

## Abstracts Not Presented

Every year, there are abstracts that could not be presented at our annual meeting for a variety of reasons. Covid-19 and travel restrictions played a significant role in the cancellation of certain abstracts. The fact that the abstracts were printed in the March 2022 issue of *Aerospace Medicine and Human Performance* does not guarantee that they were presented, only that they were accepted for presentation. It is important to remember that if an abstract was not presented, it should not be referenced. A total of 35 abstracts and 1 panel out of a possible 472 abstracts were not presented (~7.4%), which is average for our meeting. There were also additions and corrections to the published abstracts.

The following abstracts were withdrawn or not presented:

### [2] REFLECTIVE PRACTICE IN AVIATION MEDICINE

Satyam Patel<sup>1</sup>

<sup>1</sup>King's College London, London, United Kingdom

### [22] AIRCREW EQUIPMENT ASSEMBLY VERSUS "G-RAFFE" – A COMPARATIVE STUDY OF TWO HIGH-PERFORMANCE ANTI-G SUITS (AGS)

Carla Ledderhos<sup>1</sup>, Michael Nehring<sup>2</sup>, Frank Weber<sup>1</sup>, André Gens<sup>1</sup>

<sup>1</sup>German Air Force Center of Aerospace Medicine, Fürstenfeldbruck, Germany);

<sup>2</sup>German Air Force Center of Aerospace Medicine, Königsbrück, Germany);

### [42] NAVIGATING INSTITUTIONAL REVIEW BOARDS AND SURVIVING THE JOURNEY

Michael Wiggins<sup>1</sup>

<sup>1</sup>Embry Riddle Aeronautical University, Daytona Beach, Florida, United States

### [5-17]:PANEL: PAST, PRESENT, & FUTURE OF NASA'S BIOMEDICAL FLIGHT CONTROLLERS

Chair: Duane Chin

Co-Chair: Jamie Moore

Abstracts 77-80 were not printed. in March 2022.

### [85] USAFSAM'S AMRAAM APPLICATION FOR TOTAL FORCE ACCESSIONS

Rodger Vanderbeek<sup>1</sup>, Eduardo Rizo<sup>2</sup>

<sup>1</sup>Air Force Recruiting Service, San Antonio, Texas, United States); <sup>2</sup>Air Force Recruiting Service, Randolph AFB, Texas, United States

### [99] IS IT BETTER TO WATCH OR LISTEN? A RANDOMIZED TRIAL OF VIDEO-MODELLING VS TELEMENTORING FOR INTERVENTIONS PERFORMED BY SEARCH AND RESCUE MEDICS

Jessica McKee<sup>1</sup>, Corey Tomlinson<sup>2</sup>, Nigel Donley<sup>3</sup>, Juan Wachs<sup>4</sup>, Andrew Kirkpatrick<sup>1</sup>

<sup>1</sup>University of Calgary, Calgary, Alberta, Canada; <sup>2</sup>Canadian Forces, Ottawa, Ontario, Canada; <sup>3</sup>R19 Wing and 422 Squadron Search Air Rescue, Comox, British Columbia, Canada; <sup>4</sup>Purdue University, West Lafayette, IN, USA

### [101] TWO-PHASE MOTION SICKNESS EXPERIMENTATION MODEL AMONG THE MILITARY MEDICAL STUDENT TRAINING IN TAIWAN

Chung-Yu Lai<sup>1</sup>, Hsin Chu<sup>2</sup>, Min-Yu Tu<sup>3</sup>, Kwo-Tsao Chiang<sup>4</sup>

<sup>1</sup>Institute of Aerospace and Undersea Medicine, National Defense Medical Center, Taipei City, Taiwan (Greater China); <sup>2</sup>Civil Aviation Medical Center, Taipei City, Taiwan (Greater China); <sup>3</sup>Aviation Physiology Research Laboratory, Kaohsiung Armed Forces General Hospital Gangshan Branch, Kaohsiung City, Taiwan (Greater China); <sup>4</sup>Kaohsiung Armed Forces General Hospital Gangshan Branch, Kaohsiung City, Taiwan (Greater China)

### [127] BLACK-HOLE APPROACH ILLUSION

Kevin Gildea<sup>1</sup>, Harriet Lester<sup>2</sup>

<sup>1</sup>Federal Aviation Administration, Norman, Oklahoma, United States); <sup>2</sup>Federal Aviation Administration, Jamaica, New York, United States

### [146] CARDIOPULMONARY RESPONSES TO CENTRIFUGE SIMULATED PARABOLIC FLIGHT

Harshith H S<sup>1</sup>, Nataraja M S<sup>2</sup>, Sneha Dinakar<sup>3</sup>

<sup>1</sup>Institute of Aerospace Medicine, Bangalore, India); <sup>2</sup>Institute Of Aerospace Medicine, Bangalore, India); <sup>3</sup>Institute of Aerospace Medicine, Bangalore, India

