NASA Contractor Report 3922(25)

# USSR Space Life Sciences Digest

## *Index to Issues 15–20*

*Edited by*
Lydia Razran Hooke
*Lockheed Engineering and Sciences Company*
*Washington, D.C.*

Prepared for
NASA Office of Space Science and Applications
under Contract NASW-4292

National Aeronautics and
Space Administration
Office of Management
Scientific and Technical
Information Division

1989

USSR SPACE LIFE SCIENCES DIGEST INDEX ISSUES 15-20

# TABLE OF CONTENTS


**LISTING OF ABSTRACTS** 1

Adaptation 1
Biological Rhythms 5
Bionics 8
Biospherics 9
Body Fluids 11
Botany 15
Cardiovascular and Respiratory Systems 18
Cytology 32
Developmental Biology 33
Endocrinology 36
Enzymology 40
Exobiology 41
Gastrointestinal System 43
Genetics 45
Gravitational Biology 48
Group Dynamics 49
Habitability and Environment Effects 51
Hematology 55
Human Performance 59
Immunology 64
Life Support Systems 68
Man-Machine Systems 71
Mathematical Modeling 72
Metabolism 73
Microbiology 78
Musculoskeletal System 80
Neurophysiology 91
Nutrition 101
Operational Medicine 104
Perception 110
Personnel Selection 111
Psychology 112
Radiobiology 116
Reproductive Biology 122
Space Biology and Medicine 123
Space Industrialization 126

**KEY WORD INDEX** 127

## HOW TO USE THIS DOCUMENT

The first section of this document provides bibliographic citations and key words for all abstracts published in issues 15-20 of the USSR Space Life Sciences Digest. Abstracts are grouped according to the topic area categories under which they were originally included and within categories by issue number. Issue numbers are provided as headings and, in addition, the first number in parentheses after abstract number refers to appropriate Digest issue. As always, topic area categories are presented in alphabetical order.

The second section of this document, starting on page 127, is a key word index. Numbers following each entry refer to page numbers in the first section of the present document. Number of listings on a single page in the first section has been limited deliberately to facilitate visual search for a particular reference. 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.

# ADAPTATION

## ISSUE 15

*PAPER*:

P683(15/88)* Polyakov BI.
***Discrete adaptation to [conditions of] sensory conflict.***
**Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.**
21(5): 82-82; 1987.
[50 references; 11 in English]

*Adaptation; Neurophysiology, Space Motion Sickness, Electric Sleep*
*Humans, Cosmonauts, Theoretical Article*
*Perception, Sensory Conflict*

## ISSUE 16

*PAPER*:

P699(16/88)* Aydaraliyev AA, Maksimov AL, Chernook TB.
***Capacity of polar personnel to adapt to high altitudes in the Antarctic.]***
**Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.**
21(6): 62-66; 1987.
[31 references; 3 in English]

*Adaptation, High Altitudes, Antarctic, Polar Day and Night*
*Humans, Polar Personnel*
*Biological Rhythms, Functional State*

## ISSUE 18

*PAPERS*:

P822(18/88) Komolova GS, Yegorov IA.
***Biosynthesis of nucleic acids in the lymphocytes of rat spleen during chronic exposure to extreme conditions.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 276.

*Hematology, Lymphocytes; Metabolism, Nucleic Acids, Synthesis, Spleen*
*Rats, Reproductive Biology, Pregnant*
*Adaptation, Hypoxia, Hypokinesia, Space Flight Factors, COSMOS-1514*

# ADAPTATION

P824(18/88) Farber YuV.
***The effects of the adaptation process on tolerance of extreme factors.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 324

*Radiobiology, Human Performance*
*Rats*
*Adaptation, Tolerance, Nonspecific, Extreme Factors, Hypoxia, High Altitude*

P857(18/88)* Gazenko OG, Grigor'yev AI, Yegorov AD.
***Taxonomy and time course of adaptive responses in humans on long-term space flights.***
In: Furduy FI, Kaydarliu SKh, Shrirby YeI, Nadvodnyuk AI, Mamalyga LM.
Mekhanizmy razvitiya stressa: Stress, adaptsiya i funktsional'nyye narusheniya *[Mechanisms underlying the development of stress: Stress, Adaptation and Functional Disorders.]*
[30 references; 13 in English]
Authors' Affiliation: Institute of Biomedical Problems, USSR Ministry of Health

*Adaptation, Time Course, Cardiovascular and Respiratory Systems, Endocrinology, Hematology, Immunology, Metabolism, Microbiology, Musculoskeletal System, Neurophysiology*
*Humans, Cosmonauts*
*Space Flight, Long-term, Salyut-6, -7, Soyuz, Soyuz-2*

**ISSUE 19**

*PAPER*:

P901(19/88) Meyerson FZ, Tverdokhlib VP, Lobanova GT, Golubeva LYu, Nikonorov AA.
***Preventing stress-induced dyslipidemia by means of adaptation to short periods of stress.***
Fiziologicheskiy Zhurnal.
33(6): 3-8; 1987.
[19 references; 8 in English]
Authors' Affiliation: Institute of General Pathology and Physiopathology, USSR Academy of Medicine, Moscow.

*Psychology, Stress*
*Rats*
*Adaptation, Stress; Pharmacological Countermeasures*

# ADAPTATION

*MONOGRAPHS*:

M133(19/88) Braun AD, Mozhenok TP.
Nespetsificheski Adaptatsionnyy Sindrom Kletochnoy Sistemy ***[Nonspecific adaptive syndrome of the cell system]***
Leningrad: Nauka; 1987.
[232 pages; 16 tables; 49 figures; 983 references]
Affiliation: Institute of Cytology, USSR Academy of Sciences.

*KEY WORDS: .Adaptation, Cytology, Extreme Factors, Musculoskeletal System*

M136(19/88) Aydaraliyev AA, Maksimov AL.
Adaptatsiya Cheloveka k Ekstremal'nym Usloviyam: Opyt Prognosirovaniya ***[Human Adaptation to Extreme Conditions: A Case Study in Prediction]***
Leningrad: Nauka; 1988.
[120 pages; 31 Tables; 19 Figures 315 references]
Affiliation: Division of Physiology, USSR Academy of Sciences

*KEY WORDS: Adaptation, Hypoxia, Tolerance, High Altitude, Antarctic, Human Performance, Work Capacity, Individual Differences, Personnel Selection*

*CONFERENCE REPORT:*

*CR10(19/88) Beloshitskiy PV, Lanovenko II.*
***Report on conference on Adaptation and Resistance at High Altitudes***
5-8 August, 1986; Terskol, Kabardino-Balkarsk Autonomous SSR.
In: Fiziologicheskiy Zhurnal.
33(6): 107-109; 1987.

*KEY WORDS: Adaptation, High Altitudes, Hypoxia; Neurophysiology, Cardiovascular and Respiratory System; Hematology, Hemopoiesis; Immunology, Resistance; Radiobiology; Enzymology; Physical Exercise; Operational Medicine; Endocrinology; Human Performance; Biological Rhythms*

**ISSUE 20**

*MONOGRAPH:*

M141(20/88) Platonov VN.
Adaptsiya v sporte ***[Adaptation in Sports].***
Kiev: Zdorov'ya; 1988.
[216 pages; 25 tables; 116 figures; 279 references; 101 in English]

*KEY WORDS: Adaptation, Musculoskeletal System, Athletes, Individual Differences, Exercise, Sports, Fatigue, Energy, Human Performance*

# AVIATION MEDICINE

## ISSUE 18

*PAPER:*

P832(18/88)* Strongin GL, Skvortzov SA.
***Individual differences and individual norms revealed in automated preflight medical monitoring.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 10-16; 1987.
(4 references; none in English)

*Aviation Medicine, Operational Medicine, Preflight Exams; Equipment and Instrumentation, Automated Monitoring Devices; Human Performance*
*Humans, Pilots*
*individual Differences*

*BOOK REVIEW:*

BR13(18/88)* Peshkov YeM.
Review of: Rudnyy NM, Vasil'yeva PV, Gozylova SA (editors). Aviatsiyonnaya meditsina: Rukovodstvo **[Aviation medicine: Handbook]** Moscow: Meditsina; 1986. 579 pages, 6000 copies.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 95-97; 1988.

*KEY WORDS: Aviation Medicine, Human Performance, Personnel Selection, Habitability and Environment Effects, Man-Machine Systems, Nutrition, Operational Medicine, Pharmacological Countermeasures, Perception*

# BIOLOGICAL RHYTHMS

## ISSUE 15

*PAPER:*

P661(15/88)* Klimovitskiy VYa, Alpatov AM (USSR), Sulzman FM, Fuller CA, Moore-Ede M (USA).
***Circadian rhythms and temperature hemostasis in monkeys inflight on Cosmos- 1514 biosatellite.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(5): 14-18.
[22 references; 11 in English]

*Biological Rhythms, Circadian Rhythms, Skin and Body Temperature*
*Primates, Macaca mulatta*
*Space Flight, Short-term, Cosmos-1514*

*MONOGRAPH:*

M119(15/88) Emel'yanov IP.
Struktura Biologicheskikh Ritmov Cheloveka v Protsesse Adaptatsii Statisticheskiy Analiz i Modelirovaniye ***[Structure of Human Biological Rhythms in the Process of Adaptation. Statistical Analysis and Modeling]***
Novosibirsk: Nauka; 1986.
[180 pages]
Affiliation: USSR Academy of Sciences (Siberian Division), Yakustsk Affiliate of the Division of Applied Math and Computer Technology (book).

*KEY WORDS: Biological Rhythms, Adaptation, Far North, Mathematical Modeling*

## ISSUE 17

*PAPERS:*

P767(17/88)* Vaysburd [Weisburd] IF.
***A technique for evaluating change in the biological rhythms of human physiological functions.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 71-73; 1988.
[7 references; 3 in English)

*Biological Rhythms; Adaptation; Inverted Diurnal Schedule*
*Humans*
*Mathematical Modeling*

P803(17/88) Stepanova SI.
***Biorhythmic aspects of occult motion sickness.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 128-130.

*Biological Rhythms, Stress Resistance*
*Humans, Pilots, Theoretical Article*
*Neurophysiology, Motion Sickness, Occult*

**ISSUE 18**

*PAPERS*:

P819(18/88) Shukin AI.
***The phenomenon of group synchronization of biological rhythms in single and double shift work.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
See: Abstract M117 (Space Biology and Medicine) Digest Issue 14.
Pages: 212-213.

*Biological Rhythms*
*Humans, Males, Workers*
*Human Performance, Shift Work, Group Coordination; Psychology, Stress*

**ISSUE 19**

*PAPERS*:

P875(19/88)* Koreshkov AA, Makarov VI, Abramov IR, Kots AR.
***The circadian rhythm of psychomotor response in humans exposed to the combined effects of 18-hour days and elevated concentration of carbon dioxide.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): 88-91; 1988.
(1 reference; none in English)

*Biological Rhythms, Circadian Rhythms, Work-Rest Schedules, Human Performance, Psychomotor Performance*
*Humans*
*Hermetically Sealed Environment, Desynchronosis, Elevated Carbon Dioxide*

P899(19/88) Maksimov AL, Sachanska T, Chernook TB.
***Stability of biological rhythms in excretion of salts under exposure to extreme conditions.***
Izvestiya Akademii Nauk Kirgizskoy SSR.
1988(1): 50 - 56.
[14 references; 2 in English]
Authors' Affiliations: Institute of Physiology and Experimental Pathology of High Altitudes of the Kirgiz Academy of Sciences; Institute of Industrial Hygiene and Occupational Disease, Bulgarian Academy of Medicine

*Biological Rhythms, Body Fluids, Salt Excretion*
*Humans*
*Extreme Conditions, Isolation, Stress, Motion Sickness, Hypokinesia*

**ISSUE 20**

*MONOGRAPH*:

M142(20/88) Gudkova SYa.
Mekhanizmy zimney spyachki ***[The mechanisms of hibernation.]***
Pushchino: USSR Academy of Sciences; 1987.
[206 pages]
Affiliation: Scientific Center for Biological Research; Institute of Biophysics

*KEY WORDS: Biological Rhythms, Hibernation, Sleep, Metabolism, Cold, Neurophysiology, Body Fluids, Endocrinology, Enzymology, Hematology, Gastrointestinal System*

**ISSUE 16**

*MONOGRAPH*:

M121(16/88) Seleznev VP, Selezneva NV.
Navigatsionnaya Bionika [***Navigational Bionics***].
Moscow: Mashinostroyeniye; 1987.
[255 pages; 100 figures; 54 references; none in English]

*KEY WORDS: Bionics, Mathematical Models, Spatial Orientation, Navigation, Man-Machine Systems, Perception, Neurophysiology, Insects*

**ISSUE 16**

*PAPER*:

P619(16/88) Ivanov NR, Gasparyan SA, Guzeyev VV, Milovanova TN, Mishina NYa.
***Cosmic and biospheric aspects of medical/ecological monitoring with regard to respiratory illnesses.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 60-61.

*Biospherics, Atmospheric Factors, Solar Radiation*
*Humans, Patients, Cardiovascular Systems, Respiratory Disease*
*Public Health; Mathematical Modeling, Correlations*

**ISSUE 18**

*MONOGRAPH:*

M129(18/88) Agadzhanyan NA.
Chelovek i biosfera [***Man and the biosphere.***]
Moscow: Znaniye; 1987.
[96 pages]

*KEY WORDS: Biospherics, Biological Rhythms*

**ISSUE 19**

*PAPER*:

P894(19/88) Shilov IA.
***Biological problems of biospheric homeostasis.***
Zhurnal Obshchey Biologii.
XLIX(2): 166-173; 1988.
[10 references; none in English]
Author's Affiliation: Moscow State University; Department of Biology

*Biospherics*
*Theoretical Article*
*Homeostasis*

# BIOSPHERICS

*CONFERENCE REVIEW:*

CR9(19/88)Buznikov AA, Vedeshin LA.
*Review of : "**Space and Ecology Round Table,**" at an international forum marking the 30th* anniversary of the launch of the first manmade satellite.
Issledovaniye Zemli iz Kosmosa.
1988(2): 119-121.

*KEY WORDS: Biospherics, Biological Rhythms*

# BODY FLUIDS

## ISSUE 15

*PAPERS*:

P662(15/88)* Zhidkov VV, Abrosimov SV, Endeka DK, Borisov GI, Lobachik VI, Korol'kov VV, *Il'in YeA.*
***The effects of space flight factors on hydration homeostasis in monkeys.***
Kosmicheskaya Biologiya i Aviaskosmicheskaya Meditsina.
21(5): 19-22; 1987.
[6 references; 3 in English]

*Body Fluids, Extracellular, Intracellular, Interstitial Fluid, Blood*
*Primates, Monkeys*
*Space Flight, Short-term, COSMOS-1617*

P675(15/88)* Lobachik VI, Korsunskiy VN, Popov VI, Abrosimov SV, Zhidkov VV, Andretsov VA.
***Isotope methods for assessing blood redistribution in the body.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(5): 65-67; 1987.
[8 references; 1 in English]

*Body Fluids, Fluid Redistribution*
*Equipment and Instrumentation, Radiotracer System*
*Weightlessness Simulations, Hypokinesia with Head-Down Tilt, Immersion*

## ISSUE 16

*PAPERS*:

P687(16/88)* Kotovskaya AR, Baran'ski S, Gembitska D, Voytkovyak M, Vil'- Vil'yams IF, Kokova NI (USSR, Poland).
***Increasing human tolerance of +Gz acceleration by increasing hydration level.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(6): 14-; 1987.
[8 references; 4 in English]

*Cardiovascular and Respiratory Systems, Tolerance, Acceleration, Gz*
*Humans*
*Body Fluids, Hydration, Salt; Immersion*

# BODY FLUIDS

P743 (16/88) Noskov VB, Afonin BV, Lebedev VI, Boyko PA, Sukhanov YuV, Kravchenko VV, Kvetyanski R (Czech).
***Fluid-electrolyte metabolism and its hormonal regulation under conditions of long-term space flight.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 354-355.

*Body Fluids, Metabolism, Fluid-Electrolyte; Endocrinology, Hormonal Regulation, Adrenal Gland, Corticosteroids*
*Humans, Cosmonauts*
*Space Flight, Salyut-7, 237-day Flight*

**ISSUE 17**

*PAPERS:*

P789(17/88) Lavrova YeA, Shakhmatova YeI, Serova LV, Natochin YuV, Denisova LA.
***The effect of weightlessness on fluid electrolyte homeostasis in pregnant rats and their offspring.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 282-283.

*Body Fluids, Fluid-Electrolyte Homeostasis*
*Rats, Reproductive Biology, Female, Pregnant; .i.Developmental Biology, Fetuses, Neonates*
*Space Flight, COSMOS-1514*

P792(17/88) Voronin LI, Kravchenko VV, Zhernavkov AF, Bystrov VV.
***Parameters of fluid-electrolyte metabolism in humans during LBNP,***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 337-338.

*Body Fluids, Fluid Electrolyte Metabolism*
*Humans, Males*
*LBNP*

P793(17/88) Chaika AM, Dzhenzhera LYu, Panchenko VS.
***Dynamics of blood volume, extracellular fluid and weight of serum proteins in humans undergoing hypokinesia and immersion.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 368-369.

*Body Fluids, Blood Volume, Extracellular Fluid; Metabolism, Serum Proteins*
*Humans, Males*
*Hypokinesia With Head-Down Tilt, Immersion; Countermeasures, Antiacceleration Suit, Occlusion Cuffs, Physical Exercise*

P794(17/88) Baran'ski S, Voytkovyak M, Gembitska D (Warsaw), Kotovskaya AR, Vil'-Vil'yams IF, Kokova NI, Luk'yanyuk VYu.
***Artificially increased hydration as a technique for improving human tolerance of +Gz acceleration.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 17-18

*Body Fluids, Artificially Increased Hydration*
*Humans*
*Tolerance, Acceleration*

**ISSUE 18**

*PAPERS*:

P836(18/88)* Denisova LA, Lavrova YeA, Natochin YuV, Serova LV.
***Concentrations of fluid and electrolytes in organs and tissues of male rats after flight on the COSMOS-1667 biosatellite.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 33-37; 1988.
(17 references; 3 in English)

*Body Fluids, Fluid-Electrolyte Concentration*
*Rats, Males; Reproductive Biology, Female, Pregnant; Sex Differences*
*Space Flight, COSMOS-1667, COSMOS-1514*

P854(18/88)* Kondratyuk VA, Gnatyuk MS, Volkov KS.
***Structural reorganization of the liver in response to exposure to reclaimed drinking water with varying concentrations of sodium and potassium ions.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 87-90 ; 1988.
(9 references; none in English)

*Body Fluids, Liver Structure*
*Rats, Male*
*Life Support Systems, Reclaimed Water, Sodium, Potassium*

**ISSUE 20**

*PAPER*:

P932(20/88)* Zhidkov VV, Lobachik VI, Borisov GI, Zaychik VYe, Fedorov YuV, Biryukov YeG.
***A micromethod for measuring volume of extracellular fluid.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(4): 86-89; 1988.
[15 references; 3 in English]

*Body Fluids, Extracellular Fluid*
*Humans*
*Equipment and Instrumentation, Micromethod*

*CONFERENCE REPORT:*

CR11(20/88) Ivanovna LN.
***Report on: Conference on Problems of Physiology and Pathology of Calcium Metabolism and Its Regulation," Riga, November, 1987.***
Fiziologicheskiy Zhurnal.
LXXIV(6): 903-905

*Body Fluids, Renal Physiology, Fluid-Electrolyte Metabolism, Calcium, Nutrition, Vitamin D, Vitamin K, Space Flight, Hypokinesia, Exercise*
*KEY WORDS:.*

# BOTANY

## ISSUE 15

*PAPERS*:

P643(15/88) Zhvalikovskaya VP.
***Use of higher plants for genetic monitoring of space flights.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 271-273.

*Genetics, Genetic Monitoring, Chromosome Aberrations*
*Botany, Higher Plants*
*Space Flight, Radiobiology, Galactic Radiation, Temperature*

P651 (15/88) Kostina LN, Balayeva AV, Anikeyeva ID, Rusin SV.
***Study of mutability of plants exposed to the effects of HZE particles in experiments on board Salyut-6 and with an accelerator.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga 25-27 June 1986].
Moscow: Nauka; 1986.
Pages:317-318.

*Genetics, Mutations, Mitosis*
*Botany, Air-dried Seeds, Arabidopsis, Crepis capillaris*
*Space Flight, Salyut-6; Radiobiology, HZE*

P649(15/88) Akatov YuA, Maksimova YeN, Marennyy AM, Nevsgodina LV.
***Study of the effects of radiation factors on biological subjects in flight experiments on Salyut-6 and Salyut-7 space stations.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 305-306.

*Radiobiology, HZE, Biological Effects, Genetics, Aberrant Cells*
*Botany, Lettuce*
*Space Flight, Long-term, Salyut-6, Salyut-7*

# BOTANY

P685(15/88)* Aliyev AA, Nechitaylo GS, Novruzova ZA, Ragimova GK, Aleksperov UK.
***Modification of cytogenetic, anatomical, and physiological changes in cells and organs of sprouts by biologically active compounds after long-term space flight.***
Zhurnal Obshchey Biologii.
XLVIII (6): 723-727; 1987.
[18 references; 6 in English]
Authors' Affiliation: Botanical Institute, Azerbaijan Academy of Sciences, Baku

*Botany, Cytogenetic, Anatomical, Physiological Changes; Germination Rate, Growth Rate, Mitotic Activity*
*Botany, Welsh Onion, Air-Dried Seeds*
*Space Flight, Long-Term, Salyut-7; Natural Aging; Biologically Active Compounds, Auxin, Alpha-tocopherol*

**ISSUE 16**

*PAPERS*:

P728(16/88) Abilov ZK, Aliyev AA, Novruzova ZA, Mashinskiy AL, Ragimova GK, Alekperov UK, Fadeyeva SN.
***Functional, morphological and anatomical changes in sprouts of orchids cultivated during a 110-day space flight.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 263

*Botany, Functional, Morphological, and Anatomical Changes*
*Orchids*
*Space Flight, 110-day, Salyut-7*

P737(16/88) Sychev VN, Galkina TB.
***Investigation of the developmental dynamics of a Chlorella population and its age structure after exposure to weightlessness.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 297-299.

*Botany, Microbiology, Population Dynamics, Age Structure*
*Chlorella*
*Space Flight, Salyut-6, Short-term*

# BOTANY

## ISSUE 17

*PAPERS:*

P787(17/88) Kostina LN, Anikeyeva IL, Vaulina EN.
***The effect of space flight factors on developing plants.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986. Page: 277.

*Genetics, Chromosome Restructuring, Mutability; Developmental Biology, Plant Development; Life Support Systems*
*Botany, Crepis capillaris, Arabidopsis thaliana*
*Space Flight, Soyuz-16, Salyut-5, -6, -7; Radiobiology, Heavy Ions, Galactic Radiation*

P790(17/88) Abramova VM, Marennyy AM.
***The effect of multicharged ions of galactic radiation on Arabidopsis seeds.***
In: Gazenko OG (editor).Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986]. Moscow: Nauka; 1986. Page:305.

*Genetics, Mutation; Developmental Biology, Growth and Fertility*
*Botany, Arabidopsis, Seeds*
*Space Flight, COSMOS-936, -1129, 1514; Radiobiology, Muilticharged Ions*

## ISSUE 19

*PAPER:*

P903(19/88) Merkis AI, Laurenavichyus RS, Shvyagzhdene DV.
***Study of the growth, development and embryogenesis of plants on board the Salyut-7 space station.***
In: Malinin VB, Kosmolinskiy FP, Kuznets Yel (editors). Perspectivy Razvitiya Kosmicheskoy Biomeditsiny v Svete Idey K.E. Tsiolkovskogo [Prospects for the Development of Space Biomedicine in Light of the Ideas of K.E. Tsiolkovsiy] Proceedings of the XXth and XXIst Lecture Series dedicated to the scientific legacy and development of the ideas of K.E. Tsiolkovskiy., Kaluga 1985, 1988. Section on Problems of Space Medicine and Biology.
Moscow: USSR Academy of Sciences: 1987.
Pages 56-62. [11 references; 6 in English]

*Developmental Biology, Development, Embryogenesis*
*Botany, Lettuce*
*Space Flight, Salyut-7*

**ISSUE 15**

*PAPERS*:

P623(15/88) At'kov OYu, Fomina GA.
***Results of echocardiographic measurements during a graded exercise test on a 237-day space flight.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 10-11.

