

INDEX TO SUBJECTS

A

- Ab initio pilots
 fatigue in—20
 self-medication among—167, E3(Mar)
- Abstracts, 91st Annual Scientific Meeting—353
- Academic training, Wright State University's residency program—744
- Acceleration
 atelectasis, role of inspired O₂ concentration—780
 cerebral oxygenation responses to aerobatic flight—838
 high G, pulmonary effects in commercial spaceflight—633, E1(Aug)
 reductions in retinal and cerebral oxygenation—75
- Accidents, aviation
 during aerobatic flight operations—612
 air taxi, human factors in—294
 Bayesian analysis of HEMS fatal—563
 children and infants in—353
 due to fuel planning errors in general aviation—71
 facial protection for U.S. Army helicopter mishaps—50
 general aviation safety during the COVID-19 pandemic—773
 in helicopters on the ground—593
 seaplane water accidents in Canada—798
- Aerobatic flight
 cerebral oxygenation responses to—838
 factors contributing to accidents in—612
- Aeromedical disposition—*See also* Waivers
 aircrew grounding periods after ketamine use—670
 aseptic meningitis—847
 central retinal vein occlusion—692
 cerebral cavernomas—120
 COVID-19 vaccine and fitness to fly—698
 cryptogenic stroke—919
 Graves' disease—981
 heterozygous familial hyperlipidemia—835
 inflammatory bowel disease—831
 long-term sequelae of COVID-19—898
 McLeod syndrome—734
 migraines in pregnancy—751
 posterior nutcracker syndrome—54
 spontaneous pneumothorax—603
 Swyer-James-MacLeod syndrome—281
 unfit assessment of class 1 medical certificate holders—946
- Aerospace Medical Association (AsMA)
 91st Annual Scientific Meeting abstracts—365
 adapting to the pandemic—137
 bylaws—529
 impact of COVID-19 on—1, 137, 287, 359, 539
 meeting theme for conference—697
 news—136, 358, 610, 756, 993
 past presidents—523
 reflections on conference—855
- Aerospace Medicine and Human Performance*
 new changes—1
 President's Page—2, 63, 137, 213, 287, 359, 539, 611, 697, 771, 855, 927
- Aerospace Medicine Clinic
 introducing new feature—1
 migraines in pregnancy—751
 spontaneous pneumothorax in flight—603
- Aerospace medicine research
 at Division of Environmental Physiology (Sweden)—213
 at DLR German Aerospace Center—287
 key neurological conditions in—113
 at King's College London—2
 at Norwegian Institute of Aviation Medicine—63
 at Swedish Aerospace Physiology Centre—213
- Aerospace Medicine Systematic Review Group
 techniques developed and used by—681
- Air combat, normative performance measurement in—908
- Air taxi, human factors in accidents—294
- Aircraft—*See also specific aircraft types*
 fuel planning errors in general aviation—971
 hypoxia-like events in UK Typhoon aircraft—257
 impact of diversions due to medical emergencies on operating cost—99
- Aircrew—*See* Commercial airline crew, Military aircrew, and Pilots
- Airdrop operations, high-altitude
 NATO standards for recovery after hypobaric exposures—39
 oculometric feature changes during acute hypoxia in—929
- Alertness
 in-flight rest period timing in long-haul flights—83
 stimulants as fatigue countermeasures in aviation—190
- Alkanes, acceptable limits of n-hexanes in spacecraft—957
- Allergic rhinitis, in civil aviation aircrew in China—25
- Altitude chamber research
 hyperoxic effects on venous gas emboli—223
 study of white matter health for—215
- Altitude effects
 hearing aid performance in hypobaria—738
 hypoxia-like events in UK Typhoon aircraft—257
 metabolic intervention to improve cognitive performance—556
 NATO standards for recovery after hypobaric exposures—39
 on optokinetic cervical reflex—319
 pressure alteration effects on rat cochlea—550
- American Medical Assistance Act, in-flight emergency care on commercial flights—588
- Animal models
 oral estradiol and disuse-induced bone loss—65
 pressure alteration effects on rat cochlea—550
- Anti-G trousers, full coverage, and acceleration atelectasis—780
- Anti-thyroid drugs, Graves' disease in military aircrew—981
- Anxiety, long-term sequelae of COVID-19 in aviators—898
- Aseptic meningitis, in commercial airline pilot—845
- Astronauts—*See also* Spaceflight
 exercises and skin physiology during ISS expeditions—160, E2(Mar)
 female, oral estradiol impact on disuse-induced bone loss—65
 interventions to prevent low back pain in—312
 long-term sequelae of COVID-19 in—898
 microgravity and radiation effects on intervertebral discs—341
 protein intake and physical performance after ISS mission—153
 weekly bone loading exercise effects on strength—201
 winter survival training in—676
- Atelectasis, acceleration, role of inspired O₂ concentration—780
- Atherosclerotic cardiovascular disease, heterozygous familial hyperlipidemia—635
- Augmented operations, in-flight rest period timing on long-haul flights—83
- Aviation safety—*See* Safety, aviation
- Aviation, civil—*See* Civil aviation
- Aviators—*See* Pilots

B

- Back pain
 interventions to prevent in spaceflight—312
 intervertebral disc health in astronauts—342
- Barotrauma
 middle ear, in commercial aircrew—182, E4(Mar)

pressure alteration effects on rat cochlea—550
 sinus, in commercial aircrew—857, E1 (Nov)