### [151] THE MORTALITY OF AEROSPACE SPECIALISTS IN RUSSIA

Igor Bukhtiyarov<sup>1</sup>, Evgeny Zibarev<sup>1</sup>, Kristina Betts<sup>1</sup>, Igor Ushakov<sup>2</sup>, Yuri Voronkov<sup>3</sup>, Marina Bukhtiyarova<sup>4</sup>

<sup>1</sup>Federal State Budgetary Scientific Institution "Izmerov Research Institute of Occupational Health", Moscow, Russian Federation; <sup>2</sup>Russian State Research Center – Burnasyan Federal Medical Biophysical Center of Federal Medical Biological Agency, Moscow, Russian Federation; <sup>3</sup>State Research Center, Institute of Biomedical Problems, Russian Academy of Sciences, Moscow, Russian Federation; <sup>4</sup>Occupational Health Physician and Specialists Association, Moscow, Russian Federation

### [207] LUNAR EVA WALKBACK DISTANCE LIMITS: NASA HAUGHTON-MARS PROJECT-2021 BIOMETRIC STUDY OF SPACESUIT WALKS ACROSS LUNAR TERRAIN ANALOGS, OREGON

Sawan Dalal<sup>1</sup>, Pascal Lee<sup>2</sup>

<sup>1</sup>Baylor College of Medicine, Houston, , United States); <sup>2</sup>NASA Ames Research Center, Moffett Field, California, United States

### [210] CARDIOVASCULAR, AUTONOMIC, AND CEPHALAD DOSE-RESPONSE TO GRADED LOWER BODY NEGATIVE PRESSURE

Richard S. Whittle<sup>1</sup>, Hrudayavani S. Vellore<sup>1</sup>, Eric A. Hall<sup>1</sup>, Félix Real Fraxedas<sup>1</sup>, Katherine H. Findlay<sup>2</sup>, Nathan Keller<sup>1</sup>, Lindsay M. Stapleton<sup>1</sup>, Bonnie J. Dunbar<sup>1</sup>, Ana Diaz-Artiles<sup>1</sup>

<sup>1</sup>Texas A&M University, College Station, TX, United States; <sup>2</sup>Independent Researcher, College Station, TX, United States

### [221] THE APPLICATIONS OF PATHOLOGY IN AVIATION AND AEROSPACE INDUSTRY

Mustafa Alaziz<sup>1</sup>

<sup>1</sup>Wright State University, Dayton, Ohio, United States

### [226] CAN TELEMENTORING EFFECTIVELY TEACH SURGICAL SKILLS TO MEDICAL STUDENTS AND PROFESSIONALS: THE BENEFIT TO RURAL COMMUNITIES

Matthew Terry<sup>1</sup>

<sup>1</sup>University of Edinburgh, Edinburgh, United Kingdom

### [238] CARDIOPULMONARY RESUSCITATION IN HYPOGRAVITY SIMULATION: DO INFLUENTIAL FACTORS EXIST?

Sindujen Sriharan<sup>1</sup>, Gemma Kay<sup>2</sup>, Yu Chan Lee<sup>3</sup>, Ross Pollock<sup>2</sup>, Thais Russomano<sup>2</sup>

<sup>1</sup>University of Nottingham, King's College London, London, United Kingdom;

<sup>2</sup>King's College, London, London, United Kingdom); <sup>3</sup>King's College, London,

Singapore, Singapore

### [253] CLINIC CASE: OPTIC NEUROMYELITIS IN A CIVIL AVIATOR

Patricia Barrientos<sup>1</sup>, Giancarlo Conde<sup>2</sup>, Alexandra Mejia<sup>3</sup>, Johana Giraldo<sup>3</sup>, Maria Angelita Salamanca<sup>1</sup>

<sup>1</sup>Aerocivil - Civil Aviation Authority of Colombia, Bogotá, Colombia;

<sup>2</sup>Universidad de Cartagena, Cartagena, Colombia; <sup>3</sup>National University of

Colombia, Bogotá, Colombia

### [254] MULTIPLE SCLEROSIS IN CIVIL AVIATORS: CASE SERIES

Johana Giraldo<sup>1</sup>, Giancarlo Conde<sup>2</sup>, Alexandra Mejia<sup>1</sup>, Maria Angelita Salamanca<sup>3</sup>, Patricia Barrientos<sup>3</sup>

<sup>1</sup>National University of Colombia, Bogotá, Colombia; <sup>2</sup>Universidad de

Cartagena, Universidad Rafael Nuñez, Cartagena, Colombia; <sup>3</sup>Aerocivil - Civil

Aviation Authority, Bogotá, Colombia

### [257] CARDIOVASCULAR RISK ESTIMATION IN CIVIL AIRCREW: AN OBJECTIVE ANALYSIS

Devdeep Ghosh<sup>1</sup>, SS Rao<sup>2</sup>

<sup>1</sup>Institute of Aerospace Medicine, Bangalore, India; <sup>2</sup>AFCME, New Delhi, India

