USSR Space Life Sciences Digest

Index to Issues 21–25

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NASA
National Aeronautics and Space Administration
Office of Management
Scientific and Technical Information Division
1990
ADAPTATION
Serum myoglobin in human blood under extreme conditions.
Physiological mechanisms of stress and adaptation in acute exposure to stress factors.
Energy metabolism and physical work efficiency in humans adapting to high altitude conditions.
Positive and negative effects of antioxidants on tolerance for hypoxia and thrombocyte aggregation as a function of duration of adaptation to high altitude conditions.
Issues in ecological physiology
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- The effect of space flights and hypokinesia with head-down tilt varying in duration on concentration of insulin in the blood.
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Prevention of ultraviolet deficiency during long-term human exposure to an isolated living environment.
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Pattern of changes in acid-base equilibrium of human blood in response to prolonged exposure to an atmosphere containing acetic acid fumes.
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On the stimulating effect of prolonged low-dose-rate exposure to radiation on mammalian lymphopoiesis.

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- The effects of a-hydroxydimethyl-g-aminopropylidene bisphosphonate on bone tissue of rats undergoing hypokinesia.
- Simulating the physiological effects of weightlessness by the method of "head-down suspension" of small laboratory animals.
- Changes in the jaw bones of rats after a 7-day flight on COSMOS-1667.
- Collagen metabolism in the skin and bone tissue of rats after a 7-day space flight.
- The composition of bone tissue in mice in the norm and during hypokinesia.
- 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).
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- The Skeletal System and Weightlessness.

NEUROPHYSIOLOGY

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- Changes in the otolith apparatus of rats and fish after long-term rotation in hypergravity.
- Characteristics of neurophysiological changes in response to experimental stress induced by long-term group isolation in rats.
- The role of cholinergic mechanisms in changes of the functional activity of the brains of rabbits during motion sickness.
- Some parameters of brain metabolism under exposure to hypoxia and overheating.
- Permeability of the blood-brain barrier in simulated motion sickness.
- Restructuring of bioelectric activity of the brain during adaptation to long-term hypokinesia.
- Dependence of lipid peroxidation on nervous system type and endurance of physical exercise.
- Physiological reactions to electrical stimulation of the labyrinths.
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The second section of this document, starting on page 78, is a key word index. Numbers following each entry refer to page numbers in the first section of the present document. Within the key word list, topic area names are highlighted in bold, as are the pages for the primary topic area listing. Numbers not in bold following topic area names refer the reader to relevant abstracts originally included under other category names.
ISSUE 21:

PAPER:


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

BOOK REVIEW:


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

ISSUE 22

PAPERS:

P1028(22/89)* Krivoshchekov 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. 23(1): 62-66; 1989. [6 references; 1 in English]

Metabolism, Musculoskeletal System, Work Efficiency, Exercise, Cardiovascular and Respiratory Systems, Endocrinology, Enzymology Humans, Males, Athletes Adaptation, High Altitude
**ADAPTATION**

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 Fiziologicheskih 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 gipoksii i bioekonomika vneshnego dykhaniya.  
*[Adaptation to hypoxia and the bioeconomics of external respiration.]*  
Moscow: Izd-vo Universiteta Druzhba Narodov; 1987; 186 pages.  
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,
P1021(22/89)∗ Dobriyan VV, Shprit MB, Yeroshenko VSh, Abdashimov KA. 
Circadian rhythms of blood acetyl cholinesterase in response to hypokinesia and 
administration of organic phosphates. 
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 
[17 references; 7 in English] 

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

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. 
[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 fizicheskoy 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.
Fiziologicheskiy 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 +Gz acceleration
[23 references; 7 in English]

Body Fluids, Blood Electrolyte Balance
Dogs
Acceleration, +Gz
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 Chteniy, posvyashchennykh razrabotke nauchnogo naslediya i razvitiyu idej K.E. Tsiolkovskogo (Kaluga, 15-18 sentyabrya 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) 
[[7 references; 1 in English]

Botany, Development, Growth, Viability 
Higher Plants, Arabidopsis, Seeds 
Space Flight, Salyut-7, Life Support Systems

8
The role of infrared radiation in increasing the productivity of plants.

In: Malkin VB, Kosmolinskii FP, Kuznets Ye (editors). Chelovek i Kosmos: Idei K.E. Tsiolkovskogo i ikh razvitiye v sovremennoy biomeditsine. Trudy XXII Chtenij, posvyashchennikh razrabotke nauchnogo naslediya i razvitiyu idej K.E. Tsiolkovskogo (Kaluga, 15-18 sentyabrya 1987)


[5 references; none in English]

Pages 61-64.

