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ISSUE 21:

PAPER:

P969(21/89) Chernyayev AL, Muratov NF.
*Serum myoglobin in human blood under extreme conditions.*
Fiziologiya cheloveka.
(14 references; 6 in English)
Authors' affiliation: Institute of Human Morphology, U.S.S.R. Academy of Medicine.

Hematology, Musculoskeletal System, Myoglobin
Humans
Adaptation, Cold, Hypoxia, Psychology, Stress, Far North

BOOK REVIEW:

BR15(21/89)* Grimak LP, Zorile VI.
Review of: Furduy FI.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
Fiziologitcheskiye mehanizmy stressa i adaptatsii pri ostrom deystvii stress-faktorov

Physiological mechanisms of stress and adaptation in acute exposure to stress factors.
Kishinev: Shtiints; 1986; 240 pages.

KEY WORDS: Adaptation, Psychology, Stress, Biological Rhythms, Endocrinology, Thyroid, Corticosterone, Developmental Biology

ISSUE 22

PAPERS:

P1028(22/89)* Krivoschekov SG, Neshumova TV, Razumenko AA, Tataurov YuA.
*Energy metabolism and physical work efficiency in humans adapting to high altitude conditions.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[6 references; 1 in English]

Metabolism, Musculoskeletal System, Work Efficiency, Exercise, Cardiovascular and Respiratory Systems, Endocrinology, Enzymology
Humans, Males, Athletes
Adaptation, High Altitude
P1033(22/89)* Aliyev MA, Bekbolotova AK, Lemeshenko VA.
Positive and negative effects of antioxidants on tolerance for hypoxia and thrombocyte aggregation as a function of duration of adaptation to high altitude conditions.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[1 reference; none in English]

Hematology, Thrombocyte Aggregation, Hypoxia, Tolerance
Rats, Male
Adaptation, High Altitude, Pharmacological Countermeasures, Antioxidants

ISSUE 23

P1086(23/89) Simonov PV.
Issues in ecological physiology
Text of paper presented at the General Meeting of the Physiology Division of the USSR Academy of Sciences, December, 1988.
In: Uspekhi Fiziologicheskikh Nauk.
[No references]

KEY WORDS: Adaptation, Biospherics, Ecological Physiology, Space Medicine, Habitability and Environmental Effect, Extreme Conditions

ISSUE 24:

BOOK REVIEW:

BR17(24/89) Agadzhanyan NA, Gnevushev VV, Katkov AYu.
Адаптация к гипоксии и биоэкономика внешнего дыхания.
Adaptatsiya k gipoksiy i bioekonomika vneshnego dykhaniya.
[Adaptation to hypoxia and the bioeconomics of external respiration.]
Reviewed in: Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
Reviewer: I. I. Lanovneko

KEY WORDS: Adaptation, Hypoxia, Cardiovascular and Respiratory Systems, External Respiration, Voluntary Control
ISSUE 23

PAPERS:

P1059(23/89)* Ponomarenko VA, Lapa VV.
Using information to control pilot reliability under extreme performance conditions.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[13 references; none in English]

Aviation Medicine, Human Performance, Psychology
Humans, Pilots
Psychology, Information, Perception, Flight Representation

ISSUE 24:

PAPERS:

P1095(24/89)* Lapa VV.
Information interactions within a "man-flight vehicle" system as a problem in aviation medicine.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[No references]

Aviation Medicine, Human Performance, Information Processing
Humans, Pilots
Man-Machine System, Flight Vehicles

P1118(24/89)* Dlusskaya IG, Kiselev RK.
Certain applied aspects of biochemical research in aviation medicine.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[76 references; 43 in English]

Aviation Medicine, Biochemical Parameters, Endocrinology, Metabolism
Humans, Pilots
Psychology, Stress; Human Performance, Flight Performance,
BIOLOGICAL RHYTHMS

ISSUE 22

PAPER:


Biological Rhythms, Circadian Rhythms; Hematology, Blood Acetyl Cholinesterase; Rats, Male; Hypokinesia, Organic Phosphates

MONOGRAPH:

M144(22/89) Zidermane AA (editor) [Zidermane] Nekotoryye voprosy khronobiologii i khronomeditsiny: Obzor literatury Некоторые вопросы хронобиологии и хрономедицины: Обзор литературы Some issues in chronobiology and chronomedicine: A review of the literature. Riga: Zinatne; 1988. [214 pages; 997 references; 5 tables; 5 figures]

KEY WORDS: Biological Rhythms, Chronopathology, Chronopharmacology, Drugs, Endocrinology, Biochemistry, Cardiovascular and Respiratory Systems, Neurophysiology
ISSUE 22:

PAPER:

P1024(22/89)* Levina RV, Smirnov RV, Olimpiyenko TS.
The effects of a hypogeomagnetic field on warm-blooded animals.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[10 references; 3 in English]

Biological Effects, Radiobiology, Cardiovascular and Respiratory Systems, Physical Work Capacity, Psychology, Behavioral Measures, Learning
Rats, Males
Biospherics, Geomagnetic Field, Hypoexposure
ISSUE 21

PAPER:

P961(21/89)* Genin AM, Lakota NG, Chikov LI, Shashkov VS.
A new variant for modeling the effects of weightlessness on humans.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[24 references; 12 in English]

Body Fluids, Fluid-Electrolyte Metabolism; Neurophysiology, Vestibular Tolerance;
Endocrinology; Human Performance; Cardiovascular and Respiratory Systems
Humans
Immersion, Dry, Suit, Horizontal and Vertical Positions

ISSUE 22

PAPER:

P994(22/89) Bukayev YuN.
Physical exercise and renal function.
Teoriya i praktika fizicheskoj kul'tury.
[8 references; 5 in English]

Body Fluids, Renal Function, Cardiovascular and Respiratory Systems, Renal Hemodynamics
Humans, Athletes
Physical Exercise, Long-Term Effects

ISSUE 23

PAPER:

P1089(23/89) Doroshenko NM, Korpachev VV.
The role of the spleen in regulation of plasma calcium under normal conditions and during stress.
Fiziologicheskij Zhurnal.
[15 references; 2 in English]
Authors' Affiliation: Kiev Institute of Endocrinology and Metabolism; Ukrainian Ministry of Health

Body Fluids; Calcium Homeostasis
Rats; Chinchilla
Spleen; Splenectomy; Splenin; Stress; Exercise
P1136(25/89)* Vartbaronov RA, Glod GD, Popov IG, Uglova NN, Sarycheva NN, Rolik IS. Blood electrolyte balance in dogs repeatedly exposed to $+G_z$ acceleration Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(4): 43-46; 1989. [23 references; 7 in English]

Body Fluids, Blood Electrolyte Balance
Dogs
Acceleration, $+G_z$
ISSUE 22

PAPERS:

P1081(23/89)* Antipov VV, Vasin Mv, Gaydmakin AN. 
Assessment of effects of a single exposure to ammonia on photosynthesis of lettuce plants in an airtight phytotron. 
Kosmicheskaya Biologiya i Aviaskosmicheskaya Meditsina. 
[16 references; 7 in English]
Botany, Photosynthesis 
Lettuce 
Habitability and Environmental Effects, Air Pollutants, Ammonia, Hermetically Sealed Spaces

P1072(23/89)* Brill' OD, Borzunov VB, Vikhrov AI, Vorob'yeva NG, Ivanov LI, Kovalev YeYe, Yanushkevich VA. 
The combined effects of b-radiation and shock waves on lettuce (Lactuca sativa L.) seeds. 
Kosmicheskaya Biologiya i Aviaskosmicheskaya Meditsina. 
[17 references; 6 in English]
Botany, Gemination Rate, Anomalous Development 
Lettuce; Seeds 
Radiobiology, Heavy Ions; Shock Waves; b-Irradiation

ISSUE 25:

PAPERS:

P1154 (25/89) Laurinavichyus RS, Yaroshyus AV, Rupaynen OYu. 
Prospects for use of higher plants in life support systems. 
In: Malkin VB, Kosmolinskiy FP, Kuznets Ye1 (editors). 
Chelovek i Kosmos: Idei K.E. Tsiolkovskogo i ikh razvitiye v sovremennoy biomeditsine.Trudy XXII Chtenij, posvyashchennykh razrabotke nauchnogo naslediya i razvitiyu idej K.E. Tsiolkovskogo (Kaluga, 15-18 sentyabrya 1987) 
[7 references; 1 in English]
Pages 55-60.
Botany, Development, Growth, Viability 
Higher Plants, Arabidopsis, Seeds 
Space Flight, Salyut-7, Life Support Systems

Man and space: The Ideas of K.E. Tsiolkovskiy and their development in modern biomedicine. 
Works from the XXII lecture series devoted to development of the scientific heritage and development of the ideas of K.E. Tsiolkovskiy (Kaluga, 15-18 September, 1987) 
[[7 references; 1 in English] 
Pages 55-60.
The role of infrared radiation in increasing the productivity of plants.
In: Malkin VB, Kosmolinskiy FP, Kuznets Ye1 (editors).
Chelovek i Kosmos: Idei K.E. TsioIkovskogo i ikh razvitiye v sovremennoy biomeditsine.Trudy XXII Chtenij, posvyashchennykh razrabotke nauchnogo naslediya i razvitiyu idej K.E. TsioIkovskogo (Kaluga, 15-18 sentyabrya 1987)
Helovek i Kosmos Idei K.-. TsioIkovskogo i ix Razvitie v sovremennoy biomedicine.Trudy XXII Чтений; посвященных разработке научного наследия и развитию идей К.Э. Циolkовского (Калуга; 15-18 сентября1987)
[5 references; none in English]
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ISSUE 21

PAPERS:

P945(21/89)* Voloshin VG, Bykova Yul, Kuznetsov VG, Lapshina NA. The physiological effects of acceleration on aerobatic pilots performing aerobatic maneuvers. Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 22(5): 14-17; 1988. [7 references; none in English]

Cardiovascular and Respiratory Systems, Cerebral Blood Supply Humans, Pilots Aerobatic Maneuvers, Acceleration, + and - Gz


Cardiovascular and Respiratory Systems, Hemodynamics Monkeys, Individual Differences Space Flight, COSMOS-1514, -1667

P952(21/89)* Vorob'yev VYe, Kovachevich IV, Goncharov IB, Vinnitskiy LI, Yegorova IA, Kal'yanova VN. Changes in regional pulmonary hemodynamics and level of vasoactive substances in humans exposed to hypokinesia with head-down tilt. Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 22(5): 42-46; 1988. [13 references; none in English]

Cardiovascular and Respiratory Systems, Pulmonary Hemodynamics, Vascular Tonus; Enzymology, Renin, Angiotensin, Kinin-Kallikrein Humans, Males Hypokinesia with Head-down Tilt

P956(21/89)* Artemyan NA, Barinyan SB, Oganesyan SS, Shperling ID. Ultrastructural analysis of atrial cardiomyocytes in rats exposed to acceleration of +5Gz. Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 22(5): 60-64; 1988. [20 references; 7 in English]

Cardiovascular and Respiratory Systems, Atrial Cardiomyocytes Rats Acceleration, +5Gz
CARDIOVASCULAR AND RESPIRATORY SYSTEMS

P957(21/89)* Lobanok LM, Kiriyenko AYe.
Age differences in adrenergic regulation of the contractile function of the heart under conditions of hypoxia.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[12 references; 5 in English]
Cardiovascular and Respiratory System, Contractile Function; Endocrinology, Adrenergic Regulation
Rats, Age Differences
Hypoxia

P962 (21/89)* Palets BL, Popov AA, Tikhonov MA, Kondakov AV, Palets LD.
Calculating the effectiveness of an indirect technique for assessing tolerance of $+G_z$ acceleration using a simulation of circulation.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[7 references; 3 in English]
Cardiovascular and Respiratory Systems, Circulation Humans Acceleration Tolerance, $+G_z$, LBNP, Mathematical Modelling,