*Cardiovascular and Respiratory Systems, Echocardiographic Parameters*
*Humans, Cosmonauts*
*Space Flight, Long-Term, Salyut-7; Physical Exercise Tests*

P624(15/88) At'kov OYu, Fomina GA.
***Hemodynamic status of members of the third Salyut-7 prime crew in response to an LBNP test.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages 11-12.

*Cardiovascular and Respiratory Systems, Hemodynamics, Echocardiography, Myocardium*
*Humans, Cosmonauts*
*Space Flight, Long-Term, Salyut-7, LBNP*

P625(15/88) Bayevskiy RM, Barsukova ZhV, Semenova TD, Tazetdinov IG.
***Use of mathematical analysis of cardiac rhythm to evaluate the functional state of cosmonauts performing EVAs.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages 12-13.

*Cardiovascular and Respiratory Systems, Cardiac Rhythm, Mathematical Modeling, Adaptation*
*Humans, Cosmonauts*
*Space Flight, EVA, Salyut-7*

# CARDIOVASCULAR AND RESPIRATORY SYSTEMS

P627(15/88) Itsekhovskiy OG, Alferova IV, Turchaninova VF, Polyakova AP, Golubchikova ZA, Domracheva MV, Volgin VA, Talavrinov VA, Kulev AP.
***Study of circulatory system response to a provocative two-stage test using a bicycle ergometer in cosmonauts on a 237-day flight.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 66-67.

*Cardiovascular and Respiratory Systems, Circulation; Physical Work Capacity*
*Humans, Cosmonauts*
*Space Flight, Long-Term, Physical Exercise, Provocative Test*

P628(15/88) Kotovskaya AR, Lyamin VR, Turbasov VD, Vil'-Vil'yams IF, Andreyeva VG, Antonenko LV, Vlasova NF, Galle NN.
***A study of cardiac bioelectric activity (EKG-DS) in members of Salyut-7 prime and visiting crews during launch and reentry.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 78-79.

*Cardiovascular and Respiratory Systems, Circulation; Physical Work Capacity*
*Humans, Cosmonauts*
*Space Flight, Long-Term, Physical Exercise, Provocative Test*

P629(15/88) Nikulina GA, Bogomolov VA, Zhernakov AV, Shigoleva TV.
***Principles for analyzing the results of dynamic electrocardiograms in the readaptation period following space flight.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 101-102.

*Cardiovascular and Respiratory Systems, Dynamic Electrocardiograms*
*Humans, Cosmonauts, Individual Differences*
*Space Flight, Short-Term, Long-Term; Adaptation, Postflight Readaptation*

# CARDIOVASCULAR AND RESPIRATORY SYSTEMS

P631(15/88) Turbasov VD, Golubchikova ZA, Lyamin VR, Romanov YeM.
***Results of electrocardiographic examinations of Salyut-7--Soyuz prime crews.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Page: 143.

*Cardiovascular and Respiratory Systems, Electrocardiography*
*Humans, Cosmonauts*
*Space Flight, Long-Term, Salyut-7*

P641(15/88) Badakva AM, Bazunova YeG, Kulayev BS, Chamurliyev GG.
***Dynamics of central circulation and external respiration parameters in a monkey during space flight.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 263.

*Cardiovascular and Respiratory Systems, Central Circulation, External Respiration*
*Primates, Monkey*
*Space Flight*

P660(15/88)* Abrosimov SV, Zhidkov VV, Endeka DK, Lobachik VI, Korol'kov VI, Il'in YeA.
***The effects of space flight factors on blood circulation in primates.***
Kosmicheskaya Biologiya i Aviaskosmicheskaya Meditsina.
21(5): 10-13; 1987.
[8 references; 1 in English]

*Cardiovascular and Respiratory Systems, Circulation*
*Primates, Rhesus Monkeys*
*Space Flight, COSMOS-1667*

P673(15/88)* Strongin GL, Turetskaya AS, Gel'man BL, Rodionov ON.
***Predicting complications of cardiovascular disease in flight crews.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(5): 57-62; 1987.
[14 references; 4 in English]

*Cardiovascular and Respiratory Systems, Complications, Prognosis*
*Humans, Flight Crews*
*Operational Medicine, Diagnostic Prediction*

P678(15/88)* Krasnov IB, Nosova YeA.
***Activity of Ca2+, Mg2+-ATPase myosin in the myocardia of rats after 30-days of exposure to 1.1 and 2-g.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(5): 72-73; 1987. [17 references; 7 in English]

*Cardiovascular and Respiratory Systems, Myocardia, Ca2+, Mg2+-ATPase myosin*
*Rats*
*Hypergravity, Centrifugation; Adaptation*

P680(15/88)* Modin AYu.
***Comparison of orthostatic intolerance after immersion in horizontal and vertical positions.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(5): 77-79; 1987.

*Cardiovascular and Respiratory Systems, Orthostatic Intolerance, Deconditioning*
*Humans, Males*
*Immersion, Horizontal and Vertical Positions, Tilt Test*

**ISSUE 16**

*PAPERS*:

P686(16/88)* Romanov YeM, Artamonova NP, Golubchikova ZA, Zavadovskiy AF, Korotayev MM, Lyamin, VR, Turbasov VD.
***Results of longitudinal electrocardiographic observation of cosmonauts.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(6): 10-14; 1987.[14 references; 3 in English]

*Cardiovascular and Respiratory Systems, Electrocardiograms*
*Humans, Cosmonauts, Longitudinal Study*
*Spaceflight, Long- and Short-term Flights, Multiple Flights*

P695(16/88)* Kayfadzhyan MA, Tikunov BA.
***The effects of cardioactive compounds on myocardial actomyosin in rats undergoing acceleration.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(6): 47-49; 1987.
[16 references; 8 in English]

*Cardiovascular and Respiratory Systems, Myocardial Actomyosin*
*Rats*
*Acceleration, +Gx, Cardioactive Compounds*

P697(16/88)* Yarullin KhKh, Vasil'yeva TD, Neumyvakin IP.
***Effect of exogenous contrapulsation synchronized with heart rhythm on regional and central hemodynamics in humans.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(6):54-58; 1987.
[16 references; 6 in English]

*Cardiovascular and Respiratory Systems, Hemodynamics, Central and Regional*
*Humans, Males*
*Exogenous Contrapulsation*

P698(16/88)* Breslav IS, Isayev GG, Rymzhanov KS.
***The effect of oxygen inhalation on the respiratory function during exercise and additional resistance to respiration.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(6):59-62; 1987.
[21 references; 9 in English]

*Cardiovascular and Respiratory Systems, Respiratory Function*
*Humans, Males*
*Oxygen Inhalation, Physical Exercise, Resistance to Respiration*

P703(16/88)* Nekhayev AS, Vlasov VD, Stepanov VK, Andriyenko Yul.
***The effect of a hypercapnic-hypoxic test on the cardiorespiratory parameters of individuals with neurocirculatory dystonia.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(6): 83-86; 1987.
[12 references; 1 in English]

*Cardiovascular and Respiratory Systems, Cardiovascular Parameters*
*Humans, Pilots, Patients, Neurocirculatory Dystonia*
*Hypercapnic-Hyperoxic Test*

P705(16/88)* Belkaniya GS, Galustyan MV, Dartsmeliya VA, Demin AN.
***Hemodynamic effects of beta-adrenoblockade by obzidan in horizontal and upright positions.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(6): 90-94; 1987.
[15 references; 5 in English]

*Cardiovascular and Respiratory Systems, Hemodynamics*
*Humans, Males, Typology*
*Beta-Adrenoblockade, Drugs, Obzidan, Horizontal and Vertical Positions*

P715(16/88)Lapayev EV, Bednenko VS, Vorob'yev OA, Artamonov IN, Zaritskiy VV.
***The effect of vestibuloautonomic stimulation and hypokinesia on regional hemodynamics.***
Izvestiya Akademii Nauk SSSR. Seriya Biologicheskaya.
1987(6): 805-813.
[31 references; 5 in English]

*Cardiovascular and Respiratory Systems, Hemodynamics, Regional*
*Humans*
*Neurophysiology, Vestibuloautonomic Stimulation, Coriolis Acceleration, Hypokinesia with Head-Down Tilt, Motion Sickness*

**ISSUE 17**

*PAPERS*:

P749(17/88)* Yegorov AD, Anashkin OD, Itsekhovskiy OG, Alferova IV, Golubchikova ZA, Lyamin VR, Pokyakova AP, Turchaninova VF, Talavrinov VA, Turbasov VD.
***Results of medical research performed in 1985 during long-term space flights.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 4-7; 1988.
(no references)

*Cardiovascular and Respiratory Systems, Operational Medicine*
*Humans, Cosmonauts*
*Space Flight, Salyut-7, Soyuz-T-13, Soyuz-T-14; Provocative Tests, LBNP, Physical Exercise*

P750(17/88)* Genin AM, Modin AYu, Shashkov VS.
***State of hemodynamics in humans under conditions of immersion in different positions.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 7-10; 1988.
(3 references; none in English)

*Cardiovascular and Respiratory Systems, Hemodynamics*
*Humans, Male*
*Immersion, Positions*

P774(17/88) Balldin U (Stockholm).
***Positive pressure breathing and physical conditioning to decrease cardiovascular deconditioning in cosmonauts.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 15-16.

*Cardiovascular and Respiratory Systems, Deconditioning*
*Humans, Cosmonauts, Pilots; Theoretical Article*
*Positive Pressure Breathing, Physical Exercise*

P775(17/88) Glod GS, Migachev SD, Plakhotnyuk LS, Khomenko MN.
***Reactions of the cardiovascular system in individuals with different levels of tolerance for gravitation.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 34-35.

*Cardiovascular and Respiratory Systems, Hemodynamics*
*Humans, Individual Differences*
*Acceleration, Tolerance, Gravitation*

P777(17/88) Domashuk Yu (Warsaw).
***The use of excess pressure in increasing pilots' tolerance of +Gz acceleration.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 53-54.

*Acceleration Tolerance*
*Humans, Pilots*
*Cardiovascular and Respiratory Systems, Excess Pressure Breathing*

P778(17/88) Kotovskaya AR, Vil'-Vil'yams IF, Luk'yanyuk VYu, Andreyeva VG, Gordov AM, Artamonova NP.
***Acceleration tolerance in older individuals with health problems before and after simulated weightlessness.***
In: Gazenko OG (editor)
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 79-80.

*Cardiovascular and Respiratory Systems, Acceleration Tolerance*
*Human, Older Individuals, Patients*
*Hypokinesia*

P788(17/88) Krotov VP, Sandler N, Badakva AM, Hines J., Hazin AN, Halprin B (Moscow, Moffett Field)
***Changes in blood pressure and rate of blood flow in a monkey exposed to space flight.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 281-282.

*Cardiovascular and Respiratory Systems, Blood Pressure, Blood Flow Rate*
*Monkey*
*Space Flight, COSMOS-1514*

P759(17/88)* Vil'-Vil'yams IF, Korol'kov VI, Krotov VP, Shipov AA, Andreyeva VG, Tabakova LA, Kholin SF, Truzhennikov AN, Gordeyev YuV.
***+Gz acceleration tolerance in rhesus macaque monkeys.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 40-45; 1988.
(2 references; 1 in English)

*Cardiovascular and Respiratory System, EKG Parameters*
*Primates, Rhesus Macaques; Individual Differences, Selection*
*Tolerance, Acceleration, +Gz*

P796(17/88) Starikov LI.
***Cerebral hemodynamics in pilots during tilt tests.***
Voyenno-Meditsinskiy Zhurnal.
1987(12): 44-47.
[12 references; none in English]
Author's affiliation: Military Medical Corps

*Cardiovascular and Respiratory Systems, Hemodynamics, Cerebral*
*Humans, Pilots; Individual Differences*
*Tilt Tests, Orthostatic Tolerance*

P798(17/88) Tagiyeva SA, Azizov VA, Babayev AA.
***Changes in hemodynamics in patients suffering from ischemic heart disease in response to isometric exercise combined with head-down tilt.***
Kardiologiya.
XXVII(12): 66-68; 1987.
[15 references; 3 in English]
Authors' affiliation: Azerbaijan Medical Institute, Baku

*Cardiovascular and Respiratory Systems, Hemodynamics*
*Humans, Patients, Ischemic Heart Disease*
*Physical Exercise, Isometric; Head-Down Tilt*

**ISSUE 18**

*PAPERS*:

P833(18/88)* Iseyev LR, Mednykh AYa, Vorob'yev VYe, Abdrakhmanov VR.
***$CO_2$ sensitivity of the respiration regulation system under conditions simulating space flight***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 16-20 ; 1988.
(13 references; 2 in English)

*Cardiovascular and Respiratory Systems, Respiration Regulation*
*Humans, Males*
*Space Flight Simulation, Isolation, Hypokinesia with Head-Down Tilt, Hypercapnia*

P839(18/88)* Stazhadze LL, Borob'yev VYe, Repenkova LG, Kovachevich IV, Ivchenko VF, Kal'yanova VN.
***Clinical and physiological aspects of oxygen supply to tissues in the human body under conditions of hypokinesia with head-down tilt.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 45-49 ; 1988.
(20 references; 3 in English)

*Cardiovascular and Respiratory Systems, Tissue Oxygenation*
*Humans, Male*
*Hypokinesia with Head-Down Tilt*

P846(18/88)* Lobanok LM, Kiriyenko AYe.
***Effects of hypoxia and reoxygenation on the contractility of the isolated heart of rats varying in age.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 70-72 ; 1988.
(10 references; 2 in English)

*Cardiovascular and Respiratory Systems, Cardiac Contractility*
*Rats, Age Differences*
*Hypoxia, Reoxygenation*

**ISSUE 19**

*PAPERS*:

P861(19/88)* Artamanova NP, Turbasov VD, Georgiyevskiy VS, Golubchikova ZA, Lyamin VR, Potapova MG, Tolmacheva MYa, Nechayeva EI, Zakharova TS.
***The effect of long-term hypokinesia on bioelectric cardiac activity in healthy men.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): 31-37; 1988.
(38 references; 4 in English)

*Cardiovascular and Respiratory Systems, Cardiac Bioelectric Activity*
*Humans, Men*
*Hypokinesia, Long-Term, Physical Exercise, Pharmacological Countermeasures, Metabolism, Mineral, Lipid; Nutrition, Vitamin D*

# CARDIOVASCULAR AND RESPIRATORY SYSTEMS

P864(19/88)* Fatenkov VN.
***New information on cardiac biomechanics.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): 45-55 ; 1988.
(21 references; 10 in English)

*Cardiovascular and Respiratory Systems, Cardiac Biomechanics*
*Dogs*
*Contraction, Myocardial Layers, Interactions*

P866(19/88)* Barinyan SB, Oganesyan SS, Eloyan MA.
***The effect of neutral muscle proteases on contractile parameters of isolated strips of the myocardia of white rats during exposure to acceleration and a subsequent recovery period.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): 58-60 ; 1988.
(19 references; 14 in English)

*Cardiovascular and Respiratory Systems, Contractile Parameters*
*Rats*
*Acceleration, Enzymology, Musculoskeletal System, Muscle, Protease*

P868(19/88)* Goncharov IB, Ivanov AP, Savina VP, Repenkova LG, Yakovleva, MYe, Nikitin Yel.
***Evaluation of the effects of enterosorption in humans exposed to an altered gas medium.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): 64-66; 1988.
(10 references; 9 in English)

*Cardiovascular and Respiratory Systems, Central Circulation*
*Humans*
*Habitability and Environment Effects, Hermetically Sealed Environment, $CO_2$, CO;*
*Operational Medicine, Prophylactic Detoxification, Enterosorbent*

P885(19/88) Kovalev OA, Parfenova MA.
***Regional vascular effects of decreasing adrenergic activity in animals at rest and immobilized.***
Fiziologicheskiy Zhurnal SSSR im I.M. Sechenova.
74(4): 510-516; 1988.
[8 references; 2 in English]
Authors' affiliations: Central Scientific Research Laboratory; S.M. Kirov State Institute for Physician Training, Leningrad

*Cardiovascular and Respiratory Systems, Regional Vascular Effects*
*Rats*
*Endocrinology, Adrenergic Effects; Immobilization*

P889(19/88) Korzh SV, Polonskiy VV, Morozov LA, Nosov VN.
***Evaluating physical work capacity under conditions of hypokinesia.'***
Voyenno-meditsinskiy Zhurnal.
1988(4): 50-51.
[No references.]
Authors' Affiliations: Military Medical Corps

*Cardiovascular and Respiratory Systems, Orthostatic Reflex, Deconditioning*
*Human Performance, Work Capacity*
*Humans, Men*
*Hypokinesia, Limited Living Environment, Exercise*

P895(19/88) Kovalev OA, Korovin KF, Radchenko YeR, Parfenova MA.
***Characteristics of changes in circulation and adrenergic activation in rats confined in immobilization cages or restrained on a board***
Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya.
1988(1): 29-32.
[11 references; 1 in English]

*Cardiovascular and Respiratory Systems, Circulation; Endocrinology, Adrenergic Activity*
*Rats, Male*
*Immobilization, Cages, Restraint*

P896(19/88)* Muravov IB.
***The effects of therapeutic exercise on patients undergoing long periods of of hypokinesia (bed rest).***
Voprosy Kurortologii Fizioterapii i Lechebnoy Fizichesko Kul'turu.
1988(2): 25-29.
[11 references; 1 in English]
Author's Affiliation: Institute of Physical Culture, Kiev

*Cardiovascular and Respiratory Systems, Heart Rate, Blood Pressure*
*Humans, Patients, Heart Disease; Healthy*
*Hypokinesia, Bed Rest; Exercise*

**ISSUE 20**:

*PAPERS*:

P912(20/88) Galichiy VA.
***Characteristics of biological rhythms in parameters of human external respiration during tilt tests.***
Fiziologiya Cheloveka.
14(4): 577-585; 1988.
[14 references; 3 in English]

*Cardiovascular and Respiratory Systems, External Respiration; Biological Rhythms*
*Humans*
*Tilt Tests*

P916(20/88)* Yegorov AD, Alferova IV, Polyakova AP.
***State of cardiodynamics under conditions of long-term weightlessness.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(4): 19-26; 1988.
[26 references; 10 in English]

*Cardiovascular and Respiratory Systems, Cardiac Cycle*
*Humans, Cosmonauts*
*Space Flight, Salyut-6, Salyut-7, Long-Term. LBNP, Physical Exercise*

## CARDIOVASCULAR AND RESPIRATORY SYSTEMS

P917(20/88)* Suvorov PM, Ivanchikov AP, Kondakov AV, Sidorova KA.
***Investigation of hemodynamic response to a modified tilt test in individuals varying in their tolerance of +Gz acceleration.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(4): 27-30; 1988.
[15 references; 4 in English]

*Cardiovascular and Respiratory Systems, Hemodynamic Response*
*Humans, Individual Differences, Acceleration Tolerance*
*Tilt Test*

P921(20/88)* Vilkov VG, Shamarin VM. Shal'nova SA, Dmitriyeva VS.
***The effect of exercise on changes in blood pressure, heart rate and electrocardiogram measured in upright position.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(4): 43-47; 1988.
[23 references; 9 in English]

*Cardiovascular and Respiratory Systems, Blood Pressure, Heart Rate, EKG*
*Humans, Males and Females, Patients, Hypertension, Ischemic Heart Disease*
*Exercise, Upright Position*

P934(20/88)* Vorob'yev VYe, Goncharov IB, Abdrakhmanov VR, Voronina SG.
***Characteristics of changes in cardiac output and blood gases in humans exposed to simulated weightlessness.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(4): 94-96; 1988.
[6 references; 3 in English]

*Cardiovascular and Respiratory Systems, Cardiac Output, Blood Gases*
*Humans, Males*
*Hypokinesia with Head-Down Tilt, Long-Term*

*MONOGRAPH:*

M140(20/88) Yu. Vedru (editor).
Klinicheskiye, matematicheskiye i inzhenernyye problemy sportivnoy meditsiny [***Clinical, mathematical and engineering issues in sports medicine.***]
Tartu [Estonia]: Tartu State University [Press]: 1988.
Affiliation: Tartu State University

*KEY WORDS: Cardiovascular and Respiratory Systems, Cardiac Volume, External Respiration, Operational Medicine, Exercise, Sports, Mathematical Modeling, Equipment and .Instrumentation*

# CYTOLOGY

**ISSUE 18**

*PAPER*:

P823(18/88) Butey M. (Paris)
***Preliminary results and prospects in the study of the effects of microgravity on cell biology.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986]. Moscow: Nauka; 1986.
Pages: 309.

*Cytology, Cell Biology; Neurophysiology, Cerebellar Neurons*
*Rats, Developmental Biology, Embryos; Hybridoma*
*Space Flight, COSMOS-1514; Clinostatting*

# DEVELOPMENTAL BIOLOGY

**ISSUE 15**

*PAPERS*:

P644(15/88) Makeyeva VF, Yegorov IA.
***Concentration of nucleic acids and protein in the mother-fetus system of rats after space flight.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 285-286.

*Developmental Biology, Mother-Fetus System, Metabolism, Nucleic Acids and Protein; Reproductive Biology*
*Rats, Female, Pregnant*
*Space Flight, COSMOS-1514*

P663(15/88)* Cherdantseva YeM.
***Embryonic development of guppies in weightlessness.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(5): 22-25; 1987.
[10 references; 8 in English]

*Developmental Biology, Embryonic Development; Reproductive Biology*
*Fish, Guppies, Female, Pregnant*
*Space Flight, COSMOS-1514*

P684(15/88) Olenev SN, Danilov AR, Kryuchkova TA, Sorokina LM, Krasnov IB.
***The effects of weightlessness on some brain development parameters (results of exposure of pregnant rats on the COSMOS-1514 biosatellite and study of the subsequent development of their offspring on Earth).***
Arkhiv Anatomii, Gistologii i Embriologii.
XCIII(9): 20-25; 1987.
[13 references; 2 in English]
Authors' Affiliation: Leningrad Pediatric Medical Institute

*Developmental Biology, Neurophysiology, Brain Development*
*Rats, Female*
*Space Flight, COSMOS-1514*

# DEVELOPMENTAL BIOLOGY

## ISSUE 16

*PAPERS*:

P689(16/88)* Benova DK. (Hungary).
***Study of the genetic structures of sex cells of rats after flight on the COSMOS-1514 biosatellite during prenatal development.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(6): 24-27; 1987.
[15 references; 5 in English]

*Developmental Biology; Genetics; Reproductive Biology, Spermatocytes*
*Rats, Female, Pregnant; .Male*
*Space Flight, COSMOS-1514*

P734(16/88) Oygenblink ZA.
***Growth and development of larva of Rana temporaria after exposure to increased gravity.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 288-289.

*Developmental Biology, Growth and Development*
*Larva, Amphibians, Frogs, Rana temporaria*
*Gravitational Biology, Increased Gravity, Centrifugation*

## ISSUE 17

*PAPERS*:

P755(17/88)* Viktorov IV, Shashkova NA, Privat A, Drian M-J. (USSR, France) Growth and
***differentiation of cells in [organo]typical cultures of the cerebellum of rat embryos developing in weightlessness.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 25-29; 1988.
(9 references; 5 in English)

*Developmental Biology, Cytology, Cell Growth and Differentiation; Neurophysiology, Cerebellum*
*Rats, Embryos*
*Space Flight, COSMOS-1514*

# DEVELOPMENTAL BIOLOGY

P786(17/88) Denisova LA, Pustynnikova AM.
***The effects of weightlessness and hypergravity on skeletal development in white rats during prenatal ontogenesis.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 269-270.