Botany, Productivity, Life Support Systems
Higher Plants, Radishes, Cucumber
Radiobiology, Infrared Radiation, Photosynthetically Active Radiation
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'ev 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 +GZ acceleration using a simulation of circulation.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[7 references; 3 in English]

Cardiovascular and Respiratory Systems, Circulation
Humans
Acceleration Tolerance, +GZ, 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, TurbasovVD, Polyakova AP, Domracheva MV, Golubchikova ZA, Funtova II, Tazetdinov IG, Savelieva 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
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
CARDIOVASCULAR AND RESPIRATORY SYSTEMS

P1088(23/89) Korkushko OV, Shatilo VB. 
Orthostatic response of circulation and autonomic regulation in healthy humans varying in age. 
Fiziologicheskiy Zhurnal. 
[18 references; 8 in English]

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

MONOGRAPH:

M146(23/89) Val'dman AV, Almazov VA, Tyrlin VA. 
Baroreceptor Reflexes: Baroreceptor Regulation of Circulation; 
[143 pages; 28 illustrations; 2 tables; 384 references]

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

ISSUE 24:

PAPERS:

P1097(24/89) Silenko OV. 
The reactions of the cardiovascular system to static loading when body position is changed. 
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 
[17 references; 8 in English]

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

P1100(24/89) 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. 
[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
Developmental Biology, Reproductive Biology, Equipment and Instrumentation
Rats, Female
Space Flight, COSMOS-1514

The state of the neonates.
In: M143(21/89) Gazenko O.G. (editor)Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of Mammals in Weightlessness]
Moscow: Nauka; 1988; pages 74-79.

Developmental Biology, General State, Reproductive Biology, Birth Process, Musculoskeletal System, Bones, Body Fluids, Hematology
Rats, Neonates
Space Flight, COSMOS-1514

P976(21/89) Serova LV(USSR.), 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)Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of Mammals in Weightlessness]
Moscow: Nauka; 1988; pages 82-88.

Developmental Biology, Early Postnatal Growth and Development; Neurophysiology, Musculoskeletal System; Perception, Sensory Physiology
Rats
Space Flight, COSMOS-1514

MONOGRAPH:

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

PAPERS:


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


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


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


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

Structure and metabolism of the organs of animals at various stages of postnatal ontogeny: Concentrations of fluid and electrolytes in tissues.
By Denisova YeA, Lavrova YuV, Natochin LV, Serova LV, Shakhmatova Yel (USSR)
In: Gazenko OG (editor). Ontogeny of mammals in weightlessness.

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.
By Luderits P, Markvardt D, Wachtel E (GDR), Belakovskiy MS (USSR), Hecht K, Grosser I (GDR)
In: Gazenko OG (editor). Ontogeny of mammals in weightlessness.

Structure and metabolism of the organs of animals at various stages of postnatal ontogeny: Lipid metabolism.
By Allers I, Allersova E (Czechoslovakia), Serova LV (USSR), Toropila MT (Czechoslovakia)
In: Gazenko OG (editor). Ontogeny of mammals in weightlessness.
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.


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.


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.


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.

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). Ontogenez 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). Ontogenez 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). Ontogenez 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 mlekopitatayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]

Developmental Biology, Reproductive Biology, Adaptation
Rats, Neonates, Fetuses, Pregnant Females; Males
Space Flight, COSMOS-1514, COSMOS-1667

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 mlekopitatayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]
Moscow: Nauka: 1988. Pages 28-32,

Developmental Biology, Embryo Experiments, Prenatal Development, Reproductive System
Rats, Fetuses, Pregnant Females
Dynamic Space Flight Factors, Vibration, Linear Acceleration, Impact

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

Developmental Biology, Prenatal Development, Reproductive System; Musculoskeletal System, Connective Tissue; Hematology, Anemia; Stress Response
Rats, Fetuses, Pregnant Females
Hypergravity, Centrifugation
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 Aviakosmicheskaya Meditsina.  
[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 Aviakosmicheskaya Meditsina.  
[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'yev DV, Petrichenko IYe.  
The effect of long-term hypokinesia with head-down tilt on tissue sensitivity to glucocorticoids.  
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.  
[17 references; 4 in English]

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

Endocrinology, Sympathetic Adrenal Responses
Humans, Cosmonauts
Space Flight, Long-Term, Salyut-7
ISSUE 22

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. 22(6): 64-66; 1988. (9 references; 3 in English)