P964(21/89)* Andriyako LYa, Bubeyev VA, Degtyarev VA, Kaplan MA, Remizov Yul, Gorin VV,
Reactions of the vascular regions of visceral organs to lower body negative pressure.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[7 references; 2 in English]
Cardiovascular and Respiratory Systems, Vascular Regions, Visceral Organs; Body Fluids, Fluid Redistribution Humans, Males Lower Body Negative Pressure

ISSUE 22

PAPERS:

P982(22/89)* Yegorov AD, Bayvskiy RM, Itsekhovskiy OG, Fedorov BM, Turchaninova VF, Alferova IV, Lyamin VR, Turbasov VD, Polyakova AP, Domracheva MV, Golubchikova ZA, Funtova II, Tazetdinov IG, Savelyeva VG.
Preliminary results of investigation of the cardiovascular system in members of the second prime crew on space station Mir.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
(14 references; none in English)
Cardiovascular and Respiratory Systems Humans, Cosmonauts, Prime Crew Space Flight, Mir, Long-Term, Provocative Tests, Exercise, LBNP

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ISSUE 23

PAPERS:

P1057(23/89)* Barer AS, Breslav IS, Isayev GG, Sokol YaA.  
*The effects of increased respiratory resistance on human work capacity*  
Kosmicheskaya Biologiya i Aviaskosmicheskaya Meditsina.  
[62 references; 36 in English]

Human Performance, Work Capacity  
Humans  
Cardiovascular and Respiratory Systems, Increased Respiratory Resistance

P1081(23/89) Kan YeL, Avetikyan ShT, Kan GS.  
*Reactions of the cardiovascular system of air traffic controllers to simulated job conditions.*  
Kosmicheskaya Biologiya i Aviaskosmicheskaya Meditsina.  
23(2): 95 ; 1989.  
[18 references]  
Translation of abstract on file with the All-Union Institute of Scientific and Technical Information and the All-Union Scientific and Research Institute of Medical Information

Cardiovascular System, Blood Pressure  
Humans, Air Traffic Controllers  
Human Performance, Simulated Job Conditions

P1064(23/89)*Buzulina VP, Machinskiy GV, Nosova YeA, Stepantsov VI.  
*The effects of 30 days of hypokinesia on certain physiological and biochemical parameters during maximal exercise.*  
Kosmicheskaya Biologiya i Aviaskosmicheskaya Meditsina.  
[11 references; 6 in English]

Cardiovascular and Respiratory Systems, Human Performance, Aerobic Work Capacity, Metabolism, Lactate, Pyruvate  
Humans, Males  
Hypokinesia with Head-Down Tilt, Exercise

P1074(23/89)* Sinopal'nikov VI, Yegorova OV, Makarenkova IN.  
*Use of 24-hour EKG monitoring to diagnose cardiac arrhythmias in flight crews.*  
Kosmicheskaya Biologiya i Aviaskosmicheskaya Meditsina.  
[17 references; 6 in English]

Cardiovascular and Respiratory Systems, Cardiac Arrhythmia, EKG, 24-Hour Monitoring  
Humans, Flight Crew  
Aviation Medicine, Diagnosis
Korkushko OV, Shatilo VB. *Orthostatic response of circulation and autonomic regulation in healthy humans varying in age.* Fiziologicheskiy Zhurnal. 35(1): 3-8; 1989. [18 references; 8 in English]

Cardiovascular and Respiratory Systems, Circulation; Neurophysiology, Autonomic Regulation
Humans, Age Differences
Orthostatic Response

**MONOGRAPH:**


Key Words: Cardiovascular and Respiratory Systems, Circulation; Neurophysiology, Baroreceptor Reflexes; Psychology, Stress, Exercise

**ISSUE 24:**

**PAPERS:**

Silenko OV. *The reactions of the cardiovascular system to static loading when body position is changed.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(3): 34-38; 1989. [17 references; 8 in English]

Cardiovascular and Respiratory Systems; Cardiovascular Response
Humans, Males
Static Loading, Body Position, Upright, Head-Down

Gansburgskiy AN, Potapov PP, Altukhova VV, Degtyareva MA. *Morphometric analysis of the aortal endothelium and serum lipoproteins in rats during the period of readaptation after 15 days of hypokinesia.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(3): 46-49; 1989. [13 references; 1 in English]

Cardiovascular and Respiratory Systems, Morphology, Aortal Endothelium, Metabolism, Lipoproteins
Rats
Hypokinesia
P1107(24/89) Baranov BVS, Yakhontov BO.
Recording of intrathoracic pressure in animal experiments.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[6 references; 1 in English]

Cardiovascular and Respiratory Systems, Intrathoracic Pressure
Animals, Small
Equipment and Instrumentation, Tensometric Sensors, Implanted

P1119(24/89)* Dronenko SV.
Orthostatic tolerance of athletes in different sports and changes in it in response to hypogravity.
Voyenno-Meditsinskiy Zhurnal.
[No references]

Cardiovascular and Respiratory Systems, Orthostatic Tolerance
Humans, Athletes, Nonathletes
Hypogravity, Immersion

P1110(24/89) Modin AYu.
Analysis of the information provided by amplitudinal and temporal characteristics of the early diastolic complex of a differential thoracic impedance plethysmogram
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[4 references; 1 in English]

Cardiovascular and Respiratory System, Early Diastolic Complex; Impedance Plethysmography, Thorax
Humans, Males
Tilt Tests, Immersion,

ISSUE 25:

PAPERS:

P1156(25/89)* Korkushko OV, Shatilo VB.
Characteristics of the transitional process of cardiac rhythm in response to a stand test in middle-aged and elderly subjects.
Fiziologiya Cheloveka.
[20 references; 3 in English]
Authors' Affiliation: Institute of Gerontology, USSR Academy of Medicine, Kiev

Cardiovascular and Respiratory Systems, Cardiac Rhythm
Humans, Age Differences
Stand Test, Physical Exercise; Neurophysiology, Sympathetic, Parasympathetic
P1157(25/80) Buzulina VP.
The effect of body position on endurance of physical exercise after long-term hypokinesia.
Fiziologiya Cheloveka.
[16 references; 6 in English]

Cardiovascular and Respiratory Systems, Endurance, Exercise
Humans, Males
Hypokinesia With Head-Down Tilt, Long-Term; Body Position

P1162(25/89) Serebrovskaya TV, Ivashkevich AA, Maydikov YuL.
The association between reactivity of the respiratory system, mental and physical work capacity and properties of metabolism in humans after a year's exposure to high altitudes.
Fiziologicheskiy Zhurnal.
[34 references; 11 in English]
Authors' affiliation: A.A. Bogomolets Institute of Physiology, Ukrainian Academy of Sciences, Kiev

Cardiovascular and Respiratory Systems, Metabolism, Human Performance, Work Capacity, Physical, Mental
Humans, Males, Individual Differences
Adaptation, High Altitudes

P1163(25/89) Kolchinskaya AZ, Beloshitskiy PV, Monogarov VD, Pivnutel' RV, Radziyevskiy PA, Krasyuk AN, Ivashkevich AA, Borisov AN.
Physical work capacity of alpinists under conditions of extremely low pO2 in inspired air.
Fiziologicheskiy Zhurnal.
[25 references; 7 in English]
Authors' affiliations: Kiev Institute of Physical Culture

Cardiovascular and Respiratory System, Physical Work Capacity
Humans, Males, Athletes, Alpinists
Hypoxia, Extremely High Altitudes, Exercise
PAPERS:

P972(21/89) Serova LV, Denisova LA, Chel'naya.
Experimental conditions on the COSMOS-1514 biosatellite.
In: M143(21/89) Gazenko O.G. (editor) Ontogeny of Mammals in Weightlessness

P974(21/89) Serova LV(U.S.S.R.), Batsek A(Czechoslovakia), Denisova LA, Lavrova YeA,
Makeyeva VF, Natochin YuV, Chel'naya NA, Shakhmatova Yel (U.S.S.R.).
The state of the neonates.
In: M143(21/89) Gazenko O.G. (editor) Ontogeny of Mammals in Weightlessness
Moscow: Nauka; 1988; pages 74-79.

P976(21/89) Serova LV(U.S.S.R.), Alberts J (USA.), Anasenko ZI (USSR.), Keefe D (USA.).
Growth and development of neonate rats in their first month of life.
In: M143(21/89) Gazenko O.G. (editor) Ontogeny of Mammals in Weightlessness
Moscow: Nauka; 1988; pages 82-88.

MONOGRAPH:

M143(21/89) Gazenko O.G. (editor).
Ontogeny of Mammals in Weightlessness
[180 pages; 50 Figures; 46 tables; 410 references; 190 English]

Key Words: Developmental Biology, Reproductive System, Space Flight, COSMOS-1514,
Equipment and Instrumentation, Hypergravity, Pregnancy, Endocrinology, Sympathetic-
Adrenal System, Thyroid, Hematology, Hemopoiesis, Body Fluids, Metabolism, Lipids, Nucleic
Acids, Enzymology, Cardiovascular and Respiratory System, Myocardium, Musculoskeletal
System, Collagen, Bone Tissue, Cartilage, Skeletal Muscles, Pregnant Females, Ovaries,
Psychology, Behavior, Neonates, Neurophysiology, Brain, Stress Response, Cytology, Germ
Cells, Reproductive Function
DEVELOPMENTAL BIOLOGY

ISSUE 22

PAPERS:

P1004(22/89) Serova LV, Chel'naya, Bryantseva LA.
Structure and metabolism of the organs of animals at various stages of postnatal ontogeny: General state of the animals. Body and organ weight. Blood profile.
in: Gazenko OG (editor). Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]

Developmental Biology, Postnatal Ontogeny, Growth, Body Weight, Liver, Kidney, Endocrinology, Thymus, Adrenal Gland; Hematology, Blood Profile
Rats, Neonates
Space Flight, COSMOS-1514

P1005(22/89) Yurchovichova Ya., Yezhova D, Bigash M (Czechoslovakia), Serova LV (USSR).
Structure and metabolism of the organs of animals at various stages of postnatal ontogeny: Concentration of hormones in blood plasma.
in: Gazenko OG (editor). Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]

Developmental Biology, Postnatal Ontogeny; Endocrinology, Prolactin, Somatropin, Insulin, Corticosterone
Rats, Neonates
Space Flight, COSMOS-1514

Structure and metabolism of the organs of animals at various stages of postnatal ontogeny: The sympathetic adrenal system.
in: Gazenko OG (editor). Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]

Developmental Biology, Postnatal Ontogeny; Endocrinology, Sympathetic Adrenal System
Rats, Neonates
Space Flight, COSMOS-1514

P1007(22/89) Knopp Ya, Brtko Ya (Czechoslovakia), Serova LV (USSR).
Structure and metabolism of the organs of animals at various stages of postnatal ontogeny: Thyroid gland.
in: Gazenko OG (editor). Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]

Developmental Biology, Postnatal Ontogeny; Endocrinology, Thyroid
Rats, Neonates
Space Flight, COSMOS-1514
P1008(22/89) Batsek A, Bartonichkova A; Rotovska D. (Czechoslovakia); Michurina TV, Domaratskaya YeS, Serova LV (USSR)
Structure and metabolism of the organs of animals at various stages of postnatal ontogeny: Hemopoietic stem cells.
In: Gazenko OG (editor). Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]
Moscow: Nauka: 1988. Pages 118-120

Developmental Biology, Postnatal Ontogeny; Hematology, Stem Cells, Hemopoiesis
Rats, Neonates
Space Flight, COSMOS-1514

P1009(22/89) Denisova YeA, Lavrova YuV, Natochin LV, Serova LV, Shakhmatova Ye1 (USSR)
Structure and metabolism of the organs of animals at various stages of postnatal ontogeny: Concentrations of fluid and electrolytes in tissues.
In: Gazenko OG (editor). Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]

Developmental Biology, Postnatal Ontogeny; Body Fluids, Fluid-Electrolyte Concentration
Rats, Neonates
Space Flight, COSMOS-1514

P1010(22/89) Luderits P, Markvardt D, Wachtel E (GDR), Belakovskiy MS (USSR), Hecht K, Grosser I (GDR)
Structure and metabolism of the organs of animals at various stages of postnatal ontogeny: Concentration of electrolytes in the coats and tails of the animals.
In: Gazenko OG (editor). Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]

Developmental Biology, Postnatal Ontogeny; Body Fluids, Electrolytes, Coats, Tails
Rats, Neonates
Space Flight, COSMOS-1514

P1111(22/89) Allers I, Allersova E (Czechoslovakia), Serova LV (USSR), Toropila MT (Czechoslovakia).
Structure and metabolism of the organs of animals at various stages of postnatal ontogeny: Lipid metabolism.
In: Gazenko OG (editor). Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]

Developmental Biology, Postnatal Ontogeny; Metabolism, Lipids
Rats, Neonates
Space Flight, COSMOS-1514
P1012(22/89) Mishurova E, Gabor Ya, Kropachova K (Czechoslovakia)
Structure and metabolism of the organs of animals at various stages of postnatal
ontogeny: Concentration of nucleic acids in tissues.
In: Gazenko OG (editor). Ontogeny of mammals in weightlessness.