*Developmental Biology; .i.Musculoskeletal System, Skeletal Development*
*Rats, Prenatal Ontogenesis; Reproductive Biology, Females, Pregnant*
*Space Flight, COSMOS-1514; Hypergravity, Centrifugation*

P766(17/88)* Kurochkin YuN, Belkaniya GS.
***Developmental patterns during postnatal ontogenesis of lower primates.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 66-70; 1988.
(14 references; 2 in English)

*Developmental Biology, Growth Patterns*
*Primates, Rhesus Macaques, Males*
*Postnatal Development*

**ISSUE 19**

*PAPERS*:

P886(19/88)* Parfenov GP, Oygenblik EA.
***The effects of hypergravity on embryonic development and survival in amphibians.***
Izvestiya Akademii Nauk SSR: Seriya Biologicheskaya.
1988(3): 346-351.
[20 references; 10 in English]
Authors' affiliation: Institute of Biomedical Problems; USSR Ministry of Health, Moscow.

*Developmental Biology, Embryonic Development, Survival*
*Amphibian, Grass Frog*
*Gravitational Biology, Hypergravity, Centrifugation*

# ENDOCRINOLOGY

P893(19/88)Serova LV, Kvetnyanski R, Vigash M, Knopp Ya, Makho L.
***The effects of weightlessness on the development of the endocrine system in mammals.***
In: Polenov AL, editor.
Endokrinnaya Sistema Organizma i Vrednyye Faktory Vneshney Sredy: III Vsecoyuznaya Konferentsia (8-10 Sentyabrya 1987) [The Endocrine System and Adverse Environmental Factors: IIIrd All-Union Conferences (8-10 September 1987) [Paper Abstracts].
Leningrad: 1987. Page 205
Affiliation (book): USSR Academy of Sciences, Scientific Council on Visceral Systems, I.P. Pavlov Institute of Physiology, I.M. Sechenov Institute of Evolutionary Physiology and Biochemistry, Leningrad Research Institute on Industrial Hygiene and Occupational Diseases, Samarkand Medical Institute
Author's Affiliation: Institute of Biomedical Problems (first author); Institute of Experimental Endocrinology, Czech Academy of Sciences, Bratislava, Czechoslovakia

*Developmental Biology, Endocrinology*
*Rats, Female, Pregnant*
*Space Flight, COSMOS-1514*

**ISSUE 16**

*PAPERS*:

P690(16/88)* Alekseyev Yel.
***Morphofunctional state of the hypothalamus-pituitary neurosecretory system in rats exposed to space on the COSMOS-1667 biosatellite.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(6):27-31; 1987.
[7 references; 7 in English]

*Endocrinology, Hypothalamus-Pituitary System; Morphology; Body Fluids*
*Rats, Males*
*Space Flight, Short-term, COSMOS-1667, Gravitational Biology, Centrifugation, Hypokinesia*

P700(16/88)* Artsruni GG, Zil'fyan AV, Azgaldyan NR, Dovlatyan RA.
***The effect of an external electric field on catecholamine secretion of the adrenal glands of rats.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(6):67-70; 1987.
[10 references; 2 in English]

*Endocrinology, Adrenal Glands, Catecholamines*
*Rats*
*Electric Field, External*

# ENDOCRINOLOGY

P733(16/88) Kvetnyanski R, Torda T, Blazhichek P, Chulman Yu, Makho L, (Czechoslovakia).
***Study of the levels of catecholamines and adrenergic receptors in rats after flights on COSMOS biosatellites.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 275-276.

*Endocrinology, Sympathetic-Adrenal System, Catecholamines, Adrenergic Receptors; Enzymology*
*Rats, Males; .i.Reproductive Biology, Females*
*Space Flight, Short-term, COSMOS-1129, -1667, Psychology, Immobilization Stress*

**ISSUE 18**

*PAPERS*:

P834(18/88)* Shubnikova YeA, Dobryakova AV.
***Ultrastructure of the submandibular glands of rats in weightlessness.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 20-26 ; 1988.
(9 references; 2 in English)

*Endocrinology, Salivary, Submandibular Glands*
*Rats*
*Space Flight, COSMOS-1667*

P835(18/88)* Plakhuta-Plakutina GI, Dmitriyeva NP, Amirkhanyan YeA.
***The thyroid C-cell system in rats after space flight on the COSMOS-1667 biosatellite.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 26-32 ; 1988.
(15 references; 5 in English)

*Endocrinology, Thyroid, C-Cell Systems*
*Rats, Male*
*Space Flight, COSMOS-1667*

# ENDOCRINOLOGY

## ISSUE 19

*PAPER*:

P867(19/88)* Mamalyga LM.
***Neurochemical and morphological studies of hypothalamic structures in stress.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): 61-64 ; 1988.
(20 references; 3 in English)

*Endocrinology, Hypothalamus; Neurophysiology, Neurochemicals*
*Rats, Male*
*Psychology, Stress*

P890(19/88) Zagorskaya YeA.
***Functional state of the adrenal cortex of rats exposed to hypokinesia: Results of morphological and biochemical analysis.***
In: Polenov AL, editor.
Endokrinnaya Sistema Organizma i Vrednyye Faktory Vneshney Credy: III Vsecoyuznaya Konferentsia (8-10 Sentyabrya 1987) [The Endocrine System and Adverse Environmental Factors: IIIrd All-Union Conferences (8-10 September 1987) [Paper Abstracts].
Leningrad: 1987. Page 78.
Affiliation (book): USSR Academy of Sciences, Scientific Council on Visceral Systems, I.P. Pavlov Institute of Physiology, I.M. Sechenov Institute of Evolutionary Physiology and Biochemistry, Leningrad Research Institute on Industrial Hygiene and Occupational Diseases, Samarkand Medical Institute
Author's Affiliation: Institute of Biomedical Problems

*Endocrinology, Adrenal Cortex*
*Rats, Male*
*Hypokinesia, Immobilization Cages, Psychology, Immobilization Stress, Restraint*

P891(19/88) Prodan NG.
***Investigation of the medullary substance of the adrenal glands of rats in an experiment on the "COSMOS-1667" biosatellite.***
In: Polenov AL, editor.
Endokrinnaya Sistema Organizma i Vrednyye Faktory Vneshney Credy: III Vsecoyuznaya Konferentsia (8-10 Sentyabrya 1987) [The Endocrine System and Adverse Environmental Factors: IIIrd All-Union Conferences (8-10 September 1987) [Paper Abstracts].
Leningrad: 1987. Page 190.
Affiliation (book): USSR Academy of Sciences, Scientific Council on Visceral Systems, I.P. Pavlov Institute of Physiology, I.M. Sechenov Institute of Evolutionary Physiology and Biochemistry, Leningrad Research Institute on Industrial Hygiene and Occupational Diseases, Samarkand Medical Institute
Author's Affiliation: Institute of Biomedical Problems

*Endocrinology, Adrenal Glands, Medullary Substance*
*Rats*
*Space Flight, COSMOS-1667*

# ENDOCRINOLOGY

**ISSUE 20**

*PAPERS*:

P928(20/88)* Kirillov OI, Kurilenko LA.
***The effect of long-term hypokinesia on the androgen system of rats.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(4): 74-76; 1988.
[20 references; 11 in English]

**ISSUE 16**

*PAPERS*:

P704(16/88)* Vetrova YeG. Popova IA.
***Activity of oxidative enzymes in response to graded physical exercise in healthy individuals and patients with neurocirculatory dystonia.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(6): 86-89; 1987.
[9 references; 4 in English]

*Enzymology, Oxidative Enzymes; Metabolism*
*Humans, Patients, Neurocirculatory Dystonia*
*Physical Exercise*

**ISSUE 18**

*PAPERS*:

P809(18/88) Kukhta VK, Morozkina TS, Listsyna LP, Zakharenko IV, Mal'kovets IG, Karpova IN.
***The enzymatic system for initiating and providing protection from [i.e., inhibiting] lipid peroxidation in liver tissue and blood of rats undergoing hypokinesia.***
Voprosy Meditsinskoy Khimii.
34(1): 19-22; 1988.
[13 references; 4 in English]
Authors' Affiliation: Minsk Medical School

*Enzymology, Metabolism, Lipid Peroxidation, Liver, Blood*
*Rats*
*Hypokinesia*

**ISSUE 20**

*PAPERS*:

P927(20/88)* Vetrova YeG, Drozdova TYe, Popova IA.
***The effect of horizontal hypokinesia and hypokinesia with head-down tilt on activity of serum enzymes.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(4): 70--73; 1988.
[16 references; 2 in English]

*Enzymology, Hematology, Serum Enzymes*
*Humans, Males*
*Hypokinesia, Bed Rest, Horizontal, Head-Down Tilt*

# EXOBIOLOGY

## ISSUE 15

*PAPER*:

P652(15/88) Yurov SS, Akoyev IG.
***The possible role of the local radiation factor in space in the creation of the prerequisites for prebiological evolution.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Page: 329.

*Exobiology, Prebiotic Evolution; Biospherics*
*Theoretical Article*
*Space, Radiobiology, Local Radiation*

## ISSUE 17

*PAPER*:

P795(17/88)* Strigunkova TF, Lavrent'yev GA, Yegorov IA.
***Polycondensation of adenosine cyclic phosphate on the surface of clay minerals under exposure to humidity and temperature fluctuation.***
Zhurnal Evolyutsionnoy Biokhimii i Fiziologii.
XXIII(5): 569-574; 1987.
[8 references; 8 in English]
Authors' Affiliation: Institute of Biochemistry, USSR Academy of Sciences.

*Exobiology, Abiogenic Synthesis*
*Nucleotides*
*Cyclic AMP, Clay, Temperature and Humidity Fluctuations*

## ISSUE 18

*PAPERS*:

P857(18/88)* Telegina TA, Pavlovskaya TYe.
***Melanin-melanoidin catalysts in the abiogenic synthesis of peptides.***
Izvestiya Akademii Nauk SSSR: Seriya Biologicheskaya.
1988(1): 112-116.
[25 references; 15 in English]
Authors' affiliation: A.N. Bakh Institute of Biochemistry, USSR Academy of Sciences, Moscow.

*Exobiology, Abiogenic Synthesis*
*Peptides, Protein Precursors*
*Melanin-Melanoidin Catalysts, Ultraviolet Radiation*

**ISSUE 19**

*PAPER*:

P883(19/88) Kuzicheva YeA, Tsupkina NV, Potapova NG.
***The effects of individual flight factors on the abiogenic synthesis of nucleotides.***
Zhurnal Evolutsionnoy Biokhimii i Fiziologii.
24(1): 3-7; 1988.
[15 references; 5 in English]
Authors' affiliation: Institute of Cytology, USSR Academy of Sciences, Leningrad

*Exobiology, Abiogenic Synthesis*
*Nucleotides*
*Space Flight. Salyut-7; Thermal Energy*

**ISSUE 20**

*PAPER*:

P941(20/88) Chetkauskayte AV, Grinyus LL, Mukhin LM.
***The stimulating effects of polyphosphates on the formation of peptides from glycine and phenylalanine amine under abiogenic conditions.***
Zhurnal Evolyutsionnoy Biokhimii i Fiziologii.
XXIV(4): 465-470; 1988.
[17 references; 14 in English]

*Exobiology, Abiogenic Synthesis*
*Nucleotides*
*Space Flight. Salyut-7; Thermal Energy*

# GASTROINTESTINAL SYSTEM

## ISSUE 17

*PAPERS*:

P776(17/88) Groza P, Bordeyanu A (Bucharest).
***The effectiveness of hypokinesia as a model for simulating space flight.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 48-49.

*Gastrointestinal System, Digestive Function*
*Rats*
*Space Flight, COSMOS-936, -1129, 1514, 1667; Immobilization Stress*

P784(17/88) Lentsner AA, Lentsner KhP, Mikel'saar ME, Tyuri ME, Toom MA, (Tartu), Liz'ko NN, Kegen'kov VI.
***Quantitative characteristics of digestive lactoflora of "Salyut-7" crews preflight.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 237-238.

*Gastrointestinal System; Microbiology, Digestive Lactoflora*
*Humans, Cosmonauts*
*Space Flight, Salyut-7, Preflight; Psychology, Stress*

## ISSUE 18

*PAPERS*:

P830(18/88) Smirnov KV, Goland-Ruvinova LG, Medkova IL, Goncharova NP, Zhiznevskaya OV, Pechenikina RA, Dobrokvashina Yel.
***Analysis of secretory processes in the gastrointestinal tract during long- term hypokinesia.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 363-364.

*Gastrointestinal System, Hypersecretion; Metabolism; Enzymology*
*Humans*
*Hypokinesia, Head-Down Tilt, Long-Term*

**ISSUE 19**

*PAPER*:

P878(19/88)* Bernkhardt Kh, Knopke M (GDR).
***The effect of stress on gastrointestinal microflora.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): ; 1988.
(No references)

*Gastrointestinal System, Dysbacteriosis*
*Microbiology, Intestinal Microflora: Humans*
*Endocrinology, Endocrine Stress*

# GENETICS

**ISSUE 15**

*PAPERS*:

P655(15/88) Filatova LP, Vaulina EN, Grozdova TYa, Lyapteva NSh.
***Genetic effects of exposure to space flight in Drosophila.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 299-300.

*Genetics, Chromosome Nondisjunction, Reproductive Biology, Gametes*
*Insects, Drosophila, Male, Female*
*Space Flight, Salyut-6*

P665(15/88)* Komolova GS, Zakaznov AV, Makeyeva VF.
***The effect of weightlessness on the replicative function of DNA in hepatocytes of rats.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(5): 31-34; 1987.
[8 references; none in English]

*Genetics, DNA, Replication, Hepatocytes*
*Rats*
*Space Flight, COSMOS-782, -1129, -1667; Immobilization, Stress*

P666(15/88)* Makeyeva VF, Komolova GS.
***RNA-synthesizing activity in the liver of rats after flight on the COSMOS- 1667 biosatellite.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(5): 34-36.
[9 references; 2 in English]

*Genetics, RNA-Synthesis, Enzymology, Liver*
*Rats, Male*
*Space Flight, COSMOS-1667*

# GENETICS

## ISSUE 16

*PAPER*:

P736(16/88) Smirnova AV.
***Frequency of nondisjunction of sex chromosomes under conditions of altered gravitational force.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 295-296.

*Genetics, Nondisjunction of Sex Chromosomes*
*Insects, Drosophila, Female*
*Gravitational Biology, Altered Gravity, Clinostatting, Acceleration; Radiobiology, Gamma-Irradiation*

## ISSUE 18

*PAPER*:

P850(18/88)* Mishurova Ye, Kropachova K (Czechoslovakia).
***Changes in chromatin and nucleic acids in rat tissues after short-term space flight.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 78-80 ; 1988.
(16 references; 4 in English)

*Genetics, Chromatin, Nucleic Acids, Lymphatic Organs*
*Rats, Males, Females, Sex Differences; .Reproductive Biology, Pregnancy*
*Space Flight, COSMOS-1514, COSMOS-1667*

## ISSUE 19

*PAPERS*:

P873(19/88)* Delone NL, Antipov VV.
***Genetic amplification as a model for the study of the biological effects of weightlessness.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): 84-86 ; 1988.
(6 references; 1 in English)

*Genetics, Amplification, RNA, rDNA*
*Tortoises*
*Space Flight, COSMOS-690*

# GENETICS

P879(19/88)* Delone NL, Antipov VV.
***Problems of variability in weightlessness.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): 4-15; 1988.
(58 references; 15 in English)

*Genetics, Variability, Mutation*
*Theoretical Articles, Research Program*
*Space Flight*

# GRAVITATIONAL BIOLOGY

## ISSUE 16

*PAPERS*:

P718(16/88) Yegorov AD.
***Mechanisms underlying changes in major physiological functions in humans exposed to weightlessness for long periods of time.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 58 - 60.

*Gravitational Biology; Musculoskeletal System; Neurophysiology; Body Fluids*
*Humans, Theoretical Article*
*Weightlessness, Long-term*

P735(16/88) Parfenov GP.
***The effect of the force of gravity on animal cells and organisms.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 289-290.

*Gravitational Biology, Animal Cells and Organisms*
*Theoretical Article, Microbiology, Eukaryotes, Prokaryotes; Multicellular Animals*
*Force of Gravity*

## ISSUE 18

*PAPER*:

P856(18/88)* Bryanov II, Yeremin AV, Stepantsov VI.
***On the significance of the gravitational factor in the final stage of space flight.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 93-95 ; 1988.
(17 references; none in English)

*KEY WORDS: Gravitational Biology, Space Flight, Reentry, Operational Medicine, Adaptation, Neurophysiology, Motion Sickness, Orthostatic Intolerance, Body Fluids, Fluid Redistribution, Cardiovascular and Respiratory Systems, Endocrinology, Musculoskeletal System, Provocative Tests, Deceleration, Impact, Psychology, Stress*

NOTE: This article is located at the back of Issue 18 as a special feature.

# GRAVITATIONAL BIOLOGY

*MONOGRAPH:*

M130(18/88) Gershuni GV. (editor)
Systemy organov chuvstv: Morfofunktsional'nyye aspekty evolyutsii [***Systems of sensory organs: Morphofunctional aspects of their evolution.]***
Leningrad: Nauka; 1988.
[189 pages]

*KEY WORD: Gravitational Biology, Evolution, Sensory Physiology, Vision, Olfaction, Hearing, Chemoreception, Information Processing*

**ISSUE 16**

*PAPER*:

P730(16/88) Miroshkina MB, Sled' AD.
***Cooperative activity and dynamics of intergroup interactions of an isolated small group.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 189-190.

*Group Dynamics, Small Group, Isolated, Group Performance*
*Humans*
*Intergroup Interactions, Interaction Style*

# HABITABILITY AND ENVIRONMENT EFFECTS

## ISSUE 15

*PAPERS:*

P636(15/88) Bizin YuP, Bogatova RI.
***Hygienic approaches to evaluating safety during the performance of technological experiments in space.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages 219-220.

*Habitability and Environment Effects, Safety*
*Humans, Cosmonauts*
*Equipment and Instrumentation, Technological Flight Experiments*

P672(15/88)* Berlin AA, Chekanova SL.
***Investigation of the composition of wash water of men and women.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(5): 53-57; 1987.
[4 references; none in English]

*Habitability and Environment Effects, Water Reclamation Systems*
*Humans, Men and Women*
*Wash Water, Composition*

P679(15/88)* Pashin SS, Ushakov VF, Gorshunova AI, Ostasheva NYe, Stadukhin YeB, Chukhno EI.
***Toxicokinetic aspects of use of sulphur hexafluoride in a hermetically sealed environment.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(5): 74-77; 1987.
[15 references; 4 in English]

*Habitability and Environment Effects, Toxicology, Hermetically Sealed Environment*
*Rats, Male*
*Sulphur Hexafluoride*

**ISSUE 17**

*PAPERS*:

P763(17/88)* Savina VP, Anisimov BV.
***The effect of prolonged inhalation of acetic acid vapor on certain physiological functions in humans.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 57-60; 1988.
(17 references; 2 in English)

*Habitability and Environment Effects, Physiological Effects*
*Humans*
*Hermetically Sealed Living Quarters, Acetic Acid, Polymers, Heat*

P764(17/88)* Kondratyuk VA, Gnatyuk MS.
***Cardiac rhythm in animals consuming reclaimed water varying in concentration of sodium and potassium ions.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 61-63; 1988.
(9 references; 1 in English)

*Cardiovascular and Respiratory Systems, Cardiac Rhythm; Neurophysiology, Autonomic Nervous System*
*Rats*
*Habitability and Environment Effects, Life Support Systems, Reclaimed Water, Potassium, Sodium*

P765(17/88)* Mironets NV, Savina RV, Kucherov IS, Solntseva VV, Matyshchenko NV.
***Determining maximum acceptable level of urea in reclaimed drinking water and its biological effects.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 63-66; 1988.
(10 references; none in English)

*Habitability and Environment Effects, Biological Effects, Standard Setting*
*Rats, Guinea Pigs, Mice, Rabbits, Humans*
*Reclaimed Drinking Water, Urea*

P773(17/88)* Zvershkhanovskiy FA, Simoyan MA, Pilipenko YuA.
***Experimental investigation of the protective effects of the enzymatic antioxidants, superoxide dismutase and catalase, in intermittent toxic exposure to hyperbaric oxygenation.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 84-86; 1988.
(15 references; 3 in English)

*Habitability and Environment Effects, Toxic Effects*
*Rats*
*Hyperbaric Oxygen, Countermeasures, Enzymology, Enzymatic Antioxidants*

**ISSUE 18**

*PAPERS*:

P813(18/88) Markevich L (Warsaw).
***Physiological changes evoked by long-term occupational exposure to vibration under industrial conditions.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages:94-95.

*Habitability and Environment Effects, Physiological Effects*
*Humans, Pilots*
*Vibration, Occupational Exposure*

P820(18/88) Drobyshev VI, Stepanova TP.
***Response of neurocytes of the cerebral cortex to vibration.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 270-271.

*Neurophysiology, Cerebral Cortex, Neurocytes*
*Rats*
*Habitability and Environment Effects, Vibration*

**ISSUE 19**

*PAPERS*:

P869(19/88)* Nefedov YuG, Novikova ND, Surovezhin IN.
***Products of biodegradation of polymers as a factor in the possible pollution of the air of hermetically sealed environments with toxic substances.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): 67-71 ; 1988.
(10 references; 3 in English)

*Habitability and Environment Effects, Air Pollution, Toxic Effects*
*Microbiology*
*Hermetically Sealed Environments, Polymers, Biodegradation*

P870(19/88)* Mikos KN, Polovnikin AA, Savina VP.
***Interaction of chemicals polluting the air of hermetically sealed environments.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): 72-75; 1988.
(17 references; 6 in English)

*Habitability and Environment Effects, Chemical Interactions, Air Pollution*
*Ammonia, Carbon Dioxide*
*Hermetically Sealed Environments*

# HEMATOLOGY

## ISSUE 16

*PAPERS*:

P694(16/88)* Pak GD, Sverchkova VS.
***The role of carbon dioxide in correction of coagulation hemostasis under exposure to hypoxia.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(6):43-47; 1987.
[13 references; 2 in English]

*Hematology, Coagulation Hemostasis, Fibrinolysis*
*Dogs*
*Hypoxia, Hypercapnia*

P741(16/88) Kalandarova MP, Ushakov AS, Kravchenko VV.
***Reactions of the blood system during adaptation to space flight conditions.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 344-345.

*Hematology, Hemopoiesis, Erythrocytes*
*Theoretical Article*
*Adaptation, Space Flight; Iron*

## ISSUE 17

*PAPERS*:

P751(17/88)* Kirichenko LL, Masenko VP, Raskurazhev AB, Yevdokimova AG.
***Hemostatic parameters in individuals with neurocirculatory dystonia under conditions of "dry" immersion.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 10-13; 1988.
(9 references; 5 in English)

*Hematology, Hemostasis Parameters*
*Humans, Males, Patients, Neurocirculatory Dystonia*
*Immersion*

P761(17/88)* Pak GD, Sverchkov VS, Danilevskaya TN, Trandafilova TP.
***Blood coagulation and fibrinolysis when adrenalin is administered under conditions of hypoxia and hypercapnia.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 49-53; 1988.
(14 references; none in English)

*Hematology, Coagulation, Fibrinolysis*
*Dogs,*
*Endocrinology, Adrenalin; Hypoxia, Hypercapnia*

P771(17/88)* Vorob'yev VYe, Ivchenko VF, Stazhadze LL.
***Erythrocyte metabolism in humans exposed to hyperoxygenation under conditions of hypokinesia with head-down tilt.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 81-82; 1988.
(4 references; 1 in English)

*Hematology;. Erythrocytes; Metabolism*
*Humans*
*Hypokinesia With Head-Down Tilt; Hyperoxygenation*

**ISSUE 18**

*PAPERS:*

P827(18/88) Naydina VP, Zharkovskaya YeYe, Ivanovna SM.
***Investigation of the effects of hypokinesia and stress on the fatty acid composition of erythrocytes.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 353-354.

