolbkov YuK, Maslova YeP.  
*Nystagmus in individuals with asymmetrical afferentiation of the otoliths.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
24(3): 53-56; 1990.  
[9 references; 3 in English]

Neurophysiology, Nystagmus  
Humans, Patients  
Otolith Asymmetry

P1318(29/90)** Dmitriyev AS, Taits MYu, Dudina TV, Kandybo TS, Yelkina AI.  
*The role of glucocorticoids in postvibrational shifts of inhibitory mediation in brain structures.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[14 references; 3 in English]

Neurophysiology, Inhibitory Mediation, Brain Structures  
Rats, Male  
Endocrinology, Glucocorticoids, Vibration Effects
NEUROPHYSIOLOGY

P1325(29/90)* Krotov VP, Simonov LG, Trombovetskiy YeV. *Epidural and subdural recording of intracranial pressure in response to postural tests.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 24(4): 53; 1990. [10 references; 5 in English]

Neurophysiology, Body Fluids, Intracranial Pressure, Equipment and Instrumentation, Rabbits, Postural Tests


Neurophysiology, Autonomic Homeostasis, Psychology, Stress, Humans, Cosmonauts, Space Flight, Operational Medicine, Equipment and Instrumentation, Cosmonaut Monitoring System


Neurophysiology, Eye Movement Response, Humans, Cosmonauts, Space Flight, Salyut-6, -7
P1351(29/90) Karkishchenko NN, Dimitriadi NA. 
Anticonvulsants as protective agents in space motion sickness. 
In: Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 
Tezisy Dokladov IX Vsesoyuznoy Konferentsii. Космическая Биология и Авиакосмическая 
Медицина.Тезисы Докладов IX Всесоюзной Конференции. [Space Biology and Aerospace Medicine: 
IXth All-Union Conference] 
Affiliation: Scientific Council on Space Biology and Physiology, USSR Academy of Sciences; 
Institute of Biomedical Problems, USSR Ministry of Health 
Pages 82-83.

Neurophysiology, Space Motion Sickness 
Rats, Humans 
Pharmacological Countermeasures, Anticonvulsants 

P1353(29/90) Polyakov BI, Smirnova TM, Speranskaya MS. 
Psychophysiological characteristics of people susceptible and resistant to motion 
sickness. 
In: Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 
Tezisy Dokladov IX Vsesoyuznoy Konferentsii. Космическая Биология и Авиакосмическая 
Медицина.Тезисы Докладов IX Всесоюзной Конференции. [Space Biology and Aerospace Medicine: 
IXth All-Union Conference] 
Affiliation: Scientific Council on Space Biology and Physiology, USSR Academy of Sciences; 
Institute of Biomedical Problems, USSR Ministry of Health 
Page 262-263.

Neurophysiology, Motion Sickness, Susceptibility 
Humans, Males, Individual Differences 
Psychology, Psychophysiological Parameters
ISSUE 26

PAPERS:


Metabolism, Calcium
Rats, Males
Nutrition, Vegetable Protein; Hypokinesia; Tail Suspension

Authors' Affiliation: Grodensk Medical Institute.

Metabolism, Thiamine
Rats, Male
Nutrition, B1 Deficiency; Hypokinesia; Immobilization Cages

ISSUE 29:

PAPER:

P1300(29/90)*Novoselov VG. Hygienic aspects of the use of calorie-deficient diets enriched with wild plants. Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 24(3):45-47; 1990. [3 references; none in English]

Survival, Botany, Wild Plants, Biological Effects, Human Performance
Humans, Expedition Members, Males
Nutrition, Deficient Diets
ISSUE 29:

PAPERS:

P1333(29/90) Akhapkina VI, Goncharov IB.  
Prospects for Improving pharmacological support of space flights.  
In: Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
Affiliation: Scientific Council on Space Biology and Physiology, USSR Academy of Sciences; Institute of Biomedical Problems, USSR Ministry of Health  
Pages 15-16.

Neurophysiology, Pharmacological Countermeasures, Nootropic Drugs, GABA, GHBA  
Humans, Cosmonauts  
Operational Medicine, Space Flight

P1340(29/90) Komarova LM.  
Do we need a physician on the crew for the Mars mission?  
In: Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
Affiliation: Scientific Council on Space Biology and Physiology, USSR Academy of Sciences; Institute of Biomedical Problems, USSR Ministry of Health  
Pages 94-96.

Operational Medicine, Crew Composition, Physician  
Humans, Cosmonauts  
Space Flight, Long-Term, Mars Mission
PERCEPTION

ISSUE 26

MONOGRAPH:

M159(26/90) Kovalenko PA.
Prostranstvennaya oriyentirovka pilotov: Psikhologicheskie osobennosti
Постранственная ориентировка пилотов: Психологические особенности
[Spatial orientation of pilots: Psychological Characteristics]
Moscow: Transport; 1989.
[231 pages: 65 tables; 28 figures; 132 references; 18 in English]

KEY WORDS: Perception; Spatial Orientation; Psychology; Aviation Medicine; Human Performance; Humans, Pilots; Pilot Training
ISSUE 28:

PAPER:

P1287(28/90)** Medenkov A, Tret'yakov N.  
*Can the psychologically "incompatible" work together?*  
Aviatsiya i Kosmonavtika.  
Authors' Affiliation: USSR Medical Corps

Human Performance, Small Group Performance  
Humans, Aviation Personnel, Military  
Psychology, Personnel Selection, Compatibility

ISSUE 29:

PAPERS:

P1337(29/90) Grigor'yev LS, Smirnova AV, Voronkov Yul, Myasnikov VI.  
*Some new approaches to the problem of medical occupational selection.*  
In: Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
Tezisy Dokladov IX Vsesoyuznoy Konferentsii. [Space Biology and Aerospace Medicine: IXth All-Union Conference]  
Affiliation: Scientific Council on Space Biology and Physiology, USSR Academy of Sciences; Institute of Biomedical Problems, USSR Ministry of Health  
Pages 55-57.

Personnel Selection, Cosmonaut Selection, Human Performance, Equipment and Instrumentation  
Humans, Cosmonauts, Twin Studies  
Operational Medicine, Medical Factors, Neurophysiology, Genetics

P1352(29/90) Ioseliani KK, Narinskaya AL, Tereskhina SA.  
*On psychological selection of cosmonauts for repeated flights.*  
In: Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
Tezisy Dokladov IX Vsesoyuznoy Konferentsii. [Space Biology and Aerospace Medicine: IXth All-Union Conference]  
Affiliation: Scientific Council on Space Biology and Physiology, USSR Academy of Sciences; Institute of Biomedical Problems, USSR Ministry of Health  
Pages 234-236.