Bayesian analysis, of HEMS fatal accidents—563

Bellagio II Summit, report from—650

Biomarkers, weekly bone loading exercise effects on—201

Biomathematical model, aircrew actual vs. prescriptive sleep schedules—806

Biomechanics
 interventions to prevent low back pain in spaceflight—312
 night vision goggles and counterweight use—172

Biopsychosocial approach, to neck pain in military helicopter aircrew—333

Blunt impact protection, facial, in U.S. Army helicopter mishaps—50

Body mass index, correlation with intraocular pressure—886

Body weight, correlation with intraocular pressure—886

Bodyweight support, energy costs of walking under changed—4

Bone density, weekly bone loading exercise effects on—201

Bone loss, disuse-induced, impact of oral estradiol on—65

Book reviews
How to Astronaut. An Insider's Guide to Leaving the Planet (Virts)—57

Brain imaging
 incidental findings in military pilot applicants—146
 white matter hyperintensity in altitude chamber research—215

Bronchiolitis obliterans, Swyer-James-MacLeod syndrome in military pilot—281

Business travelers, jet lag countermeasures for—825

C

Cabin altitude, errors in in-flight medical event reports—265

Cabin crewmembers—*See* Commercial airline crew
 first aid response for in-flight medical events—32

Caffeine, fatigue countermeasures in aviation—190

Cardiopulmonary resuscitation, in hypogravity simulation—106, 988 (Letter)

Cardiovascular disease, medical grounding of pilots with—951

Case reports
 acute cerebellar stroke in military pilot—919
 cerebral oxygenation response to aerobatic flight—838
 Charcot-Marie-Tooth syndrome—124
 DCS treatment in resource-limited location—47
 effects of Russian tilt-table protocol—207
 heterozygous familial hyperlipidemia in fighter pilot—835
 maxillofacial shield protection in helicopter mishaps, 50
 McLeod syndrome in commercial airline pilot—734
 posterior nutcracker syndrome—54
 Swyer-James-MacLeod syndrome—281
 weekly bone loading exercise effects on bone density—201

Cavernomas, aeromedical implications of cerebral—120

Cavernous malformation, aeromedical implications of cerebral—120

Centrifuge, human-use, effects of retinal and cerebral oxygenation reduction—75

Cerebral cavernomas, aeromedical implications of—120

Cerebral oxygenation
 impacts of acceleration-induced reduction of—75
 responses to aerobatic flight—838

Cerebrospinal imaging, incidental findings on MRI in military pilot applicants—146

Certification—*See* Medical certification *and* Aeromedical disposition
 Cervical spine, exercise effects on neck function in F-15E aircrew—815

Charcot-Marie-Tooth disease, certification of pilot with—124

Charter flights, human factors in air taxi accidents—294

Child restraint systems, in prevention of aviation accidents—353

Children, in aviation accidents—353

China, allergic rhinitis in civil aviation aircrew in—25

Chorea, in McLeod syndrome—734

Circadian dyssynchrony, terrestrial applications of space medicine research—650

Civil aviation—*See also* General aviation
 allergic rhinitis in aircrew in China—20
 fatigue among student pilots—20

Civil Aviation Authority (UK), new guidance for syncope in commercial pilots, 642

Civil aviation pilots—*See also* Pilots
 speech recognition of cochlear implant users in helicopters—880

CO₂ measurement, in hypoxia and hyperoxia—864

Cochlea, pressure alteration effects on rat cochlea—550

Cochlear implant users, speech recognition inside helicopters—880

Cognitive performance—*See also* Human performance
 decline in, in McLeod syndrome—734
 differences in military aviation personnel—702
 during hypoxia, metabolic intervention for improved—556
 in long-duration single-piloted flight missions—710
 oculometric feature changes during acute hypoxia—929

Cold, winter survival training, medical issues in—676

Combat casualty care, en route care provider type in U.S. Navy aeromedical missions—873

Commercial air travel
 errors in literature on in-flight medical events—265
 impact of diversions due to in-flight medical emergencies—99

Commercial airline crew
 first aid response for in-flight medical events—32
 middle ear barotrauma in—182, E4(Mar)
 sinus barotrauma in—857, E1(Nov)

Commercial airline passengers, jet-lag countermeasures for international travel—825

Commercial airline pilots
 aseptic meningitis in—845
 fatigue and mental health in short and long haul—786
 in-flight rest period timing in long-haul flights—83
 McLeod syndrome in—734
 medical grounding of—951
 sleep disorders in—938
 syncope in, new regulatory guidance for—642

Commercial spaceflight, pulmonary effects of high G acceleration in—633, E1(Aug)

Corneal thickness, in head-down tilt test—619

Coronary artery disease
 heterozygous familial hyperlipidemia in fighter pilot—635
 terrestrial applications of space medicine research—650

Cortisol levels, in F-22 pilots during day and night flying—303

Cosmic radiation, effects on astronaut intervertebral disc health—342

Cosmonauts—*See also* Astronauts
 operator reliability during spacecraft docking training—541, E1(July)

Costs, impact of diversions due to in-flight medical emergencies—99

Countermeasures
 protein intake and physical performance after ISS stay—153
 terrestrial applications of space medicine research—650

COVID-19 pandemic
 adapting disease prevention protocols for spaceflight during—597
 aircrew performance while wearing protective masks—274
 general aviation flight safety during pandemic—773
 impact on AsMA—1, 137, 287, 359, 539
 long-term sequelae, aeromedical implications—898
 persistent and emergent clinical sequelae of mild—963
 vaccination against, and fitness to fly—698