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

P996(22/89) Tverdokhlib VP, Konovalova GG, Lankin VZ, Meyerson FS. The effects of adaptation to hypoxia on the activity of antioxidant enzymes in the liver of animals undergoing stress. Byulleten' Eksperimental'noy Biologii i Meditsiny. 1988(11): 528-529. 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


Enzymology, Blood Enzymes, Primates, Rhesus Monkeys, Males, Habitability and Environmental Effects, Vibration, Impact, Radial Acceleration
ISSUE 25:

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:

P970(21/89) Telegina TA, Bekhoyev ID, Pavlovskaya TYe. 
*Composition and functional properties of abiogenically synthesized melanoidin pigments.*
Izvestiya Akademii Nauk SSSR: Seriya Biologicheskaya.
(15 references; 6 in English)
Authors' Affiliation: A. N. Bakh Institute of Biochemistry, U.S.S.R. Academy of Sciences, Moscow

Exobiology, Prebiological Evolution
Melanoidins, Abiogenic Synthesis
Catalytic Properties

P980(21/89) Ivanov IM.
*Potential for searching for chemolithoautotrophic microorganisms on Mars.*
Author's Affiliation: Institute of Microbiology, U.S.S.R. Academy of Sciences.

Exobiology
Microbiology, Chemolithoautotrophic Bacteria
Mars, Life

ISSUE 25:

PAPER:

P1153(25/89) Kustov VV, Belkin VI, Kruglikov GG.
*On the mechanisms underlying the biological effects of lunar soil.*
Pages 48-53
[20 references; 5 in English]

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.
Patologicheskaya Fiziologiya i Eksperimenta'naya 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). Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]

Gravitational Biology, Developmental Biology, Prenatal Development, Reproductive System
Rats, Mice
Space Flight, COSMOS-1514; Hypergravity, Centrifugation
ISSUE 21

PAPERS:


Neurophysiology, Cardiovascular and Respiratory Systems, Human Performance
Humans
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. 22(5): 76-80; 1988. [15 references; 3 in English]

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

ISSUE 22

PAPERS:


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
HABITABILITY AND ENVIRONMENT PARAMETERS

P1116(24/89)* Sosnovskiy AV. *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. 23(3): 89-90; 1989. [6 references; 2 in English]

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

ISSUE 25:

PAPERS:

P1148(25/89)* Surovezhin IN. *Group gas-chromatographic identification of limit values of alcohols in hygienic studies.* Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina. 23(4): 89-90; 1989. [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
PAPERS:


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


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


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

PAPERS:


Human Performance, Work Capacity Humans, Males, Sailors Physical Exercise, Work-Rest Schedules
P999(22/89) Pogoreleov IA, Shimanovich YeG.  
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, Vladimirs'kiy BM.  
Функциональное Состояние Человека Оператора: Оценка и Прогноз  
Funktsional'noye Sostoyaniye Cheloveka Operatora: Otsenka i Prognoz.  
No 58 in Series: Problemy Kosmicheskoy Biologii; Problemy Kosmichesko 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  
Funktsonal'nuye Sostoyaniya i Effektivnost; Deyatel'nost Cheloveka-Operatora v Rezhime Neprevrivy Defiatel'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 Sostoyaniya i Eftektivnost' Deyatel'nosti Cheloveka-Operatora v Re'ime Nepreryvnogo Dejatel'nosti [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)* Yablonko 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.


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.


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.


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.
In: Konstantinova IV.
Sistema Immuniteta v Ekstremaльnych Usloviyah: Kosmicheskaya Immunologiya. Система
Immuniteta в Екстремальных Условиях: Космическая Иммунология [The Immune System
Under Extreme Conditions: Space Immunology] No. 59 in the series Problemy
Kosmicheskoj Biologii. Problemy Kosmiheskoj Biologii. [Problems of Space Biology].
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.
Sistema Immuniteta v Ekstremaльnych Usloviyah: Kosmicheskaya Immunologiya. Система
Immuniteta в Екстремальных Условиях: Космическая Иммунология [The Immune System
Under Extreme Conditions: Space Immunology] No. 59 in the series Problemy
Kosmicheskoj Biologii. Problemy Kosmiheskoj Biologii. [Problems of Space Biology].
Pages 125-146.