Personnel Selection, Cosmonaut Selection, Space Flight, Repeated Flights, Psychology, Human  
Performance  
Humans, Patients, Age Differences  
Hypokinesia With Head-Down Tilt
PSYCHOLOGY

ISSUE 26

MONOGRAPH:

M154(26/90) Berezin FB.
Psikhicheskaya i Psikhofiziologicheskaya Adaptatsiya Cheloveka; Психическая и
Психофизиологическая Адаптация Человека
[Psychological and Psychophysiological Adaptation in Humans]
[270 pages; 36 Tables; 34 Figures; 237 References; 110 in English]
Affiliation: Institute of Biological Problems of the North; USSR Academy of Sciences; Far
Eastern Division

Psychology, Stress; Human Performance
Humans
Adaptation

ISSUE 27

PAPER:

P1228(27/90) Anishchenko TG, Burshina SN, Shorina LN.
An analysis of factors determining sex differences in the stress responses of
white rats.
Byulleten' Eksperimental'noy Biologii i Meditsiny.
[15 references; 3 in English]
Authors' affiliation: N.G. Chernyshevskiy University, Saratov

Psychology, Stress Response
Rats, Males and Females
Gender Differences, Genetics

ISSUE 28

PAPERS:

P1268(28/90)** Kuznetsov ON, Yegorov BA, Frantsen BS.
Characteristics of color selection in the Luscher test as an indicator of typical
emotional status of flight personnel.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[8 references; none in English]

Psychology, Emotional Status
Aviation Medicine, Flight Crews
Color Preferences
PSYCHOLOGY

P1276(28/90)**Shlyk GG, Shirvinskaya MA, Rotenberg VS, Yefimova MYa, Eliava VM, Sheremet IP, Kolpakova NF.
The role of typological differences in behavior of animals during adaptation to an extreme stimulus.
[10 references; 2 in English].

Adaptation, Extreme Situations, Conditioned Responses, Recovery
Primates, Rhesus Monkeys
Psychology, Typology, Behavior

ISSUE 29:

PAPERS:

P1302(29/90)* Yevdokimov VI.
Risk factors for the occurrence of neuroses and psychosomatic illnesses in flight crews.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 24(3): 50-53; 1990
[9 reference; 2 in English]

Psychology, Neuroses, Psychosomatic Illness
Humans, Flight Crews
Aviation Medicine, Risk Factors

P1306(29/90)* Terelyak Ya, Kobos Z (Poland).
Psychological determinants of time to complete flight training.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 24(3): 59-60; 1990
[9 references; all in Polish]

Aviation Medicine, Flight Training, Human Performance
Humans, Flight Personnel
Psychology, Test Scores

P1341(29/9) Zaprisa NS.
Dynamics of parameters of communicative activity in the system for psychological analysis of cosmonaut functional status.
Affiliation: Scientific Council on Space Biology and Physiology, USSR Academy of Sciences; Institute of Biomedical Problems, USSR Ministry of Health
Page 232.

Human Performance, Functional State
Humans, Cosmonauts
Psychology, Psychodiagnosis, Speech Analysis
A multmethod evaluation of the psychophysiological state and behavior of humans undergoing a 370-day period of hypokinesia with head-down tilt.

In: Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. Tezisy Dokladov IX Vsesoyuznoy Konferentsii. Космическая Биология и Авиакосмическая Медицина. Тезисы Докладов IX Всесоюзной Конференции. [Space Biology and Aerospace Medicine: IXth All-Union Conference]
Affiliation: Scientific Council on Space Biology and Physiology, USSR Academy of Sciences; Institute of Biomedical Problems, USSR Ministry of Health
Pages 250-251.

The study of cosmonauts' sleep in flight on space station Mir.

In: Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. Tezisy Dokladov IX Vsesoyuznoy Konferentsii. Космическая Биология и Авиакосмическая Медицина. Тезисы Докладов IX Всесоюзной Конференции. [Space Biology and Aerospace Medicine: IXth All-Union Conference]
Affiliation: Scientific Council on Space Biology and Physiology, USSR Academy of Sciences; Institute of Biomedical Problems, USSR Ministry of Health
Pages 251-252.
RADIOBIOLOGY

ISSUE 26

PAPERS:

P1191(26/90)* Cherkasov GV.
Acid tolerance of erythrocytes exposed to constant magnetic fields varying in rate of induction increase.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[15 references; none in English]

Hematology, Erythrocytes, Acid Tolerance
Rats, Male
Radiobiology, Magnetic Field, Induction Increase Rate

P1199(26/90) Tabukashvili RI, Ushakov IB.
Certain biochemical mechanisms underlying the combined effects of extreme factors.
Voprosy Meditsinskoy Khimii.
[15 references; 1 in English]
Authors' Affiliation: Tblisi Medical Institute

Radiobiology, Ionizing Radiation, Liver
Rats, Males
Hypoxia, Microwave Radiation, Radioprotective Effects

P1201(26/90) Tabukashvili RI, Ushakov IB.
Possible mechanisms of the radiomodifying effect of exogenous hypoxia on microwave radiation.
[14 references; 1 in English]
Authors affiliation: Tblisi Medical Institute.

Radiobiology, Ionizing Radiation, Liver
Rats, Males
Hypoxia, Microwave Radiation, Radioprotective Effects

MONOGRAPH:

M153(26/90) Antipov VV (Editor)
Biofizicheskiye Osnovy Deystviya Kosmicheskoy Radiatsii i Izlucheniy Uskoriteley;
Биофизические Основы Действия Космической Радиации и Излучений Ускорителей
[The Biophysical Bases for the Effects of Cosmic Radiation and Radiation from Accelerators.]
Volume 60 In series: Problemy Kosmicheskoy Biologii,
[255 pages; 32 Tables; 70 Figures; 327 references; 114 in English]

KEY WORDS: Radiobiology; Cosmic Radiation, Accelerators; Biophysics; Biological Effects; Hadrons

65
- RADIOBIOLOGY

ISSUE 27

PAPERS:

P1221(27/90) Zukhbaya TM.
Periodicity of hemopoiesis during continuous \(\gamma\)-irradiation with low dose rates.
Author's Affiliation: Institute for Biomedical Problems, Moscow

Hematology, Hemopoiesis, Perodicity
Rats
Radiobiology, \(\gamma\)-Irradiation, Continuous

ISSUE 28

PAPERS:

P1266(28/90) Vorozhtsova SV, Gerasimenko VN.
Cytogenetic damage to mammalian cells after exposure to charged particles with relativistic energy.
Pages 562-563.
Authors' Affiliation: Institute of Biomedical Problems, USSR Ministry of Health.