Crashes—*See* Accidents, aviation

Critical care transport, en route care provider type in U.S. Navy missions—873

Crohn's disease, continued flying in military aviators—831

Cryptogenic stroke, in a military pilot—919

D

- Data synthesis, systematic reviews of primary space medicine data—681
- Deaths—*See also* Fatalities
 - in-flight, in commercial air travel—265
- Decompression illness, after pre-breathing in hypobaric hypoxia training—289, 843 (Letter)
- Decompression sickness (DCS)
 - NATO standards for recovery after hypobaric exposures—39
 - risk assessment and awareness in general aviation—138, E1(Mar)
 - risk during alternating high and moderate altitude exposures—223
 - treatment in resource-limited location—47
- Defibrillators, use in commercial air travel—265
- Delays, flight, due to medical emergencies, impact of—99
- Delta values, in fatigue risk management—127
- Denver reflections—855
- Depression
 - long-term sequelae of COVID-19 in aviators—898
 - sleep disorders in commercial airline pilots—938
- Desert missions, heat strain mitigation for helicopter aircrew during—248
- Dextroamphetamine, fatigue countermeasures in aviation—190
- Disease prevention, adapting protocols for spaceflight during COVID-19—597
- Disuse effects, oral estradiol impact on bone loss—65
- Diversions, flight, due to medical emergencies, impact of—99
- DLR German Aerospace Center—287
- Docking, spacecraft, operator reliability during training on ISS and Mir—541, E1(July)

E

- Ear, nose, and throat
 - allergic rhinitis in civil aviation aircrew in China—25
 - cochlear implant users' speech recognition inside helicopters—880
 - middle ear barotrauma in commercial aircrew—182, E4(Mar)
 - pressure alteration effects on rat cochlea—550
 - sinus barotrauma in commercial aircrew—857, E1(Nov)
- Electrical shock, risk during extravehicular activity for ISS—231
- Emergencies
 - on board commercial aircraft—265
 - impact of diversions due to in-flight medical—99
- Emergency medicine
 - Bayesian analysis of HEMS fatal accidents—563
 - en route care provider type in U.S. Navy aeromedical missions—873
- Emotion, in long-duration single-piloted flight missions—710
- En route care, provider type in U.S. Navy aeromedical missions—873
- End-tidal CO₂ measurement, in hypoxia and hyperoxia—864
- Energy costs, of walking under changed bodyweight support—4
- Energy expenditure, in spacesuit using robotic actuation—570
- Epidemiology
 - metabolic disorder trends in U.S. Army aviators—43
 - middle ear barotrauma in commercial aircrew—182, E4(Mar)
 - sinus barotrauma in commercial aircrew—857, E1(Nov)
- Equivalence testing, delta values in fatigue risk management—127
- Erratum—852, 925
- Estradiol, oral, impact on disuse-induced bone loss—65
- Eustachian tube, middle ear barotrauma in commercial aircrew—182, E4(Mar)
- Event-related potentials, visual processing deficits during hypoxia—326, 925
- Excessive daytime sleepiness, in military SAR personnel—976
- Exercise
 - effects on neck function in F-15E aircrew—815
 - and skin physiology during ISS expeditions—160, E2(Mar)

- Extraterrestrial CPR—106, 988 (Letter)
- Extravehicular activity, electrical shock hazard risk during—231

F

- F-15E, exercise effects on neck function in aircrew—815
- F-22, pilot performance in day and night flying—303
- Face masks, aircrew performance while wearing due to COVID-19—274
- Facial protection, in U.S. Army helicopter mishaps—50
- Fast jet aircrew, acceleration atelectasis in—780
- Fatalities
 - in accidents during aerobatic flight operations, 612
 - Bayesian analysis of HEMS fatal accidents—563
 - in helicopter accidents on the ground—593
 - in seaplane water accidents—798
- Fatigue
 - aircrew actual vs. prescriptive sleep schedules—806
 - among student pilots—20
 - delta values in fatigue risk management—127
 - in-flight rest period timing on long-haul flights—20
 - in long-duration single-piloted flight missions—710
 - long-term sequelae of COVID-19 in aviators—898
 - in short- and long-haul pilots—786
 - sleep disorders in commercial airline pilots—938
 - stimulant use as countermeasure in aviation—190
 - terrestrial applications of space medicine research—650
- Female crewmembers
 - oral estradiol impact on disuse-induced bone loss—65
 - personality traits of USAF special ops aircrew—240
 - pregnancy and migraines—751
- Fetal position, sleeping in, to prevent low back pain in spaceflight—312
- Fighter pilots—*See also* Military pilots
 - cognitive performance in long-duration, single-piloted missions—710
 - DCS risk during high and moderate altitude exposures—223
 - in F-22s, performance during day and night flying—303
 - heterozygous familial hyperlipidemia in—635
 - normative performance measurement in air combat—908
- First aid, for in-flight medical events—32
- Fitness to fly—*See* Safety, aviation; Aeromedical disposition; *and* Waivers
- Flight delays, due to medical emergencies, impact of—99
- Flight diversions, due to medical emergencies, impact of—99
- Flight-related neck pain—*See* Neck pain
- Fuel management, planning errors in general aviation—971

G

- G forces
 - accidents during aerobatic flight operations—612
 - posterior nutcracker syndrome related to—54
 - reductions in retinal and cerebral oxygenation—75
- Gas bubble formation, in alternating high and moderate altitude exposures—223
- Gender differences, personality traits of USAF special ops female aircrew—240
- Gender neutral terms, in aerospace medicine—611
- General aviation
 - children and infants in aviation accidents—353
 - decompression sickness risk assessment and awareness—138, E1(Mar)
 - flight safety during COVID-19 pandemic—773
 - fuel planning errors in—971
 - human factors in air taxi accidents—294