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

P1166(25/89) Lapayev EV, Azhayev AN, Kustova KA, Mar'ianskiy 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. TsioIkovskogo i ikh razvitiye v sovremennoy biomeditsine.Trudy
XXII Chtenij, posvyashchennym razrabotke nauchnogo naslediya i razvitiyu ideй K.E.
TsioIkovskogo (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. TsioIkovskiy 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. TsioIkovskiy (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:


ISSUE 22

PAPERS:


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
ISSUE 23

MONOGRAPH:

M148(23/89) Zalikhanova NG (editor).
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
ISSUE 25:

PAPERS:

P1133(25/89)* Astanin SV.
An integrated approach to modeling the functional state of a human operator based on the theory of fuzzy sets.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[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.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[4 references; 1 in English]

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

PAPERS:

P997(22/89) Meyerson FZ, Arkhipenko YuV, Didenko VV.
Selective suppression of lipid peroxidation in the brain in response to stress.
Byulleten' Eksperimental'noy Biologii i Meditsiny.
[7 references; 2 in English]
Authors' affiliation: Institute of General Pathology and Pathological Physiology, USSR Academy of Medicine, Moscow

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

P998(22/89) Meyerson FZ, Tverdokhlib Vp, Nikonorov AA.
Prevention of atherogenic dyslipoproteinemia and metabolic liver disorders in response to emotional pain/stress.
Voprosy Meditsinskoy Khimii,
[25 references; 8 in English]
Authors' Affiliation, Institute of General Pathology and Pathological Physiology, USSR Academy of Medicine, Moscow; Orenburg Medical Institute

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

P1034(22/89)* Tikhomirov NA, Potapov PP.
Carbohydrates and lipids in the serum and livers of rats repeatedly subjected to hypokinesia.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[8 references; 2 in English]

Metabolism, Lipids, Carbohydrates, Blood, Liver
Rats
Immobilization Cages, Repeated Exposure
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 Biologi i Aviakosmicheskaya 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 Biologia i Aviakosmicheskaya 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
MUSCULOSKELETAL SYSTEM

ISSUE 21

PAPERS:

[24 references; none in English]

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

[22 references; 12 in English]

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


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

ISSUE 22

PAPERS:

(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

50
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.**
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[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.**
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[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.**
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[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.**
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
[9 references; 4 in English]

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

51
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.*
Kosmich eskaya Biologiya i Aviakosmicheskaya Meditsina.
[28 references; 15 in English]

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

P1067(23/89)* Burkovskaya TYe Vorozhtsova SV, Gundoyna SF, Nazarov VM, Frontas'yeva MV.
*The composition of bone tissue in mice in the norm and during hypokinesia.*
Kosmich eskaya Biologiya i Aviakosmicheskaya Meditsina.
[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, Bozhikov 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.
[12 references; 5 in English]

Musculoskeletal System, Metabolism, Calcium Metabolism, Immunology, Osteoclast-Activating Factor
Humans
Hypokinesia With Head-Down Tilt, Long-Term
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, Stepantsov 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. 22(5): 6-13; 1988. [108 references; 54 in English]

Neurophysiology, Prostaglandins, Metabolism, Cardiovascular and Respiratory System Review Paper Adaptation, Adverse Environmental Factors; Space Flight, Soyuz-26, Soyuz-29


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


Neurophysiology, Functional Activity, Brain; Cardiovascular and Respiratory Systems, Blood Flow Rabbits Vestibular System, Motion Sickness, Countermeasures, Scopolamine

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ISSUE 22

PAPERS:


(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:


[5 references; 2 in English]

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


[17 references; 2 in English]

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


[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
NEUROPHYSIOLOGY

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).

Neurophysiology, Brain Morphology, Brain Histochemistry
Developmental Biology, Rats, Fetuses, Neonates
Space Flight, COSMOS-1514
P1130(25/89)* Ponomarenko VA, Yegorov SV, Zhernakov OV.
Potential use of evoked potential of the brain in diagnosis of fatigue in flight personnel.
[20 references; 9 in English]

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

P1131(25/89)* Petrenko YeT.
Work capacity and spatial-temporal organization of brain biopotentials of operators
[14 references; 3 in English]

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

P1140(25/89)* Repin AA.
Characteristics of visual-vestibulomotor interactions in experimentally induced labyrinth asymmetry.
[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.
[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, Netudykhatka 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.*  
Fiziologicheskiy 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
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

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

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
ISSUE 21

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.
[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.
[30 references; 11 in English]

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

ISSUE 22

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.
(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.
[32 references; 8 in English]

Operational Medicine, Sterile Surgical and Treatment Conditions
Humans, Cosmonauts
Equipment and Instrumentation, Equipment Classification
[No references]

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

P1096(24/89) Plyasiva-Bakunina IA, Volkov VV, Kivayev AA, Kizim LD. Senkevich YuA, Sol’v’yev VA, Ushakov NA, Gladkikh AF, Kuz’min MP, Tkachenko VK.
[No references]

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

P1099(24/89) Panferova NYe, Anisimova IV, Pavlova LS, Polyakov VM.
[11 references; 4 in English]

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

P1102(24/89) Filipenkov SN.
[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.
[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.
[7 references; 2 in English]

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

P975(21/89)Serova LV(U.S.S.R.), Alberts J, Keefe D (U.S.A.)
The behavior of female rats while nursing their young..
In: M143(21/89) Gazenko O.G. (editor)Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of Mammals in Weightlessness]
Moscow: Nauka; 1988; pages 79-82.