Genetics, Cytogenetic Damage, Corneal Epithelium, Lymphocytes
Mice, Humans
Radiobiology, Charged Particles, Relativistic Energy

P1261(28/90) Benevodenskiy VN, Kuznetsova IV.
Methodological approach to determining the biological effects of heavy ions of galactic cosmic radiation.
Pages: 994-995.
Authors' Affiliation: Institute of Biomedical Problems, USSR Ministry of Health

Radiobiology, Biological Effects
Microbiology, Yeast Cells
Heavy Ions, Galactic Cosmic Radiation; Space Flight, COSMOS

66
P1262(28/90) Kabachenko AN, Fedorenko BS, Portman AI.
*Cataractogenic effectiveness of accelerated charged particles of high energy.*
Pages: 1193.
Authors’ Affiliation: Institute of Biomedical Problems, USSR Ministry of Health

Radiobiology, Cataractogenesis
Mice
Accelerated Charged Particles, High Energy

P1263(28/90) Fedorenko BS.
*Carcinogenic effectiveness of accelerated charged high energy particles.*
Pages: 1223-1224.
Authors’ Affiliation: Institute of Biomedical Problems, USSR Ministry of Health

Radiobiology, Carcinogenesis
Rats, Females
Charged Particles, High Energy

P1264(28/9) Vladimirov VG, Krasil'nikov II.
*Radioprotectors and the theory of the radioprotective effect.*
Pages: 695-697.
Authors’ affiliation: S.M. Korov Academy of Military Medicine

Radiobiology, Radioprotective Effect
Theoretical Article
Radioprotectors

P1265(28/9) Morozova IN, Lukashin BP.
*Prospects for using immunomodulators as a means in increase nonspecific resistance in radiation pathology.*
Pages: 743-744.
Authors’ affiliation: S.M. Korov Academy of Military Medicine

Radiobiology, Nonspecific Resistance, γ-Irradiation
Mice, Rats
Immunology, Immunomodulators, Alanine
RADIOBIOLOGY

P1250(28/90)* Yablontsev NN.
Documents setting standards for radiation safety for space flight.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[8 references; none in English]

Radiobiology, Radiation Safety Standards
Humans, Cosmonauts
Space Flights, Long-Term

P1284(28/90)** Minkova M, Pantev B (Bulgaria)
The effects of combined physical and chemical radiation protection under conditions of simulated hypergravity.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
24(2): 60-61;1990.
[9 references; none in English]

Radiobiology, Radioprotectors, Physical/Chemical
Rats
Acceleration

ISSUE 29:

PAPERS:

P1309(29/90)* Zagorskaya YeA, Klimovitskiy VYa, Melnichenko VP, Rodina GP, Semenov SN.
The effects of low-frequency electromagnetic fields on physiological systems.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[116 references; 24 in English]

Neurophysiology, Endocrinology, Regulatory Systems, Hematology
Review Article
Radiobiology, Electromagnetic Fields, Low Frequency

P1319(29/90)** Katasonov SN, Shishkina SK, Maltseva IO, Ryabova TYa.
Study of changes in the electrical parameters of the skin of irradiated rats.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[5 references; 2 in English]

Skin, Electrical Parameters, Prognostic Indicator
Rats
Radiobiology, $\gamma$-Irradiation
RADIOBIOLOGY

P1320(29/90)** Lobacheva GV.
Research on audiogenic reactions of rats after ultraviolet-irradiation of their eyes.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
24(4): 36-38; 1990.
[11 references; 1 in English]

Neurophysiology, Audiogenic Seizures
Rats, Females
Radiobiology, Ultraviolet-Irradiation, Eyes

P(29/90)** Malakhovskiy VN, Stemparzhetskiy OA, Bokk MI.
Physiological properties of posture (balance) maintenance in dogs during immediate response to radiation.
Kosmicheskaya Biologiya i Aviakosmicheskaya.
[10 references; 2 in English]

Musculoskeletal System, Neurophysiology, Balance
Dogs
Radiobiology, γ-Irradiation

P1327(29/90)** Bugrov SA, Davydov BI, Tikhonchuk VS, Soldatov SK, Osokina TF.
The protective action of mexamine in microwave irradiation of rats.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[10 references; 5 in English]

Biological Effects, Survival
Rats, Female
Radiobiology, Microwave Irradiation, Radioprotectors, Mexamine, Serotonin

69
REPRODUCTIVE SYSTEM

ISSUE 28

PAPER:

P1237(28/90)* Kokoreva LV, Chuvpio TA, Pustynnikova AM.  
*The effect of a high intensity magnetic field on the reproductive function of  
*males rats.  
*Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
*[8 references; 1 in English]

Reproductive System, Reproductive Function (Male), Developmental Biology  
Rats, Male  
Radiobiology, Magnetic Field, High Intensity

ISSUE 29:

PAPER:

P1326(29/90)**Serova LV, Apanasenko Zl, Ivanovna SYa, Chelnaya NA.  
**The effect of hypergravity on mammals during the period of delivery and birth  
of offspring.  
*Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
*23(4): 54-55; 1990.  
*[3 references; 2 in English]

Reproductive System, Delivery, Lactation, Developmental Biology, Psychology, Maternal  
Behavior  
Rats, Female, Pregnant, Neonates  
Hypergravity, Centrifugation
SPACE MEDICINE

ISSUE 26

PAPERS:

P1172(26/90)* Alpatov AM, Il'in YeA, Antipov VV, Tairbekov MG. 
Biological experiments on COSMOS-1887. 
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 
[21 references; 11 in English]

Space Biology and Medicine, Biological Experiments; Metabolism, Cell; Genetics; Biological 
Rhythms; Developmental Biology; Cytology; Population Studies 
Microbiology, E. coli, Tetrahymena pyriformis, Wolffia, Haplopappus, Guppies, Tritons, 
Drosophila melanogaster; Beetles, Macaca mulatta, Stick Insects 
Space Flight, COSMOS-1887; Radiobiology, Cosmic Radiation; Adaptation