Germ theory, and vaccine hesitancy—771
 German Aerospace Center—287
 Glaucoma, in space shuttle crew—728
 Good Samaritan physicians, legal implications of emergency care on commercial flight—588
 Graves' disease, in military aircrew—981
 Grounding, medical
 of aircrew after ketamine use—670
 medical reasons for, and prevention recommendations—951
 permanent, in Royal Canadian Air Force pilots—913
 temporarily, after Covid-19 vaccination—698
 unfit assessment of Class 1 medical certificate holders—946

H

HALO jump operations
 oculometric feature changes during acute hypoxia—929
 treating neurologic DCS related to—47
 Head-down tilt test, ocular outcomes in—619
 Hearing aids, performance in hypobaric environments—738
 Hearing loss, cochlear implant users' speech recognition inside helicopters—880
 Heart rate variability, postural stability changes in sleep deprivation—627
 Heat strain mitigation, ventilation vests for helicopter desert missions—248
 Helicopter Emergency Medical Services (HEMS), Bayesian analysis of fatal accidents—563
 Helicopter pilots
 biopsychosocial approach to neck pain in military—333
 excessive daytime sleepiness in military SAR personnel—976
 heat strain mitigation in desert missions—248
 visual scanning techniques and mental workload—11
 Helicopters
 accidents on the ground—593
 speech recognition of cochlear implant users in—880
 Hematuria, in posterior nutcracker syndrome—54
 High performance aircraft
 acceleration atelectasis in aircrew—780
 CO₂ measurements in hypoxia and hyperoxia—864
 exercise effects on neck function in F-15E aircrew—815
 High-altitude high opening (HALO) jump operations
 oculometric feature changes during acute hypoxia—929
 treating neurologic DCS related to—47
 Histomorphometry, oral estradiol impact on disuse-induced bone loss—65
 History
 Focus on Aerospace Medicine History—58, 849
 multinational medical support framework for ISS—129
 Skylab Medical Experiments Altitude Test—58
 This Month in Aerospace Medicine History—61, 135, 212, 286, 606, 607, 608, 695, 754, 851, 924, 997
 Ulrich Cameron Luft—849
 Wright State University's aerospace medicine residency program—744
 Human factors
 in air taxi accidents—294
 fatigue among student pilots—20
 self-medication among ab initio pilots—167, E3(Mar)
 stimulant use as fatigue countermeasure in aviation—190
 Human performance—*See also* Cognitive performance
 biopsychosocial approach to neck pain in helicopter aircrew—333
 of F-22 pilots during day and night flying—303
 G-force loading impacts on—75
 normative, in simulated air combat—908
 operator reliability during spacecraft docking training—541, E1(July)

 protein intake and physical performance on ISS—153
 in spacesuit using robotic actuation—570
 Hyperbaric chamber, neurologic DCS treatment in—47
 Hypercapnia, CO₂ measurements in hypoxia and hyperoxia—864
 Hypercholesterolemia, heterozygous familial, in a fighter pilot—635
 Hyperlipidemia, and metabolic disorder in U.S. Army aviators—43
 Hyperoxia
 transcutaneous and end-tidal CO₂ measurement in—864
 DCS risk during alternating high and moderate altitude exposures—223
 Hyperthyroidism, Graves' disease in military aircrew—981
 Hyperventilation, hypoxia-like events in UK Typhoon aircraft—257
 Hypobaric chamber, hearing aids' performance in—738
 Hypobaric decompression, white matter health in—215
 Hypobaric exposures
 during alternating high and moderate altitude exposures—223
 decompression sickness risk assessment in general aviation—138, E1(Mar)
 NATO standards for recovery after—39
 Hypobaric hypoxia
 hypoxia-like events in UK Typhoon aircraft—257
 decompression illness after pre-breathing in training—289, 843 (Letter)
 Hypocapnia, CO₂ measurements in hypoxia and hyperoxia—864
 Hypogravity simulations, cardiopulmonary resuscitation in—106, 988 (Letter)
 Hypoxia
 deficits in visual processing during—326, 925
 effects of high G acceleration in commercial spaceflight—633, E1(Aug)
 events in UK Typhoon aircraft—257
 metabolic intervention for improving performance during—556
 NATO standards for recovery after hypobaric exposures—39
 oculometric feature changes during acute—929
 transcutaneous and end-tidal CO₂ measurement in—864

I

Imaging
 aeromedical implications of cerebral cavernomas—120
 hypolucent lung in Swyer-James-MacLeod syndrome—281
 incidental MRI findings in military pilot applicants—146
 white matter health in altitude chamber research—215
 In-flight medical events
 cabin crew first aid response—32
 impact of diversions due to—99
 legal implications of care on commercial flight—588
 observed errors in scientific literature on—265
 spontaneous pneumothorax in military aircrew—32
 In-flight rest period, effects of timing of on long-haul flights—83
 Incapacitation risk
 medical reasons for grounding of pilots—951
 unfit assessment of pilots—946
 Incidental findings
 hypolucent lung in Swyer-James-MacLeod syndrome—281
 in spine imaging in military pilot applicants—146
 Infants, in aviation accidents—353
 Infectious diseases
 middle ear barotrauma in commercial aircrew, 182, E4(Mar)
 sinus barotrauma in commercial aircrew—857, E1(Nov)
 Inflammatory bowel disease, in military aviators—831
 Injuries, in accidents during aerobatic flight operations—612
 Inner ear, pressure alteration effects on rat cochlea—550
 Insomnia, sleep disorders in commercial airline pilots—938
 Internal jugular vein, effect of Russian tilt-table protocol on—207
 International Space Station (ISS)
 electrical shock hazard during extravehicular activity—231
 exercise and skin physiology during expeditions—160, E2(Mar)