Developmental Biology, Postnatal Ontogeny; Genetics, Nucleic Acids
Rats, Neonates
Space Flight, COSMOS-1514

P1013(22/89) Makeyeva VF, Komolova IA, Yegorov IA (USSR)
Structure and metabolism of the organs of animals at various stages of postnatal
ontogeny: Biosynthesis of nucleic acids.
In: Gazenko OG (editor). Ontogeny of mammals in weightlessness.

Developmental Biology, Postnatal Ontogeny, Genetics, Nucleic Acids, Biosynthesis
Rats, Neonates
Space Flight, COSMOS-1514

P1014(22/89) Nemet Sh (Czechoslovakia)
Structure and metabolism of the organs of animals at various stages of postnatal
ontogeny: Activity of certain enzymes in the liver.
In: Gazenko OG (editor). Ontogeny of mammals in weightlessness.

Developmental Biology, Postnatal Ontogeny; Enzymology, Liver
Rats, Neonates
Space Flight, COSMOS-1514

P1015(22/89) Pshchadal B, Peloukh V, Kolar F, Richter E, Dragota Z (Czechoslovakia)
Structure and metabolism of the organs of animals at various stages of postnatal
ontogeny: State of the myocardium
In: Gazenko OG (editor). Ontogeny of mammals in weightlessness.

Developmental Biology, Postnatal Ontogeny; Cardiovascular and Respiratory Systems,
Myocardium
Rats, Neonates
Space Flight, COSMOS-1514
P1016(22/89) Pospishilova I, Pospishil M (Czechoslovakia), Serova LV (USSR)
Structure and metabolism of the organs of animals at various stages of postnatal ontogeny: Collagen metabolism in skin and bone tissue.
In: Gazenko OG (editor). Ontogeny mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]

Developmental Biology, Postnatal Ontogeny; Musculoskeletal System, Collagen
Rats, Neonates
Space Flight, COSMOS-1514

P1017(22/89) Shappar D, Alexander K, Laboreau JC, Lora B, Robert JM, Riffa G (France)
Structure and metabolism of the organs of animals at various stages of postnatal ontogeny: Structure of cartilage.
In: Gazenko OG (editor). Ontogeny mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]

Developmental Biology, Postnatal Ontogeny; Musculoskeletal System, Cartilage
Rats, Neonates
Space Flight, COSMOS-1514

P1018(22/89) Benova DK (Bulgaria)
Structure and metabolism of the organs of animals at various stages of postnatal ontogeny: Cytogenetic study of sex cells.
In: Gazenko OG (editor). Ontogeny mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]

Developmental Biology, Postnatal Ontogeny; Reproductive System, Genetics, Cytology,
Spermatocytes, Translocations
Rats, Neonates
Space Flight, COSMOS-1514

ISSUE 23

PAPER:

P1083(23/89) Raguzin AV.
Oxygen pressure in the brain of a fetus during early stages of ontogenetic development.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[31 references]
Translation of abstract on file with the All-Union Institute of Scientific and Technical Information and the All-Union Scientific and Research Institute of Medical Information

Developmental Biology, Neurophysiology, Brain Development; Reproductive Biology
Rats, Pregnant, Fetuses, Neonates
Oxygen Pressure
DEVELOPMENTAL BIOLOGY

ISSUE 24:

PAPER:

P1092(24/89) Serova LV.  
*Adaptive capacities of the mother-fetus system under conditions of weightlessness.*  
In: Gazenko OG (editor).  
Ontogenez mlekopitayushchikh v nevesomosti *[Ontogeny of mammals in weightlessness.]*  

ISSUE 25:

PAPERS:

P1160(25/89) Serova LV, Denisova LA, Chel'naya NA.  
*The effect of dynamic factors associated with biosatellite launch and reentry on prenatal development.*  
In: Gazenko OG (editor).  
Ontogenez mlekopitayushchikh v nevesomosti *[Ontogeny of mammals in weightlessness.]*  

P1168(25/89) Serova LV, Denisova LA, Natochin YuV (USSR), Pospishilova I, Pospishil M(Czechoslovakia), Lavrova YeA, Chel'naya NA, Shakhmatova Yel, Meyserov YeS (USSR).  
*The effect of hypergravity on the development of mammalian fetuses.*  
In: Gazenko OG (editor).  
Ontogenez mlekopitayushchikh v nevesomosti *[Ontogeny of mammals in weightlessness.]*  
ISSUE 23

PAPERS:

P1061(23/89)* Morukov BV, Pozharskaya LG. *Concentration of hormones regulating calcium-phosphorus metabolism in humans in response to 120 days of hypokinesia.* Kosmicheskaya Biologiya i Aviaskosmicheskaya Meditsina. 23(2): 26-28; 1989. [17 references; 9 in English]

Endocrinology, PTH, STH, Calcitonin, Gastrin; Metabolism, Calcium, Phosphorus
Humans, Males
Hypokinesia With Head-Down Tilt, Long-Term

P1063(23/89)* Vasil'yev VN, Lakota NG, Chekanova SL, Gudoshnikova LV. *Activity of the sympathetic-adrenal system in humans exposed to experimental simulations of weightlessness.* Kosmicheskaya Biologiya i Aviaskosmicheskaya Meditsina. 23(2): 34-40; 1989. [10 references; none in English]

Endocrinology, Sympathetic Adrenal System, Stress; Neurophysiology, Motion Sickness
Humans, Males
Weightlessness Simulations, Suit Immersion

ISSUE 24:

PAPERS:

P1109(24/89) Afonin BV. *The effect of space flights and hypokinesia with head-down tilt varying in duration on concentration of insulin in the blood.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(3): 77-79 1989. [17 references; 4 in English]

Endocrinology, Insulin
Humans, Cosmonauts
Space Flight, Long- and Short-term, Soyuz, Salyut-7, Hypokinesia With Head-Down Tilt

P1114(24/89)* Vorob'evy DV, Petrichenko IYe. *The effect of long-term hypokinesia with head-down tilt on tissue sensitivity to glucocorticoids.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(3): 85-86; 1989. [17 references; 4 in English]

Endocrinology, Glucocorticoids, Tissue Sensitivity
Humans, Males
Hypokinesia with Head-Down Tilt; Countermeasures, Drugs, Exercise
PAPER:


*Sympathetic-adrenal responses of cosmonauts after long-term space flights on Salyut-7.*

Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.


[21 references; 14 in English]

Endocrinology, Sympathetic Adrenal Responses
Humans, Cosmonauts
Space Flight, Long-Term, Salyut-7
PAPERS:

P984(22/89)* Vetrova YeG, Krasnov IB. 
*Activity of dehydrogenase in the liver of rats after 30-days of exposure to hypergravity.* 
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 
(9 references; 3 in English)

Enzymology, Liver Dehydrogenase Activity 
Rats 
Gravitational Biology, Hypergravity, Centrifugation

P996(22/89) Tverdokhlib VP, Konovalova GG, Larkin VZ, Meyerson FS. 
The effects of adaptation to hypoxia on the activity of antioxidant enzymes in the liver of animals undergoing stress. 
Byulleten' Eksperimental'ny Biologii i Meditsiny. 
Authors' Affiliation: All-Union Cardiological Research Center, USSR Academy of Medicine, Moscow; Institute of Pathology and Pathological Physiology; Orenburg Medical Institute

Enzymology, Antioxidant Enzymes, Liver; Metabolism, Lipid Peroxidation 
Rats 
Psychology, Stress; Adaptation, Hypoxia

P1036(22/89)* Drozdeva TY, Vetrova YeG, Popova IA, Korol'kov VI, Dotsenko MA, Gordeyev YuV. 
The effects of vibration, impact, and radial acceleration on blood enzyme activity of primates. 
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 
[8 references; 1 in English]

Enzymology, Blood Enzymes 
Primates, Rhesus Monkeys, Males 
Habitability and Environmental Effects, Vibration, Impact, Radial Acceleration
PAPERS:

* Differential criteria for head impact tolerance in approving protective devices.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[7 references; none in English]

Equipment and Instrumentation, Head Protection, Safety Criteria
Humans
Impact

P1147(25/89)* Simonov LG, Alekberov MI.
* Ultrasound devices for continuous investigations of nonelectric processes in the human skull.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[10 references; 1 in English]

Equipment and Instrumentation, Ultrasound
Humans
Skull, Nonelectrical Processes
EXOBIOLOGY

ISSUE 21

PAPERS:


Exobiology, Prebiological Evolution
Melanoidins, Abiogenic Synthesis
Catalytic Properties


Exobiology
Microbiology, Chemolithoautotrophic Bacteria
Mars, Life

ISSUE 25:

PAPER:


Exobiology, Biological Effects
Mice
Lunar Soil, Superparamagnetism
PAPER:

P10666(23/89)* Andriyanko LYa, Bubeyev YuA, Gorin VV, Degtyarev VA, Kaplan MA, Remizov Yul.

The functional state of the hepatobiliary system in hypokinesia with head-down tilt.

Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.


[9 references; 3 in English]

Gastrointestinal System, Hepatobiliary System, Liver, Gallbladder
Humans, Males
Hypokinesia With Head-Down Tilt, Short-Term
P993(22/89) Meyerson FZ, Fomin NA, Pavlova VI, Shibkova DZ.

Recovery of organ mass and nucleic acids after long-term hypokinesia.

Patologicheskaia Fiziologiya i Eksperimenta'nyaya Terapiya

[8 references; 1 in English]

Authors' Affiliation: Laboratory of Cardiac Pathophysiology, Institute of General Pathology and Pathological Physiology, USSR Academy of Medicine, Moscow; Department of Physiology and Anatomy, Chelyabinsk Teachers College

Genetics, Nucleic Acids; Developmental Biology, Normal Growth, Body Weight
Rats
Hypokinesia, Long-Term; Immobilization; Recovery
PAPERS:

P1040(22/89) Gornazkov OA, Rostovtsev AP, Komissarova NV, Panfilov AD, Yelistatova IA, Fomin VV.

The activity of enkephalin- and angiotensin II-forming peptidases of the brain and peripheral tissues under conditions of chronic stress induced by hypergravity.

Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya.
1988(5): 52-57

[28 references; 18 in English]

Authors' Affiliation: Institute of Medical Enzymology, USSR Academy of Medicine, Moscow.

Neurophysiology, Enzymology, Brain Peptidases, Enkephalin, Angiotensin, Endocrinology, Hypophysis, Adrenal Gland, Immunology

Rats, Male

P1000(22/89) Serova LV, Denisova LA, Pustynnikova AM (U.S.S.R.).

A comparative analysis of the effects of weightlessness and hypergravity on the prenatal development of mammals.

In: Gazenko OG (editor). Ontogeny of mammals in weightlessness. [Ontogeny of mlekopitayushchikh v nevesomosti]


Gravitational Biology, Developmental Biology, Prenatal Development, Reproductive System

Rats, Mice

Space Flight, COSMOS-1514; Hypergravity, Centrifugation
PAPERS:

P959(21/89)* Surovtsev NA, Nazarov LYu, Lukicheva TA, Vasyukov GV.  
*The effects of carbon monoxide and ammonia on humans wearing protective suits (personal safety devices).*  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[22 references; 3 in English]

Neurophysiology, Cardiovascular and Respiratory Systems, Human Performance  
Habitability and Environment Effects, Protective Suits, Ammonia, Carbon Monoxide

P960(21/89)* Savina VP, Mukhamediyeva LN, Kalandarov S, Nikitin Yel.  
*Human response to chemical substances in a sealed living space.*  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[15 references; 3 in English]

Adaptation, Chemical Toxins, Ammonia  
Habitability and Environment Effects, Sealed Environment

ISSUE 22

PAPERS:

P988(22/89)* Nefedov YuG, Adamovich BA.  
*Habitability and life support.*  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
(No references)

Habitability and Environmental Effects, Environmental Factors, Atmospheric Contaminants,  
Outgassing; Microbiology, Automicroflora, Disinfection; Personal Hygiene, Dust, Noise, Air  
Regeneration and Conditioning, Water Reclamation; Nutrition, Cosmonaut Rations, Waste  
Disposal  
Humans, Animals, Review Article  
Space Station, Mir, Life Support Systems, Pressurized Living Quarters
ISSUE 23

PAPERS:


Ultraviolet Deficiency, Prevention
Humans
Habitability and Environmental Effects, Airtight Living Environment

P1076(23/89)* Svistunov NT, Bukharin YeA. Reactions of the auditory, vestibular and visual systems in humans to the effects of intermittent noise. Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(2): 86-88. 1989. [7 references; 2 in English]

Neurophysiology, Sensory Physiology, Auditory, Visual, Vestibular Sensitivity
Humans, Operators
Habitability and Environmental Effects, Noise, Intermittent

P1060(23/89)* Berlin AA. Development of a regimen for sanitary-hygienic procedures (i.e., a washing regimen). Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(2): 21-26. 1989. [17 references; 1 in English]

Hygiene, Skin Parameters
Humans, Male and Female
Habitability and Environmental Effects, Showering Schedule

ISSUE 24:

PAPERS:


Hematology, Acid-Base Equilibrium
Humans
Habitability and Environment Effects, Airtight Environments, Acetic Acid Fumes

31
Combined effects of elevated concentrations of carbon dioxide and environmental temperature on the thermal status of humans in airtight environments.

Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[6 references; 2 in English]

Operational Medicine, Thermal Status
Humans
Habitability and Environment Effects, Airtight Environment, Hypercapnic Atmosphere, Elevated Temperature

ISSUE 25:

PAPERS:

Group gas-chromatographic identification of limit values of alcohols in hygienic studies.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[5 references; 2 in English]

Habitability and Environment Effects, Hygienic Studies, Toxicology
Alcohols, Limit Values
Equipment and Instrumentation, Gas Chromatography, Group
ISSUE 21

PAPERS:


Hematology, Homeostatic Response; Enzymology; Endocrinology
Rats
Space Flight, Short-Term, COSMOS-1667

ISSUE 22

PAPER:

P1025(22/89)* Zukhbaya TM, Smirnova OA. On the stimulating effect of prolonged low-dose-rate exposure to radiation on mammalian lymphopoiesis. Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(1): 47-51; 1989. (11 references; 2 in English)

Hematology, Lymphopoiesis, Bone Marrow
Rats, Female
Radiobiology, g-Radiation, Low Doses, Long-Term, Mathematical Modeling
ISSUE 21

PAPERS:

P946(21/89)* Yegorov VA, Frantz BS, Sokolov VA, Pomerantsev NA.
A method for using central electroanalgesia as a means to correct functional status of flight personnel during a period of high workload.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[10 references; none in English]

Human Performance, Job Performance; Psychology, Psychophysical Parameters
Humans, Flight Instructors
High Workload, Electroanalgesia

P947(21/89)* Bobkov YuG, Yepishkin AK.
The effect of actoprotectors on the work capacity of operators under conditions simulating certain space flight factors.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[7 references; none in English]

Human Performance, Work Capacity
Humans, Operators
Pharmacological Countermeasures; Actoprotectors, Bemityl; Antigravity Suit., Acceleration, Coriolis, Posthypnotic Suggestion., Sleep Deprivation

P971(21/89) Sysoyev VN.
The effects of duration and intensity of workload on the differential sensitivity of sensory systems.
Fiziologiya Cheloveka.
(9 references; 1 in English)

Author's Affiliation: S. M. Kirov Academy of Military Medicine, Leningrad.

Perception, Differential Sensitivity, Visual, Auditory, Tactile, Kinesthetic
Humans, Operators
Human Performance, Workload

ISSUE 22

PAPERS:

P995(22/89) Yevstafyev VN, Netudykhvatka OYu.
The effects of physical exercise and optimization of work rest schedules on the work capacity of sailors on long-term cruises
Teoriya i praktika fizicheskoj kul'tury.
[8 references; none in English]

Human Performance, Work Capacity
Humans, Males, Sailors
Physical Exercise, Work-Rest Schedules
The physiological mechanisms of autogenic training and its use with sailors on long-term cruises.

Voyenno-Meditsinskiy Zhurnal.
[7 references; none in English]
Authors' affiliation: Medical Corps

Human Performance
Humans, Sailors
Long-Term Cruises, Autogenic Training

ISSUE 23

MONOGRAPH:

M145(23/89) Kogan AB, Vladimirskiy BM.
Функциональное Состояние Человека Оператора: Оценка и Прогноз
No 58 in Series: Problemy Kosmicheskoy Biologii; Problemy Kosmicheskoi Biologii
[Problems of Space Biology]
[212 pages; 38 Figures; 28 tables; 322 references]
Authors' Affiliation: Neurokinetic Research Institute, Rostov University

KEY WORDS: Human Performance, Psychology, Neurophysiology, Functional State, EEG Dynamics, Man-Machine Systems, Mathematical Modeling

M147(23/89) Dikaya LG, Zankovskiy AN, Sukhodoyev VV, Mitrofanov BN (editors).
Функциональные Состояния и Эффективность Деятельности Человека-Оператора в Режиме Непрерывной Деятельности
Funktsional'nuye Sostoyaniya i Effektivnost; Deyatel'nost Cheloveka-Operatora v Rezhime Nepervrivnoy Deyatel'nosti
[The Functional State and Performance Efficiency of a Human Operator On a Uninterrupted Work Schedule (Sleep Deprivation;]
Moscow: Institute of Psychology, USSR Academy of Sciences; 1977
[291 pages]

KEY WORDS: Human Performance, Functional State, Human Operator, Sleep Deprivation, Psychology, Extreme Conditions, Group Dynamics, Adaptation
ISSUE 24:

PAPER:

P1127(24/89) Myasnikov VI, Ryzhov BN.
*Work and rest schedule and efficiency of operator performance.*
In: Funkcional'nyye Sostoyniya i Effektivnost' Deyatelnosti Cheloveka-Operatora v Rezime Nepreryvnoy Deyatelnosti (Functional State and Efficiency of Human Operator Performance on Uninterrupted Work Schedules).
92-110.

Human Performance, Biological Rhythms, Operator Performance, Efficiency Psychology, Stress
Humans, Males and Females
Work-Rest Schedules, Shifted, Sleep Deprivation

ISSUE 25:

P1132(25/89)* Oboznov AA, Ponomarenko VA, Arkhangel'skiy DYu.
*Psychological preparation of operators for performance under conditions of prolonged acceleration.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[3 references; none in English]

Human Performance, Operator Performance, Tracking
Humans, Operators
Psychology, Pretraining, Acceleration, Prolonged

P1146(25/89)* Yabloiko YuP, Anishchenko VF.
*Analysis of techniques for displaying information to operators performing control tasks.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[20 references; 9 in English]

Human Performance, Control Tasks
Humans, Operators
Man-Machine Systems, Information Displays; Mathematical Modeling
ISSUE 23

MONOGRAPH:


KEY WORDS: Immunology, Space Flight, Long-Term, Short-Term, COSMOS, Salyut-4, -6, -7, Humans, Cosmonauts, Cellular Immunity, Humoral Immunity, Allergy, Rats, Paramecia, Lymphocytes, Musculoskeletal System, Osteoclast Activating Factor, Hypokinesia, Stress

ISSUE 24:

PAPERS:


Immunology. Cellular and Humoral, Allergy
Humans, Cosmonauts
Space Flight, Long-Term, Salyut-4, -6, -7


Immunology, Cellular, Humoral, Allergy
Humans, Cosmonauts
Space Flight, Short-Term, Salyut-6, -7, Soyuz
P1125(24/89) Konstantinova IV.
*Space flights of animals on COSMOS biosatellites.*
Konstantinova IV.
Sistema Immuniteta v Ekstremal'nkh Usloviyah: Kosmicheskaya Immunologiya.
Pages 155-174.

Immunity. Cellular, Humoral, Bone Marrow, Lymphatic System, Spleen, Thymus
Rats
Space Flight, COSMOS-605, -782, -936, -1667

P1126(24/89) Konstantinova IV.
*Experiments in weightlessness on isolated cells.*
In: Konstantinova IV.
Sistema Immuniteta v Ekstremal'nkh Usloviyah: Kosmicheskaya Immunologiya.
Pages 175-190.

Immunology, Cytology, Isolated Cells, Lymphocytes, Interferon, Concanavalin A; Cell Division, Cell Populations
Human Cells, Microbiology, Paramecia
Space Flight, Salyut-6, -7, COSMOS-1667

**ISSUE 25:**

**PAPERS:**

P1170(25/89) Konstantinova IV.
*Prospects for the study of changes in the immune system that mediate disruptions of calcium metabolism in bone tissues under conditions of weightlessness and hypokinesia.*
In: Konstantinova IV.
Sistema Immuniteta v Ekstremal'nkh Usloviyah: Kosmicheskaya Immunologiya.
Pages 191-209.

Immunology, Musculoskeletal System, Bones, Metabolism, Calcium Metabolism; Osteoclast Activating Factor
Humans, Cosmonauts; Rats; Mice
Space Flight, Weightlessness
P1171(25/89) Konstantinova, IV.  
*The human immune system: Effects of simulation of stress situations.*  
In: Konstantinova IV.  
Pages 147-154.  

**Immunology**  
Humans  
Psychology, Stress: Isolation

P1164(25/89) Konstantinova IV.  
*Space flight factors and the human immune system: Hypokinesia.*  
In: Konstantinova IV.  
Pages 125-146.  