*Hematology, Erythrocytes, Fatty Acids*
*Rats*
*Hypokinesia, Psychology, Immobilization Stress, Exercise*

# HEMATOLOGY

P845(18/88)* Sominskiy VN, Okun' KV, Anshelevich YuV.
***Quantitative analysis of the interaction of propanol and erythrocyte membrane by measuring propanol's antihemolytic effect.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 67-69; 1988.
(21 references; 7 in English)

*Hematology, Erythrocyte Membrane*
*Humans, Personnel Selection*
*Propanol, Antihemolytic Effect*

P852(18/88)* Ivchenko VF, Stazhadze LL, Romanov AN, Omanidze DO.
***Changes in bioenergetic parameters of erythrocytes in response to regional hypothermia under conditions of hypokinesia with head-down tilt(-8o).***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 83-85; 1988.
(14 references; none in English)

*Hematology, Erythrocytes, Bioenergetic Parameters; Metabolism*
*Humans, Males*
*Hypokinesia With Head-Down Tilt, Regional Hypothermia*

**ISSUE 19**

*PAPERS:*

P862(19/88)* Vorob'yev VYe, Ivchenko VF, Stazhadze LL.
***Catabolic metabolism in human erythrocytes under conditions of hypokinesia with head-down tilt.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): 39-41 ; 1988.
(11 references; 3 in English)

*Hematology, Erythrocytes; Metabolism, Catabolic*
*Humans, Males*
*Hypokinesia With Head-Down Tilt; Oxygen Breathing*

# HEMATOLOGY

P874(19/88)* Sominskiy VN, Sokovnik VM, Okun' KV.
***Kinetic parameters of the interaction of propranolol with the erythrocyte membrane in individuals varying in their antihemolytic response to this drug.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): 86-88; 1988.
(6 references; 1 in English)

*Hematology, Erythrocyte Membrane, Anithemolytic Response*
*Humans, Individual Differences*
*Propranol*

P880(19/88)* Fedulova GA.
***Characteristics of the hemostasis system in aviation personnel.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): 15-21 ; 1988.
(62 references; 13 in English)

*Hematology, Hemostasis*
*Humans, Pilots*
*light Conditions, Psychology, Stress*

**ISSUE 20**

*PAPER:*

P943(20/88) Gol'dberg YeD, Zakharova OYu, Dygay AM.
***Modulating effect of opioid peptides on hemopoiesis in stress.***
Byulleten' Eksperimental'noy Biologii i Meditsiny.
CVI(7): 23-26; 1988

*Hematology, Hemopoiesis*
*Mice, Males*
*Immobilization Stress, Opioid Peptides, Leu-Enkephalin*

## ISSUE 15

*PAPERS*:

P632(15/88) Nechayev AP, Ponomareva IP, Khideg Ya, Bognar L, Remesh P.
(last three are Hungarian).
***On the additional capacities of the methodology for studying human psychological work capacity (based on Salyut-7 results).***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
See: Abstract M117 (Space Biology and Medicine) Digest Issue 14.
Pages: 191-193.

*Human Performance, Psychological Work Capacity*
*Humans, Cosmonauts*
*Space Flight, Salyut-7*

P634(15/88) Khachatur'yants LS, Ivanov YeA, Yepishkin, AK.
***The effect of space flight on the characteristics of pursuit tracking.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 208-209.

*Human Performance, Tracking, Pursuit*
*Humans, Cosmonauts*
*Space Flight, Voskhod, Soyuz-5, Soyuz-7, Soyuz-T*

P669(15/88)* Yastrebov VYe, Kustov VV, Razinkin SM.
***Investigation of short-term effects of high concentrations of carbon monoxide on certain psychophysiological functions of a human operator.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.

*Human Performance, Compensatory Tracking*
*Humans, Males*
*Habitability and Environment Effects, Carbon Monoxide*

## ISSUE 16

*PAPERS:*

P708(16/88) Kamenskiy YuN.
***The significance of critical flicker fusion frequency for assessing the state of an individual undergoing whole-body vibration.***
Gigiyena Truda i Professional'nyye Zabolevaniya.
1987(7): 54-56. [6 references; none in English]

*Human Performance, Functional State; Perception, Critical Flicker Fusion Frequency*
*Humans, Males*
*Habitability and Environmental Effects, Vibration, Whole-Body*

P709(16/88) Ponomarenko VA, Kostritsa VG, Yegorov SV, Oboznov AA.
***A study of the reliability of pilot performance during long-term flights on automatic pilot.***
Voyenno-Meditsinskiy Zhurnal.
1987(5): 43-45.
[no references] Authors' Affiliation: [Military] Medical Corps

*Human Performance, Flight Performance, Vigilance*
*Humans, Pilots*
*Long-term Flights, Monotony*

## ISSUE 17

*PAPERS:*

P779(17/88)* Petrova EB.
***The effect of psychotropic drugs on orthostatic tolerance.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986. Pages: 106-107.

*Human Performance, Functional State, Orthostatic Tolerance; Cardiovascular and Respiratory Systems; Operational Medicine*
*Humans, Operators*
*Psychology, Psychotropic Drugs; Tilt Test, Isolation, Hypokinesia With Head- Down Tilt, Short-Term*

# HUMAN PERFORMANCE

P780(17/88) Tardov VM, Chernikov AYe, Yashin YuP.
***Study of the effects of high +Gz acceleration on operator performance.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages:133-134.

*Human Performance, Operator Performance; Man-Machine System, Tracking*
*Humans*
*Acceleration, High +Gz; Antiacceleration Suit*

P781(17/88) Zhukova OP, Ponomareva IP.
***The effect of a 36-hour period of continuous performance on human sleep under conditions of isolation.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 168-169.

*Neurophysiology, Sleep Parameters*
*Humans, Males*
*Human Performance, Work-Rest Schedule, Sleep Deprivation, Isolation*

P782(17/88)* Kalosha VI.
***The effect of nootropic drugs on functional state during adaptation to stressful operator performance.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 173-174.

*Human Performance, Operator Performance, Adaptation, Stress, Biological Rhythms*
*Humans, Operators*
*Psychology, Nootropic Drugs*

**ISSUE 18**

*PAPERS:*

P837(18/88)* Asyamolov BF, Voronin LI, Panchenko VS, Ulyatovsiy NV, Bondarenko RA, Kaliberdin AV, Elizarov SYu, Plokhova VG, Yarov AS.
***Effectiveness of antigravity devices of the chamberless type after 7 days of hypokinesia with head-down tilt.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 37-40 ; 1988
(11 references; 1 in English)

*Human Performance, Operator Task, Acceleration Tolerance*
*Humans*
*Hypokinesia With Head-Down Tilt, Acceleration, Countermeasures, Antigravity Clothing*

**ISSUE 19**

*PAPERS:*

P863(19/88)* Pavlov AS, Moloshtan VS.
***The role of increased body temperature in increasing work capacity.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): 42-45; 1988.
(9 references; 3 in English)

*Human Performance, Work Capacity, Physical and Mental; Cardiovascular and Respiratory Systems*
*Humans, Athletes, Pilot Trainees*
*Physical Exercise, Hyperthermia*

P881(19/88) Tsibulevskiy IYe.
***Engineering psychological problems related to the effectiveness of displays depicting the spatial position of an aircraft. (Review of research)***
Vestnik Moskovskogo Universiteta. Seriya 14. Psikhologiya.
1988(1): 3-23.
[21 references; 18 in English]

*Human Performance, Display Effectiveness*
*Pilots*
*Aircraft Position*

# HUMAN PERFORMANCE

P888(19/88) Shenderova IS.
***Local heat removal as a means for improving alertness of a human operator performing monotonous work.***
Fiziologiya Cheloveka.
14(3): 428-433; 1988.
[20 references; none in English]
Author's affiliation: Institute of Industrial Hygiene and Occupational Disease

*Human Performance, Alertness*
*Humans, Operators, Drivers*
*Monotony, Chilling, Local*

P902(19/88) Leonova AB.
***Psychological self-regulation and prevention of adverse functional states.***
Psikhologicheskiy Zhurnal.
9(2): 43-52; 1988.
[22 references; 4 in English]
Author's affiliation: Lomonosov State University of Moscow

*Human Performance, Work Capacity, Well-Being*
*Humans, Women, Workers*
*Psychology, Fatigue, Self-Regulation, Autogenic Training, Relaxation*

*MONOGRAPH:*

M132(19/88)* Dikaya LG, Zankovkiy AN, Sukhodoyev VV.
Metodiki Issledovaniya i Diagnostiki FS i Rabotosposobnosti Cheloveka-Operatora v Ekstremal'nykh Usloviyakh: Sbornik Nauchnykh Trudov ***[Methodology for Studying and Diagnosing Functional State and Work Capacity of a Human Operator Under Extreme Conditions]***.
Moscow: Psychological Institute USSR Academy of Sciences; 1987.
[290 pages]
Affiliation: Psychological Institute, USSR Academy of Sciences

*KEY WORDS: Human Performance, Functional State, Work Capacity, Human Operators, Extreme Conditions, Group Dynamics, Sleep Deprivation, Tracking, Signal Detection*

# IMMUNOLOGY

## ISSUE 15

*PAPERS:*

P640(15/88) Teplinskaya GP.
***The effects of space flight factors on the functional activity of T- lymphocytes responsible for delayed hypersensitivity.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 259

*Immunology, T-lymphocytes, Allergy, Delayed Hypersensitivity*
*Humans, Cosmonauts*
*Space Flight, Long-term, Short-term, Salyut-7; Hypokinesia with Head-Down Tilt*

## ISSUE 16

*PAPERS:*

P706(16/88) Klusha VYe, Mutseniyentse RK, Svirskis ShV, Zalitis GM, Liyepa IR, Kukayn EM, Andermanis AV, Sile VYa.
***Neuroimmune regulating properties of short protein fragments under exposure to immobilization stress.***
Byullelten' Eksperimental'noy Biologii i Meditsina.
1987(*): 186-187.
[11 references; 8 in English]
Authors' affiliation: Institute of Organic Synthesis, Latvian Academy of Sciences

*Immunology, Humoral Immunity, Endocrinology, Adrenal Gland, Hypothalamus, Striatum*
*Rats, Male*
*Short Protein Fragments; Psychology, Immobilization Stress*

P707(16/88) Pershin BB, Yemel'yanov BA, Sokolov YaA, Kuz'min SN.
***Study of the mechanism underlying the phenomenon of disappearance of immunoglobulins under exposure to experimentally induced stress.***
Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya.
1987(5): 41-44. [9 references; 2 in English]

*Immunology, Immunoglobulins, Excretion*
*Mice*
*Psychology, Stress, Forced Exercise*

P742(16/88) Konstantinova IV.
***Problems of space immunology.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986. Pages: 348-349.

*Immunology*
*Humans, Theoretical Article*
*Space Flight Factors, Countermeasures*

**ISSUE 17**

*PAPERS:*

P807(17/88) Bozhikov NV, Rykova MP, Antropova YeN, Lesnyak AT.
***Quantitative and functional parameters of T-lymphocytes and activity of normal killer cells in patients suffering from systemic osteoporosis and subjects undergoing 120 days of hypokinesia with head-down tilt.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 333-334.

*Immunology, T-Lymphocytes, Normal Killer Cells*
*Humans, Patients*
*Musculoskeletal System, Osteoporosis, Hypokinesia With Head-Down Tilt, Long- Term*

**ISSUE 18**

*PAPERS:*

P843(18/88)* Kirillova YeN, Muksinova KN, Skykovskaya TL.
***The effect of long term continuous irradiation on humoral immunity parameters in mice.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 62-65; 1988.
(14 references; 8 in English)

*Immunology, Humoral Immunity*
*Mice*
*Radiobiology, Gamma-Radiation, Long-Term Irradiation*

P849(18/88)* Durnova GN, Borotnikova YeV.
***Histological study of lymphoid organs of rats after a 7-day space flight on the COSMOS-1667 biosatellite.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 75-77; 1988.
(11 references; 3 in English)

*Immunology, Thymus, Spleen*
*Rat*
*Space Flight, COSMOS-1667*

**ISSUE 20:**

*PAPERS:*

P908(20/88) Kuznets YeI, Kut'kova ON, Yakovleva EV, Shal'nova GA, Malkiman II, Yastrebov PT.
***Selection of parameters indicative of human immune status under conditions simulating space flight factors.***
In: Malinin VB, Kosmolinskiy FP, Kuznets YeI (editors).
Perspektivy Razvitiya Kosmicheskoy Biomeditsiny v Svete Idey K.E. Tsiolkovskiogo [Prospects for the Development of Space Biomedicine in Light of the Ideas of K.E. Tsiolkovsiy] Proceedings of the XXth and XXIst Lecture Series dedicated to the scientific legacy and development of the ideas of K.E. Tsiolkovskiy., Kaluga 1985, 1988.
Section on Problems of Space Medicine and Biology.
Moscow: USSR Academy of Sciences: 1987.
Pages 101-105.
[7 references; none in English]

*Immunology, Immune Status*
*Humans*
*Heat, Hypokinesia With Head-Down Tilt, Hermetically Sealed Living Quarters*

P913(20/88) Priyatkin SA, Morozov VI, Rogozkin VA.
***The effect of physical exercise on nonspecific resistance factors and concentration of steroid hormones in human blood.***
Fiziologiya Cheloveka.
14(4): 606-613; 1988.
[35 references; 10 in English]
Authors' Affiliation: Scientific Research Institute of Physical Culture, Leningrad

*Immunology, Nonspecific Resistance; Endocrinology, Steroids*
*Humans, Males, Athletes*
*Exercise*

# IMMUNOLOGY

*MONOGRAPH:*

M139(20/88) Petrov RV, Lozovoy VP.
Problemy i perspektivy sovremennoy immunologii. Metodologicheskiy Analiz [***Problems and prospects of modern immunology. A methodological analysis].***
Novosibirsk: Nauka; 1988.
[256 pages]
Affiliation (book): Siberian Division USSR Academy of Sciences; Institute of Clinical Immunology, Siberian Division, USSR Academy of Medicine.

*KEY WORDS: Immunology, Neurophysiology, Endocrinology, Aging, Immune Surveillance, Genetics*

**ISSUE 15**

*PAPER:*

P635(15/88) Abakumova IA, Gur'yeva TS, Dadasheva OA, Lebedeva ZN, Tresvyatskaya NA.
***Future prospects for using nontraditional food sources in human biological life support systems.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986. Pages:214-25.

*Nutrition, Nontraditional Food Sources, Plants, Fly Larva*
*Rats*
*Life Support Systems, CELSS*

**ISSUE 16**

*PAPERS:*

P725(16/88) Fofanov VI.
***Prospects and developmental trends in space biology.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 151-152.

*Life Support Systems, CELSS*
*Humans*
*Theoretical Article, Future Research Trends*

P731(16/88) Savina VP, Vytchikova LN, Mukhamediyeva LN, Rokhlenko KD.
***Microclimate conditions during the flight of Salyut-7.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986. Pages: 254-255.

*Life Support Systems, Microclimate; Human Performance, Work Capacity*
*Humans*
*Space Flight, Salyut-7*

**ISSUE 17**

*PAPERS:*

P785(17/88) Shaydarov Yul, Simonov VM, Alekhina TA, Sidorova LM, Geodakin RO, Kryuchkova IV.
***Utilization by plants of liquid products of processing of wastes from human biological life support systems.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages:260-261.

*Life Support Systems, Human, CELSS*
*Plants, Lettuce*
*Waste Utilization; .i.Microbiology, Microbial Processing*

P804(17/88) Berkovich YuA, Ivanovna IYe, Alekhina TP, Derendyayeva TA.
***Experimental demonstration of the potential increase in the closure of material recycling in the higher plant components of artificial ecological systems.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 217-218.

*Life Support Systems, Closure, Human CELSS*
*Botany, Higher Plants, Wheat, Beets, Lettuce*
*Transpiration Water, Carbon Dioxide*

P895(17/88) Berlin AA, Popov IG, Chizhov SV.
***Sanitary and hygienic skin care of cosmonauts using reclaimed water.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 218-219.

*Life Support Systems, Spacecraft, Personal Hygiene, Operational Medicine*
*Humans, Cosmonauts*
*Water Reclamation*

# LIFE SUPPORT SYSTEMS

## ISSUE 18

*PAPERS:*

P841(18/88)* Shikina MI, Vinogradova LA, Kolesina NB.
***Microflora in drinking water reclaimed from condensate of atmospheric moisture of a hermetically sealed living space.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 53-55 ; 1988.
(6 references; none in English)

*Life Support Systems, Reclaimed Drinking Water*
*Microbiology, Microflora*
*Hermetically Sealed Environment*

## ISSUE 20

*PAPER:*

P907(20/88) Gitel'son II, Terakov IA, Lisovskiy GM, Kovrov BG, Sid'ko FYa, Okladnikov YuN, Gribovskaya IV, Trubachev IN, Pilenko MI.
***Complete regeneration of the atmosphere, water, and vegetable nutrients in a "man -- higher plant" system,***
In: Malinin VB, Kosmolinskiy FP, Kuznets Yel (editors).
Perspektivy Razvitiya Kosmicheskoy Biomeditsiny v Svete Idey K.E. Tsiolkovskiogo [Prospects for the Development of Space Biomedicine in Light of the Ideas of K.E. Tsiolkovsiy] Proceedings of the XXth and XXIst Lecture Series dedicated to the scientific legacy and development of the ideas of K.E. Tsiolkovskiy., Kaluga 1985, 1988. Section on Problems of Space Medicine and Biology.
Moscow: USSR Academy of Sciences: 1987.
Pages 63-67.
[5 references; none in English]
Authors' Affiliation: Institute of Biophysics, Siberian Division, USSR Academy of Sciences

*Life Support Systems, Nutrition*
*Man -- Higher Plant System*
*Closure, Regeneration*

# MAN-MACHINE SYSTEMS

## ISSUE 16

*MONOGRAPH:*

M120(16/88) Akhutin VM, Nefedov VP, Sakharov MP, et al.
Inzhenarnaya fiziologiya i modelirovaniye sistem organizma [***Engineering physiology and modeling physiological systems].***
Novosibirsk: Nauka; 1987.
Affiliation: USSR Academy of Sciences, Siberian Division, Institute of Biophysics; Institute for Problems of Control

*KEY WORDS: Man-Machine Systems, Engineering Physiology, Operational Medicine, Mathematical Modeling, Cardiovascular and Respiratory Systems, Metabolism, Habitability and Environmental Effects*

## ISSUE 17

*MONOGRAPH:*

M123(17/88) Dement'yev GP, Zakharov AG, Kazarov YuK.
Fiziko-tekhnichekiye osnovy sozdaniya i premeniya kosmicheskykh apparatov [***Physical and technological principles in the design and utilization of spacecraft.]***
Moscow: Mashinostroyeniye; 1987.
[264 pages; 37 figures; 40 tables; 217 references]

*KEY WORDS: Man-Machine Systems, Human Performance, Human Engineering, Spacecraft Design, Biospherics*

## ISSUE 19

*MONOGRAPH:*

M135(19/88)* Fedosov YeA.
Voprosy Kibernetiki: Modelirovaniye Protsessov Upravleniya v Cheloveko- Mashinnykh Sistemakh ***[Issues in Cybernetics: Modeling in Man-Machine Systems]***
Moscow: 1988.
[130 pages]
Affiliation: Scientific Council of the USSR Academy of Sciences on the Multidisciplinary Problem of Cybernetics

*KEY WORDS: Man-Machine Systems, Human Performance, Human Engineering, Spacecraft Design, Biospherics*

# MATHEMATICAL MODELING

## ISSUE 16

*PAPERS:*

P701(16/88)* Kondrachuk AV, Sirenko SP.
***A two-dimensional statistical model of the otolith.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(6):70-76; 1987.
[14 references; 9 in English]
See: Abstract P668 (Neurophysiology) in Digest Issue 15.

*Mathematical Modeling, Statistical*
*Humans*
*Neurophysiology, Otolith Membrane, Centripetal Force, Gravity*

P739(16/88) Sakovich VA.
***Mathematical modeling in developing standards for the radiation safety of space flights.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 322.

*Mathematical Modeling, Probability; Hematology, Hemopoiesis*
*Humans, Cosmonauts*
*Radiobiology, Radiation Safety Standards, Space Flight, Long-Term*

## ISSUE 17

*MONOGRAPH:*

M124(17/88) Beregovoy GT, Yakovlev AI, Vasilets VM, et al.
***Modeling semiautomatic spacecraft control systems.***
Moscow: Mashinostroyeniye; 1986.
[*280 pages; 90 figures; 22 tables; 92 references; none in English*]

*KEY WORDS: Mathematical Modeling, Spacecraft Control Systems, Man-Machine Systems, Human Performance, Cosmonaut Performance, Cosmonaut Training, Adaptation, Environmental Factors*

**ISSUE 15**

*PAPERS:*

P654(15/88) Popov IG, Latskevich AA.
***Sulphur-containing amino acids in blood plasma of cosmonauts.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 357-358.

*Metabolism, Amino Acids, Cystine, Methionine*
*Humans, Cosmonauts*
*Space Flight, Long-term; Nutrition, Cosmonaut Rations*

P670(15/88)* Savina VP, Vlasova TF, Miroshnikova YeB.
***Glutaminic acid in blood of humans exposed to an atmosphere with elevated ammonia content.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(5): 50-52; 1987.
[20 references; 5 in English]

*Metabolism, Glutaminic Acid*
*Humans*
*Habitability and Environment Effects, Ammonia, Hermetically Sealed Environment*

**ISSUE 16**

*PAPERS:*

P693(16/88)* Zezerov AYe, Ivanovna SM, Ushakov AS.
***Lipid peroxidation in tissues of rats exposed to hypokinesia with head-down tilt, physical exercise, and immobilization stress.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(6):39-43; 1987.
[33 references; 8 in English]

*Metabolism, Lipid Peroxidation, Musculoskeletal System*
*Rats*
*Hypokinesia with Head-Down Tilt, Physical Exercise, Psychology, Immobilization Stress*

*BOOK REVIEW:*

BR12(16/88)* Demin NN.
Review of: Tigranyan RA. [Metabolicheskiy aspekty problemy stresse v kosmicheskom polete [***Metabolic aspects of the problem of stress in space flight***], Moscow: Nauka, 1985, 224 pages.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(6):95; 1987.

*KEY WORDS: Metabolism, Psychology, Stress, Immobilization, Biochemical Processes, Space Flight, COSMOS-1129, Adaptation, Neurophysiology, Rats, Hypokinesia, Endocrinology, Sympathetic-Adrenal System, Pharmacological Countermeasures, Radiobiology, Artificial Gravity, Centrifugation*

**ISSUE 17**

*PAPER:*

P801(17/88) Grigor'yev AI, Kovalenko YeA.
***The problem of homeostasis in space anthropoecology.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 42-43.

*Biospherics, Adaptation, Homeostasis*
*Theoretical Article*
*Metabolism, Extreme Factors*

P808(17/88) Popova IA, Nosova YeA, Vetrova YeG, Delenyan NV, Drozdova TYe, Zaytseva LB.
***Protein and products of protein metabolism in blood under conditions of long term hypokinesia.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 356-357.

*Metabolism, Protein, Hematology, Blood*
*Humans, Males*
*Hypokinesia With Head-Down Tilt, Long-Term, Adaptation*

# METABOLISM

## ISSUE 18

*PAPERS:*

P825(18/88) Artamanova NP, Zakharova TS, Morukov BV, Arzamazov GS, Semenov VYu.
***Dynamics of EKG-parameters and blood electrolytes in apparently healthy humans during long-term hypokinesia.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986. Pages: 331-332.

*Metabolism, Body Fluids, Electrolyte Metabolism, Cardiovascular and Respiratory Systems, EKG Parameters*
*Humans, Males*
*Hypokinesia, Head-Down Tilt, Long-Term*

P829(18/88) Prilipko LV.
***Adaptation and normalization of calcium metabolism under conditions simulating weightlessness.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 360-361.