framework for multinational medical support—129
 operator reliability during docking training—541, E1(July)
 protein intake and physical performance after stay on—153
 third quarter phenomenon during long missions—689
 International travel, jet lag countermeasures for business
 travelers—825
 Interplanetary habituation, CPR in hypogravity simulation—106, 988
 (Letter)
 Intervertebral discs
 interventions to prevent low back pain in spaceflight—312
 microgravity and radiation effects in spaceflight—342
 Intraocular pressure
 correlation with body weight—886
 in head-down tilt test—619
 in space shuttle crew—728
 Israeli Air Force, inflammatory bowel disease in military
 aviators—831

J

Jet lag, countermeasures for international business travelers—825

K

Ketamine, aircrew grounding periods after—670
 Ketone ester, for improving cognitive performance during
 hypoxia—556
 Kinetic energy parameters, of walking under changed bodyweight
 support—4
 King's College London, aerospace medicine at—2

L

Landing, mental workload of helicopter pilots—11
 Legal issues, when providing emergency care on commercial
 flight—588
 Life support systems, hypoxia-like events in UK Typhoon
 aircraft—257
 Litigation, providing emergency care on commercial flights—588
 Locomotion, energy cost and kinetics of walking—4
 Long-duration space missions
 exercises and skin physiology during—160, E2(Mar)
 protein intake and physical performance after—153
 third quarter phenomenon on—689
 Long-haul flights
 fatigue and cognitive performance in single-piloted—710
 fatigue and mental health in pilots—786
 timing of in-flight rest periods—83
 Long-term sequelae, of COVID-19, aeromedical implications—898
 Loss of consciousness
 in commercial pilots, new regulatory guidance—642
 G-induced, accidents during aerobatic flight operations—612
 Low back pain, interventions to prevent in spaceflight—312
 Luft, Ulrich Cameron—849
 Lumbar spine, interventions to prevent low back pain in
 microgravity—312

M

Magnetic resonance imaging (MRI)
 incidental findings in military pilot applicants—146
 white matter health in altitude chamber research—215
 Malpractice, providing emergency care on commercial
 flights—588
 Mars missions
 cardiopulmonary resuscitation in hypogravity simulation—106,
 988 (Letter)
 third quarter phenomenon—689
 Masks, aircrew performance while wearing for COVID-19—274

Maxillofacial shields, blunt impact protection in military helicopter
 mishaps—50
 McLeod syndrome—734
 Medical certification
 of pilot with Charcot-Marie-Tooth disease—124
 of pilots with cerebral cavernomas—120
 unfit assessment of class 1 certificate holders—946
 Medical education, Wright State University's aerospace medicine
 residency program—744
 Medical emergencies, in-flight
 cabin crew first aid response—32
 impact of diversions due to—99
 legal implications of care on commercial flight—588
 observed errors in scientific literature on—265
 spontaneous pneumothorax in military aircrew—32
 Medications
 aircrew grounding periods after ketamine use—670
 anti-thyroid drugs in military aircrew with Graves' disease—981
 for motion sickness in boat passengers—720
 self-medication among ab initio pilots—167, E3(Mar)
 Medicolegal issues, when providing emergency care on commercial
 flight—588
 Meningitis, aseptic, in commercial airline pilot—845
 Mental fatigue index, postural stability changes in sleep
 deprivation—627
 Mental health issues
 and fatigue in short- and long-haul pilots—786
 permanent medical grounding in RCAF pilots—913
 Mental workload, visual scanning techniques for helicopter
 pilots—11
 Metabolic cost, reduction of, during planetary ambulation—570
 Metabolic disorder, trends in U.S. Army aviators—43
 Metabolic intervention, for improved performance during
 hypoxia—556
 Microgravity
 effects on astronaut intervertebral disc health—342
 interventions to prevent low back pain in—312
 ocular outcomes in simulated—619
 Russian tilt-table protocol effects—207
 Middle ear barotrauma, in commercial aircrew—182, E4(Mar)
 Migraines, in pregnancy in student aviator—751
 Military aircrew
 actual vs. prescriptive sleep schedules—806
 biopsychosocial approach to neck pain in—333
 CO₂ measurements in hypoxia and hyperoxia—864
 en route care provider type in U.S. Navy aeromedical missions—873
 Graves' disease in—981
 maxillofacial shield for protection in helicopter mishaps—50
 personality traits of female AFSOC aircrew—240
 Military bases, need for hyperbaric chamber at—47
 Military personnel, excessive daytime sleepiness in SAR
 populations—976
 Military pilots—*See also* Fighter pilots
 cognitive performance in long-duration, single-piloted
 missions—710
 in F-22s, performance during day and night flying—303
 incidental findings in brain and spine MRI of applicants—146
 inflammatory bowel disease in—831
 metabolic disorder trends in U.S. Army aviators—43
 neurocognitive performance differences in—702
 permanent medical grounding in RCAF pilots—913
 Swyer-James-MacLeod syndrome in—281
 treating neurologic DCS in resource-limited location—47
 Mir Space Station
 operator reliability during spacecraft docking training—541,
 E1(July)
 third quarter phenomenon during long missions—689