**Immunology**  
Humans  
Hypokinesia With Head-Down Tilt; Exercise; LBNP; Salt Supplements

P1166(25/89) Lapayev EV, Azhayev AN, Kustova KA, Mar'yanskiy AA.  
*The effect of high environmental temperature on the thermal status and immunological reactivity of the human body.*  
Malkin VB, Kosmolinskiy FP, Kuznets Yel (editors).  
Chelovek i Kosmos: Idei K.E. Tsiolkovskogo i ikh razvitiye v sovremennoy biomeditsine.Trudy XXII Chtenij, posvyashchenniykh razrabotke nauchnogo naslediya i razvitiyu idej K.E. Tsiolkovskogo (Kaluga, 15-18 sentyabrya 1987). Человек и Космос Идеи К.Э. Циолковского и их Развитие в современной биомедicine.Труды XXII Чтений: посвященных разработке научного наследия и развитию идей К.Э. Циолковского (Калуга, 15-18 сентября 1987)  
*Man and space: The Ideas of K.E. Tsiolkovskiy and their development in modern biomedicine.* Works from the XXII lecture series devoted to development of the scientific heritage and development of the ideas of K.E. Tsiolkovskiy (Kaluga, 15-18 September, 1987)  
[72 pages; 6 tables; 2 figures]  
Pages 38-41.  
[7 references; none in English]

**Immunology, Immunological Reactivity; Thermal Status**  
Humans  
Heat
ISSUE 21

PAPERS:

P981(21/89) Meleshko GI.  
*Biological research in space and its significance for closed ecological systems.*  
[22 references; 3 in English]  
Author's Affiliation: Institute of Biomedical Problems, U.S.S.R. Ministry of Health, Moscow

Life Support Systems, CELSS, Population Level Effects, Ecosystems  
Microbiology, Botany, Algae, *Chlorella*  
Space Flight

ISSUE 22

PAPERS:

P989(22/89) Meleshko GI, Shepelev YeYa.  
*Man-rated biological life support systems.*  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
(No references.)

Life Support Systems, CELSS, Man-Algae-Waste Mineralization System; Man-Algae-Higher Plants, Botany  
Theoretical Article  
Space Flight, Biospherics

P1029(22/89)* Pak Z, Sytnikkova, NN, Berlin AA, Koloskova YuS, Shirobokov VP, Tyshko AG.  
*Hygienic aspects of wash water reclamation systems.*  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[5 references; none in English]

Personal Hygiene, Wash Water  
Humans, Males and Females, Individual Differences  
Life Support System, Water Regeneration System, System Test, Detergents

P1030(22/89)* Lebedeva TYe, Nazarov NM, Chizhov SV.  
*Study of the effectiveness of urine preservatives within water reclamation systems.*  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[7 references; 1 in English]

Urine Preservation, Microbiology, Bacteria  
Humans  
Life Support Systems; Water Reclamation Systems
Use of hydrogen peroxide and iron-containing catalysts to remove phenol from water.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[20 references; 6 in English]

Effectiveness of oxygen equipment within a life support system for stratospheric flight.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[52 references; 18 in English]

The use of hydrogen peroxide and lead oxide to remove urea from water.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
23(3): 73-75; 1989.
[17 references; 2 in English]
P1109(24/89)*Zlotopol'skiy VM, Grishayenkov BG, Smirnov IA.  
*Acceleration of formaldehyde synthesis as the first stage in production of carbohydrates from wastes.*  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
23(3): 76; 1989.  
[1 reference; 1 in English]  
Life Support Systems, Carbohydrate Production, Wastes  
Humans  
Formaldehyde Synthesis  

**ISSUE 25:**

**PAPERS:**

P1143(25/89)*Shikina MI, Aladinskaya TI, Volkova LN, Duplik AZ.  
*Artificial mineralization of desalinized potable water with salt tablets and powders.*  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[6 references; none in English]  
Life Support Systems, Desalinized Potable Water  
Humans  
Salt Tablets and Powders  

**MONOGRAPH:**

M150(25/89) Troshikhin GV.  
*Организм в гелио-кислородной среде Организм в гелио-кислородный среде [The organism in a helium-oxygen atmosphere.]*  
[157 pages; 12 Tables; 24 Figures; 477 references]  

KEY WORDS: Life Support System, Biological Effects; Hypoxia; Hyperoxia; Warm Blooded Animals; Biospherics, Helium Atmospheres; Altered Oxygen Pressure
MAN-MACHINE SYSTEMS

ISSUE 23

MONOGRAPH:

M148(23/89) Zalikhanova NG (editor).
Бионика и Биомедицибернетика-85: Материалы Всесоюзной Конференции Биотехнические Системы
Bionika i Biomedkibernetika-85: Materialy Vsesoyuznoy Konferentsii: Biotekhnicheskiye Sistemy
[Bionics and Biomedical Cybernetics-85: Material (paper abstracts) from an All-Union Conference: Biotechnical Systems;]

KEY WORDS: Man-Machine Systems, Bionics, Operational Medicine, Biomedical Cybernetics, Human Performance, Mathematical Modeling, Psychology, Stress, Self-Regulation, Equipment and Instrumentation, Cardiovascular and Respiratory Systems, Neurophysiology, Biological Rhythms
ISSUE 22

PAPER:

P1023(22/89)* Smirnova OA
*Mathematical modeling of the cyclic kinetics of hemopoiesis.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[12 references; 5 in English]

Mathematical Modeling
Mammals
Hematology, Hemopoiesis

ISSUE 23

PAPER:

P1075(23/89)* Maknenko AA, Popov VI, Sergeyev ST.
*Use of cluster analysis in biomedical investigations of a man-environment system using small samples.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[10 references; 2 in English]

Mathematical Modeling, Cluster Analysis, Biomedical Data, Small Sample, Metabolism
Humans
Habitability and Environmental Effects, Airtight Environment

ISSUE 24:

P1117(24/89) Kondrachuk AV, Sirenko SP.
*Mathematical analysis of one conception of how the cupula of the semicircular canals functions.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[10 references; 8 in English]

Mathematical Modeling
Humans
Neurophysiology, Semicircular Canals, Cupula
P1133(25/89)* Astanin SV. 
*An integrated approach to modeling the functional state of a human operator based on the theory of fuzzy sets.*
[3 references; none in English]

Human Performance, Functional State
Humans, Operators
Mathematical Modeling, Fuzzy Sets, Man-Machine Systems

P1145(25/89)* Mazurin YuV, Stupakov GP.
*Predicting the effects of linear and angular impact acceleration on humans.*
[4 references; 1 in English]

Mathematical Modeling, Physiological Effects, Prediction
Humans
Acceleration, Linear, Impact
ISSUE 22

PAPERS:


Metabolism, Lipid Peroxidation; Neurophysiology, Brain Rats, Males Psychology, Stress


Metabolism, Dyslipoproteinemia, Liver Disorders Rats, Males Psychology, Emotional Pain/Stress; Adaptation, Hypoxia; Antioxidants

PAPER:

P1062(23/89) Zezerov AYe, Ivanova SM, Morukov BV, Ushakov AS, 
*Lipid peroxidation in the blood of humans undergoing 120 days of hypokinesia with head-down tilt.* 
Kosmicheskaya Biologiya i Aviaskosmicheskaya Meditsina. 
[30 references; 9 in English]

Metabolism, Lipid Peroxidation, Mineral Metabolism 
Humans 
Hypokinesia With Head-Down Tilt, Long-Term; Countermeasures, Nutrition, Vitamin E, 
Amino Acids, Folicobalamine; Exercise

P1078(23/89)* Shatemirova KK, Min'ko YuV, Zelenshchikova VA. 
*The effects of adaptation to barochamber hypoxia on certain parameters of biogenic amine metabolism in rats.* 
Kosmicheskaya Biologiya i Aviaskosmicheskaya Meditsina. 
[7 references; 3 in English]

Metabolism, Biogenic Amines 
Rats 
Adaptation, High Altitudes, Barochamber

ISSUE 24:

PAPERS:

P1120 (24/89) Yershikov SM. 
*Rate of glyconeogenesis in the liver of rats in the recovery period after long-term hypokinesia.* 
Voprosy Meditsinskoy Khimii. 
[17 references; 3 in English]

Authors affiliation: Yaroslavl Medical Institute

Metabolism, Glyconeogenesis, Liver 
Rats 
Hypokinesia, Long-Term
ISSUE 25:

PAPERS:

P1134(25/89)* Delenyan NV, Markin AA.  
*State of the lipid peroxidation system in the tissues of rats after a 7-day flight on COSMOS-1667.*  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[20 references; 9 in English]

Metabolism, Lipid Peroxidation  
Rats  
Space Flight, COSMOS-1667

P1138(25/89)* Popova IA, Vetrova YeG, Drozdova TYe.  
*The effect of long-term hypokinesia with head-down tilt on activity of enzymes participating in catabolic and anabolic metabolism.*  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[14 references; 2 in English]

Metabolism, Catabolic, Anabolic, Enzymology  
Humans, Males  
Hypokinesia With Head-Down Tilt; Long-Term; Pharmacological Countermeasures, Physical Exercise

P1139(25/89)* Tolkacheva NV, Levachev MM, Medvedev FA, Lupinovich VA, Sorokina AG.  
*Binding of fatty acids and products of their peroxidation by serum albumin under conditions of strenuous exercise.*  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[21 references; 7 in English]

Metabolism, Fatty Acids, Binding  
Humans, Athletes, Nonathletes  
Exercise, Strenuous

P1150(25/89)*Potapov PP.  
*Rate of glycolysis and glyconeogenesis in skeletal muscles of rats during readaptation after hypokinesia of up to 30-days.*  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[13 references; none in English]

Metabolism, Glycolysis, Glyconeogenesis; Musculoskeletal System, Skeletal Muscles  
Rats  
Hypokinesia, Readaptation
ISSUE 23

PAPERS:

P1073(23/89)* Drugova NA, Chernova LS.
A comparative ecological study of the microbial cenosis of the lettuce rhizosphere under different conditions of cultivation.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
23(2): 75-79; 1989.
[17 references; 6 in English]

Ecology, Microbial Cenosis
Microbiology; Botany, Higher Plants, Lettuce Rhizosphere
Cultivation Conditions, Space Greenhouses

ISSUE 24:

PAPER:

P1104(24/89) Polikarpov NA, Bragina MP.
Sensitivity to antibiotics of opportunistic human indigenous microorganisms. before and after isolation in an airtight environment.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[15 references; 3 in English]

Microbiology, Opportunistic Microorganisms, Drug Resistance
Humans
Isolation, Airtight Environment

ISSUE 25:

PAPER:

P1135(25/89)* Volz PA.
Fungal experiments in outer space.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[56 references; 50 in English]

Microbiology, Fungi
Yeast, Conidia, Ascophores
Space Flight, Apollo; Radiobiology, Solar Radiation

P1149(25/89)* Il'in VK.
Drug resistance of E. coli isolated from cosmonauts.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[9 references; none in English]

Microbiology, E. coli, Drug Resistance
Humans, Cosmonauts
Space Flight, Salyut-7
ISSUE 21

PAPERS:

P953(21/89)* Urmancheyeva TG, Eliava VM, Polulyakh YuT.  
*The effects of long-term hypokinesia on the characteristics of the phasic-tonic motor acts in monkeys.*  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[24 references; none in English]

Musculoskeletal System, Gastrocnemius Muscle, Motor Acts, Phasic-Tonic, Fine Motor Skill  
Monkeys  
Hypokinesia, Horizontal; Restraint

P954(21/89)* Shvets VN, Pankova AS, Gol'dovskaya MD, Rustam'yan LA.  
**Dynamics of immobilization osteoporosis in rats.**  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[22 references; 12 in English]

Musculoskeletal System, Osteoporosis, Dynamics, Brachia, Tibia, Femur  
Rats, Males  
Immobilization, Stress, Adaptation

**Postnatal differentiation of skeletal muscles.**  
In: M143(21/89) Gazenko O.G. (editor)Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of Mammals in Weightlessness]  