*Metabolism, Calcium; Adaptation; Musculoskeletal System; Endocrinology, Pituitary-Adrenal System*
*Humans*
*Hypokinesia, Horizontal, Head-Down Tilt; Nutrition, Vitamin D*

P831(18/88)* Potapov PP, Fedorov IV.
***Metabolic aspects of readaptation after hypokinesia (results of animal experimentation.)***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 4-10; 1988.
(47 references; 8 in English)

*Metabolism, Protein, Collagen Synthesis; Adaptation, Readaptation*
*Animals*
*Hypokinesia*

# METABOLISM

P838(18/88)* Popova IA, Morukov BV, Arzamanov GS, Vetrova YeG, Delen'yan NV, Drozdova TYe, Zaytseva LB, Rustam'yan LA.
***Characteristics of metabolism in response to 120 days of hypokinesia with head-down tilt.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 40-45; 1988.
(14 references; 3 in English)

*Metabolism, Mineral Balance; Enzymology*
*Humans, Males*
*Hypokinesia With Head-Down Tilt, Long-Term, Nutrition*

P851(18/88)* Vorob'yev VYe, Stazhadze LL, Kal'yanova VN, Repenkova LG, Ivchenko VF, Vetrova YeG, Lenskiy VV, Kovachevich IV.
***Tissue metabolism in humans in response to hyperoxygenation during hypokinesia with head-down tilt.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 80-83; 1988.
(8 references; 4 in English)

*Metabolism, Tissue; Enzymology*
*Humans. Males*
*Hypokinesia With Head-Down Tilt, Hyperoxygenation*

**ISSUE 19**

*PAPER:*

P860(19/88)* Olfer'yev AM, Kudinova AO, Zaykin YeV, Dvorkin VI, Gel'man BL, Perova NV.
***Blood lipoprotein spectra in pilots in civil aviation.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): 27-31 ; 1988.
(26 references; 8 in English)

*Metabolism, Lipoproteins*
*Humans, Pilots*
*Flight Conditions; Psychology, Stress*

# METABOLISM

**ISSUE 20:**

*PAPERS:*

P922(20/88)* Savina VP, Mikos KN, Ryzhkova VYe.
***The effect of space flights on the concentration of volatile metabolites in the expired gas of cosmonauts.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(4): 47-50; 1988.
[7 references; 2 in English]

*Metabolism, Volatile Metabolites, Expired Air*
*Humans, Cosmonauts*
*Space Flights*

# MICROBIOLOGY

## ISSUE 15

*PAPERS:*

P638(15/88) Zaloguyev SN, Viktorov AN, Shilov VM, Bragina MP, Il'in VK, Kuprin YuN.
***Ecological aspects of microflora formation in spacecraft cabins.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 233.

*Operational Medicine, Human Automicroflora*
*Microbiology*
*Life Support Systems, Ecological Systems, Hermetically Sealed Environment, Spacecraft Cabins*

P639(15/88) Il'in VK, Moroz AF, Bragina MP, Antsiferova NG, Glatman LI, Semeykin LA.
***Certain aspects of changes in drug sensitivity of human automicroflora during space flight.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Page: 234.

*Microbiology, Drug Sensitivity*
*Human Automicroflora, Conditionally Pathogenic Microorganisms*
*Space Flight*

**ISSUE 18**

*PAPERS:*

P821(18/88) Deshevaya YeA, Novikova A.
***Characteristics of the formation of microflora in hermetically sealed living quarters with altered composition of the atmosphere.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 230.

*Life Support Systems, Hermetically Sealed Environments*
*Microbiology, Microflora, Mold, Pathogenic*
*Atmosphere, Acetic Acid*

# MUSCULOSKELETAL SYSTEM

**ISSUE 15**

*PAPERS:*

P626(15/88) Grigor'yeva LS, Chekirda IF, Stepantsov VI, Kozlovskaya IB.
***(Evaluating the) effects of weightlessness on the work capacity of the muscles of the arms.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 45-46.

*Musculoskeletal System, Work Capacity, Arms*
*Humans, Cosmonauts*
*Space Flight, Salyut-7*

P642(15/88) Bakulin AV, Il'in YeA, Rezayeva LT, Khodskevich YuN, Artamasova YeM.
***The state of bone tissue in pregnant rats after a 5-day space flight on the COSMOS-1514 biosatellite.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 265-266.

*Musculoskeletal System, Bone Tissue, Mineral Component Rats, Female; Reproductive Biology, Pregnancy*
*Space Flight, COSMOS-1514*

P645(15/88) Oganov VS, Skuratova SA, Rakhmanov AS, Magedov VS, Shirvinskaya MA, Shlyk GG.
***Evaluation of the state of the skeletal muscles in monkeys under conditions of real and simulated weightlessness.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 287-288.

*Musculoskeletal System, Skeletal Muscles, Electromagnetic Efficiency*
*Monkeys, Macaque-Rhesus*
*Space Flight, COSMOS-1514; Hypokinesia, Head-Down Tilt, Immobilization*

# MUSCULOSKELETAL SYSTEM

P646(15/88) Pospishilova I, Pospishil M. (Czechoslovakia).
***The effect of space flight on organic components of connective tissue.***
In: Gazenko OG (editor).
micheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 290-291.

*Musculoskeletal System, Connective Tissue, Collagen*
*Rats, Female; Reproductive Biology, Pregnancy; Developmental Biology*
*Space Flight, COSMOS-1514, -1667*

P647(15/88) Savina YeA, Kaplanskiy AS, Durnova GN, Sakharova ZF, Plakhuta- Plakutina GI, Il'ina-Kakuyeva Yel, Prodan NG, Vorotnikova YeV,
Alekseyev Yel.
***Morphological manifestations of adaptive responses in rats exposed to tail suspension as a simulation of weightlessness.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 292-293.

*Musculoskeletal System, Bone, Muscle; Endocrinology: Neurophysiology; Morphology*
*Rats, Male*
*Head-Down Tilt, Tail-Suspension; Immobilization; Adaptation; Psychology, Stress*

P650(15/88) Skuratov SA, Oganov VS, Shirvinskaya MA, Murashko LM,
Silatsi T, Ser A, Papchak M.
***The effect of short-term weightlessness on skeletal muscle functions in pregnant rats and their offspring.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 294-295.

*Musculoskeletal System, Skeletal Muscle Functions*
*Rats, Female, Reproductive Biology, Pregnancy; Developmental Biology, Neonate*
*Space Flight, Short-term, COSMOS-1514*

# MUSCULOSKELETAL SYSTEM

P656(15/88) Stupakov GP, Kazeykin VS, Morozova NP.
***Predicting the occurrence of osteodystrophy in response to long-term weightlessness.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 364-366.

*Musculoskeletal System, Osteodystrophy, Prediction, Personnel Selection; Mineral Saturation; Metabolism, Rate*
*Rats; Dogs; Humans, Cosmonauts*
*Space Flight, Long-Term, COSMOS-610, -782, -936, -1129, Salyut-6, -7 , Weightlessness Simulations*

P664(15/88)* Kaplanskiy AS, Durnova GN, Sakharova ZF, Il'ina-Kakuyeva Yel.
***Histomorphological analysis of the bones of rats flown on the COSMOS-1667 biosatellite.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(5): 25-31; 1987.
[23 references; 11 in English]

*Musculoskeletal System, Bone, Tibia, Iliac, Lumbar Vertebrae; Morphology, Histomorphological Analysis*
*Rats*
*Space Flight, Short-Term, COSMOS-1667*

P676(15/88)* Mailyan ES, Burakova LB.
***Preservation of muscles in the study of bioenergetic effects of hypokinesia.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(5): 67-70; 1987.
[9 references; 2 in English]

*Musculoskeletal System, Muscle Tissue, Preservation*
*Rats*
*Hypokinesia, Laboratory Technique, Low Temperature*

# MUSCULOSKELETAL SYSTEM

**ISSUE 16**

*PAPERS:*

P691(16/88)* Il'ina-Kakuyeva Yel.
***[Study of] skeletal muscles of rats after a short-term space flight on the COSMOS-1667 biosatellite.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(6):31-35; 1987.
[13 references; 8 in English]

*Musculoskeletal System, Skeletal Muscles, Soleus, Biceps, Quadriceps, Gastrocnemius*
*Rats, Males*
*Space Flight, COSMOS-1667*

P692(16/88)* Kaplanskiy AS, Sakharova ZF, Il'ina-Kakuyeva Yel, Durnova GN.
***Morphological study of early changes in the bones of rats exposed to simulations of weightlessness.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(6):36-39; 1987.
[13 references; 5 in English]
Note: See abstract P647 (Musculoskeletal System) in Digest issue 15.

*Musculoskeletal System, Bones, Tibia, Lumbar Vertebrae*
*Rats, Male*
*Weightlessness Simulation, Immobilization; Psychology, Stress; Tail Suspension*

P696(16/88)* Belkaniya GS, Kurochkin YuN, Rakhmanov AS, Simavonyan KV, Dartsmeliya VA, Demin AN, Filenko VYe.
***Morphological concomitants of adaptation to an upright posture and walking erect in monkeys.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(6):50-54; 1987.
[15 references; 4 in English]

*Musculoskeletal System, Morphological Changes, Bone Minerals; Adaptation, Postural*
*Monkeys, Rhesus Macaques*
*Gravitational Biology, Upright Posture, Walking Erect*

P714(16/88) Glushko TA, Gusakova VA, Malova NG.
***Changes in intervertebral disk tissue in response to hypokinesia in rats varying in age***
Arkhiv Anatomii, Gistologii, i Embriologii.
XCIII(12): 50-55; 1987.
[7 references; 2 in English]
Authors' affiliation: Central Scientific Research Laboratory, Ukrainian Institute of Physician Training

*Musculoskeletal System, Intervertebral Disc*
*Rats, Developmental Biology, Age Differences*
*Hypokinesia, Immobilization, Short- and Long-Term*

**ISSUE 17**

P756(17/88)* Oganov VS, Rakhmanov AS, Morukov BV, Yanson KhA, Tatarinov AM, Zaychik VYe, Ternovoy SK, Cann C. (USSR, USA).
***Use of noninvasive methods to study the state of bone tissue under conditions of long-term hypokinesia.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 30-33; 1988.
(24 references; 12 in English)

*Musculoskeletal System, Bone Tissue, Computer Tomography, Minerals*
*Humans*
*Hypokinesia With Head-Down Tilt, Physical Exercise, Pharmacological Countermeasures*

P757(17/88)* Shvets VN.
***The effects of varying doses of alpha-hydroxymethyl-gamma-aminopropylidene biphosphonate on bone*** tissue of rats.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 34-37; 1988.
(11 references; 9 in English)

*Musculoskeletal System, Bone Tissue, Osteotrophic Effects*
*Rats*
*Alpha-Hydroxymethyl-Gamma-Aminopropylidene Biphosphonate, Osteoclasts*

# MUSCULOSKELETAL SYSTEM

P802(17/88) Lesnyak AT, Morukov BV, Bozhikov NV, Konstantinova IV.
***Function of immunocompetent cells which produce the osteoclast activating factor in subjects exposed to long-term hypokinesia and patients with local osteoporosis.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 87-88.

*Musculoskeletal System, Bone Tissues, Osteoclast Activating Factor; Immunology, Immunocompetent Cells, Hematology*
*Humans, Patients, Osteoporosis*
*Hypokinesia*

P806(17/88) Pankova AS, Zhvets VN, Kabitskaya OYe.
***The role of in preventing osteoporosis in rats exposed to hypokinesia.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 355.

*Musculoskeletal System, Osteoporosis*
*Rats*
*Hypokinesia, Immobilization, Countermeasures, Diphosphonate, Ethane-1-Hydroxy-1,1 Diphosphonic Acid*

**ISSUE 18**

*PAPERS:*

P810(18/88) Volozhin AI, Stupakov GP, Druzhinina RA, Rogacheva IV, Polyakov AN.
***Pharmacological prevention of bone changes in hypokinesia and hypodynamia.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 31-32.

*Musculoskeletal System, Osteoporosis; Metabolism, Phosphorus, Calcium, Protein*
*Rats, Rabbits*
*Hypokinesia, Hypodynamia, Immobilization, Amputation, Pharmacological Countermeasures, Calcitonin, Retabolil*

# MUSCULOSKELETAL SYSTEM

P815(18/88) Triftanidi LA.
***The effect of hypokinesia on bone tissue.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 141-142.

*Musculoskeletal System, Histology, Bone Tissue, Restructuring, Osteoporosis*
*Rats*
*Hypokinesia, Immobilization*

P826(18/88) Gol'dovskaya MD, Shvets VN.
***Study of the association between changes in bone mass and number of hemopoietic stem cells.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 338-339.

*Musculoskeletal System, Bone Mass; .i.Hematology, Stem Cells*
*Mice*
*Osteoporosis, Disuse, Amputation; .i.Osteopetrosis, EHDA*

P855(18/88)* Gol'dovskaya MD, Shvets VN.
***Relationships between changes in bone mass and number of hemopoietic stem cells.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 91-93; 1988.
(14 references;8 in English)
[Note: Essentially same as preceding experiment]

*Musculoskeletal System, Spongiosa*
*Mice*
*Disuse Osteoporosis, Amputation; Osteosclerosis, EHDA*

# MUSCULOSKELETAL SYSTEM

P840 (18/88)* Shvets VN, Pankova AS, Kabitskaya OYe.
***Osteotrophic effect of xydifon administered subcutaneously to rats during immobilization.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 49-53; 1988.
(14 references; 6 in English)

*Musculoskeletal System, Osteotrophic Effects; Metabolism, Calcium*
*Rats*
*Immobilization, Pharmacological Countermeasures, Xydiphon (Ksidifon)*

*MONOGRAPH:*

M126(18/88) Stupakov GP, Kozlovskiy AP, Kazeykin VS.
Biomekhanika pozvonochnika pri udarnykh peregruzka v praktike aviatsionnykh i kozmicheskikh poletov. Problemy kosmicheskoy biologii. Tom 56. [***Biomechanics of the spine in response to impact G-load in aircraft and space flight. Problems of space biology. Volume 56.***]
Moscow: Nauka; 1987.
[240 pages; 70 tables; 92 figures; 236 references]

*KEY WORDS: Musculoskeletal System, Spine, Impact G-Load, Space Flight, Biomechanics, Weightlessness, Osteoporosis, Mathematical Modeling*

**ISSUE 19**

*PAPERS:*

P865(19/88)* Maylyan ES, Chabdarova RN, Korzun Yel.
***Energy reactions in the skeletal muscles of rats after a short-term space flight on the COSMOS-1514 biosatellite.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): 55-58; 1988.
(6 references; 1 in English)

*Musculoskeletal System, Muscle Bioenergetics; Enzymology; Metabolism*
*Rats, Female, Pregnant*
*Space Flight, COSMOS-1514, Short-term; Psychology, Stress*

# MUSCULOSKELETAL SYSTEM

**ISSUE 20**

*PAPERS:*

P915(20/88) Buravkova LB, Mailyan ES.
***Dehydrogenase activity in skeletal muscles of rats after long-term exposure to weightlessness.***
Byulleten' Eksperimental'noy Biologii i Meditsiny.
CV(5): 538-540; 1988.
[11 references; 5 in English]
Authors' Affiliation: Institute of Biomedical Problems, USSR Ministry of Health

*Musculoskeletal System, Skeletal Muscles, Dehydrogenases*
*Rats*
*Space Flight, Long-Term, COSMOS-1129, Hypokinesia*

P919(20/88)* Khristova LG, Gidikov AA, Aslanova IF, Belyayeva MG, Kirenskaya AB, Kozlova VG, Kozlovskaya IB. (Bulgaria, USSR)
***The effect of water immersion on motor unit potentials in human muscles.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(4): 39-43; 1988.
[25 references; 19 in English]

*Musculoskeletal System, Motor Unit Potentials*
*Humans*
*Water Immersion*

P923(20/88)* Oganov VS, Skuratova SA, Murashko LM, Guba F, Takach O, Siladi T, Ser A, Rapchak M (USSR, Hungary).
***The effect of short-term space flights on physiological properties and composition of myofibrillar proteins of the skeletal muscles of rats.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(4): 50-54; 1988.
[17 references; 4 in English]

*Musculoskeletal System, Physiological Properties, Myofibrillar Proteins*
*Rats, Males, Females, Pregnant*
*Space Flight, Short-Term, COSMOS-1514, -1667*

# MUSCULOSKELETAL SYSTEM

P925(20/88)* Burkovskaya TYe, Vorozhtsova SV.
***The effect of hypokinesia on the osteogenic and hempoietic function of bone marrow in mice: Studied in ectopic bone.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(4): 61-65; 1988.
[15 references; 2 in English]

*Musculoskeletal System, Hematology, Bone Marrow, Osteogenic and Hemopoietic Functions, Ectopic Bone*
*Mice*
*Hypokinesia*

P926(20/88)* Shvets VN, Pankova AS, Kabitskaya OYe.
***Prevention of osteoporosis by injecting rats with xydifon before or during hypokinesia.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(4): 65-70; 1988.
[13 references; 9 in English]

*Musculoskeletal System, Osteoporosis, Prevention*
*Rats*
*Hypokinesia, Pharmacological Countermeasures, Xydifon*

P935(20/88)* Volozhin AI, Stupakov GP, Kazeykin VS.
***Microgravity induced changes in bones.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(4): 4-13; 1988.
[79 references; 45 in English]

*Musculoskeletal System, Bone Changes, Mineralization, Strength*
*Humans and Animals*
*Microgravity, Space Flight*

# MUSCULOSKELETAL SYSTEM

P944(20/88) Oganov VS.
***Neurotrophic influences in the adaptation of skeletal muscles and motor functions to weightlessness.***
*In* Nasledov GA (editor).
Mekhanizmy neyronal'noy regulyatsii myshechnoy funktsii [Mechanisms of neuronal regulation of muscle function.]
Leningrad: Nauka; 107-137; 1988
Author's Affiliation: Institute of Biomedical Problems; USSR Ministry of Health

*Musculoskeletal System, Skeletal Muscles, Fast- and Slow-Twitch, Motor Function, Neurophysiology, Neurological Control, Adaptation, Protein Turnover*
*Rats, Dogs, Humans*
*Space Flight, Short-Term, Soyuz-9, COSMOS-605, -690, -936, -1129, Immobilization, Hypokinesia, Hypodynamia, Tail-Suspension, Amputation, Motor Patterns*

*MONOGRAPH*

M137(20/88) Nasledov GA (editor).
Mekhanizmy neyronal'noy regulyatsii myshechnoy funktsii ***[Mechanisms of neuronal regulation of muscle function.]***
Leningrad: Nauka; 1988.
[137 pages; 1 table; 21 figures; 501 references; 52 in English]
Affiliation [book]: Scientific Council on Problems of Biological Physics; I.M. Sechenov Institute of Evolutionary Physics, USSR Academy of Sciences

*KEY WORDS: Musculoskeletal System, Skeletal Muscles, Fast- and Slow- Twitch, Motor Function, Neurophysiology, Neurological Control, Adaptation, Protein Turnover, Rats, Dogs, Humans, Space Flight, Short-Term, Soyuz-9, COSMOS-605, -690, -936, -1129, Immobilization, Hypokinesia, Hypodynamia, Tail-Suspension, Amputation, Motor Patterns*

# NEUROPHYSIOLOGY

**ISSUE 15**

*PAPERS:*

P630(15/88) Solodovnik FA.
***Predicting incidence of motion sickness in cosmonauts during space flight.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 123-125.

*Neurophysiology, Space Motion Sickness, Prediction*
*Humans, Cosmonauts, Individual Differences*
*Space Flight, Parabolic Flight*

P653(15/88) Kovalev VYu, Enes AE.
***Investigation of the postflight concentration of L-cystathionine in various areas of the brains of rats in an experiment on the COSMOS-1129 biosatellite.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 345-346.

*Neurophysiology, Brain, L-Cystathionine, GABA*
*Rats*
*Space Flight, COSMOS-1129*

P667(15/88)* Krylov YuV, Ivanov VV, Podshivalov AA, Zaritskiy VV.
***On the role of optokinetic stimulation in vestibulospinal reflexes.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(5): 36-41; 1987.
[14 references; 3 in English]

*Neurophysiology, Vestibulospinal Reflexes*
*Humans*
*Optokinetic Stimulation, Step Test*

P668(15/88)* Kondrachuk AV, Shipov AA, Sirenko SP.
***Membrane model of the cupula of the semicircular canals of the vestibular system.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(5): 41-47.
[24 references; 20 in English]

*Neurophysiology, Cupula*
*Mathematical Modeling*
*Membrane Model*

P674(15/88)* Simonov LG, Tsaturyan AK, Saribekyan AS, Shmidt LG.
***Assessing "reserve spaces" in the cerebrospinal system using noninvasive measures.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(5): 62-65; 1987.
[10 references; 3 in English]

*Neurophysiology, Cerebrospinal System*
*Humans, Patients*
*Reserve Spaces, Noninvasive Measures, Ultrasound*

**ISSUE 16**

*PAPERS*:

P702(16/88)* Davydov BI, Ushakov IB, Fedorov VP.
***The combined effects of ionizing radiation and altered gas medium on the central nervous system.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(6):76-83; 1987.
[14 references; 9 in English]

*Neurophysiology, Central Nervous System*
*Dogs*
*Radiobiology, Gamma Irradiation, Hypoxia, Oxygen Breathing*

# NEUROPHYSIOLOGY

P720(16/88) Kornilova LN, Kasparanskiy RR, Bodo G, Antal P (Last two are Hungarian.)
***The effects of weightlessness on vestibular and vestibulo-eye movement responses.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 76-77.

*Neurophysiology, Vestibular and Eye Movement Responses, Saccadic Movement, Nystagmus, Perception, Visual*
*Humans, Cosmonauts*
*Space Flight, Adaptation*

P721(16/88) Lapayev EV, Vorob'yev OA.
***The problem of vestibular physiology in aerospace medicine and prospects for its solution.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 85-86.

*Neurophysiology, Vestibular Physiology, Motion Sickness; Perception, Spatial Disorientation, Sensory Conflicts; Personnel Selection; Body Fluids*
*Humans, Cosmonauts, Pilots, Theoretical Article*
*Operational Medicine, Aerospace Medicine, Acceleration, Countermeasures*

**ISSUE 17**

P744(17/88) Krikun IS.
***The role of the visual system in vestibular reactions.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages:80-81

*Neurophysiology, Vestibular Reactions, Experimental Motion Sickness, Tolerance*
*Humans*
*Acceleration, Perception, Optokinetic Stimulation, Visual System*

# NEUROPHYSIOLOGY

P745 (17/88) Matsnev EI, Kuz'min MP, Zakharova LN.
***Evaluating the efficacy of vestibular, optokinetic, and optovestibular stimulation in the development of experimental motion sickness.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 95-96.

*Neurophysiology, Experimental Motion Sickness*
*Humans, Males, Individual Differences, Vestibular Tolerance, Personnel Selection ,Vestibular, Optovestibular and Optokinetic Stimulation, Perception*

P746(17/88) Repin AA.
***Characteristics of vestibulo-eye movement interactions under conditions of unilateral monopolar stimulation of the labyrinths with galvanic current.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages:112-113.

*Neurophysiology, Head and Eye Movement Coordination, Perception, Gaze Fixation*
*Humans*
*Labyrinths, Galvanic Current*

P747(17/88) Krasnov IB, D'yachkova LN, Babichenko II, Anders VN.
***The ultrastructure of the cerebellar cortex in rats exposed to altered gravitational force.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 279-280.