Mismatch negativity, visual processing deficits during hypoxia—326, 925

Modafinil, fatigue countermeasures in aviation—190

Mood status, postural stability changes in sleep deprivation—627

Motion sickness
 permanent medical grounding in RCAF pilots—913
 predictive factors in ship passengers—92
 sea voyage training effects on working ability—92

Motor coordination, decline in McLeod syndrome—734

Motor neuropathy, hereditary, in Charcot-Marie-Tooth syndrome—124

Muscle activity, night vision goggles counterweight use and neck pain—172

Musculoskeletal issues, permanent medical grounding in RCAF pilots—913

Musculoskeletal loading, energy costs of walking under changed bodyweight support—4

Musculoskeletal modeling, for planetary ambulation—570

Myopathy, in McLeod syndrome—734

N

n-Hexane, acceptable limits in spacecraft atmospheres—957

Nasal conditions, allergic rhinitis in civil aviation aircrew in China—25

National Aeronautics and Space Administration (NASA)—*See also* Spaceflight
 adapting disease prevention protocols during COVID-19—597
 Wright State University's aerospace medicine residency program—744

NATO Air Force, standards for recovery after hypobaric exposures—39

Nausea, acute, due to cryptogenic stroke in a military pilot—919

Near-infrared spectroscopy, cerebral oxygenation responses to aerobatic flight—838

Neck pain
 biopsychosocial approach in military helicopter aircrew—333
 exercise effects and function in F-15E aircrew—815
 night vision goggles and counterweight use—172

Nephrolithiasis, terrestrial applications of space medicine research—650

Neuroanthocytoses, in McLeod syndrome—734

Neurocognitive performance, differences in military aviation personnel—702

Neurologic decompression sickness, treatment in resource-limited location—47

Neurological conditions
 aerospace implications of—113
 McLeod syndrome—734

Neuropathy, motor and sensory, in Charcot-Marie-Tooth syndrome—124

Night flying, performance of F22 pilots during—303

Night vision goggles, and counterweight use during reciprocal scanning—172

Noise attenuation, effects on cochlear implant users inside helicopters—880

Noninferiority testing, delta values in fatigue risk management—127

Normative performance, measurement in simulated air combat—908

Norwegian Institute of Aviation Medicine—63

Nutcracker syndrome, posterior—54

Nutrition
 protein intake and physical performance after ISS mission—153
 terrestrial applications of space medicine research—650

O

Ocean rescues, en route care provider type in U.S. Navy aeromedical missions—873

Ocular hypertension, in space shuttle crew—728

Oculometric features, changes during acute hypoxia—929

Ophthalmology
 acceleration-induced reduction of retinal oxygenation—75
 blurry vision in central retinal vein occlusion—692
 body weight correlation with intraocular pressure—886
 corneal thickness in head-down tilt test—619
 intraocular pressure in head-down tilt test—619
 intraocular pressure in space shuttle crew—728
 ocular outcomes in head-down tilt test—619
 optokinetic cervical reflex at altitude—319
 spaceflight-associated neuro-ocular syndrome (SANS)—886

Optokinetic cervical reflex, at increasing altitude—319

Orientation, pilot optokinetic cervical reflex at altitude—319

Orthostatic intolerance, terrestrial applications of space medicine research—650

Osteogenic loading, weekly exercise effects on strength and bone density—201

Otorhinolaryngology
 middle ear barotrauma in commercial aircrew—182, E4(Mar)
 sinus barotrauma in commercial aircrew—857, E1(Nov)

Oxygen concentration, acceleration atelectasis and, 780

Oxygen pre-breathing, decompression illness in hypobaric hypoxia training—289, 843 (Letter)

P

Parachute jumps, high-altitude
 oculometric feature changes during—929
 treating neurologic DCS related to—47

Paragliding, reserve parachute deployment under radial acceleration—579

Patent foramen ovale, cryptogenic stroke in a military pilot—919

Performance—*See* Human performance *and* Cognitive performance

Personal protective equipment (PPE), aircrew performance while wearing facemasks—274

Personality traits, of USAF special ops female aircrew—240

Pilots—*See also* Commercial airline pilots, Helicopter pilots, and Military pilots
 aircrew grounding periods after ketamine use—670
 with cerebral cavernomas—120
 with Charcot-Marie-Tooth syndrome—124
 fatigue and mental health in short and long haul—786
 G-force loading and performance—75
 in-flight rest period timing on long-haul flights—83
 long-term sequelae of COVID-19 in—898
 mental workload in helicopter pilots—11
 metabolic disorder trends in U.S. Army aviators—43
 optokinetic cervical reflex at altitude—319
 private, decompression sickness risk assessment and awareness in—138, E1(Mar)
 self-medication among ab initio pilots—167, E3(Mar)
 student, fatigue among—20
 syncope in, new regulatory guidance—642

Planning errors, fuel, in general aviation—971

Pneumothorax, spontaneous, in flight—603

Polyneuropathy, due to n-hexanes—957

Posterior nutcracker syndrome—54

Postural stability, change under sleep deprivation—627

Pre-breathing, decompression illness in hypobaric hypoxia training—289, 843 (Letter)