P1177(26/90) Grigor'yev Al, Morukov BV. 
370-Day antioorthostatic hypokinesia: Goals and research protocol 
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 
[9 references; none in English]

Space Biology and Medicine; Cardiovascular and Respiratory Systems; Cardiovascular 
Deconditioning; Body Fluids; Musculoskeletal System; Metabolism; Gastrointestinal System; 
Hematology; Immunology 
Humans, Males 
Hypokinesia with Head-Down Tilt, Long-Term; Prophylactic Countermeasures, Physical 
Exercise; Drugs; LBNP; Karkas Suit; Adaptation

P1194 (26/90)Kovalenko YeA, Kasyan II 
On the Pathogenesis of Weightlessness 
Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya 
89(3): 9-18. Received by journal 6/6/88

Space Biology and Medicine; Neurophysiology, Space Motion Sickness; Body Fluids; 
Cardiovascular and Respiratory Systems; Endocrinology; Musculoskeletal System; 
Enzymology; Metabolism, Bioenergetics 
Humans, Cosmonauts, Rats 
Weightlessness, Pathogenesis; Deconditioning; Adaptation; Space Flight, Long-Term; Salyut, 
Soyuz, Weightlessness Simulations, COSMOS; Prophylactic Countermeasures; Physical 
Exercise, LBNP
SPACE MEDICINE

CONFERENCE REVIEW

CR12(26/90)* Drozd YuV.
Report on: Twenty-first Symposium on Space Biology and Medicine (Baranov-Sandomerski, June 1988)
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.

KEY WORDS: Space Biology and Medicine; Human Performance; Radiobiology; Equipment and Instrumentation; Operational Medicine; Musculoskeletal System; Weightlessness; Acceleration; Prophylactic Countermeasures; Hypodynamia; Hypokinesia; Psychology, Stress; Space Flight; COSMOS-1887; Nutrition; Metabolism; Life Support Systems, CELSS; Neurophysiology, Motion Sickness; Sleep; Immunology

ISSUE 27

CONFERENCE REVIEW:

CR13(27/90)* Gyurdzhian AA, Zorile VI.
The work of the section on Aviation and Space Medicine of the Moscow Physiological Society.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.

KEY WORDS: Space Medicine; Aviation Medicine

SPECIAL FEATURE:

Essay by N. Gurovskiy; In the Interests of Public Health
In: Aviatsiya i Kosmonavtika; 11/89

KEY WORDS: Space Medicine, Operational Medicine, Public Health, Equipment and Instrumentation, Personnel Selection, Hematology, Biological Rhythms

ISSUE 28:

PAPER:

P1267(28/90)** Gazenko OG, Grigor'yev AI, Yegorov AD.
Medical investigations of long-term manned space flight on-board Salyut-7-Soyuz-T.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[11 references; 13 in English]

Space Biology and Medicine, Operational Medicine, Cardiovascular and Respiratory System, Body Fluids, Musculoskeletal System, Motor Coordination, Bones, Muscle Mass, Neurophysiology, Vestibular System, Sensory Systems, Endocrinology, Nutrition, Human Performance
Humans, Cosmonauts
Space Flight, Salyut-7, Long-Term, EVAs, Prophylactic Countermeasures, Exercise, LBNP
ISSUE 29:

PAPER:

P1310(29/90)** Gazenko OG, Grigor'yev AI, Bugrov SA, Yegorov VV, Bogomolov VV, Kozlovskaya IB, Tarasov IK.

Review of the major results of medical research during the flight of the second prime crew of the Mir Space Station.

Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.


[16 references; none in English]

Space Biology and Medicine, Operational Medicine, Habitability and Environmental Effects, Microclimate, Atmosphere, Microbiology, Cardiovascular and Respiratory Systems, Musculoskeletal System, Neurophysiology, Motor Effects, Nutrition, Metabolism, Endocrinology, Body Fluids, Adaptation, Radiobiology, Hematology, Immunology, Psychology

Humans, Cosmonauts

Space Flight, Long-Term, Mir, Second Prime Crew, Prophylactic Countermeasures

MONOGRAPH:

M164(29/90) Flom TV (editor)


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Abiogenesis 25
Abiogenic Synthesis 25
Accelerated Aging 9
Accelerated Carbon Ions 53
Accelerated Charged Particles 54, 67
Acceleration 12, 54, 68, 72
  Acceleration Tolerance 16, 74
Accelerators 65
Acid Tolerance 65
Adaptation 1, 2, 5, 11, 12, 15, 19, 20, 22, 36, 62, 63, 64, 71, 73, 74
Adaptation Syndrome 5
Adrenal Cortex 20
Adrenal Glands 19
Adrenoblockers 22
Aerobic Capacity 11
Age Differences 8, 61
Age Effects 16
Air Cleaning 39, 40
Air Crews 3
Alanine 67
Alcohol 54
Algae 38
Algobacterial Cenosis-Fish Ecosystem 38
Amino Acids 25, 74
Amphibians 17, 21
Animal Cells 45
Animals 5, 19
Anti-g Suit 11
Anticonvulsants 57
Arabidopsis 9, 10
Arcuate Nucleus 53
Artificial Gravity 50
Assessment Technique 8
Atherosclerosis 8, 14
Athletes 44
Atmosphere 73
Audiogenic Seizures 69
Autogenic Training 34
Automated Diagnosis and Prognosis 24
Autonomic Homeostasis 56
Aviation Medicine 3-4, 16, 60, 61, 62, 63, 73, 74
Aviation Personnel 3, 61
Aviation Professions 3
Aviation Psychology 3
Avtosan-83 24
B

B1 Deficiency 58
Balance 69
Barochamber Training 22
Base Points 24
Bedrest 47
Beetles 6, 71
Beets 39, 40
Behavior 63
Biochemical Parameters 15
Biochemistry 2
Biodynamics 3
Bioelectric Activity of the Heart 14
Bioenergetics 71
Biological Effects 9, 25, 58, 65, 66, 69
Biological Experiments 71
Biological Rhythms 1, 3, 4, 5-6, 19, 33, 71, 72, 73, 74
Biomechanics 3, 73
Biophysics 65
Bioregenerative LSS 27, 39, 40
Biospherics 6-7, 27
Blood 14, 42
Blood Iron 29
Blood Parameters 31
Blood Serum 22
Blood-Brain Barrier 54
Body Fluids 8, 13, 20, 42, 56, 71, 72, 73
Bone 47, 48
Bone Minerals 47
Bone Tissue 47
Bones 50, 51, 72, 74
Botany 9-10, 38, 39, 40, 45, 58, 73
Brachium 49
Brain 12, 4, 15, 24, 52, 54
Brain Circulation 15
Brain Neurons 54
Brain Structures 55
KEY WORD INDEX