*Neurophysiology, Brain, Cerebellar Cortex, Ultrastructure*
*Rats*
*Space Flight, COSMOS-1514, COSMOS-936; Artificial Gravity, Centrifugation;Hypergravity*

# NEUROPHYSIOLOGY

P754(17/88)* Petrenko YeT.
***Changes in electroencephalograms during balance tests and exposure to rhythmic light flashes.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 21-25; 1988.
(9 references; none in English)

*Neurophysiology, Electroencephalograms, Motor System*
*Humans, Individual Differences*
*Balance Tests, Perception, Visual Interference, Light Flashes*

P758(17/88)* Shashkov VS, Drozd YuV, Yasnetsov VV, Galkina YeYu.
***On the role of opioid peptides in the pathogenesis of vestibulo-autonomic disorders.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 37-40; 1988.
(17 references; 9 in English)

*Neurophysiology, Opioid Peptides*
*Cats, Rats*
*Vestibular Stimulation, Motion Sickness Induction, Pharmacological Countermeasures*

P760(17/88)* Dmitriyev AS, Tropnikova GK.
***The effects of low frequency whole-body vertical vibration on the serotinergic system of the brain and spinal cord.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 45-49; 1988.
(27 references; 13 in English)

*Neurophysiology, Brain, Spinal Cord, Serotinergic System*
*Rats, Female*
*Habitability and Environment Effects, Vibration, Whole-Body; Psychology, Immobilization Stress*

P773(17/88)* Gora YeP.
***The effect of various schedules of voluntary control of respiration on electroencephalograms of humans exposed to acute hypoxic hypoxia.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 82-84; 1988.
(7 references; 3 in English)

*Neurophysiology, Electroencephalograms*
*Humans*
*Hypoxia, Acute; Cardiovascular and Respiratory System, Respiration, Voluntary Control*

**ISSUE 18**

*PAPERS*:

P814(18/88) Tkachev VV, Relushkina GD.
***Study of parameters of ultraslow activity of the human brain during emotional stress from the point of view of space medicine.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 138.

*Neurophysiology, Ultraslow Activity, Brain*
*Humans, Reaction Types*
*Psychology, Stress*

P817(18/88) Yasnetsov VV, Shashkov VS.
***Participation of the endogenous opioid system in the genesis of vestibular and autonomic disturbances in motion sickness.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 159-160.

*Neurophysiology, Motion Sickness, Vestibular System, Endogenous Opioid Peptides*
*Humans, Individual Differences, Endurance; Cats*
*Acceleration, Pharmacological Countermeasures, Naloxon, Scopolamine*

P842(18/88)* Davydov BI, Drobyshev VI, Ushakov IB, Fedorov VP.
***Morphological analysis of the reactions of the brains of animals to short term hyperoxia.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 56-62 ; 1988.
(19 references; 2 in English)

*Neurophysiology, Brain Morphology*
*Rats, Dogs*
*Hyperoxia, Short-Term*

P844(18/88)* Vasil'yev AA, Diyev AV, Grigorenko AB.
***An automated vestibulometric device.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 66-67 ; 1988.
(5 references; none in English)

*Neurophysiology, Vestibular System*
*Equipment and Instrumentation, Vestibulometric Device*
*Acceleration*

P847(18/88)* Yasnetsov VV, Drozd YuV, Shashkov VS, Bragin YeO, Popkova YeV, Vabishchevich AV.
***Protective effects of certain peptides with respect to motion sickness in animals.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 72-73 ; 1988.
(1 reference; none in English)

*Neurophysiology, Motion Sickness*
*Cats*
*Protective Effects, Peptides*

**ISSUE 19**

*PAPERS*:

P876(19/88)* Bodo G, Elkan K, Bentse G. (Hungary)
***The effect of sound on certain vestibular/autonomic reactions during motion sickness.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): 91-92; 1988.
(4 references; 2 in English)

*Neurophysiology, Motion Sickness, Vestibular, Autonomic Responses*
*Humans, Males; Individual Differences, Tolerance*
*Sound*

# NEUROPHYSIOLOGY

P887(19/88)* Orlova EKh, Pshennikova MG, Dmitriyev AD, Meyerson FZ.
***Increased concentration of immunoreactive opioid peptides in the brain and adrenals of rats adapted to physical exercise.***
Byulleten' Eksperimental'nyy Biologii i Meditsiny.
CV(2): 145-148; 1988.
[16 references; 7 in English]
Authors' affiliation: Scientific Research Institute for Pathological Physiology, Moscow All-Union Research Center for Mental Health, USSR Academy of Medicine

*Neurophysiology, Brain; Endocrinology, Adrenal; Opioid Peptides*
*Rats*
*Adaptation, Physical Exercise*

P892(19/88) Vavakin YuN, Zhekov IP, Zavadovskiy AF.
***The effects of various schedules of special tolerance-building exercises on increasing tolerance of head-down tilt.***
Teoriya i Praktika Fizicheskoy Kultury.
1988(3): 20-23.
[13 references; none in English]
Authors Affiliation: Institute of Biomedical Problems

*Neurophysiology, Tolerance, Head-Down Tilt*
*Humans, Males*
*Physical Exercise, Special*

P897(19/88) Mantsev EI, Gavrilin VK, Yakovleva IYa.
***Use of parallel swings to evaluate paired activity of the otolith system in healthy humans.***
Vestnik Otolaringologii.
1988(2): 28-33.
[17 references; 5 in English]
Authors' Affiliation: Institute of Biomedical Problems, USSR Ministry of Health

*Neurophysiology, Otolith, Paired Activity, Asymmetry*
*Humans, Males*
*Parallel Swings*

P898(19/88) Bronshteyn YuL, Raytses VS.
***Dynamics of vestibular nystagmus in neurogenic stress.***
Fiziologicheskiy Zhurnal.
34(3): 59-63; 1988.
[15 references; 1 in English]
Authors' Affiliation: Ivano-Frankovsk Medical Institute, Ukrainian Ministry of Health

*Neurophysiology, Nystagmus*
*Rabbits*
*Psychology, Stress*

**ISSUE 20**

*PAPERS*:

P914(20/88) Trinus KF.
***Individual differences in variability of vestibular sensitivity as measured by subjective sensations and long-latency vestibular evoked potentials.***
Fiziologiya Cheloveka.
14(4): 562-568; 1988.
[21 references; 9 in English]
Author's Affiliation: Kiev Scientific Research Institute of Industrial Hygiene and Occupational Disease

*Neurophysiology, Vestibular Sensitivity, Evoked Potentials*
*Humans, Individual Differences*
*Acceleration, Threshold*

P919(20/88)* Smirnov SA, Ayzikov GS, Kozlovskaya IB.
***The effect of adaptive biofeedback control on the severity of vestibular and autonomic symptoms in experimentally induced motion sickness.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(4): 35-39; 1988.
[14 references; 12 in English]

*Neurophysiology, Motion Sickness, Induced*
*Humans*
*Psychology, Biofeedback*

# NEUROPHYSIOLOGY

P924(20/88)* Antipov VV, Tikhonchuk IB, Ushakov IB, Fedorov VP.
***State of synapses of rat telencephalons under exposure to space flight factors.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(4): 54-61; 1988.
[33 references; 3 in English]

*Neurophysiology, Telencephalon, Synapses*
*Rats*
*Space Flight Factors, Radiobiology, Irradiation, Head, Acceleration, Vibration, Microwaves, Hypoxia, Hyperoxia*

P933(20/88)* Galle RR, Gusakova GA, Sabayev VV, Galle NN.
***Evaluation of the effectiveness of pharmacological countermeasures in preventing motion sickness.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(4): 90-93; 1988.
[16 references; 9 in English]

*Neurophysiology, Motion Sickness*
*Humans, Males*
*Pharmacological Countermeasures, Evaluation*

P936(20/88)* Lychakov DV.
***Structural tolerance of vestibular receptors to exposure to space flight factors.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(4): 13-19; 1988.
[40 references; 15 in English]

*Neurophysiology, Vestibular Receptors, Damage Resistance*
*Fish, Amphibians, Larvae, Developmental Biology, Rats*
*Space Flight, COSMOS-782, -936, -1514, -1667*

P939(20/88) Belichenko PV.
***Quantitative analysis of dendritic thorns of pyramidal neurons in layer V of the sensorimotor cortex of rats flown on COSMOS-1667.***
Byulleten' Eksperimental'noy Biologii i Meditsiny.
CV(6); 736-738; 1988.
[11 references; 5 in English]
Author's affiliation: Brain Research Institute, USSR Academy of Medicine.

*Neurophysiology, Sensorimotor Cortex, Neurons, Dendritic Thorns*
*Rats*
*Space Flight, COSMOS-1667*

# NEUROPHYSIOLOGY

P940(20/88) Pozdnyakov OM, Babakova LL, Demorzhi MS, Il'ina-Kakuyeva Yel.
***Changes in the ultrastructure of motoneuron synapses in rats exposed to space flight factors.***
Byulleten' Eksperimental'noy Biologii i Meditsiny.
CV(6); 752-755; 1988.
[5 references; 2 in English]
Authors' affiliation: Institute of General Pathology and Pathological Physiology, USSR Academy of Medicine; Institute of Biomedical Problems, USSR Ministry of Health.

*Neurophysiology, Musculoskeletal System, Motoneuron Synapses, Ultrastructure*
*Rats*
*Space Flight, COSMOS-1667*

P942(20/88) Drozd YuV, Yasnetsov VV, Shashkov VS.
***On the vestibuprotective characteristics of certain regulatory peptides.***
Byulleten' Eksperimental'noy Biologii i Meditsiny.
CVI(7): 50-52.
[15 references; 7 in English]
Authors' Affiliation: Institute of Biomedical Problems, USSR Ministry of Health

*Neurophysiology, Vestibular System, Motion Sickness*
*Cats*
*Pharmacological Countermeasures, Enzymology, Regulatory Peptides*

## ISSUE 15

*PAPER:*

P637(15/88) Bychkov VP, Kalandarov S, Kochetkova AN, Sedova YeA, Ushakov AS, Frumkin ML.
***Diet of cosmonauts of the three Salyut-7 prime crews.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages 220-221.

*Nutrition, Cosmonaut Rations*
*Humans, Cosmonauts*
*Space Flight, Salyut-7, Life Support Systems*

## ISSUE 16

*PAPER:*

P740(16/88) Balakovskiy MS, Ushakov AS, Pastushkova LKh, Spitsina NYe, Yuzhanskaya MG, Bogdanov NG, Gvozdova LG, Smirnova AN, Pyatnitskaya IN.
***Vitamin status of humans undergoing a 120-day period of hypokinesia with head-down tilt.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 332-333.

*Nutrition, Vitamin Status; Metabolism, Adaptation; Enzymology*
*Humans*
*Hypokinesia with Head-Down Tilt; Countermeasures, Exercise*

## ISSUE 17

P752(17/88)* Bychkov VP, Mosyakina LI, Khokhlova OS.
***The significance of nutrition in changes in carbohydrate and lipid metabolism in humans under nervous/emotional stress.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 13-17; 1988.
(3 references; none in English)

*Metabolism, Carbohydrate, Lipid*
*Humans*
*Nutrition, Balanced Diet, Psychology, Stress, Hermetically Sealed Environment, Neurophysiology, Motion Sickness Induction; Hypokinesia With Head-Down Tilt, Physical Exercise, Pharmacological Countermeasures*

P797(17/88) Pletsityy KD, Davydova TV, Fomina VG, Sukhikh GT, Askerov MA, Gyu Cha Khak.
***Correction of immunological effects of stress by Vitamin A.***
Byulleten' Eksperimental'noy Biologii i Meditsiny.
CIV(11): 609-611; 1987.
[20 references; 9 in English]
Authors' affiliation: Scientific Research Institute of Pathology and Pathological Physiology, USSR Academy of Medicine

*Immunology*
*Mice*
*Nutrition, Vitamin A; Psychology, Immobilization Stress*

## ISSUE 18

*PAPERS:*

P848(18/88)* D'yakonov MM, Kudrin ID, Stolyarova NA.
***Work capacity and bioenergetics in older individuals on reduced flight rations.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 73-74; 1988.
(14 references; 2 in English)

*Immunology*
*Mice*
*Nutrition, Vitamin A; Psychology, Immobilization Stress*

# OPERATIONAL MEDICINE

## ISSUE 15

*PAPERS:*

P622(15/88) Anashkin OD, Andretsov VA, Vernadskiy VI, Bogdanov VI, Volgin VA, Demida BF, Kaniovskiy SS, Monastyrev AA, Pozdnyakov SV, Ponomarev SI, Talavrinov VA, Chirkov AA.
***Operational control of medical support during flights of "Salyut-7" visiting crews.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986. Pages 5-6.

*Operational Medicine, Medical Support*
*Cosmonauts*
*Space Flight, Salyut-7, Visiting Crews*

## ISSUE 16

*PAPERS:*

P716(16/88) Bogomolov VV.
***Problems relating to emergency medical care on manned space flights.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 23 - 25.

*Operational Medicine, Emergency Care, Resuscitation*
*Humans, Cosmonauts*
*Space Flight, EVA*

P717(16/88) Goncharov IB, Polevoy LG, Semeykina LA, Podobuyeva LP.
***Determining need for drugs on flights varying in duration.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 41 - 42.

*Operational Medicine, Drug Supplies, Cardiovascular and Respiratory Systems, Neurophysiology, Motion Sickness, Body Fluids, Immunology, Human Performance*
*Humans, Cosmonauts*
*Space Flights, Short- and Long-Term, Soyuz, Salyut*

P723(16/88) Romanov AN, Vladimirov IV.
***Local hypothermia in treatment of acute diseases of the organs in the abdominal cavity in the practice of space medicine.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 116-117.

*Operational Medicine, Local Hypothermia; Gastrointestinal System, Diseases of Abdominal Cavity Organs*
*Humans, Cosmonauts*
*Space Flight, Hypokinesia with Head-Down Tilt*

**ISSUE 17**

*PAPERS:*

P753(17/88)* Iseyev LR, Tsivilashvili AS, Chadov VI.
***Analysis of clinical symptoms of high altitude-decompression sickness in barochamber studies.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 17-21; 1988.
(6 references; 3 in English)

*Operational Medicine, Decompression, High Altitude, Symptomatology*
*Humans, Individual Differences*
*Barochamber Studies*

P800(17/88) Bogomolov BB, Tkachenko VA.
***Rehabilitative measures after long-term space flights in a health resort in the city of Kislovodsk.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 22-23.

*Operational Medicine, Rehabilitation*
*Humans, Cosmonauts*
*Post-Flight Recovery, Physical Exercise, Massage, Hydrotherapy, Heat, Nutrition*

**ISSUE 18**

*PAPERS*:

P811(18/88) Vabishchevich AV.
***The potential use of long-acting peridural anaesthesia on long-term space flights.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 29-31.

*Operational Medicine, Peridural Anaesthesia, Long-Lasting*
*Humans, Cosmonauts, Theoretical Article*
*Space Flight*

P816(18/88) Chadov VI, Chernyakov IN, Iseyev LR, Polyakov VN, Prodin VI, Shishov AA.
***Study of the characteristics of decompression gas formation under conditions simulating weightlessness.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 154-155.

*Operational Medicine, Decompression*
*Humans*
*Weightlessness Simulation, Head-Down Tilt, Oxygen Breathing*

**ISSUE 19**

*PAPERS*:

P871(19/88)* Iseyev LR, Polyakov VN, Chadov VI.
***Comparative study of decompression-induced gas bubble formation and occurrence of high altitude decompression sickness.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): 75-82; 1988.
(18 references; 11 in English)

*Operational Medicine, Decompression Sickness, Gas Bubbles*
*Humans, Males*
*Barochamber Decompression, Head-Down Tilt, Exercise*

# OPERATIONAL MEDICINE

P872(19/88)* Novotny I, Shul'ts I (Czechoslovakia).
***Acute cerebrovascular diseases in pilots.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): 82-84; 1988.
(6 references; 4 in English)

*Operational Medicine, Cerebrovascular Disease*
*Humans, Pilots*
*Disease Incidence*

P877(19/88)* Draguzya MD, Lustin SI.
***The effect of Diphenin on tolerance of animals to acute hypoxic hypoxia.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): 92-94 ; 1988.
(4 references; 4 in English)

*Operational Medicine, Tolerance*
*Rats, Male*
*Hypoxia, Countermeasures, Dilantin*

P882(19/88) Bodrov VA, Kol'tsov AN, Sergeyev VA.
***Methods and criteria for assessing exhaustion in flight personnel.***
Voyenno-Meditsinskiy Zhurnal.
1988(2): 61-64.
[No references]
Authors' affiliation: USSR Medical Corps

*Operational Medicine, Exhaustion, Chronic Fatigue*
*Humans, Pilots*
*Assessment Techniques*

P904(19/88)* Morozova LV, Nikiforov VI, Titova LA.
***The effect of space-flight factors on the tissues and organs of the oral cavity in cosmonauts.***
*In*: Malinin VB, Kosmolinskiy FP, Kuznets Yel (editors).
Perspektivy Razvitiya Kosmicheskoy Biomeditsiny v Svete Idey K.E. Tsiolkovskogo [Prospects for the Development of Space Biomedicine in Light of the Ideas of K.E. Tsiolkovskiy] Proceedings of the XXth and XXIst Lecture Series dedicated to the scientific legacy and development of the ideas of K.E. Tsiolkovskiy., Kaluga 1985, 1988. Section on Problems of Space Medicine and Biology.
Moscow: USSR Academy of Sciences: 1987.
Pages 131-137.
[11 references; 3 in English]

*Operational Medicine, Oral Cavity, Stomatological Parameters*
*Humans, Cosmonauts*
*Space Flight Factors*

**ISSUE 20:**

*PAPERS:*

P910(20/88) Chadov VI, Iseyev LR, Polyakov VN.
***The hypobaric normoxic cabin atmosphere and minimum acceptable level of working pressures in an EVA space suit.***
In: Malinin VB, Kosmolinskiy FP, Kuznets Yel (editors).
Perspektivy Razvitiya Kosmicheskoy Biomeditsiny v Svete Idey K.E. Tsiolkovskiogo [Prospects for the Development of Space Biomedicine in Light of the Ideas of K.E. Tsiolkovskiy] Proceedings of the XXth and XXIst Lecture Series dedicated to the scientific legacy and development of the ideas of K.E. Tsiolkovskiy., Kaluga 1985, 1988. Section on Problems of Space Medicine and Biology.
Moscow: USSR Academy of Sciences: 1987.
Pages 113-123.

*Operational Medicine, Human Performance, EVAs*
*Humans, Cosmonauts*
*Habitability and Environment Effects, Cabin Atmosphere, Space Suit Pressure*

P911(20/88) Malkin VB, Landukhova NF, Shishov AA.
***A rapid method for training hypoxia [tolerance].***
In: Malinin VB, Kosmolinskiy FP, Kuznets Yel (editors).
Perspektivy Razvitiya Kosmicheskoy Biomeditsiny v Svete Idey K.E. Tsiolkovskiogo [Prospects for the Development of Space Biomedicine in Light of the Ideas of K.E. Tsiolkovskiy] Proceedings of the XXth and XXIst Lecture Series dedicated to the scientific legacy and development of the ideas of K.E. Tsiolkovskiy., Kaluga 1985, 1988. Section on Problems of Space Medicine and Biology.
Moscow: USSR Academy of Sciences: 1987.
Pages 38-43.
[7 references; none in English]

*Operational Medicine, Hypoxia Tolerance*
*Humans*
*Adaptation, Training Method*

# OPERATIONAL MEDICINE

P930(20/88)* Portnov FG, Slutskiyy LI, Vorob'yeva LF, Iyerusalimskiy AP, Vandan YaA, Sinel'shchikova MP.
***Reactions of rat dermal connective tissue to exposure to an electrostatic field.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(4): 81-84; 1988.
[15 references; 1 in English]

*Operational Medicine, Connective Tissue*
*Rats*
*Radiobiology, Electrostatic Field*

P931(20/88)* Domashuk Yu. (Poland)
***Tolerance of +Gz acceleration by pilots with health problems.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(4): 84-86; 1988.
[9 references; 4 in English]

*Operational Medicine, Aviation Medicine, Acceleration Tolerance*
*Humans, Pilots, Patients*
*Population Study*

# PERCEPTION

**ISSUE 17**

*PAPER:*

P783(17/88) Ponomarenko VA, Vorona AA, Aleshin SV.
***On certain psychological mechanisms of spatial disorientation in the cabin of a flight vehicle.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986. Pages: 199-201.

*Perception, Spatial Disorientation; .Human Performance*
*Humans, Pilots*
*Psychology, Flight Vehicle Cabin*

**ISSUE 19**

*PAPER:*

P905(19/88) Moseyeva II.
***On the perception of time under extreme conditions.***
In: Malinin VB, Kosmolinskiy FP, Kuznets Yel (editors).
Perspectivy Razvitiya Kosmicheskoy Biomeditsiny v Svete Idey K.E. Tsiolkovskogo [Prospects for the Development of Space Biomedicine in Light of the Ideas of K.E. \] Proceedings of the XXth and XXIst Lecture Series dedicated to the scientific legacy and development of the ideas of K.E. Tsiolkovskiy., Kaluga 1985, 1988. Section on Problems of Space Medicine and Biology.
Moscow: USSR Academy of Sciences: 1987.
Pages 72-76.
[9 references; 0 in English]

*Perception, Time Perception, Human Performance*
*Humans, Athletes, Hang Glider Pilots*
*Extreme Conditions, Psychology, Stress; Biological Rhythms, Rhythm Types*

**ISSUE 20:**

*PAPER:*

P918(20/88) Ivanov VV, Vorob'yev OA, Shipkov YuYu.
***The development of spatial orientation in the process of flight training.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(4): 31-34; 1988.
[21 references; 4 in English]

*Perception, Spatial Orientation*
*Humans, Pilots*
*Pilot Training*

# PERSONNEL SELECTION

**ISSUE 18**

*MONOGRAPH:*

M127(18/88) Makharenko NV, Pukhov BA, Kol'chenko NV, Maydikov YuL, Kiyenko VM, Voronovskaya VI.
Osnovy professional'nogo psikhofiziologicheskogo otbora [***Principles of psychophysiological occupational selection***].
Kiev: Naukova Dumka; 1987.
[244 pages; 37 tables; 44 figures; 244 references; 10 in English]
Affiliation: A.A. Bogomolets Institute of Physiology; Ukrainian Academy of Sciences.

*KEY WORDS: Personnel Selection, Psychology, Human Performance, Neurophysiology, Group Dynamics, Perception*

**ISSUE 20:**

*PAPER:*

P909(20/88) Voronin LI, Zhernavkov AF, Kalinichenko VV, Kravchenko VV, Ulyatovskiy NV.
***On the development of K.E. Tsiolkovskiy's ideas in the area of predicting human gravitational tolerance during space flight.***
In: Malinin VB, Kosmolinskiy FP, Kuznets Yel (editors).
Perspektivy Razvitiya Kosmicheskoy Biomeditsiny v Svete Idey K.E. Tsiolkovskiogo [Prospects for the Development of Space Biomedicine in Light of the Ideas of K.E. Tsiolkovskiy] Proceedings of the XXth and XXIst Lecture Series dedicated to the scientific legacy and development of the ideas of K.E. Tsiolkovskiy., Kaluga 1985, 1988. Section on Problems of Space Medicine and Biology.
Moscow: USSR Academy of Sciences: 1987.
Pages 12-16.
[4 references; none in English]

*Personnel Selection*
*Humans, Cosmonauts*
*Orthostatic Tolerance*

# PSYCHOLOGY

**ISSUE 15**

*PAPERS:*

P633(15/88) Polevoy LG.
***GABA derivatives: Types of effects and methods of evaluation with respect to the goals and requirements of space psychopharmacology.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 195-196.

*Psychology, Space Psychopharmacology, GABA Derivatives*
*Humans, Cosmonauts*
*Adaptation, Space Flight Factors*

P648(15/88) Shlyk GG, Korol'kov VI, Kozlovskaya IB, Shirvinskaya MA, Efimova MYa, Peshekhonov OF, Abramov ON, Polyakov VV.
***Use of parameters of instrumental reflexes to assess the adaptive capacities of the higher nervous system in monkeys on COSMOS biosatellites.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages:303-304.