Pregnancy, and migraines in a student aviator—751

Pressure/volume relationship, errors in in-flight medical event reports—265

Prevention, of medical reasons for grounding of pilots—951
 Private pilots, decompression sickness risk assessment and awareness—138, E1(Mar)
 Protein intake, and physical performance on ISS—153
 Proteinuria, in posterior nutcracker syndrome—54
 Psychomimetic effects, aircrew grounding period after ketamine use—670
 Pulmonary diffusion defects, long-term sequelae of COVID-19 in aviators—898
 Pulmonary physiology, effects of high G acceleration in commercial spaceflight—633, E1(Aug)

R

Radiation, cosmic, effects on astronaut intervertebral disc health—342
 Rats, studies in
 oral estradiol and disuse-induced bone loss—65
 pressure alteration effects on cochlea—65
 Recovery time, NATO standards after hypobaric exposures—39
 Reflexes, optokinetic cervical reflex at altitude—319
 Regulations
 for child restraint systems on aircraft—353
 errors in in-flight medical event reports—265
 new guidance for syncope in commercial pilots—642
 unfit assessment of class 1 medical certificate holders—946
 Reliability modeling, operator reliability during spacecraft docking training—541, E1(July)
 Renal vein entrapment, in posterior nutcracker syndrome—54
 Rescue swimmers, en route care provider type in U.S. Navy aeromedical missions—873
 Research
 at Department of Environmental Physiology (Sweden)—213
 at DLR German Aerospace Center—287
 at Kings College London—2
 at Norwegian Institute of Aviation Medicine—63
 at Swedish Aerospace Physiology Centre—213
 systematic reviews of primary space medicine data—681
 terrestrial applications of space medicine research—650
 Residency programs, Wright State University's aerospace medicine program—744
 Resource-limited environments, treating neurologic DCS in—47
 Respiratory physiology, high G acceleration in commercial spaceflight—633, E1(Aug)
 Rest break, in-flight, effects of timing on long-haul flights—83
 Retinal oxygenation, impacts of acceleration-induced reduction of—75
 Retinovascular autoregulation, in head-down tilt test—619
 Risk assessment
 accidents during aerobatic flight operations—612
 for decompression sickness in general aviation—138, E1(Mar)
 medical reasons for grounding of pilots—951
 terrestrial applications of space medicine research—650
 unfit assessment of class 1 medical certificate holders—946
 Risk management, for fatigue, delta values in—127
 Robotic actuators, reducing metabolic cost of planetary ambulation—570
 Rotary-wing aircraft—*See also* Helicopters
 accidents on the ground—593
 night vision goggles and neck muscle activity during reciprocal scanning—172
 Royal Canadian Air Force, permanent medical grounding in pilots—913
 Royal Norwegian Air Force, excessive daytime sleepiness in SAR personnel—976
 Russian pre-launch tilt-table protocol, cardiovascular physiology effects—207

S

Safety, aviation
 aircrew performance while wearing masks in response to COVID-19—274
 children and infants in aviation accidents—353
 during the COVID-19 pandemic—773
 decompression sickness risk assessment in general aviation—138, E1(Mar)
 delta values in fatigue risk management—127
 human factors in air taxi accidents—294
 paraglider reserve parachute deployment under radial acceleration—579
 self-medication among ab initio pilots—167, E3(Mar)
 sleep disorders in commercial airline pilots—938
 Scheduling tool, aircrew actual vs. prescriptive sleep schedules—806
 Sea voyage training, effects on working ability and life quality—92
 Seaplanes, water accidents in Canada—798
 Search and rescue missions
 en route care provider type in U.S. Navy—873
 excessive daytime sleepiness in military personnel—976
 Seasickness
 predictive factors in ship passengers—720
 sea voyage training effects on working ability—92
 Self-medication, among ab initio pilots—167, E3(Mar)
 Sensory neuropathy, hereditary, in Charcot-Marie-Tooth syndrome—124
 Ship transport, predictive factors for motion sickness in passengers—720
 Shock hazard, risk during extravehicular activity for ISS—231
 Simulated flight
 cognitive performance in long-duration single-piloted mission—710
 mental workload of helicopter pilots—11
 normative performance measurement in air combat—908
 oculometric feature changes during acute hypoxia—929
 paraglider reserve parachute deployment under radial acceleration—579
 pilot optokinetic cervical reflex at altitude—319
 Simulated spaceflight—*See also* Spaceflight
 interventions to prevent low back pain—312
 oral estradiol impact on disuse-induced bone loss—65
 Russian tilt-table protocol effects—207
 Sinus barotrauma, in commercial aircrew—857, E1(Nov)
 Skin physiology, exercise and, during ISS expeditions—160, E2(Mar)
 Skylab Medical Experiments Altitude Test—58
 Sleep
 aircrew actual vs. prescriptive schedules for—806
 in-flight rest period timing in long-haul flights—83
 Sleep apnea, in commercial airline pilots—938
 Sleep deprivation
 and fatigue in short- and long-haul pilots—786
 postural stability and mental fatigue status—627
 Sleep disorders, in commercial airline pilots—938
 Sleepiness
 delta values in fatigue risk management—127
 excessive daytime sleepiness in military SAR personnel—976
 SmartSuit—570
 Soldiers—*See* Military personnel
 Space medicine—*See also* Spaceflight and Aerospace medicine entries
 systematic reviews of data in—681
 terrestrial applications of research in (Bellagio II Report)—650
 Wright State University's aerospace medicine residency program—744
 Space shuttle program, increased intraocular pressure in crew—728
 Spacecraft maximum allowable concentrations (SMACs), for n-hexane—957