Ca$^{2+}$ Reactivity 12
Cabbage 39, 40
Caffeine 15
Calcitonin 20
Calcium 12, 15, 20, 46, 47, 48, 58
Callus Tissue 10
Caloric Response 42
Carbohydrates 4, 43
Carbon Ions 53
Carcinogenesis 67
Cardiac Activity 55
Cardiac Contractility 11, 12
Cardiac Hypertrophy 11
Cardiac Structures 15
**Cardiovascular and Respiratory Systems** 1, 3, 5, 8, 11-16, 22, 30, 34, 36, 42, 53, 55, 71, 73, 74
Cardiovascular Deconditioning 71
Carrots 39, 40
Catalytic Oxidation 38
Cataractogenesis 67
Catecholamines 20
Cell Death 10
Cell Membrane of the Heart 13
CELSS 27, 38, 39, 40, 72
Central and Peripheral 11
Central Nervous System 54
Centrifugation 70
Cerebral Cortex 53
Cerebral Hemodynamics 8
Cerebrospinal Fluid 14, 42
Cerebrovascular Effects 53
Chalone Mechanism 29
Charged Particles 66, 67
Chest 24
Chilling 20
*Chlorella* 38
Circadian Rhythms 5
Circadian Rhythms, Free-Running 6
Circulation 12, 14, 15, 42
Coarctation 11
Cognitive Task 33
Color Preferences 62
Compatibility 61
Computer Systems 4
Computer Tomography 51
Conditioned Responses 63
Contingency Situations 28
Corneal Epithelium 66
Cosmic Radiation 9, 65, 71
Cosmonaut Monitoring System 56
Cosmonaut Selection 28, 61
Cosmonaut Training 28, 35, 74
Cosmonauts 5, 12, 13, 35, 46, 47, 51, 54, 56, 59, 61, 63, 64, 68, 71, 72, 73
COSMOS 6, 9, 17, 19, 21, 37, 38, 48, 50, 51, 52, 66, 71, 72, 74
COSMOS-615 49
COSMOS-781 50
COSMOS-936 17, 49, 50
KEY WORD INDEX

COSMOS-1129 9
COSMOS-1514 9
COSMOS-1667 17, 19, 20, 52
COSMOS-1760 9
COSMOS-1887 6, 17, 20, 38, 51, 71, 72, 74
COSMOS-2044 37, 74
Countermeasures 2, 4, 8, 14, 16, 21, 46
Crew Composition 59
Cytogenetic Damage 66
Cytogenetic Effects 9
Cytogenetic Mutations 26
Cytology 10, 45, 71
Cytoplasmic Dehydrogenases 44
Cytotoxic 37

D

Damage 9
Decompression Sickness 14, 52
Deconditioning 71
Dedifferentiation 10
Deficient Diets 58
Delivery 70
Delta-Sleep Peptide 55
Desquamation 27
Desynchronosis 5
Developmental Biology 10, 17, 40, 41, 70, 71, 74
Digestive Enzymes 22
Digestive System 18
Dill 40, 41
Displacement of Center of Mass 3
Diurnal Rhythms 4
Diurnal Variations 33
Dogs 30, 48, 54, 69
Drosophila melanogaster 71
Drugs 4, 11, 14, 43, 71
Dysbacteriosis 18

78
E

E. coli 71
Ecological Specifications 27
Edema 54
Ejection Seat 3
EKG Leads 14
Electromagnetic Field 20
Electrical Parameters 68
Emergency Response 34
Emotional Status 62
Endocrine Response 19
Endocrinology 1, 2, 4, 5, 11, 13, 15, 19-21, 55, 68, 71, 72, 73, 74
Endogenous Ethanol 43
Endurance Criteria 14
Enzymology 1, 22-23, 43, 55, 71
Epidural 56
Equipment and Instrumentation 4, 14, 24, 28, 33, 35, 56, 61, 72, 74
Erythrocytes 65
Essential Hypertension 14, 16
EVA 13, 72
Evaluation 34, 39, 40
Exercise 2, 11, 12, 14, 16, 21, 34, 36, 44, 48, 72
Exercise Tolerance 36
Exhaled Gas 15
Exobiology 25, 73
Expedition Members 58
External Respiration 15
Extracellular Fluid 8
Extreme Conditions 42, 63
Extreme Factors 4
Eye Movement Response 56
Eyes 69
KEY WORD INDEX

F

Fast-Twitch Muscles 51
Fat 44
Feedback 34
Females 6, 11, 14, 19, 27, 53, 62, 67, 69, 70
Femur 49
Ferrocene Test 29
Fibrogenesis 25
Fish 38
Flight Crews 16, 62, 63
Flight Personnel 4, 63
Flight School Cadets 34
Flight Training 63
Fluid Redistribution 8
Fluid-Electrolyte Balance 20
Foton 21
Functional Characteristics 39, 40
Functional Status 3, 34, 63

G

γ-Irradiation 30, 53, 54, 66, 67, 68, 69
GABA 59
Galactic Cosmic Radiation 66
Garden Cress 40, 41
Gastrin 20
Gastrointestinal System 22, 42, 71, 74
Gender Differences 62
General 15
Genetics 9, 10, 17, 26, 40, 41, 61, 62, 66, 71
Genetics, I.Aberrations 9
GHBA 59
Glucocorticoids 55
Glycolysis 43
Granulocytopoiesis 29
Ground Simulations 73
Group Dynamics 73
Guinea Pigs 12
Guppies 71
KEY WORD INDEX