*Adaptation, Space Flight, COSMOS; Neurophysiology, Higher Nervous System*
*Primates, Monkeys*
*Psychology, Learned Instrumental Reflexes; Stress*

P677(15/88)* Savchenko NYa.
***The immediate and remote effects of nonlethal irradiation with accelerated high energy helium ions on maintenance of existing [learned] behavioral patterns [responses] and formation of new ones.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(5): 70-72; 1987.
[9 references; 1 in English]

*Psychology, Learned Behavior Patterns, Maze, Stress*
*Rat,*
*Radiobiology, Accelerated High Energy Helium*

P681(15/88)* Durnova GN, Vorotnikova YeV, Prodan NG.
***Comparisons of stress reaction in rats exposed to different simulations of certain effects of weightlessness.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(5): 79-81.
[7 references; 6 in English]

*Psychology, Stress Response; Endocrinology, Adrenal, Thymus*
*Rats, Male*
*Weightlessness Simulations, Immobilization, Tail Suspension*

**ISSUE 16**

*PAPERS*:

P726(16/88) Chatterjee RS (India), Kozlovskaya IB, Grigor'yeva LS, Suvorov AS, Singatulin YeG, Vadkhavan JM (India), Dikshit MB (India).
***Performance of Yoga on manned space flights.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 155-156.

*Psychology, Stress Response; Endocrinology, Adrenal, Thymus*
*Rats, Male*
*Weightlessness Simulations, Immobilization, Tail Suspension*

P727(16/88) Medvedeva YeYu.
***Psychological work capacity as a function of individual differences in emotional traits under conditions of hypokinesia with head-down tilt.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 188-189.

*Human Performance, Psychological Work Capacity*
*Humans, Males, Individual Differences, Personnel Selection*
*Psychology, Emotional Traits; Hypokinesia with Head-Down Tilt*

**ISSUE 17**

*PAPERS*:

P799(17/88) Kolinichenko TB, Koreshkov AA, Kots AR, Makarov VI, Rudometkin NM.
***Diurnal periodicity of psychomotor reactions and speech parameters in individuals working on non-24 hour schedules.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages:179-180.

*Psychology, Psychomotor Reactions, Speech Parameters; Human Performance*
*Humans*
*Biological Rhythms, Diurnal Rhythms, Non-24 Hour Sleep Wakefulness Cycles*
*Space Flight, Salyut-7*

**ISSUE 18**

*PAPERS:*

P818(18/88) Zhdanov OI, Shpatenko YuA.
***Intentional self-regulation as one of the factors in on-the-job adaptation to extreme performance conditions.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 166-167.

*Human Performance, Adaptation*
*Humans*
*Psychology, Self-Regulation, Stress, Extreme Conditions*

*MONOGRAPHS:*

M130(18/88) Furduy FI, Kaydarliu SKh, Shrirby YeI, Nadvodnyuk AI, Mamalyga LM.
Mekhanizmy razvitiya stressa: Stress, adaptsiya i funktsional'nyye narusheniya [***Mechanisms underlying the development of stress: Stress, Adaptation and Functional Disorders.***]

*KEY WORDS: Psychology, Stress, Adaptation, Neurophysiology, Immunology, Endocrinology, Space Flight, Biological Rhythms, Pharmacological Countermeasures, Developmental Biology, Gastrointestinal System*

# PSYCHOLOGY

M131(18/88) Platonov KK, Gol'dshtein BM.
Osnovy aviatsionnoy psikhologii [***Principles of aviation psychology.***]
Moscow: Transport; 1987.
[222 pages; 9 tables; 19 figures; 32 references; none in English]

*KEY WORDS: Psychology, Aviation Psychology, Stress, Pilots, Human Performance, Small Groups, Training, Perception, Personnel Selection, Man- Machine Systems*

## ISSUE 15

*PAPER*:

P682(15/88)* Zubkova IV, Gutorova LV, Panferova NYe.
***The effects of hypokinesia with head-down tilt and illumination conditions on sensitivity of skin of the upper body to UV-radiation.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(5): 81-82; 1987.
[4 references; 3 in English]

*Radiobiology, UV Radiation, Skin Sensitivity*
*Humans, Males*
*Hypokinesia with Head-Down Tilt, Illumination*

## ISSUE 16

*PAPERS:*

P688(16/88)* Gaubin Y, Delpoux M, Bionov J, Planel H, Gasset G, Pianezzi B, Burg M, Barbast A. (France).
***The effects of space flight factors on biological subjects exposed on the COSMOS-1514 biosatellite.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
21(6):18-24; 1987.
[7 references; 7 in English]

*Radiobiology, Biological Effects, Cosmic Radiation*
*Botany, Rice, Tobacco; Brine Shrimp*
*Space Flight, COSMOS-1514*
P710(16/88) Fedorova NL, Shafirkin AV, Osipova YeYu.
***Quantitative description of radiation damage to the spermatogenic epithelium and rate of recovery after exposure to fast neutrons and gamma-irradiation.***
Radiobiologiya.
XXVII(4): 492-496; 1987.
[8 references; 3 in English]
Authors' affiliation: Institute of Biomedical Problems, USSR Ministry of Health, Moscow.

*Reproductive Biology, Spermatogenic Epithelium*
*Mice, Male*
*Radiobiology, Radiation Damage, Fast Neutrons, Gamma Radiation*

# RADIOBIOLOGY

P711(16/88) Ul'yanova VA, Shafirkin AV, Farber YuV, Markelov BA.
***Characteristics of development of radiation damage and recovery processes in the hemopoietic tissue of mice after repeated exposure to fast neutrons and gamma-irradiation.***
Radiobiologia.
XXVII(4): 510-515; 1987.
[9 references; 2 in English]
Authors' affiliation: Institute of Biomedical Problems, USSR Ministry of Health, Moscow

*Hematology, Hemopoietic Tissue*
*Mice*
*Radiobiology, Fast Neutrons, Gamma Irradiation, Repeated Exposure*

P712(16/88) Antipov VV, Fedorov VP, Ushakov IB, Davydov BI.
***Changes in synapses after irradiation of the heads of rats.***
Radiobiologiya.
XXVII(5): 644-649; 1987.
[14 references; none in English]
Authors' affiliation: Institute of Biomedical Problems, USSR Ministry of Health, Moscow

*Neurophysiology, Synapses*
*Rats*
*Radiobiology, Gamma-Irradiation, Head*

P713(16/88) Gerasimenko VN, Portman AI, Bulanova M, Ivanov B, Mileva M.
***The effect of charged particles of relativistic energy on the frequency of chromosome aberrations in human blood lymphocytes. Dose -- response and RBE of protons, deuterons and helium ions.***
Radiobiologiya.
XXVII(6): 743-747; 1987.
[16 references; 1 in English]
Authors' affiliation: Institute of Biomedical Problems, USSR Ministry of Health, Moscow.

*Genetics, Chromosome Aberrations; Hematology, Lymphocytes*
*Humans*
*Radiobiology, Gamma Radiation, Protons, Deuterons, Helium Ions; Dose-Effect, RBE*

P738(16/88) Kovalev YeYe, Sakovich VA.
***The concept of radiation risk in setting radiation safety standards for space flights.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 314-315.

*Radiobiology, Radiation Safety, Radiation Risk*
*Humans, Theoretical Article*
*Space Flight, Standard Setting*

**ISSUE 17**

*PAPERS:*

P791(17/88) Fedorenko BS.
***Remote consequences of the biological effects of accelerated high energy charged particles.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages:326-327.

*Biological Effects, Remote Effects, Cataracts, Tumors*
*Rats*
*Accelerated HZE, Protons, Helium Ions, Gamma-Radiation*

P763 (17/88)* Tartakovskiy VN, Daniyarov SB.
***Hemorrhaging and hemostasis in guinea pigs irradiated at high altitude.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 53-57; 1988.
(24 references; 10 in English)

*Hematology, Hemorrhaging, Hemostasis*
*Guinea Pigs*
*Radiobiology, Irradiation, High Altitude*

P769(17/88)* Petrov VM, Logachev YuI, Karachevskiy SN, Bengin VV, Gvozdev IK, Kolesov GYa, Kudryavtsev MI, Martynov AI, Podorol'skiy AN, Sud SA, Devicheva YeA.
***An automated spectrometric system for studying radiation characteristics of cosmic radiation on Prognoz-9 satellites.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(1): 75-78; 1988.
(11 references; 4 in English)

*Radiobiology, Solar Proton Eents*
*Equipment and Instrumentation, Spectrometric System, Sosna*
*Space Flight, Prognoz-9 Satellites*

**ISSUE 18**

*PAPERS*:

P812(18/88) Il'in VA, Neumyvakin IP, Kondrat'yev II.
***The potential use of ultraviolet irradiation of the blood in the practice of space medicine.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 64-65.

*Operational Medicine, Space Flight, Immnunology, Non-Specific Resistance*
*Humans, Cosmonauts, Theoretical Article*
*Radiobiology, Ultraviolet Radiation, Hematology, Blood*

P853(18/88)* Gerasimenko VN, Zukhbaya TM.
***Properties of radiation damange and reparation in bone marrow of mice irradiated with 4GeV/nucion helium ions and 9GeV protons.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(2): 85-87; 1988.
(9 references; 1 in English)

*Musculoskeletal System, Bone Marrow*
*Mice*
*Radiobiology, Helium Ions, Protons*

**ISSUE 19**

*PAPER*:

P900(19/88) Akopova AB, Dudkin VYe, Karpov ON, Melkumyan LV, Potapov YuV, Rshtuni ShB.
***Determination of the characteristics of cosmic radiation on Salyut-7 space station.***
Kosmicheskiye Issledovaniye.
XXVI(1): 162-165; 1988.
[14 references; 4 in English]

*Radiobiology, Cosmic Radiation*
*Dosimetry*
*Space Flight, Salyut-7*

P906(19/88) Davydov BI, Antipov VV, Ushakov IB.
***Some issues in radiation psychophysiology as applied to space flight practices.***
In: Malinin VB, Kosmolinskiy FP, Kuznets Yel (editors).
Perspectivy Razvitiya Kosmicheskoy Biomeditsiny v Svete Idey K.E. Tsiolkovskogo [Prospects for the Development of Space Biomedicine in Light of the Ideas of K.E. Tsiolkovsiy] Proceedings of the XXth and XXIst Lecture Series dedicated to the scientific legacy and development of the ideas of K.E. Tsiolkovskiy., Kaluga 1985, 1988. Section on Problems of Space Medicine and Biology.
Moscow: USSR Academy of Sciences: 1987.
Pages 28-31.
[8 references; none in English]

*Psychology, Radiobiology, Radiation Psychophysiology, Human Performance*
*Theoretical Paper, Paradigm Evaluation*
*Space Flight*

**ISSUE 20**

*PAPER*:

P929(20/88)* Malakhovskiy VN, Bobyr' BA, Bokk MM, Mikhaylichenko PP, Sergeyev AA.
***Some physiological characteristics of the initial reaction to radiation and its apomorphine model.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(4): 77-81; 1988.
[25 references; 8 in English]

*Human Performance; Psychology, Animal Learning*
*Dogs, Humans*
*Radiobiology, Early Response, Apomorphine*

# RADIOBIOLOGY

*MONOGRAPH*:

M138(20/88) Moldotashev B.
Deystviye vysokogor'ya i ioniziryyushchey radiatsii na organizm zhivotnykh i fiziologicheskiye mexhanizmy povyshennoy radiostoychivosti ***[The effects of high altitudes and ionizing radiation on animals and physiological mechanisms underlying heightened radioresistance.]***
Frunze: Ilim; 1987.
[155 pages; 239 references]
Affiliation [book]: Institute of Biochemistry and Physiology, Kirghiz Academy of Sciences

*KEY WORDS: Radiobiology, Ionizing Radiation, Radioresistance; Adaptation, High Altitudes, Hematology, Hemopoiesis, Immunology*

# REPRODUCTIVE BIOLOGY

## ISSUE 16

*PAPER:*

P724(16/88) Tikhomirov YeP, Prilepskaya VN, Aleksashkina NI, Samokhin VG.
***Tolerance of lower body decompression in women.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 136-137.

*Reproductive Biology, Reproductive Organs and Functions; Cardiovascular and Respiratory Systems, Functional State*
*Humans, Women*
*LBNP, Tolerance*

## ISSUE 20

*PAPERS:*

P937(20/88) Serova LV, Tikhonova GP, Denisova LA, Pustynnikova AM, Ivanov YuV, Baykova OV.
***The state of spermatogenesis and reproductive function in rats after space flight on the COSMOS-1667 biosatellite.***
Paper delivered at the XIXxth conference of the Permanent Working Group of Socialist Nations on Space Biology and Medicine within the Intercosmos Program, Havana, 5-12 April 1986.
Authors' Affiliation: Institute of Biomedical Problems, USSR Ministry of Health, Moscow.

*Reproductive Biology, Spermatogenesis, Reproductive Function*
*Rats, Male*
*Space Flight, COSMOS-1667*

P938(20/88) Denisova LA, SNetkova YeV.
***The effects of short-term space flights on the reproductive function in animals.***
Abstract of paper delivered to the XXIth Conferences of the Permanent working Group of Socialist Countries on Space Biology and Medicine, Intercosmos, 6-10 June. Baranov Sandomersky, Poland.
Authors' Affiliation: Institute of Biomedical Problems, USSR Ministry of Health, Moscow.

*Reproductive Biology; Reproductive Function*
*Rats; Male*
*Space Flight, COSMOS-1887*

# SPACE BIOLOGY AND MEDICINE

**ISSUE 15**

*MONOGRAPH*:

M118(15/88) Gazenko OG, Pestov ID, Makarov VI.
Chelovechestvo i Kosmos ***[Humanity and Space]***.
Mosocw: Nauka; 1987.
[272 pages; 28 illustrations; 4 pages of references]
Affiliation (book): USSR Academy of Sciences.

*KEYWORDS: Space Biology and Medicine, Human Performance, Psychology, Space Flight Research, Biospherics*

*CONFERENCE REVIEW*:

CR8(15/88)* Salivon SG.
*Second All-Union Conference on* ***"Physiology of extreme states and individual protection."***
In: Kosmicheskaya Biologiy i Aviakosmicheskaya Meditsina.
21(5): 86-89; 1987.

*KEY WORDS :Space Biology, Space Medicine, Adaptation, Extreme Conditions, High Altitude, Decompression Sickness, Acceleration, Psychology, Stress, Human Performance, Individual Differences, Biofeedback, Pharmacological Countermeasures, Physical Exercise, Weightlessness Simulations, Hypokinesia, Immersion, Toxic Factors, Cosmonaut Training, Equipment and Instrumentation, Operational Medicine, Immunology, Endocrinology, Metabolism*

**ISSUE 16**

*PAPERS:*

P729(16/88) Grigoryan EN, Mitashov VI, Tuchkova SYa, Cherdantseva YeM.
***Regeneration in tritons in space.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 268-269.

*Space Biology, Regeneration*
*Amphibians, Tritons*
*Space Flight, Weightlessness, Theoretical Article*

P732(16/88)* Il'in YeA, Anitpov VV.
***Future prospects for the development of space biology.***
In: Gazenko OG (editor).
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina: Tezisy dokladov VIII Vsesoyuznoy Konferentsii, Kaluga, 25-27 June 1986 [Space Biology and Aerospace Medicine: Abstracts of papers delivered at the Eighth All-Union Conference, Kaluga, 25-27 June 1986].
Moscow: Nauka; 1986.
Pages: 273-274

*Space Biology, Ecological Physiology; Life Support Systems, CELSS; Exobiology, Theoretical Article*
*Future Prospects, Biosatellites, Mir*

**ISSUE 18**

*MONOGRAPH:*

M125(18/88) Verigo VV.
Systemnyye Metody v Kosmicheskoy Biologii i Meditsine. Problemy Kosmicheskoy Biologii. Tom 55.
***[Systems Methods in Space Biology and Medicine. Problems in Space Biology. Volume 55.]***
Moscow: Nauka; 1987.
[216 pages; 12 tables; 75 figures; 17 pages of references]

*KEY WORDS: Space Biology and Medicine, Simulation Modeling, Systems Theory, Mathematical Modeling, Homeostasis, Operational Medicine, Cardiovascular and Respiratory Systems, Body Fluids, Cytology, Immunology, Hematology, Life Support Systems, Metabolism, Calicium, Exobiology, Planetary Quarantine, Microbiology*

**ISSUE 19**

*PAPER:*

P859(19/88)* Talavrinov VA, Anashkin OD, Bagramov KhG, Volgin VA, Luk'yanchikov VI, Lyamin VR, Sergeyev AV, Turbasov VD, Chirkov AA.
***Anthropometric studies of the prime crews on Salyut-6 and -7 space stations.***
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): 22-27; 1988.
(17 references; 3 in English)

*Space Medicine, Anthropometric Parameters*
*Humans, Cosmonauts*
*Space Flight, Salyut-6 and -7*

# SPACE BIOLOGY AND MEDICINE

*MONOGRAPH:*

M134(19/88) Malinin VB, Kosmolinskiy FP, Kuznets Yel (editors).
Perspektivy Razvitiya Kosmicheskoy Biomeditsiny v Svete Idey K.E. Tsiolkovskogo [***Prospects for the Development of Space Biomedicine in Light of the Ideas of K.E. Tsiolkovsiy***]
Proceedings of the XXth and XXIst Lecture Series dedicated to the scientific legacy and development of the ideas of K.E. Tsiolkovskiy., Kaluga 1985, 1988. Section on Problems of Space Medicine and Biology.
Moscow: USSR Academy of Sciences: 1987.
[139 pages]
Affiliation (Book): USSR Academy of Sciences, Commission to Develop the Scientific Heritage of K.E. Tsiolkovskiy, K.E. Tsiolkovskiy State Museum on the History of Cosmonautics.

*KEY WORDS: .i.Space Biology and Medicine, Human Performance, Psychology, Radiobiology, Botany, Life Support Systems, Operational Medicine, Perception, Metabolism, Cardiovascular and Respiratory Systems, Immunology,*

*BOOK REVIEW:*

BR14(19/88)* Kositskii GI.
Review of: Fiziologiya cheloveka v usloviyakh vysokogor'ya [***Human physiology under high altitude conditions***]; OG Gazenko, editor, Moscow: Nauka; 1987.
Kosmicheskaya Biologiya i Aviakosmicheskaya Meditsina.
22(3): 95-96 ; 1988.

*KEY WORDS: Space Biology and Medicine, Adaptation, High Altitudes, Operational Medicine, Personnel Selection, Cardiovascular and Respiratory Systems*

# SPACE INDUSTRIALIZATION

**ISSUE 18**

*MONOGRAPH*:

M128(18/88) Grishin SD, Leskov LV.
Industrializatsiya kosmosa: Problemy i perspektivy [***Industrialization of space: Problems and prospects.***]
Moscow: Nauka; 1987
[353 pages; 26 tables; 111 figures; 356 references]

*KEY WORDS: Space Industrialization, Materials Processing, Exobiology, Weightlessness*

## A

Abdominal Cavity Organs 105
Aberrant Cells 15
Abiogenic Synthesis 41- 42
Acceleration Tolerance 11, 13, 24, 25, 31, 62, 109
Acetic Acid 52, 79
**Adaptation 1 - 3**, 5, 18, 19, 21, 48, 55, 61, 72, 74, 75, 81, 83, 90, 93, 98, 102, 108, 112, 114, 121, 123, 125
Adrenal Gland 98, 113
Adrenal Glands 12, 29, 36, 37, 38, 64, 75, 98
Adrenalin 56
Adrenergic Receptors 37
Adrenergic Activity 29
Adrenergic Effects 29
Aerospace Medicine 93
Age Differences 27, 84
Age Structure 16
Aging 16, 67
Air Pollution 54
Air-Traffic Control 71
Aircraft Position 62
Alertness 63
Allergy 64
Alpha-Hydroxymethyl-Gamma-Aminopropylidene Biphosphonate 84
Alpha-tocopherol 16
Altered Gravity 46
Amino Acids 73
Ammonia 54,73
AMP, Cyclic 41
Amphibians 34, 35, 100, 123
Amplification, Gene 46
Amputation 85, 86, 90
Androgen System 39
Anesthesia, Peridural 106
Animal Learning 120
Antarctic 1, 3
Antiacceleration Suit 13, 61, 62
Antihemolytic Effect 57,58
Anthropometric Parameters 124
Apomorphine 120
*Arms 80*
*Arabidopsis thaliana* 15,17
Artificial Gravity 74, 94
Assessment Techniques 107
Athletes 3, 62, 66, 110
Atmosphere 79
Atmosphere Cabin 108
Atmospheric Factors 9

Automated Monitoring Devices 4
Auxin 16
Automicroflora 78
Autonomic Nervous System 53
Autonomic Responses 97
**Aviation Medicine** 4, 109, 115
Aviation Psychology 115
Aviation Performance 71

**B**

Balance Tests 95
Barochamber Studies 105, 106
Bed Rest 30, 40
Beets 69
Beta-Adrenoblockade 22
Biceps 83
Biochemistry 74
Biodegradation 54
Bioenergetic Parameters 57
**Biological Rhythms** 3, **5-7,** 9, 30, 61, 110, 114
Biologically Active Compounds 16
Biomechanics 87
**Bionics 8**
Biosatellites,24
**Biospherics 9,** 41, 71, 74, 123
Blood 11, 40; 74, 119;See Hematology Section
Blood Flow Rate 25
Blood Gases 31
Blood Pressure 25, 30, 31
Blood Volume 13
**Body Fluids** 7, **11-14,** 36, 48, 75, 93, 104, 124
Bones 80, 81, 82, 83, 84, 85, 86, 89; See also Musculoskeletal System
Bone Marrow 89, 119
**Botany 15-17,** 69, 116, 125
Brain 91, 94, 95, 96; 98 See also Neurophysiology
Brain Development 33
Brine Shrimp 116

## C

C-Cell Systems 37
Calcitonin 85
Calcium 14, 85, 87, 124
Calcium Metabolism 75
Carbohydrates 103
Carbon Dioxide 6, 28, 54, 69
Carbon Monoxide 6, 28,59
Cardiac Bioelectric Activity 27
Cardiac Biomechanics 28
Cardiac Contractility 27
Cardiac Cycle 30
Cardiac Output 31
Cardiac Rhythm 18, 52
Cardiac Volume 31
**Cardiovascular and Respiratory Systems** 2,3, 9, 11, **18-31,** 52, 60, 62, 71, 75, 95, 103, 122, 124, 125
Cardiovascular Parameters 22
Catabolic Metabolism 57
Catecholamines 36, 37
Cataracts 118
Cats 95, 96, 97, 101
Cell Growth and Differentiation 34
Cell Biology 32
CELSS 68, 69, 124
Central Nervous System 92; See also Neurophysiology
Centrifugation 21, 34, 35, 36, 74, 94
Centripetal Force 72
Cerebellar Cortex 94
Cerebellar Neurons 32
Cerebellum 34
Cerebrospinal System 92
Cerebrovascular Disease 107
Cerebrum 26, 53
Chemical Interactions 54
Chilling 63
*Chlorella* 16
Chromatic 46
Chromosome Aberrations 15,117
Chromosome Nondisjunction 45
Chromosome Restructuring, Mutability 17
Circadian Rhythms 5, 6; See Biological Rhythms
Circulation 19, 20, 28, 29
Clay 41
Clinostatting 32, 46
Closure 69, 70
Clothing, Protective 62
Coagulation 55, 56

Cold 7, 82
Collagen 75. 81
Computer Tomography 84
Connective Tissue 81, 109
Contractile Parameters 28
Coordination, Head and Eye 94
Coriolis Acceleration 23
Corticosteroids 12
Cosmic Radiation 116, 120
Cosmonaut Performance 72
Cosmonaut Rations 73, 102
Cosmonaut Training 72, 123
Cosmonauts 1, 2, 12, 18, 19, 20, 21, 23, 24, 30, 43, 51, 59, 64, 69, 72, 73, 77, 80, 82, 91, 93, 102, 104, 105, 106, 108, 111, 112, 119, 124
COSMOS 112
COSMOS-690 46, 90
COSMOS-782, -45, 82. 100
COSMOS-936 17, 43, 82, 90, 94, 100
COSMOS-1129,17, 37, 43, 45, 74, 82, 88, 90
COSMOS-1514 1, 5, 12, 13,17 25, 32, 33, 34, 35, 36, 43, 46, 80, 81, 87, 88, 94, 100, 116
COSMOS-1667 13, 20, 36, 37, 38, 43, 45, 46, 66, 81, 82, 83, 88, 100, 101, 122
COSMOS-1887 122
Countermeasures, 2, 4, 13, 27, 53, 62, 65, 85, 93, 102, 107
*Crepis capillaris* 15, 17
Critical Flicker Fusion Frequency 60
Cupula 92
Cystine 73
Cytogenetics, Plant 16
**Cytology** 3, **32**, 34, 124