Spaceflight—*See also* Commercial spaceflight and Simulated spaceflight
 adapting disease prevention protocols during COVID-19—597
 electrical shock hazard during extravehicular activity—231
 energy cost and kinetics of walking—4
 exercise and skin physiology during ISS mission—160, E2(Mar)
 framework for multinational medical support for ISS—129
 increased intraocular pressure in shuttle crew—728
 interventions to prevent low back pain in—312
 intervertebral disc health in—342
 modeling robotic spacesuit ambulation—570
 n-hexane acceptable limits in spacecraft—957
 preflight body weight and visual changes during—886
 protein intake and physical performance after ISS stay—153
 pulmonary effects of high G acceleration in
 suborbital—633, E1(Aug)
 spacecraft docking training on Mir and ISS—541, E1(July)
 terrestrial applications of space medicine research—650
 third quarter phenomenon on long missions—689
 weekly bone loading exercise effects on strength—201
 Spaceflight-associated neuro-ocular syndrome (SANS)—886
 Spacesuits, use of robotic actuators in—570
 SpaceX, disease prevention protocols for spaceflight during
 COVID-19—597
 Spatial disorientation, optokinetic cervical reflex at altitude—319
 Speech intelligibility, of helicopter aircrew wearing masks for
 COVID-19—274
 Speech recognition, of cochlear implant users inside helicopters—880
 Spine imaging, incidental findings in military pilot applicants—146
 Spontaneous pneumothorax, in flight—603
 Sports, exercises and skin physiology during ISS
 expeditions—160, E2(Mar)
 STANAG 7056, NATO standards for recovery after hypobaric
 exposures—39
 Stimulant use, as fatigue countermeasure in aviation—190
 Strength, weekly bone loading exercise effects on—201
 Stress
 of F-22 pilots during day and night flying—303
 and fatigue in short- and long-haul pilots—786
 Stroke, cryptogenic, in a military pilot—919
 Student pilots
 fatigue in—20
 self-medication among—167, E3(Mar)
 Suborbital spaceflight, pulmonary effects of high G acceleration
 in—633, E1(Aug)
 Survival, winter survival training for astronauts—676
 Swedish Aerospace Physiology Centre—213
 Swyer-James-MacLeod syndrome—281
 Syncope, in commercial pilots, new regulatory guidance—642

T

Tactical jets, CO₂ measurements in hypoxia and hyperoxia—864
 Tactics, techniques, and procedures (TTP), normative performance
 measurement in simulated air combat—908
 Terrestrial applications, of space medicine research—650
 Thermal comfort, ventilation vests for helicopter desert
 missions—248
 Third quarter phenomenon—689
 Training
 fatigue among student pilots—20
 self-medication among ab initio pilots—167, E3(Mar)
 winter survival, for astronauts—676
 Transcutaneous CO₂ measurement, in hypoxia and hyperoxia—864
 Translational science model, terrestrial applications of space medicine
 research—650
 Trauma medicine, en route care provider type in U.S. Navy
 aeromedical missions—873

Traumatic brain injury, mild, and white matter health in altitude
 chamber research—215
 Typhoon aircraft, hypoxia-like events in—257

U

U.K. Civil Aviation Authority, new guidance for syncope in
 commercial pilots—642
 U.S. Air Force—*See also* Military pilots
 AFSOC female aircrew personality traits—240
 U.S. Army—*See also* Military pilots
 facial protection in helicopter mishaps—50
 metabolic disorder trends in—43
 U.S. Navy—*See also* Military pilots
 en route care providers in aeromedical missions—873
 Ulcerative colitis, continued flying in military aviators—831
 Underwater escape, in seaplane water accidents—798
 Unfit assessment, of class 1 medical certificate holders—946
 Upper airway disease, allergic rhinitis in civil aviation aircrew in
 China—25
 Urologic symptoms, in posterior nutcracker syndrome—54

V

Vaccination, COVID-19, and fitness to fly—698
 Valsalva maneuver, middle ear barotrauma in commercial
 aircrew—182, E4(Mar)
 Varicocele, in posterior nutcracker syndrome—54
 Vascular conditions
 cerebral cavernomas—120
 cryptogenic stroke in a military pilot—919
 posterior nutcracker syndrome—54
 Venous gas emboli, in alternating high and moderate altitude
 exposures—223
 Ventilation vests, for heat strain mitigation in helicopter desert
 missions—248
 Vision
 blurry, in central retinal vein occlusion—692
 correlation of body weight with intraocular pressure—886
 Visual discrimination, G-force loading impact on—75
 Visual processing, visual mismatch negativity during
 hypoxia—326, 925
 Visual scanning techniques, mental workload of helicopter pilots—11
 Vomiting, acute, due to cryptogenic stroke in a military pilot—919

W

Waivers—*See also* Aeromedical disposition
 COVID-19 vaccine and fitness to fly—698
 Walking, energy costs under reduced weight loading—4
 Weakness, long-term sequelae of COVID-19 in aviators—898
 Well-being, and fatigue in short- and long-haul pilots—786
 White matter hyperintensities, study of, for altitude chamber research
 program—215
 White matter intensities, NATO standards for recovery after
 hypobaric exposures—39
 Wilderness medicine, en route care provider type in U.S. Navy
 aeromedical missions—873
 Winter survival training, for astronauts, medical issues in—676
 Women
 oral estradiol impact on disuse-induced bone loss—65
 personality traits of USAF special operations female aircrew—240
 pregnancy and migraines in student aviator—751
 Working memory, acceleration effects on—75
 Workload
 of F-22 pilots during day and night flying—303
 mental, of helicopter pilots—11
 Wright State University, legacy of aerospace medicine residency
 program—744