H

Habitability and Environment Effects 27-28, 36, 73, 74
Hadrons 65
Hadryas Baboons 19
Haplopappus 71
Head Nodding 3
Head-Down Tilt 2, 8, 12, 15, 21, 30, 31, 53
Headward Fluid Shifts 8
Health 4
Health Status 3
Heart 11
Heart Rhythm 34
Heat 2
Heavy Ions 9, 66
Hematology 6, 26, 29-31, 42, 65, 66, 68, 71, 72, 73, 74
Hemodynamics 11, 12, 13, 16, 30
Hemopoiesis 29, 42, 66
Hemostasis 30
High Altitude 1, 11, 19, 30, 36
High Altitude Hypoxia 11
High Altitude Sickness 36
Higher Plants 39, 40
Higher Plants-Man-Mineralization System 39, 40
Histology 30, 32, 45
Horizontal Exercise 13
Horizontal Clinostatting 10
Hormonal Regulators 20
Hormones 1, 20
Human Ecology 27
Human Performance 1, 2, 3, 4, 5, 15, 28, 33-35, 53, 58, 60, 61, 62, 63, 64, 72, 73
Humans 3, 4, 5, 6, 8, 11, 12, 13, 14, 15, 16, 19, 20, 21, 24, 26, 27, 29, 30, 31, 33, 34, 35, 36, 39, 42, 43,
46, 47, 48, 51, 52, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 66, 68, 71, 72, 73, 74
Humerus 49
Humoral Immunity 36
Hydration 8
Hydrogen Peroxide 38
Hydroxymethyl Aminopropylidene Diphosphonate 47
Hygienic Evaluation 39, 40
Hyperbaric Oxygenation 26
Hypercapnia 14, 15, 27
Hypergravity 12, 70
Hyperoxia 2, 14, 54
Hypersecretory Stomach 18
Hypertension 11
Hypertensive Crisis 14
Hypobaric 43
Hypodynamia 72
Hypokinesia 12, 15, 18, 19, 21, 22, 23, 30, 31, 43, 44, 46, 47, 58, 72
Hypokinesia Long-Term 19, 22, 43
Hypokinesia Short-Term 22
Hypokinesia with Head-down Tilt 11, 13, 14, 16, 29, 33, 43, 46, 48, 51, 61, 64, 74
Hypokinesia With Head-Down Tilt, Long-Term 8, 51, 71,
Hypokinesia with Head-Down Tilt, 370-day 26, 31, 43, 64, 71
Hypothalamus 19
Hypoxia 1, 15, 19, 22, 30, 32, 43, 54, 65, 74
HZE Particles 9

81
KEY WORD INDEX

I

Immersion 13, 20, 33
  Immersion. Dry 11, 14
Immobilization Cages 23, 30, 44, 46, 47, 58
Immobilization Stress 11, 15, 22, 43, 55
Immune Status 36
Immunity 74
Immunology 4, 31, 36-37, 67, 71, 72, 73
Immunomodulators 67
Impedance Plethysmography 24
Individual Differences 14, 36, 55, 57
Induction Increase Rate 65
Industrial Hygiene 2
Inhibitory Mediation 55
Intestinal Follicles 42
Intracranial Pressure 56
Ionizing Radiation 10, 45, 65
Irradiation 29, 36
Ischemia 15
Isolated Hearts 15

J

Jaw 50

K

Karkas Suit 71
Kontrol System24

L

Lactation 70
LBNP 71, 72, 74
Lens 17
Lettuce 40, 41
  Lettuce Seeds 9
Life Support Systems 27, 38-41, 72, 74
Limbs 17, 24
Lipid Components 10
Lipid Peroxidation 2, 15, 44, 74
Lipids 4
Literature Review 30
Lithosphere 25
Liver 23, 24, 44, 65
Low Temperature 38
Low Barometric Pressure 2
Low Dose 29
Lunar Soil 25, 73
Lungs 22
Lymphocytes 26, 66
Lymphocytopenias 29
Macaca mulatta 71
Macrophages 30
Magnetic Field s 13, 65, 70
Magnetic Fields, Low Frequency 19, 20, 68
Males 2, 6, 8, 11, 12, 13, 14, 15, 16, 19, 21, 22, 27, 30, 31, 34, 35, 36, 43, 44, 46, 47, 52, 54, 55, 57, 58, 62, 64, 65, 70, 71
Mammals 29, 36, 42
Mammals.
Man-Machine Systems 35, 73
Mars Mission 27, 59
Maternal Behavior 70
Mathematical Modeling 5, 7, 29, 35, 36, 39, 40, 42, 74
Mechanical Properties 47, 49
Medial Eminence 53
Medical Factors 61
Menstrual Cycle 19
Mental Tasks 34, 35
Mental Work 15
Mental Work Capacity 53
Metabolic Rate 48
Metabolism 1, 2, 4, 8, 11, 13, 15, 20, 43-44, 47, 48, 50, 54, 58, 71, 72, 73, 74
Metabolism Cell 71
Metabolism, Low 50
Metabolism Mineral, Fats 8
Metabolism, Fat, Carbohydrates 5
Mexamine 69
Mice 1, 66, 67
Microbiology 38, 39, 40, 45, 66, 71, 73, 74
Microclimate 2, 73
Microwave Irradiation 65, 69
Mineral Density 46
Mineral Loss 51
Mineral Metabolism 2
Mir 10, 40, 41, 64, 73, 74
Mitochondria 22
Mitochondrial Membrane 1
Modifiers 54
Moisture and Carbon Dioxide Absorbers 39, 40
Monkeys 52
Monoamine Oxidase 1
Monotony 34
Morphohistochemical Analysis 51
Morphology 10, 19, 20, 21, 52
Motion Sickness 53, 55, 57, 72
Motor Activity 6
Motor Coordination 72
Motor Effects 73
Muscle Mass 72
Muscle Stimulation 14
Muscles 74
Musculoskeletal System 14, 22, 46-51, 69, 71, 72, 73, 74
Mutagenesis 10
Mutations 9, 40, 41
Myocardial Dystrophy 16
Myocardial Sclerosis 16
KEY WORD INDEX

N
Natural Resources 7
Neonates 70
Neurocirculatory Asthenia 16
Neurons 53
Neurophysiology 4, 13, 14, 15, 19, 20, 33, 42, 52-57, 59, 61, 64, 69, 71, 72, 73, 74
Neurosecretory Apparatus 19
Neuroses 63
Neurotransmitters 4
Nitrogen 43
Nitrogen Metabolism 15
Non-Traditional Medicine 4
Nonspecific Resistance 67
Nonweight-bearing Bones 50
Nootropic Drugs 59
Nucleic Acids 11
Nucleotides 25
Nutrition 4, 13, 29, 46, 58, 72, 73
Nystagmus 55

O
Older Subjects 15
One-Celled Organisms 45
Oocyte Growth
Operational Medicine 24, 36, 56, 59, 61, 72, 73, 74
Operators 33, 34
Optimization 34
Organic and Mineral Components 49
Orthostatic Loading 52
Orthostatic Tolerance 11, 54, 74
Osteoporosis 47
Otolith Asymmetry 55
Oxidative Enzymes 22, 23
Oxygen 39
Oxygen Circulation 15
Oxygen Homeostasis 74
Oxygen Pressure 12
KEY WORD INDEX