Developmental Biology, Postnatal Development, Musculoskeletal System,  
Skeletal Muscles, Differentiation  
Rats, Neonates  
Space Flight, COSMOS-1514

ISSUE 22

PAPERS:

P992 (22/89) Pozdnyakov OM, Babakova LL, Demorzhi MS.  
**Changes in the ultrastructure of striated muscle in response to space flight factors.**  
Byulleten’ Eksperimental’noy Biologii i Meditsiny.  
1988(12): 746-749  
(6 references; 2 in English)

Authors Affiliation: Institute of General Pathology and Pathological Physiology, USSR Academy of Health, Moscow

Musculoskeletal System, Striated Muscle, Soleus, Gastrocnemius, Diaphragm  
Rats  
Space Flight, COSMOS-1667
MUSCULOSKELETAL SYSTEM

P1019(22/89) Durnova GN, Vorotnikova YeV, Sakharova ZF, Kaplanskiy AS, Knyazev VM, Dotsenko MA.
**Histomorphological study of primate bones after a 14-day period of hypokinesia with head-down tilt.**
[13 references; 10 in English]

Musculoskeletal System, Bones, Tibia, Iliac, Lumbar Vertebrae
Primates, Rhesus
Hypokinesia With Head-Down Tilt

P1020(22/89)* Shvets VN, Pankova AS.
**The effects of a-hydroxydimethyl-g-aminopropylidene bisphosphonate on bone tissue of rats undergoing hypokinesia.**
[17 references; 13 in English]

Musculoskeletal System, Bone Tissue, Osteoporosis
Rats
Hypokinesia, Immobilization; Diphosphonates

P1031(22/89) Kuznetsov SL, Talis VL.
**Simulating the physiological effects of weightlessness by the method of "head-down suspension" of small laboratory animals.**
[17 references; 10 in English]

Musculoskeletal System, Femur, Atrophy; Enzymology, Muscle Enzymes; Psychology, Behavioral Responses
Rats
Equipment and Instrumentation, Weightlessness Model, Suspension

P1035(22/89)* Volozhin AI, Amel'kina GV, Golubev SN, Komnova ZD, Remizov SM, Bakulin AV.
**Changes in the jaw bones of rats after a 7-day flight on COSMOS-1667.**
[9 references; 4 in English]

Musculoskeletal System, Jaw Bones
Rats
Space Flight, COSMOS-1667

51
ISSUE 23

PAPERS:

P1065(23/89)* Pospishilova I, Pospishil M (Czechoslovakia), Serova LV. *Collagen metabolism in the skin and bone tissue of rats after a 7-day space flight.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(2): 44-48; 1989. [28 references; 15 in English]

Musculoskeletal System, Metabolism, Collagen, Bones, Skin
Rats
Space Flight, Cosmos-1667

P1067(23/89)* Burkovskaya TYe Vorozhtsova SV, Gundroina SF, Nazarov VM, Frontas'yeva MV. *The composition of bone tissue in mice in the norm and during hypokinesia.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(2): 51-55; 1989. [29 references; 2 in English]

Musculoskeletal System, Bone Tissue, Composition, Femur, Parietal Bone, Ectopic Bone, Demineralization, Mineral Metabolism
Mice
Hypokinesia

ISSUE 24:

PAPER:

P1098(24/89) Konstantinova IV, Lesnyak AT, Bozhkov NV, Uchakin PN. *Immunological mechanisms for regulating calcium metabolism in the bone tissue of humans undergoing long-term hypokinesia with head-down tilt (production of osteoclast-activating factor).* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(3): 38-42; 1989. [12 references; 5 in English]

Musculoskeletal System, Metabolism, Calcium Metabolism, Immunology, Osteoclast-Activating Factor
Humans
Hypokinesia With Head-Down Tilt, Long-Term
ISSUE 25:

PAPERS:

P1137(25/89)* Gol'dovskaya MD, Vnukova ZE, Shvets VN, Rodionova SS, Orlov Ol, Kabitskaya OYe.  
Response of bone tissue and osteoclast population to diphosphonates and Vitamin D3 in rats undergoing hypokinesia.  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[16 references; 12 in English]

Musculoskeletal System, Bone Tissue, Osteoclasts  
Rats  
Hypokinesia, Diphosphonates; Nutrition, Vitamin D3

P1159(25/89) Kozlova VG, Il'nitskiy VV, Dronenko SV.  
Changes in the mechanical properties of muscles during a tilt test before and after immersion hypokinesia.  
Voyenno-Meditsinskiy Zhurnal.  
[No references]

Musculoskeletal System, Muscles, Mechanical Properties  
Humans, Athletes  
Dry Immersion, Tilt Test

P1167(25/89) Kuznetsov SL, Stepan'gov VV.  
Response of striated skeletal muscle fiber in humans to long-term hypokinesia with head-down tilt.  
Arkhiv Anatomii, Gistologii, i Embriologii.  
[11 references; 6 in English]  
Authors' affiliations: Institute of Biomedical Problems, USSR Ministry of Health; I. M. Sechenov First Medical Institute, Moscow.

Musculoskeletal System, Skeletal Muscle Fibers  
Humans  
Hypokinesia With Head-Down Tilt, Long-Term; Exercise
MUSCULOSKELETAL SYSTEM

MONOGRAPH:

M151(25/89) Stupakov GP, Volozhin Al.
Kostnaya Sistema i Nevesomost', Костная Система и Невесомость
[The Skeletal System and Weightlessness]
Moscow: Nauka; 1989.
Problemy Kosmicheskoy Biologii, Tom 64, Проблемы Космической Биологии, Том 64 (Problems of Space Biology. Volume 64)

Note this is a translation of an announcement published in a journal; we currently have no additional information about this monograph.

KEY WORDS: Musculoskeletal System, Bones, Humans, Cosmonauts; Rats, Tortoises, Dogs, Primates, Space Flight, Long-Term, Weightlessness
PAPERS:

P966(21/89)* Petrova TV, Bobrovnitskiy IP. 
*The physiological role and significance of prostaglandins in physiological response to exposure to adverse environmental factors.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[108 references; 54 in English]
Neurophysiology, Prostaglandins, Metabolism, Cardiovascular and Respiratory System Review Paper
Adaptation, Adverse Environmental Factors; Space Flight, Soyuz-26, Soyuz-29

*Changes in the otolith apparatus of rats and fish after long-term rotation in hypergravity.*
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[22 references; 11 in English]
Neurophysiology, Vestibular System, Otolith Rats, Fish Gravitational Biology, Rotation, Long-Term, Hypergravity

P967(21/89) Rasulov MM, Kaplan YeYa, Velikaya MV.
*Characteristics of neurophysiological changes in response to experimental stress induced by long-term group isolation in rats.*
Fiziologicheskiy Zhurnal SSSR im. I.M. Sechenova.
LXXIV(8): 1087-1093.
(17 references; 5 in English)
Authors' Affiliation: Institute for Biological Tests of Chemical Compounds, Moscow
Neurophysiology, Limbic Structures, Reproductive System Rats
Isolation, Sexual Deprivation

P968(21/89) Maksimuk VF, Skoromny NA.
*The role of cholinergic mechanisms in changes of the functional activity of the brains of rabbits during motion sickness.*
Fiziologicheskiy Zhurnal SSSR im. I.M. Sechenova.
LXXIV(8): 1109-1118.
(21 references; 7 in English)
Authors' Affiliation: I.M. Sechenov Institute of Evolutionary Physiology and Biochemistry. U.S.S.R. Academy of Sciences, Leningrad
Neurophysiology, Functional Activity, Brain; Cardiovascular and Respiratory Systems, Blood Flow Rabbits
Vestibular System, Motion Sickness, Countermeasures, Scopolamine
ISSUE 22

PAPERS:

P1026(22/89)* Razinkin SM, Kordenko AN, Ushakov IB, Dukhovich VM. *Some parameters of brain metabolism under exposure to hypoxia and overheating.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(1): 51-56; 1989. (13 references; 2 in English)

Neurophysiology, Brain; Metabolism, Enzyme Activity; Body Fluids, Brain Hydration Rats, Female Adaptation, Hypoxia, Overheating, Long-term; Radiobiology, Gamma Irradiation

ISSUE 23

PAPERS:


Neurophysiology, Blood-Brain Barrier, Permeability Mice, Male; Cats Motion Sickness, Simulated; Alpha-Tocopherol


Neurophysiology, Bioelectric Activity, Brain Rats, Males Adaptation, Hypokinesia, Long-Term

P1090(23/89) Devyatkin TA, Tarasenko LM. *Dependence of lipid peroxidation on nervous system type and endurance of physical exercise.* Fiziolitcheskiy Zhurnal. 35(2): 55-59; 1989. [15 references; none in English] Authors' Affiliation: Poltava Medical Stomatological Institute, Ukrainian Ministry of Health

Metabolism, Lipid Peroxidation; Endocrinology, Adrenal Gland, Hypothalamus; Brain Rats, Males Neurophysiology, Nervous System Type; Exercise Endurance
ISSUE 24:

PAPERS:

P1101(24/89) Repin AA, Donskov AM. *Physiological reactions to electrical stimulation of the labyrinths.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(3): 49-53; 1989. [14 references; 4 in English]

Physiological Response
Humans
Neurophysiology, Electrical Stimulation, Labyrinth


Neurophysiology, Rotational Nystagmus
Humans, Patients, Cochleovestibular Disorders
Autocorrelational Analysis

P1112(24/89)* Gavrilin VK. *Comparison of two methods for assessing the paired activity of the human otolith apparatus.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(3): 82-83; 1989. [13 references; in English]

Neurophysiology, Otolith, Paired Activity
Humans
Methods of Assessment, Afterimage, Compensatory Eye Movements


Neurophysiology, Motion Sickness, Experimental
Humans
Countermeasures, Drugs, Deprenyl, Dramamine
P1118(24/89) Gorgiladze GI, Bryanov II. 
Space motion sickness. 
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 
23(3): 4-14; 1989. 
[82 references; 33 in English]

Neurophysiology, Space Motion Sickness 
Humans, Cosmonauts 
Review Article

P11121 (24/89) Atchabarov BA, Abeuov BA, Sydykov US. 
The effect of head-down position on resorption of cerebrospinal fluid and certain hemodynamic parameters during elevated intracranial pressure. 
Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya. 
[8 references; 1 in English] 
Authors' Affiliation: Institute of Pathology, Kazakh Ministry of Health

Neurophysiology, Resorption of Cerebrospinal Fluid 
Dogs 
Head-Down Position, Elevated Intracranial Pressure

P1122(24/89) Leshchinyuk II, Konovalova YeO, Kvitchataya AI, Shamray 
The effect of antimotion sickness drugs (vestibuloprotectors) on the cyclic nucleotide system in experimental motion sickness. 
Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya. 
[13 references; 4 in English] 
Authors' Affiliation: Ukrainian School of Medicine, Kharkov

Neurophysiology, Motion Sickness, Experimental, Cyclic Nucleotides 
Rats 
Countermeasures, Drugs, Antimotion-Sickness

P1093(24/89) Krasnov IB, Olenev SN, Babichenko II, Kesarev VS. 
Morphological and histochemical analysis of the brain. 
In: Gazenko OG (editor). 
Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.] 