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

The development of behavioral reactions and work capacity of the higher nervous system.
In: M143(21/89) Gazenko O.G. (editor)Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of Mammals in Weightlessness]
Moscow: Nauka; 1988; pages 104-110.

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

P979(21/89)Serova LV (U.S.S.R.).
Reactions to stress tests at various stages of postnatal ontogeny.
In: M143(21/89) Gazenko O.G. (editor)Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of Mammals in Weightlessness]
Moscow: Nauka; 1988; pages 110-112.

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

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

ISSUE 23

PAPERS:


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


Radiobiology, Relative Biological Effectiveness, Death Rate
Rats, Mice
Accelerated Ions, g-Radiation
RADIOBIOLOGY

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.
Ioniziruyushchiye Izlucheniya i Mozg: Povedenskiye i Strukturno-Funkcional'nye 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 Aviaksomicheskaya 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
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).  
Ontogenez mlekopitayushchikh v nevesomosti [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).  
Ontogenez mlekopitayushchikh v nevesomosti [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).  
Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]  
Developmental Biology; Reproductive System; Endocrinology, Sympathetic Adrenal System  
Rats; Female; Pregnant  
Space Flight; COSMOS-1514
REPRODUCTIVE SYSTEM

P1045(23/89) Knopp Ya, Brtko Ya. (Czechoslovakia), Serova LV (USSR)
State of female rats exposed to weightlessness during pregnancy: The thyroid gland.
In: Gazenko OG (editor).
Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]

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

P1046(23/89) Vacek A, Bartanichkova A, Rotkovska D (Czechoslovakia), Michurina TV, Domaratsskaya YeS, Serova LV (USSR)
State of female rats exposed to weightlessness during pregnancy: Hemopoietic stem cells.
In: Gazenko OG (editor).
Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]

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

P1047(23/89) Denisova LA, Lavrova YeA, Natochin YuV, Serova LV, Shakhmatova Yel. (USSR)
State of female rats exposed to weightlessness during pregnancy: Concentrations of fluids and electrolytes in tissues.
In: Gazenko OG (editor).
Ontogenez mlekopitayushchikh v nevesomosti [Ontogeny of mammals in weightlessness.]

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

P1048(23/89) Lyuderits P, Markvardt D, Vachtel Ye (GDR), Belakovskiy MS (USSR), Hecht K, Grosser I (GDR).
State of female rats exposed to weightlessness during pregnancy: Levels 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; Reproductive System; Body Fluids; Electrolytes; Coats, Tails
Rats; Female; Pregnant
Space Flight; COSMOS-1514
*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
State of female rats exposed to weightlessness during pregnancy: **State of the myocardium.**


Developmental Biology; Reproductive System; Cardiovascular and Respiratory Systems, Myocardium

Rats; Female; Pregnant

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State of female rats exposed to weightlessness during pregnancy: **Collagen metabolism in the skin and bone tissue.**


Developmental Biology; Reproductive System; Metabolism; Collagen; Musculoskeletal System, Bone Tissue

Rats; Female; Pregnant

Space Flight; COSMOS-1514

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State of female rats exposed to weightlessness during pregnancy: **Structure and mechanical properties of bone tissue.**


Developmental Biology; Reproductive System; Musculoskeletal System, Bone Tissue

Rats; Female; Pregnant

Space Flight; COSMOS-1514

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State of female rats exposed to weightlessness during pregnancy: **Physiological properties and metabolism of skeletal muscles.**


Developmental Biology; Reproductive System; Musculoskeletal System, Muscles; Metabolism

Rats; Female; Pregnant

Space Flight; COSMOS-1514. -1667
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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
REPRODUCTIVE SYSTEM

ISSUE 22

PAPERS:

P991(22/89)* Il'in YeA.
The COSMOS biosatellites: Some conclusions and prospects.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
(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:

Reviewed in: Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
Reviewers: Gyurdzhian AA, Nekrasov PA.

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

Rat experiments on COSMOS biosatellites: Morphological and biochemical research.

Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.

23(4): 4-9; 1989.

[63 references; 27 in English]


[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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