Parasympathetic Nervous System 55
Pathogenesis 52, 71
Patients 8, 11, 14, 16, 26, 47, 53, 55, 61
Peas 39, 40
Peptide Hydrolases 22
Perception 13, 34, 60, 73
Perceptual/Motor Performance 34
Performance Efficiency 34
Periodic Structure 5
Periodontium 46
Perodicity 66
Personal Hygiene 27
Personnel Selection 1, 61, 72
Pharmacological Agents 34
Pharmacological Countermeasures 8, 20, 22, 53, 57, 59, 74
Phosphorus 46
Physical Exercise 8, 11, 13, 43, 46, 71
Physician 59
Pigment 10
Pilot Training 60
Pilots 4, 60
Pituitary 19
Pituitary-Thyroid System 21
Plant Cells 45
Plant Development 40, 41, 73
Plant Gravity Response 73
Plant Tissue Culture 10
Plants 40, 41
Pleven-87 35
Population Studies 71
Postural Tests 56
Preadaptation 15
Precellular Organisms 45
Preflight Training 34
Pregnancy 70
Pressurized Environment 15, 27, 36, 39, 40
Preventive Medicine 24
Primates 19, 63
Prognostic Indicator 68
Proliferation 37
Prophylactic Countermeasures 11, 13, 43, 46, 48, 71, 72, 73
Prophylaxis 4
Proprioception 33
Protective Effects 55
Protective Function 27, 36
Proteolysis 22
Provocative Tests 11, 42
Psychodiagnosis 63
Psychological Performance 35
Psychological Readiness 35
Psychology 4, 12, 33, 35, 55, 56, 57, 60, 61, 62-64, 72, 73, 74
Psychophysiological Parameters 57
Psychophysiological State 64
Psychosomatic Illness 63
PTH 20
Public Health 72
<table>
<thead>
<tr>
<th>Key Word</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rabbits</td>
<td>11, 12, 14, 15, 52, 53, 55, 56</td>
</tr>
<tr>
<td>Radiation</td>
<td>54</td>
</tr>
<tr>
<td>Radiation Damage</td>
<td>29</td>
</tr>
<tr>
<td>Radiation Death</td>
<td>42</td>
</tr>
<tr>
<td>Radiation Safety</td>
<td>68</td>
</tr>
<tr>
<td>Radiation Damage</td>
<td>29</td>
</tr>
<tr>
<td>Radiation Death</td>
<td>42</td>
</tr>
<tr>
<td>Radiation Safety</td>
<td>68</td>
</tr>
<tr>
<td>Radiation Biistency</td>
<td>1, 9, 10, 13, 19, 28, 29, 30, 36, 40, 41, 42, 45, 53, 54, 65-69, 70, 71, 72, 73, 74</td>
</tr>
<tr>
<td>Radioprotective</td>
<td>Effects 65, 67</td>
</tr>
<tr>
<td>Radioprotectors</td>
<td>67, 68, 69</td>
</tr>
<tr>
<td>Radish</td>
<td>40, 41</td>
</tr>
<tr>
<td>Raster Method</td>
<td>5</td>
</tr>
<tr>
<td>Rats</td>
<td>1, 11, 12, 13, 15, 19, 20, 22, 23, 29, 30, 32, 37, 39, 43, 44, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 57, 58, 62, 65, 66, 67, 68, 69, 70, 71</td>
</tr>
<tr>
<td>Receptor Organs</td>
<td>52</td>
</tr>
<tr>
<td>Recovery</td>
<td>22, 44, 63</td>
</tr>
<tr>
<td>Red Blood Counts</td>
<td>6</td>
</tr>
<tr>
<td>Reduced Functional</td>
<td>Loading 47</td>
</tr>
<tr>
<td>Regeneration</td>
<td>17</td>
</tr>
<tr>
<td>Regulatory Systems</td>
<td>68</td>
</tr>
<tr>
<td>Relativistic Energy</td>
<td>66</td>
</tr>
<tr>
<td>Relaxation</td>
<td>34</td>
</tr>
<tr>
<td>Remote Effects</td>
<td>53</td>
</tr>
<tr>
<td>Remote Sensing</td>
<td>7</td>
</tr>
<tr>
<td>Repeated Exposure</td>
<td>8</td>
</tr>
<tr>
<td>Repeated Flights</td>
<td>61</td>
</tr>
<tr>
<td>Reperfusion</td>
<td>15</td>
</tr>
<tr>
<td>Reproductive Function (Male)</td>
<td>70</td>
</tr>
<tr>
<td>Reproductive System</td>
<td>19, 70, 74</td>
</tr>
<tr>
<td>Research Apparatus</td>
<td>33</td>
</tr>
<tr>
<td>Research Methods</td>
<td>33</td>
</tr>
<tr>
<td>Resistance</td>
<td>36</td>
</tr>
<tr>
<td>Review Article</td>
<td>19, 68</td>
</tr>
<tr>
<td>Rheological Parameters</td>
<td>30</td>
</tr>
<tr>
<td>Rhesus Monkeys</td>
<td>63</td>
</tr>
<tr>
<td>Ribs</td>
<td>50</td>
</tr>
<tr>
<td>Risk Factors</td>
<td>63</td>
</tr>
<tr>
<td>Ritm</td>
<td>24</td>
</tr>
<tr>
<td>Rosette Formation</td>
<td>30</td>
</tr>
<tr>
<td>Rotation</td>
<td>53</td>
</tr>
<tr>
<td>Key Word</td>
<td>Index</td>
</tr>
<tr>
<td>----------</td>
<td>-------</td>
</tr>
<tr>
<td>Safety</td>
<td>28</td>
</tr>
<tr>
<td>Salyut</td>
<td>9, 10, 12, 13, 20, 47, 51, 54, 56, 71, 72</td>
</tr>
<tr>
<td>Salyut-6</td>
<td>9, 12, 47, 54, 56</td>
</tr>
<tr>
<td>Salyut-7</td>
<td>9, 10, 12, 13, 51, 72</td>
</tr>
<tr>
<td>Seasonal Rhythms</td>
<td>1</td>
</tr>
<tr>
<td>Second Prime Crew</td>
<td>73</td>
</tr>
<tr>
<td>Seeds</td>
<td>9, 40, 41</td>
</tr>
<tr>
<td>Selection</td>
<td>39, 40</td>
</tr>
<tr>
<td>Semi-Full-Scale Simulation</td>
<td>35</td>
</tr>
<tr>
<td>Semicircular Canal</td>
<td>42</td>
</tr>
<tr>
<td>Sensorimotor Performance</td>
<td>33</td>
</tr>
<tr>
<td>Sensory Systems</td>
<td>13, 72</td>
</tr>
<tr>
<td>Serotonin</td>
<td>69</td>
</tr>
<tr>
<td>Serum Ligands</td>
<td>44</td>
</tr>
<tr>
<td>Serum Proteins</td>
<td>43</td>
</tr>
<tr>
<td>Shift Work</td>
<td>5, 33</td>
</tr>
<tr>
<td>Sidnocarb</td>
<td>20</td>
</tr>
<tr>
<td>Silica Gel</td>
<td>39, 40</td>
</tr>
<tr>
<td>Silicon</td>
<td>46</td>
</tr>
<tr>
<td>Simulation</td>
<td>25</td>
</tr>
<tr>
<td>Skeletal Bones</td>
<td>46</td>
</tr>
<tr>
<td>Skeletal Muscles</td>
<td>22, 51</td>
</tr>
<tr>
<td>Skeletal System</td>
<td>46</td>
</tr>
<tr>
<td>Skeleton</td>
<td>50</td>
</tr>
<tr>
<td>Skin</td>
<td>68</td>
</tr>
<tr>
<td>Skin Basophils</td>
<td>32</td>
</tr>
<tr>
<td>Sleep</td>
<td>52, 72</td>
</tr>
<tr>
<td>Sleep Patterns</td>
<td>64</td>
</tr>
<tr>
<td>Slow-Twitch Muscles</td>
<td>51</td>
</tr>
<tr>
<td>Small Group Performance</td>
<td>61</td>
</tr>
<tr>
<td>Smoking</td>
<td>36</td>
</tr>
<tr>
<td>Solar Activity</td>
<td>6</td>
</tr>
<tr>
<td>Solar Radiation</td>
<td>9</td>
</tr>
<tr>
<td>Solid Polymer Electrolyte</td>
<td>39</td>
</tr>
<tr>
<td>Soyuz</td>
<td>9, 50, 71</td>
</tr>
<tr>
<td>Space Adaptation Syndrome</td>
<td>53</td>
</tr>
<tr>
<td><strong>Space Biology and Medicine</strong></td>
<td>24, 71-74</td>
</tr>
<tr>
<td>Space Conditions</td>
<td>42</td>
</tr>
<tr>
<td>Space Flight</td>
<td>5, 9, 10, 12, 13, 17, 19, 21, 27, 28, 35, 37, 38, 40, 41, 45, 46, 47, 49, 50, 51, 52, 54, 56, 59, 61, 64, 66, 68, 71, 72, 73, 74</td>
</tr>
<tr>
<td>Space Flight, Long-Term</td>
<td>9, 12, 13, 19, 27, 35, 40, 41, 46, 50, 51, 54, 59, 68, 71, 72, 73, 74</td>
</tr>
<tr>
<td>Space Flight, Short-Term</td>
<td>9, 20, 50</td>
</tr>
<tr>
<td>Space Motion Sickness</td>
<td>57, 71</td>
</tr>
<tr>
<td>Space Suits</td>
<td>73</td>
</tr>
<tr>
<td>Space Systems</td>
<td>7</td>
</tr>
<tr>
<td>Spatial Orientation</td>
<td>60</td>
</tr>
<tr>
<td>Speech Analysis</td>
<td>63</td>
</tr>
<tr>
<td>Spine</td>
<td>51</td>
</tr>
<tr>
<td>Splenocytes</td>
<td>37</td>
</tr>
<tr>
<td>Stand Test</td>
<td>52</td>
</tr>
<tr>
<td>Steroids</td>
<td>19</td>
</tr>
<tr>
<td>Stick Insects</td>
<td>71</td>
</tr>
<tr>
<td>Stress</td>
<td>1, 4, 5, 11, 12, 15, 55, 56, 62, 72</td>
</tr>
<tr>
<td>Stress Protectors</td>
<td>4</td>
</tr>
<tr>
<td>Stress Response</td>
<td>62</td>
</tr>
<tr>
<td>Subdural Recording</td>
<td>56</td>
</tr>
</tbody>
</table>
KEY WORD INDEX