Neurophysiology, Brain Morphology, Brain Histochemistry 
Developmental Biology, Rats, Fetuses, Neonates 
Space Flight, COSMOS-1514
NEUROPHYSIOLOGY

ISSUE 25:

PAPERS:


Human Performance, Fatigue
Humans, Flight Personnel
Neurophysiology, Evoked Brain Potential, Diagnosis


Human Performance, Work Capacity, Interference Resistance
Humans, Operators
Neurophysiology, Brain Biopotentials

P1140(25/89)* Repin AA. *Characteristics of visual-vestibulomotor interactions in experimentally induced labyrinth asymmetry.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(4): 59-64; 1989. [26 references; 16 in English]

Neurophysiology, Visual-Vestibular Interaction
Humans
Labyrinth Asymmetry

P1141(25/89)* Shumilina VF, Preobrazhenskiy NN. *Study of the otolith membrane of the sacculus and utriculus of a guinea pig.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(4): 64-69; 1989. [45 references; 39 in English]

Neurophysiology, Otolith Membrane, Otoconia
Guinea Pig
Anatomical Study
P1158(25/89) Ivanov AB.  
*Change in reflexive vestibular activity in response to upright position.*  
*Vestnik Otorinolaringologii.*  
[15 references; none in English]  
Author's affiliation: Laboratory of Clinical Otoneurology, Belorussian Scientific Research Institute of Neurology, Neurosurgery, and Physiotherapy, Minsk

Neurophysiology, Vestibular Activity, Reflexive, Nystagmus  
Humans, Males  
Tilt Tests, Stand Tests

P1165(25/89) Stoyanov AP, Netudykhata OYu, Alekseyev SV, Grigro'yan RA, Rozanov VA, Yevstafyev VN.  
*Concentrations of GABA and glutamic acid in the brains of rats exposed to noise and vibration under conditions of a sea voyage.*  
*Fiziologicheskii Zhurnal.*  
[11 references; none in English]  
Authors' Affiliation: Scientific Research Institute for Industrial Hygiene in Maritime Transport, Odessa

Neurophysiology, Brain, GABA, Glutamic Acid; Psychology, Conditioned Response  
Rats, Males  
Habitability and Environment Effects, Noise, Vibration
ISSUE 22

PAPER:

P1027(22/89)* Davydova NA, Belakovskiy MS, Ushakov AS.
Activity of neurohumoral regulation systems and its adjustment under arid environmental conditions.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
(14 references; none in English)

Neurophysiology, Sympathetic Adrenal System
Humans, Expedition Members, Male
Adaptation, Extreme Factors, Desert; Nutrition, Diet Supplements

ISSUE 23

PAPERS:

P1068(23/89)*Sivuk Akin Abakumova IA, Gur'yeva TS, Gryaznova VN, Korshunova VA,
Mosyakina LI, Tret'yakova VA, Tresvyatskaya NA, Khokhlova OS.
The effects of vegetable food products (carrot and radish tops) on certain metabolic parameters in humans.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[29 references; 2 in English]

Metabolism
Humans, Males
Nutrition, Vegetable, Carrots and Vegetable Tops

ISSUE 25:

PAPER:

P1128(25/89)* Bychkov VP, Kalandarov S, Agureyev AN, Popov IG, Kochetkova AN, Ushakov AS.
Crew nutrition on Salyut-7.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[20 references; 9 in English]

Nutrition, Nutritional Status, Crew Rations; Menu Selection System
Humans, Cosmonauts, Prime Crews
Space Flight, Long-Term, Salyut-7; Flight Simulations; Isolation
PAPERS:

P958(21/89)* Dubinin DM, Polov IG, Viktorov AN, Shumilina GA. *The condition of the skin in humans housed in a sealed environment.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 22(5): 68-71; 1988. [17 references; 5 in English]

Operational Medicine, Skin Humans, Males Habitability and Environment Effects, Sealed Living Environment

P965(21/89)* Ivanov SG, Bogomazov YeYe. *"Dry" immersion and perspectives for its use in clinical practice.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 22(5): 4-6; 1988. [30 references; 11 in English]

Operational Medicine, Clinical Practice; Cardiovascular and Respiratory Systems; Body Fluids Humans, Review Article Weightlessness Simulation, Dry Immersion

PAPERS:

P985(22/89)* Barer AS, Lakota NG, Ostrovskaya GZ, Shashkov VS. *Pharmacological correction of the effects of cold on humans.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 22(6): 66-73; 1988. (15 references; 4 in English)

Operational Medicine, Hypothermia Humans Pharmacological Countermeasures

P1039(22/89)* Perkovskiy AV, Adamovich BA, Goncharov IG. *Bacterial protection of outpatients given specialized medical care.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(1): 16-22; 1989. [32 references; 8 in English]

Operational Medicine, Sterile Surgical and Treatment Conditions Humans, Cosmonauts Equipment and Instrumentation, Equipment Classification
ISSUE 24:

P1094(24/89) Grigor'ev Al, Il'In YeA, Kholin SF, Ivanovskiy YuP, Pravetskiy NV, Grushchin VI, Shakin VV.
On the Objectives and Goals of the "Medilab"Space Medical Laboratory Project.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[No references]

Operational Medicine, Space Biology and Medicine
Equipment and Instrumentation
Space Flight, Mir, Medilab

P1096(24/89) Plyasiva-Bakunina IA, Volkov VV, Kivayav AA, Kizim LD. Senkevich YuA, Sol'yev VA, Ushakov NA, Gladkikh AF, Kuz'min MP, Tkachenko VK.
A pilot study of the use of contact lenses on long-term space flights.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[No references]

Operational Medicine, Contact Lenses
Humans, Cosmonauts
Space Flight, Salyut-7

P1099(24/89) Panferova NYe, Anisimova IV, Pavlova LS, Polyakov VM.
A study of core temperatures in healthy humans undergoing hypokinesia.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[11 references; 4 in English]

Operational Medicine, Core Temperature
Humans
Hypokinesia with Head-Down Tilt, Long-Term; Exercise

P1102(24/89) Filipenkov SN.
Probability of decompression sickness in tests of high altitude suits..
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[11 references; 3 in English]

Operational Medicine, Decompression Sickness
Humans, Males
Equipment and Instrumentation, High Altitude Suits, Exercise

P1103(24/89) Chadov VI, Iseyev LR.
Variation in the maximum acceptable coefficient of supersaturation during altitude decompression.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[7 references; none in English]

Operational Medicine
Humans, Males
Altitude Decompression, Coefficient of Supersaturation, EVA Simulation
P1142(25/89)* Khomullo GV, Lotova VI, Chernyayev AN.

*The effect of somatropin on healing of skin wounds under conditions of hypoxia.*

Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.


[18 references; 6 in English]

Operational Medicine, Wound Healing
Rats
Hypoxia, Somatotrophin
ISSUE 21

PAPERS:

P948(21/89)* Sokolov AI, Barmin VA
The effect of unloading of the antigravity system on perception and reproduction of the gravitational vertical in response to optokinetic stimulation.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[10 references; 6 in English]

Perception, Vertical
Humans, Males
Neurophysiology, Dry Immersion, Optokinetic Stimulation, Proprioceptive Stimulation

ISSUE 22

PAPER:

P1022(22/89)* Tarasenko GI, Shcherbachenko GYe, Petlenko IA.
Synthesized speech -- characteristics of perception under complex acoustic conditions.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[8 references; 4 in English]

Perception, Speech Perception, Accuracy
Humans,
Equipment and Instrumentation, Speech Synthesis, Noise
ISSUE 21

PAPERS:

P963 (21/89) Kozlov AT, Tsetsura VN. *Behavior of Limnephilus sp. caddis fly larvae in response to drastic changes in the weight of building materials.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 22(5): 88-90; 1988. [7 references; 2 in English]

Psychology, Instinctive Behavior; Adaptation Insects, Caddis Flies, Larva Altered Weight of Building Materials


Psychology, Maternal Behavior, Reproductive System, Nursing Rats, Mothers Space Flight, COSMOS-1514


Psychology, Behavioral Reactions, Neurophysiology, Higher Nervous Activity; Emotionality; Developmental Biology, Postnatal Development Rats, Early Development Space Flight, COSMOS-1514, Prenatal Exposure


Psychology, Stress, Stress Test Response, Developmental Biology, Hematology Rats Space Flight, COSMOS-1514, Prenatal Exposure; Immobilization
ISSUE 22

PAPERS:

P987(22/89)* Myasnik Vi.  
*From Vostok to Mir: Psychological Aspects.*  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
(No references.)

Psychology, Space Psychology  
Humans, Cosmonauts  
Space Flight, Historical Review
ISSUE 22

PAPERS:

P990(22/89)*Kovalev YeYe, Ryzhov NI, Sakovich VA. *The problem of radiation safety of space flights in the Interkosmos program.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 22(6): 36-41; 1988. (19 references; 1 in English)

Radiobiology, Radiation Safety
Space Flight, Interkosmos

P1037(22/89)* Davydov BI, Tikhonchuk VS, Zuyev VS. *Epidemiological observations (follow-up) of exposure to microwaves (neurophysiology, hematological, and ophthalmological effects).* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(1): 4-11; 1989.

[35 references; 21 in English]

Biological Effects; Neurophysiology; Hematology; Ophthalmology
Review Article; Humans
Radiobiology; Microwaves

ISSUE 23

PAPERS:


[11 references]

Translation of abstract on file with the All-Union Institute of Scientific and Technical Information and the All-Union Scientific and Research Institute of Medical Information

Hematology, Acid-Base Balance, Blood Gases
Rats
Radiobiology, Magnetic Field, Constant


[18 references]

Radiobiology, Relative Biological Effectiveness, Death Rate
Rats, Mice
Accelerated Ions, g-Radiation
P1070(23/89)* Antipov VV, Vasin MV, Gaydamakin AN.
Species-specific responses of lymphocyte succinate dehydrogenases to acute hypoxic hypoxia in animals and their association with radiation tolerance.
Kosmicheskaya Biologiya i Aviaskosmicheskaya Meditsina.
[8 references; none in English]

Hematology, Lymphocyte Succinate Dehydrogenase; Metabolism, Rate
Mice, Rats, Dogs, Species Specificity
Radiobiology, Radiation Tolerance, Hypoxia

P1079(23/89)* Vorozhtsova SV, Savinskiy AK,
RBE of fission neutrons at low doses as reflected in cytogenetic changes in the cells of the corneal epithelium in mice.
Kosmicheskaya Biologiya i Aviaskosmicheskaya Meditsina.
23(2): 91-93; 1989.
[2 references; none in English]

Cytology, Cytogenetic Changes, Cornea
Mice
Radiobiology, Relative Biological Effectiveness, Fission Neutrons, Low Doses

BOOK REVIEW:

BR16(23/89)* Ryshov AI, Logvinov SV.
Review of: Davydov BI, Ushakov IB.
loniziruyushchiye lzlucheniya i Mozg: Povedenskiye i Strukturno-Funktsionalnyye Patterny
Ioniziruyushchiye Izlucheniya i Mozg: Povedenskiye i Strukturno-Funktsionalnyye Patterny
[Ionizing Radiation and the Brain: Behavioral and Structural/Functional Patterns;]
Kosmicheskaya Biologiya i Aviaskosmicheskaya Meditsina.