## D

Damage Resistance 100
Decompression 105, 106
Decompression Sickness 106, 123
Deconditioning 21, 24, 29
Dehydrogenases 88
Dendritic Thorns 100
Desynchronosis 6
Deuterons 117
**Developmental Biology** 12,17, **32 - 36,** 81, 84, 100, 114
Diagnostic Prediction 20
Diet, Balanced 103; See also Nutrition
Digestive Function 43
Digestive Lactoflora 43
Disease 105, 107
Disorientation 93
Disuse Osteoporosis 86
Displays Effectiveness 62
Diurnal Rhythms: See Biological Rhythms
DNA 45
Dogs 28, 55, 56, 82, 90, 92, 96, 120
Dose-Effect Functions 117
Dosimetry 120
Drivers 63
*Drosophila* 45, 46
Drugs: See Pharmacological Countermeasures
Drug Sensitivity 78
Drug Supplies 104
Dynamic Electrocardiograms 19
Dysbacteriosis 44

## E

Echocardiography 18
Ecological Physiology 124
Ecological Systems 78
Ectopic Bone 89
EHDA 86
EEG 95
EKG 20, 21 25, 31, 75
Electric Field 36
Electric Sleep 1
Electrocardiography, See EKG
Electrolyte Metabolism 75
Electromagnetic Efficiency 80
Electrostatic Field 109
Embryogenesis 17
Embryonic Development 33, 35
Embryos 32, 34
Emergency Care 104
Emotional Traits 113
Endocrine Stress 44
**Endocrinology** 2,3, 7, 12, 29, **36 - 39**, 44, 48, 56, 64, 66, 67,74, 75, 98, 113, 114, 123
Endurance 96
Energy 3
Engineering Physiology 71
Enterosorbent 28
Environmental Factors 71, 72
Enzymatic Antioxidants 53
**Enzymology** 7, 28, 37, **40,** 43, 45, 53, 76, 87, 101, 102, 119, 123
Equipment and Instrumentation 4, 11, 14, 31, 51, 97
Erythrocyte Membrane 57, 58
Erythrocytes 55, 56, 57
Eukaryotes 48
EVA 18, 104, 108
Evoked Potentials 99
Evolution 49
Excess Pressure Breathing 24
Exercise See Physical Exercise
Exhaustion 107
Exogenous Contrapulsation 22
**Exobiology 43-44**, 124, 126
Expired Air 77
External Respiration 20, 30, 32
Extracellular Fluid 11, 13, 14
Extreme Conditions 7, 63, 74, 110, 114, 123
Extreme Factors 2, 3
Eye Movements 94

## F

Far North 5
Fatigue 3, 63, 107
Fatty Acids 56
Females 12, 13, 33, 34, 35, 36,37, 45, 46, 51, 80, 81, 87, 88, 95, 122
Fertility 17
Fetuses 12
Fibrinolysis 55, 56
Fish, Guppies 33, 100
Fixation,Visual 94
Flight Crews 20
Flies 68
Flight Conditions 76
Flight Performance 60
Fluid Electrolyte Metabolism 12, 13, 14
Fluid Redistribution 11, 48
Food Sources 68; See Nutrition
Forced Exercise 64
Frogs 34, 35
Functional State 1, 60, 63, 122

## G

GABA 91, 112
Galactic Radiation 15, 17, 65
Galvanic Current 94
Gametes 45
Gamma Irradiation 46, 92, 116, 117, 118
Gas Bubbles 106
Gastrocnemius Muscle 83
**Gastrointestinal System** 7, **43 - 44,** 105, 114
Genetic Monitoring 15
**Genetics** 15, 17, 34, **45 - 47,** 67, 117
Germination Rate 16
Glutaminic Acid 73
Grass Frog 35
Gravity 24, 34, 48, 72, 74, 94
**Gravitational Biology** 1, 34, 35, 36, 46, **48,** 83
Group Coordination 6
**Group Dynamics 49,** 63, 111,115
Group Performance 49
Growth Patterns 35
Growth Rate 16
Guinea Pigs 52, 118
Guppies 33

## H

**Habitability and Environment Effects** 4, 28, **51-54**, 59, 60, 71, 73, 95, 108
Head 117
Head-Down Tilt 23, 26, 43, 75, 80, 81, 98,1065
Hearing, 49
Heart Disease 30
Heart Rate 30, 31
Heat 52, 56, 105
Heavy Ions 17
**Hematology** 1, 3, 7, **55 - 58,** 72, 74, 84, 85, 86, 117, 118, 119, 121, 124
Hemodynamic Response 31
Hemodynamics 18, 23, 24, 26, 31
Hemopoiesis 3, 55, 58, 72, 89, 121
Hemopoietic Tissue 117
Hemorrhaging 118
Hemostasis 55, 58, 118
Hepatocytes 45
Hermetically Sealed Environment 6, 28. 51, 52, 54, 66, 70, 73, 78, 79, 103
Hibernation 7
High Altitudes 1, 2, 3, 105, 118, 121,123, 125
Higher Nervous System 112
Higher Plants 15, 69, 70; See Plants; Botany
Histology 82, 86
Homeostasis 9, 74, 124
Horizontal and Vertical Positions 21, 22, 40
Horizontal Hypokinesia 75
Hormonal Regulation 12
Human Engineering 71
**Human Performance** 2, 3, 4, 6, 29, **59 - 63,** 68, 71, 72, 104, 108, 110, 111, 113, 114, 115,120, 123, 125
Humans 2, 4, 5, 6, 7, 9, 11, 12, 13, 14, 18, 19, 20, 21, 22, 23, 24,25, 26, 27, 28, 29, 30, 31, 40, 43,44, 48, 50, 51, 52, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 68, 69, 71,72, 73, 74, 75, 76, 77, 80, 82, 84, 85, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 116, 117, 118, 119, 120, 124
Humoral Immunity 64, 65
Hybridoma 32
Hydration 11, 13
Hydrotherapy,105
Hyperbaric Oxygen 53
Hypercapnia 26, 55, 56
Hypercapnic-Hyperoxic Test 22
Hypergravity 21, 34, 35, 94
Hyperoxygenation 56, 76, 96
Hypersecretion 43
Hypertension 31
Hyperthermia 62
Hypodynamia 85, 90

Hypokinesia 1,7, 14, 25, 27, 29, 30, 38, 40, 43, 56, 74, 75, 80, 82, 84, 85, 86, 88, 89, 90, 102, 105, 123
Hypokinesia with Head-Down Tilt 11, 13, 26, 27, 31, 56, 57, 60, 62, 64, 65, 66, 73, 74,75, 76, 80, 84, 98, 102, 103, 105, 106, 113, 116
Hypokinesia With Head-Down Tilt, Long-term 65, 74, 75, 76
Hypothalamus 38, 64
Hypothalamus-Pituitary System 36
Hypothermia, Regional 57, 105
Hypoxia 1, 2, 3, 27, 55, 56, 92, 95. 100, 107, 108
HZE Particles 15, 112,118, 116, 117, 118, 119

## I

Iliac 82
Illumination 116
Immersion 11, 13, 21, 23, 88, 123
Immobilization 29, 38,37, 39, 43, 45, 56, 58, 64, 73, 74, 80, 81, 83, 84, 85, 86, 87, 90, 95, 103, 113
Immune Status 66
Immune Surveillance 67
Immunocompetent Cells 85
Immunoglobulins 64
**Immunology** 3, **64-67,** 85,103, 104, 114, 119, 121, 123, 124, 125
Impact, 48, 87, 113, 123
Individual Differences 3, 4, 19, 24, 25, 26, 31, 58,91, 94, 95, 96,97, 99, 105
Information Processing 49
Intervertebral Disc 84
Intestinal Microflora 44
Interaction Style 50
Interstitial Fluid 11
Intracellular Fluid 11
Ionizing Radiation 121
Iron 55
Irradiation 65, 110, 116-121
Ischemic Heart Disease 26, 31
Isolation 7, 26, 50, 60, 61
Isometric Exercise 26
Individual Differences 58

## K

Killer Cells, Normal 64

## L

Labyrinths 94
Larva, 68, 100
LBNP 12,18, 23, 122
L-Cystathionine 91
Learned Behavior Patterns 112
Learned Instrumental Reflexes 112
Lettuce 15, 17, 69
Leu-Enkephalin 58
**Life Support Systems** 14, 17, 52, **68 - 70,** 78, 79, 102, 124, 125
Light Flashes 95
Lipids 27, 103
Lipid Peroxidation 40, 73
Lipoproteins 76
Liver 14, 40
Local Radiation 41
Long-term Space Flights 2, 15, 16, 18, 19, 20, 21, 27, 30, 31, 43, 48, 60, 64, 65, 72 , 82, 84, 88, 104
Long-term Irradiation 65
Longitudinal Study 21
Lower Body Negative Pressures: See LBNP
Lumbar Vertebrae 82, 83
Lymphatic Organs 46
Lymphocytes 1, 117

## M

*Macaca mulatta* 5, 20, 25, 35, 80, 83
Males 6, 12, 13, 14, 20, 21, 22, 23, 25, 26, 27, 29, 31, 34, 35, 36, 37, 38, 39, 40, 45, 46,.51, 55, 57, 58, 59, 60, 61, 64, 76, 66, 74, 75, 76, 81, 83, 88, 94, 97, 98, 100, 106, 107, 113, 116, 122
Man -- Higher Plant System 70
**Man-Machine Systems** 4, 8, 61, **71**, 72, 115
Massage 105
Materials Processing 126
**Mathematical Modeling** 5, 8, 9, 18, 31, 71, **72,** 87, 92, 124
Maze 112
Medical Support 104
Medullary Substance 38
Melanin-Melanoidin Catalysts 41
**Metabolism** 1,2, 7, 12, 13, 27, 33, 40, 43, 56, 57, 71, **73-77,** 82, 85, 87, 102, 103, 123, 124, 125
Metabolites, Volatile 77
Methionine 73
$Mg_2$+-ATPase myosin 21
Mice 52, 58, 64, 65, 86, 89, 103, 116, 117, 119
Microbial Processing 69
**Microbiology** 2, 16, 43, 44, 54, 69, 70, **78 - 79,** 124
Microclimate 68
Microflora 44,70, 79
Micromethod 14
Microorganisms, Conditionally Pathogenic 78
Microwaves 100
Mineral Balance 76
Mineralization, 89
Minerals 27, 82, 83, 84, 89
Mir 124
Mitosis 15, 16
Mold 79
Monkeys 5, 11, 25, 80, 83, 112
Morphology 16, 36, 81, 92, 83
Monotony 60, 64
Mother-Fetus System 33
Motion Sickness 1, 6, 7, 23, 48, 91, 93, 94, 95,96, 97, 99, 100, 101, 103, 104
Motoneuron Synapses 101
Motor Function 90, 95
Motor Patterns 90
Motor Unit Potentials 88
Muilticharged Ions 17
Multicellular Animals 48
Multiple Flights 21
Muscles 81, 82, 87, 90 See also Musculoskeletal System; Individual Muscle Names
Muscle Bioenergetics 87

**Musculoskeletal System** 2, 3, 28, 35, 48, 65, 73, 75, **80 - 90,** 101, 119
Mutations 15,17, 47
Myocardial Actomyosin 21
Myocardium 18, 21, 28

**N**

Natural Aging 16
Navigation, 8
Neonates 12, 81
**Nutrition**
Neurochemicals 38
Neurocirculatory Dystonia 22, 40, 55
Neurocytes 53
Neurons 100
**Neurophysiology** 1, 2, 3, 6, 7, 8, 23, 32, 33, 34, 38, 48, 52, 53, 61, 67, 72, 74, 81, 90, **91 - 104,** 111, 112, 114, 117
Nondisjunction of Sex Chromosomes 46
Noninvasive Measures 92
Nonspecific Resistance 66, 119
Nontraditional Food Sources 68
Nootropic Drugs 61
Nucleic Acids 1, 33, 46
Nucleotides 41, 42
**Nutrition** 4, 14, 27, 68, 70, 73, 75, 76, **102 - 103,** 105
Nystagmus 93, 99

## O

Occlusion Cuffs 13
Older Individuals 25
Olfaction 49
Onion, Welsh 16
**Operational Medicine** 3, 4, 20, 23, 28, 31, 48, 60, 61, 69, 78, 93, **104 - 109,** 119, 123, 124, 125
Operator Performance 60., 61, 62, 63
Opioid Peptides 58, 95, 96
Optokinetic Stimulation 91, 93, 94
Oral Cavity 108
Orchids 16
Orthostatic Intolerance 21, 26, 48, 60, 11
Orthostatic Reflex 29
Osteoclast Activating Factor 85
Osteoclasts 84
Osteodystrophy 82
Osteogenesis 89
Osteopetrosis 86
Osteoporosis 65, 85, 86, 87, 89
Osteosclerosis 86
Osteotrophic Effects 84, 87
Otolith 92, 98
Otolith Membrane 72
Oxidative Enzymes 40
Oxygen Inhalation 22
Oxygen Breathing 57
Otolith 92, 98
Oxygen Breathing 92, 106

## P

Parabolic Flight 91
Pathogenic Microorganisms 79
Patients 9, 22, 25, 26, 30, 31, 40, 55, 65, 85, 92, 109
Peptides 41, 97, 101; See also Opioid Peptides
**Perception** 4, 8, 60, 93, 94, 95, **110**, 111, 113, 115, 125
Personal Hygiene 69
**Personnel Selection** 3, 4, 57, 82, 93, 94, **111,** 113, 115, 125
Pharmacological Countermeasures 2, 4, 27, 60, 61, 74, 84, 85, 87, 89, 95, 96, 100, 101, 103, 104, 107, 114, 123
Phosphorus 85
Physical Exercise 13, 18, 19, 22, 23, 24, 26, 27, 30, 40, 56, 62, 66, 73, 84, 98, 102, 103, 105, 106, 123
Physical Work Capacity 19, 29, 62, 63, 68, 80
Pharmacological Countermeasures Physical Exercise
Pilot Trainees 62
Pilot Training 110
Pilots 4, 6, 22, 24, 26, 53, 60, 58, 62, 76, 80, 110, 115
Planetary Quarantine 124
Primates 112
Plants 68, 69, 70 See also Botany
Polar Day and Night 1
Polar Personnel 1
Polymers 52, 54
Population Dynamics 16
Population Study 109
Positive Pressure Breathing 24
Posture 83
Potassium 14, 52
Postnatal Development 35
Prebiotic Evolution 48
Pregnancy 1, 12, 13, 33, 34, 35, 36, 46, 80, 81, 87, 88
Prenatal Ontogenesis 35
Primates 5, 11, 20, 25, 35 , 80, 83, 112
Probability 72
Prognosis 20
Prognoz-9 Satellites 119
Prokaryotes 48
Propanol 58
Prophylactic Detoxification 28
Protease 28
Protein 33, 64, 74, 93, 85, 88, 95
Protein Precursors 41
Protein Turnover 90
Protons 117, 118, 119
Provocative Tests 19, 23, 48
Psychological Work Capacity 59, 62, 63, 68, 113

**Psychology 2,** 6, 37, 38, 43, 56, 58, 60, 61, 63, 64, 73, 76, 81, 83, 87, 95, 96, 99, 103, 110, 111, 112, 113, 114, 120, 123, 125; See also Stress, Perception, Human Performance
Psychomotor Performance 6, 114
Psychopharmacology 112
Psychophysiology 120
Psychotropic Drugs 60
Public Health 9

**Q**

Quadriceps, 83

## R

RBE 117
Rabbits 52, 85, 99
Radiation Damage 116
Radiation Risk 118
Radiation Safety 118
Radiation Safety Standards 72
**Radiobiology** 2, 3, 15, 17, 41, 46 , 65, 72, 74, 92, 100, 109, 112, **116-121,** 125
Radioresistance 121
Radiotracer System 11
*Rana temporaria* 34
Rats 2, 12, 13, 14, 21, 27, 28, 29, 32, 33, 34, 35, 36, 37, 38, 39, 40, 43, 45, 46, 51, 52, 53, 56, 64, 66, 68, 73,74, 80,81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 94, 95, 96, 98,100, 101, 107, 109, 112, 113, 117, 118, 122
Readaptation 19, 75, 105
Reclaimed Water 14, 52, 70
Reentry 48
Regeneration 123
Regional Vascular Effects 29
Relaxation 63
Renal Physiology, 14
Reoxygenation 27
Replication 45
**Reproductive Biology** 1, 12, 33, 34, 35, 37, 39, 45, 46, 80, 81, 116, **122**
Reserve Spaces 92
Resistance, Immunological 3
Resistance to Respiration 22
Respiration 5:, 122, 124 See Cardiovascular and Respiratory Systems
Respiration Regulation 26
Respiratory Disease 9
Respiratory Function 22
Restraint 29, 38
Resuscitation 10
Rhesus Monkeys: See *Macaca mulatta*
Rice 116
RNA, rDNA 46
RNA-Synthesis 45

## S

Saccadic Movements, 93
Safety 51, 72
Salivary Glands 37
Salt 11
Salt Excretion 7
Salyut-5,17
Salyut-6 2, 15, 16, 17, 30, 45, 124
Salyut-7 2, 12, 15, 16, 17, 18, 20, 23, 30, 42, 43, 59, 64, 68, 80, 102, 104, 114, 120, 124
Schedule, Inverted 5: See also Work-Rest Schedules
Seeds 15, 16, 17
Selection 25: See also Personnel Selection
Self Regulation 63, 114
Sensorimotor Cortex 100
Sensory Conflicts 1, 93
Self-Regulation 114
Sensory Physiology 49
Serotinergic System 95
Serum Enzymes 40
Serum Proteins 13
Sex Differences 13, 46
Shift Work 6
Short-term Space Flight 5, 11, 16, 19, 21, 36, 37, 64, 81, 82, 84, 87, 88, 90, 104
Signal Detection 63
Skeletal Development 35
Skeletal Muscles 80, 81, 83, 88, 90; See also Muscles, Musculoskeletal System, Individual Muscle Names
Skin and Body Temperature 5
Skin Sensitivity 116
Sleep 7
Sleep Deprivation 61, 63
Sleep, Electric 1
Sleep Wakefulness Cycles 114
Small Groups 50
Sodium, 14, 52
Solar Proton Events 119
Solar Radiation 9
Soleus, 83
Sound 97
Soyuz, 104
Soyuz-2 2
Soyuz-5 59
Soyuz -7 59
Soyuz-9 90
Soyuz-16 17
Soyuz- T 59

Soyuz-T-13 23
Soyuz-T-14 23
**Space Biology and Medicine 123 - 125** (Used as a classifier only for material too broad or varied to fit elsewhere,)
Space Flight 1, 2, 5, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20,21, 23, 25, 30, 32, 33, 34, 35, 36, 37, 38, 42, 43, 45, 46, 47, 48, 55, 59, 64, 66, 68, 72, 73, 77, 78, 80, 81, 82, 83, 87, 88, 89, 90, 91, 93, 94, 100, 101, 102, 104, 105, 106, 112, 114, 116, 118, 119, 120, 122, 123, 124
Space Flight Factors 1, 65, 100, 108, 112
Space Flight Simulation 26
**Space Industrialization 126**
Space Motion Sickness: See Motion Sickness
Space Suit Pressure 108
Spacecraft 69, 71, 72, 78
Spacecraft Atmosphere 108
Spacecraft Cabins 78, 110
Spacecraft Control Systems 72
Spacecraft Design 71
Spatial Disorientation 110
Spatial Orientation 8
Speech Parameters 114
Spermatocytes 34
Spermatogenesis 122
Spermatogenic Epithelium 116
Spinal Cord 95
Spine 87
Spleen 1, 66
Spongiosa 86
Sports 3, 31
Steroids 66
Stem Cells 86
Step Test 91
Stomatological Parameters 108
Stress 2, 6, 7, 37, 38, 43, 48, 56, 58, 61, 64, 73, 76, 80, 82, 83, 85, 86, 87,90, 95, 96, 99, 103 105, 110, 112, 113, 114, 115, 123: See also Immobilization
Stress Resistance 6
Striatum 64
Sulphur Hexafluoride 51
Submandibular Glands 37, 74
Survival 35
Sympathetic-Adrenal System 37
Synapses 100, 117
Systems Theory, 124

## T

T-Lymphocytes 64, 65
Tail-Suspension 81, 83, 90, 113
Telencephalon 100
Temperature 15
Temperature and Humidity Fluctuations 41
Tests, Deceleration 48
Thermal Energy 42
Thymus 66, 113
Thyroid 37
Tibia 82, 83
Tilt Tests 21, 26, 30, 31, 60
Time Perception 110
Tissue Oxygenation 27
Tissue Preservation 82
Tobacco 116
Tolerance 93, 97, 98, 107, 108, 122 See also factor being tolerated
Tolerance, Nonspecific 2
Tortoises 46
Toxic Effects 53, 54, 123
Toxicology 51
Tracking 59, 61, 63, 97
Training 108, 115
Transpiration Water 69
Tritons 123
Tumors 118

## U

Ultraslow Activity, Brain 96
Ultrasound 92
Ultrastructure 94, 101
Ultraviolet Radiation 41, 116, 119
Upright Position 31, 83
Urea 52

## V

Variability 47
Vestibular System 93, 94, 95, 96, 97, 99, 100
Vestibuloautonomic Stimulation 23
Vestibulometric Device 97
Vestibulospinal Reflexes 91
Vestibular System 101
Vibration 53, 60, 95, 100
Vigilance 60
Visiting Crews 104
Vision 49
Visual 93, 95
Vitamin A 103
Vitamin D 14, 27, 75
Vitamin K 14
Vitamin Status 102
Voluntary Control 95
Voskhod 59

## W

Walking Erect 83
Wash Water 51
Waste Utilization 69
Water: See Reclaimed Water
Weightlessness 46, 87, 89, 113, 123, 126; See also Space Flight
Weightlessness Simulations 11, 82, 83, 106, 113, 123
Well-being 63
Welsh Onion 16
Wheat 69
Women 63
Work Capacity See Physical or Psychological Work Capacity
Work-Rest Schedules 6, 61

| 1. Report No. | 2. Government Accession No. | 3. Recipient's Catalog No. |
|---|---|---|
| NASA CR-3922(25) | | |

| 4. Title and Subtitle | 5. Report Date |
|---|---|
| USSR Space Life Sciences Digest - Index to Issues 15-20 | April 1989 |
| | 6. Performing Organization Code |
| 7. Author(s) | 8. Performing Organization Report No. |
| Lydia Razran Hooke, Editor | |
| | 10. Work Unit No. |
| 9. Performing Organization Name and Address | |
| Lockheed Engineering and Sciences Company<br>600 Maryland Avenue SW, Suite 600<br>Washington, DC 20024 | 11. Contract or Grant No.<br>NASW-4292 |
| | 13. Type of Report and Period Covered |
| 12. Sponsoring Agency Name and Address | Contractor Report |
| Office of Space Science and Applications<br>National Aeronautics and Space Administration<br>Washington, DC 20546 | 14. Sponsoring Agency Code |

15. Supplementary Notes

16. Abstract

This document provides an index to issues 15-20 of the USSR Space Life Sciences Digest. There are two sections. The first section lists bibliographic citations of abstracts in these issues, grouped by topic area categories. The second section provides a key word index for the same abstracts.

| 17. Key Words (Suggested by Author(s)) | 18. Distribution Statement |
|---|---|
| space life sciences<br>aerospace medicine<br>space biology<br>space flight simulations<br>space flight experiments<br>USSR | Unclassified - Unlimited<br>Subject Category 51 |

| 19. Security Classif. (of this report) | 20. Security Classif. (of this page) | 21. No. of Pages | 22. Price |
|---|---|---|---|
| Unclassified | Unclassified | 156 | A08 |

For sale by the National Technical Information Service, Springfield, Virginia 22161