Suceptibility 57
Suppressor 37
Survival 28, 58, 69

T

Tail Suspension 37, 46, 58
Teeth 50
Test Scores 63
Testes 20
Tetrahymena pyriformis 71
Theoretical Article 5, 27, 39, 40, 67
Thermal Homeostasis 73
Thermal Polycondensation 25
Thermal Protection 20
Thermal Regulation 74
Thermal Stress 3
Thermal Synthesis 25
Thermoregulatory Response 27
Thiamine 44, 58
Thyroid 5, 20
Thyroid Hormones 11
Tibia 48, 49, 50
Tilt Test 8, 11, 42, 52
Time Perception 73
Tissue Cultures 45
Tissue Respiration 22
Tortoises 46, 50
Transaminase 23
Treatment 14
Tritons 17, 21, 71
Twin Studies 61
Typology 16, 63

U

Ultrasound 48
Ultraviolet Irradiation 69
Ultraviolet Therapy 8
Ultimobranchial Glands 21

V

Vagus Nerve 55
Vegetable Protein 58
Ventricular Actomyosin 12
Vertebræ 49
Vertical Optokinetic Nystagmus 55
Vestibular Activity 52
Vestibular Function 54
Vestibular System 13, 52, 72
Vestibular Tolerance, Diminished 53
Vibration 54, 55
Visual Perception 73
Vita 24
Vitamin D3 Metabolites 46
Volcanic Activity 25
KEY WORD INDEX

W

Water Regeneration 38
Weight-Bearing Bones 49, 50
Weightlessness 48, 71, 72
Weightlessness Simulations 10, 13, 48, 71
Wheat 10, 38, 39, 40
Wild Plants 58
Wolffia arrhiza 9, 71
Work Schedules 5
Workload 3

X

X-Rays 1

Y

Yeast Cells 66

Z

Zeolite 39, 40
Zond-8 9
This document provides an index to issues 26-29 of the USSR Space Life Sciences Digest. There are two sections. The first lists bibliographic citations and key words for abstracts published in these issues, grouped by topic area categories. The second provides a key word index for the same abstracts.