KEY WORDS: Radiobiology, Ionizing Radiation, Neurophysiology, Brain, Psychology, Behavior, Human Performance, Work Capacity, Humans, Animals

ISSUE 24:

PAPERS:

P1115(24/89) Vorozhtsova SV, Yartsev Yel.
The effect of taurine on cytogenetic damage in the cornea of mice induced by 9GeV proton irradiation.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[6 references; 2 in English]

Radiobiology, Cornea; Cytology, Mitosis, Genetics, Chromosome Aberrations
Mice
Proton Irradiation, Taurine
ISSUE 21

PAPERS:

P955(21/89)* Baykova OV. 
Cytophysiological parameters of the state of the reproductive organs of male rats after 7 days of immobilization stress and 7 days of hypokinesia. 
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 
[12 references; none in English]

Reproductive System, Reproductive Organs, Cytophysiological Parameters 
Rats, Male 
Hypokinesia, Psychology, Immobilization Stress 

P973(21/89) Serova LV, Denisova LA, Lavrova LA, Makeyeva VF, Natochin YuV, Pustynnikova AM, Shakhmatova Yel. 
Parameters of the reproductive function of the animals: Fetal and placental characteristics. 
In: M143(21/89) Gazenko O.G. (editor) Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of Mammals in Weightlessness] 

Reproductive Biology, Reproductive Function, Placenta; Developmental Biology, Fetuses, 
Musculoskeletal System, Bone 
Rats, Females, Pregnant 
Space Flight, COSMOS-1514 

ISSUE 22

PAPER:

P983(22/89)* Denisova LA, Tikhonova GP, Ananasenko ZI, Pustynnikova AM, Ivanov YuV, Kolomiyets OL, Mazurova TF. 
Study of the reproductive function of male rats after space flight on COSMOS-1667 biosatellite. 
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 
(13 references; 3 in English)

Reproductive System, Reproductive Function; Developmental Biology, Prenatal and Early Postnatal Development 
Rats, Male 
Space Flight, COSMOS-1667
ISSUE 23

PAPERS:

P1058(23/89)* Serova LV.
The effect of weightlessness on the mammalian reproductive system.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[40 references; 11 in English]
Reproductive System, Reproductive Function, Impregnation, Abortion, Mating, Estral Cycle, Sperm; Genetics, Mutations; Developmental Biology
Rats, Male, Female
Space Flight, COSMOS-605, -936, -1129, -1514, -1667; Centrifugation; Adaptation

P1042(23/89) Serova LV, Chel'naya, Bryantseva LA.
State of female rats exposed to weightlessness during pregnancy: General state of the animals. Weight of body and organs. Blood Profile.
In: Gazenko OG (editor). Ontogeny of mammals in weightlessness.
Developmental Biology, Reproductive System, Hematology; Endocrinology, Adrenals, Thymus, Liver; Kidneys; Myocardium
Rats, Female, Pregnant
Space Flight, Cosmos-1514

P1043(23/89) Yurchovichova Ya, Yezhova D, Vigash M (Czechoslovakia), Serova LV (USSR.)
State of female rats exposed to weightlessness during pregnancy: Concentration of hormones in blood plasma.
In: Gazenko OG (editor). Ontogeny of mammals in weightlessness.
Developmental Biology; Reproductive System; Endocrinology; STH, Prolactin, Corticosterone, Insulin
Rats; Female; Pregnant
Space Flight; COSMOS-1514

P1044(23/89) Kvetnyanski R, Blazhichek P, Makho L (Czechoslovakia), Serova LV (USSR).
State of female rats exposed to weightlessness during pregnancy: The sympathetic adrenal system.
In: Gazenko OG (editor). Ontogeny of mammals in weightlessness.
Developmental Biology; Reproductive System; Endocrinology, Sympathetic Adrenal System
Rats; Female; Pregnant
Space Flight; COSMOS-1514
State of female rats exposed to weightlessness during pregnancy: The thyroid gland.

In: Gazenko OG (editor).

Developmental Biology; Reproductive System; Endocrinology, Thyroid
Rats; Female; Pregnant
Space Flight; COSMOS-1514

State of female rats exposed to weightlessness during pregnancy: Hemopoietic stem cells.

In: Gazenko OG (editor).

Developmental Biology; Reproductive System; Hematology, Hemopoietic Stem Cells
Rats; Female; Pregnant
Space Flight; COSMOS-1514

State of female rats exposed to weightlessness during pregnancy: Concentrations of fluids and electrolytes in tissues.

In: Gazenko OG (editor).

Developmental Biology; Reproductive System; Body Fluids, Fluid-Electrolyte Concentrations
Rats; Female; Pregnant
Space Flight; COSMOS-1514

State of female rats exposed to weightlessness during pregnancy: Levels of electrolytes in the coats and tails of the animals.

In: Gazenko OG (editor).

Developmental Biology; Reproductive System; Body Fluids; Electrolytes; Coats, Tails
Rats; Female; Pregnant
Space Flight; COSMOS-1514
REPRODUCTIVE SYSTEM

State of female rats exposed to weightlessness during pregnancy: Lipid Metabolism.
In: Gazenko OG (editor).
Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]

Developmental Biology; Reproductive System; Metabolism, Lipid Rats; Female; Pregnant
Space Flight; COSMOS-1514

P1050(23/89) Mishurova E, Kropachova K, Gabor Ya (Czechoslovakia).
State of female rats exposed to weightlessness during pregnancy: Concentration of nucleic acids and polydeoxyribonucleotides in tissues.
In: Gazenko OG (editor).
Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]

Developmental Biology; Reproductive System; Genetics, Nucleic Acids, Polydeoxyribonucleotides Rats; Female; Pregnant
Space Flight; COSMOS-1514

P1051(23/89) Makeyeva VF, Kosmoslova GS, Yegorov IA (USSR).
State of female rats exposed to weightlessness during pregnancy: Biosynthesis of nucleic acids.
In: Gazenko OG (editor).
Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]

Developmental Biology; Reproductive System; Genetics; Nucleic Acids; Biosynthesis; Enzymology Rats; Female; Pregnant
Space Flight; COSMOS-1514

P1052(23/89) Hemet Sh. (Czechoslovakia)
State of female rats exposed to weightlessness during pregnancy: Activity of certain enzymes in the liver.
In: Gazenko OG (editor).
Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]
Moscow: Nauka: 1988. Pages: 54

Developmental Biology; Reproductive System; Enzymology, Liver Enzymes Rats; Female; Pregnant
Space Flight; COSMOS-1514
REPRODUCTIVE SYSTEM

P1053(23/89) Oshadal B, Peloukh V, Kolar F, Rikhter Z, Dragota Z (Czechoslovakia)
State of female rats exposed to weightlessness during pregnancy: State of the myocardium.
in: Gazenko OG (editor).
Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]
Developmental Biology; Reproductive System; Cardiovascular and Respiratory Systems, Myocardium
Rats; Female; Pregnant

P1054(23/89) Pospishilova I, Pospishil M (Czechoslovakia), Serova LV (USSR.)
State of female rats exposed to weightlessness during pregnancy: Collagen metabolism in the skin and bone tissue.
in: Gazenko OG (editor).
Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]
Developmental Biology; Reproductive System; Metabolism; Collagen; Musculoskeletal System, Bone Tissue
Rats; Female; Pregnant
Space Flight; COSMOS-1514

State of female rats exposed to weightlessness during pregnancy: Structure and mechanical properties of bone tissue.
in: Gazenko OG (editor).
Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]
Developmental Biology; Reproductive System; Musculoskeletal System, Bone Tissue
Rats; Female; Pregnant
Space Flight; COSMOS-1514

State of female rats exposed to weightlessness during pregnancy: Physiological properties and metabolism of skeletal muscles.
in: Gazenko OG (editor).
Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]
Developmental Biology; Reproductive System; Musculoskeletal System, Muscles; Metabolism
Rats; Female; Pregnant
Space Flight; COSMOS-1514. -1667
REPRODUCTIVE SYSTEM

P1056(23/89) Baran'ska V, Kuyava M Lanchevski V, Pisarek V (Poland). Denisova LA (USSR)
State of female rats exposed to weightlessness during pregnancy: State of the ovaries.
In: Gazenko OG (editor). Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]

Developmental Biology; Reproductive System; Ovaries
Rats; Female; Pregnant
Space Flight; COSMOS-1514

ISSUE 24:

PAPERS:

P1111(24/89)* Baykova OB.
Cytological study of spermatogenesis of rats exposed to hypergravity.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[13 references; 7 in English]

Reproductive System, Spermatogenesis, Cytology
Rats, Males
Hypergravity, Centrifuge

P1091(24/89) Serova, LV, Denisova AM, Pustynnikova AM.
Reproductive functions of animals spending a portion of the prenatal period under conditions of weightlessness.
In: Gazenko OG (editor). Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]

Reproductive System, Reproductive Function
Rats, Males, Females
Space Flight, COSMOS-1514, Prenatal Exposure

75
ISSUE 22

PAPERS:

P991(22/89) Il'in YeA. *The COSMOS biosatellites: Some conclusions and prospects.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 22(6): 41-50; 1988. (25 references; 6 in English)

Space Biology and Medicine, Life Support Systems, Adaptation, Body Fluids, Cardiovascular and Respiratory Systems, Endocrinology, Metabolism, Musculoskeletal System, Neurophysiology, Radiobiology

Review Article, Dogs, Primates, Rats

COSMOS Biosatellites, Equipment and Instrumentation, Artificial Gravity

P986(22/89) Grigor'yev AI, Yegorov AD. *Phenomenology and mechanisms underlying changes in the major functions of the human body in weightlessness.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 22(6): 4-17; 1988. No references.

Space Biology and Medicine, Adaptation, Body Fluids, Cardiovascular and Respiratory Systems, Endocrinology, Hematology, Immunology, Metabolism, Musculoskeletal System, Neurophysiology

Humans, Cosmonauts, Review/Theoretical Article

Space Flight

ISSUE 22

Special Feature: A Year in Weightlessness

Interview with Soviet cosmonauts V. Titov, and M. Manarov; interviewer: I. Nekhamkin; Sovetskiy Soyuz, No 2, 1989.

ISSUE 24:

BOOK REVIEW:


KEY WORDS: Space Medicine; Aerospace Medicine; Space Biology; Ecological Medicine; Human Performance; Operational Medicine

76
ISSUE 25:

P1151(25/89)* Voloshin VG, Naryshkin IYe, Yukanov YeM.
Some principles for evaluating the quality of scientific research and the extent of implementation of their results.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[4 references; none in English]

Space Biology and Medicine, Research and Implementation
Theoretical Article
Research Evaluation

P1152(25/89)* Il'in YeA, Kaplanskiy AS, Savina YeA.
Rat experiments on COSMOS biosatellites: Morphological and biochemical research.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
23(4): 4-9; 1989.
[63 references; 27 in English]

Space Biology and Medicine; Biochemistry, Morphology; Adaptation; Endocrinology; Hematology; Metabolism; Musculoskeletal System; Cardiovascular and Respiratory Systems; Gravitational Biology
Rats
Space Flight, COSMOS Biosatellites

MONOGRAPH:

M149 (25/89) Malkin VB, Kosmolinskiy FP, Kuznets Ye1 (editors).
Chelovek i Kosmos: Idei K.E. Tsiolkovskogo i ikh razvitiye v sovremennoy biomeditsine.Trudy XXII Chtenij, posvyashchennyykh razrabotke nauchnogo naslediya i razvitiyu idey K.E. Tsiolkovskogo (Kaluga, 15-18 sentyabrya 1987). Человек и Космос Идеи К.Э. Циолковского и их Развитие в современной биомедицине.Труды XXII Чтений, посвященных разработке научного наследия и развитию идей К.Э. Циолковского (Калуга; 15-18 сентября 1987)

Man and space: The Ideas of K.E. Tsiolkovskiy and their development in modern biomedicine. Works from the XXII lecture series devoted to development of the scientific heritage and development of the ideas of K.E. Tsiolkovskiy (Kaluga, 15-18 September, 1987)
[72 pages; 6 tables; 2 figures]
Affiliation (monograph): The Commission on Development of the Scientific Heritage of K.E. Tsiolkovskiy, USSR Academy of Sciences; K.E. Tsiolkovskiy State Museum of the History of Cosmonautics

KEY WORDS: Space Biology and Medicine; Exobiology; Botany; Neurophysiology; Human Performance; Psychology; Operational Medicine; Space Flight; Thermal Status; Immunology; Botany; Pharmacology; Immersion; Life Support Systems
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