### [287] A STUDY ON THE EFFECT OF SURYANAMASKAR ON ORTHOSTATIC TOLERANCE AND NEUROVESTIBULAR FUNCTIONING UPON EXPOSURE TO SIMULATED MICROGRAVITY CONDITION

Gaurab Ghosh, Rahul Pipriya, Biswajit Sinha

Institute of Aerospace Medicine, Indian Air Force, Bangalore, India

### [290] OPERATIONAL NVG FLYING: TIME TO VISUAL ADAPTATION UNDER VARIOUS ILLUMINATION CONDITIONS POST DE-GOGGLING

Binu Sekhar Miraj, Vijay V. Joshi, Neeraj Kumar Tripathy

Institute of Aerospace Medicine, Bangalore, Karnataka, India

### [295] RISK MANAGEMENT OF INSULIN TREATED DIABETICS IN CANADA

Rani Tolton<sup>1</sup>, Edward Brook<sup>2</sup>

<sup>1</sup>Transport Canada, Vancouver, British Columbia, Canada; <sup>2</sup>Transport Canada, Ottawa, Ontario, Canada

### [298] STUDY ON THE HEALTH STATUS AND OUTCOME OF AGING PILOTS OF A JAPANESE MAJOR AIR CARRIER DURING THE 5 YEARS FROM 60 YEARS OF AGE

Kazunori Takazoe, Hideho Gomi

Japan Aeromedical Research Center, Tokyo, Japan

### [306] BLADES OF GLORY: HEMS PAST, PRESENT, AND FUTURE

Woodrow Sams

Mayo Clinic, Rochester, MN, United States

### [325] MEDICAL DIRECTION AT A COMMERCIAL SPACE COMPANY

Anil Menon

SpaceX, Houston, TX, United States

### [331] HYPOXIA SIGNATURE: A USEFUL TOOL FOR HYPOXIA RECOGNITION AMONG AIRCREW

Shivani Kature, Nataraja MS, Sudhanshu Mohapatra, Biswajit Sinha

Institute of Aerospace Medicine, Bengaluru, India

### [333] HYPOBARIC HYPOXIA MIMICS CARDIAC ISCHEMIA IN THE HISTOLOGICAL EXAMINATION OF AN AIRCRAFT ACCIDENT VICTIM

Michael Scherer

Air Force Centre of Aerospace Medicine, Fuerstenfeldbruck/Cologne, Germany

### [386] DoDMERB e-MEDICINE BUSINESS MODELING PROCESS FOR OFFICER APPLICANT MEDICAL QUALIFICATION DETERMINATION

Michael Rappa, Glenn Dowling, Kenneth Kuhn, William Mann, Lawrence Mullen

Defense Health Agency, Colorado Springs, CO, USA

### [399] SEARCHING FOR RESILIENCE: SELF-ASSESSED COGNITIVE AND PSY-

#### CHOMOTOR FACTORS RELATED TO THE PERFORMANCE OF DAMAGE CONTROL SURGERY IN WEIGHTLESSNESS

Andrew Kirkpatrick<sup>1</sup>, Jessica Mckee<sup>1</sup>, Heather Wright Beatty<sup>2</sup>

<sup>1</sup>University of Calgary, Calgary, Alberta, Canada; <sup>2</sup>NRC-CNRC, Ottawa, Canada

#### [401] RELIABILITY AND VALIDITY OF NASA'S HUMAN FACTORS AND BEHAVIORAL PERFORMANCE EXPLORATION MEASURES (HFBP-EM) IN ISOLATED, CONFINED, AND EXTREME TEAMS

Carolyn Cunningham<sup>1</sup>, Nathan Smith<sup>2</sup>, Emma Barrett<sup>2</sup>, Pete Roma<sup>3</sup>, Robert Wuebker<sup>4</sup>

<sup>1</sup>University of Warwick, Coventry, United Kingdom; <sup>2</sup>University of Manchester, Manchester, United Kingdom; <sup>3</sup>Leidos/Naval Health Research Center, San Diego, USA; <sup>4</sup>University of Utah, Salt Lake City, UT, USA

#### [409] BREATHING RHYTHM COMPLEXITY AS AN INDICATOR TO RESPIRATORY COMPROMISE FOR FUTURE FLIGHT DECK SYSTEMS

Jeremy Prieto<sup>1</sup>, Rheagan Horne<sup>1</sup>, Chad Stephens<sup>2</sup>, Kellie Kennedy<sup>2</sup>, Nicholas Napoli<sup>1</sup>

<sup>1</sup>University of Florida, Gainesville, FL, USA; <sup>2</sup>NASA Langley Research Center, Hampton, Virginia, USA

#### [422] PANDEMIC RATIO TRACKING: PREDICTING PANDEMIC TRAJECTORIES

Walter Dalitsch

Naval Medical Research Unit - Dayton, Wright-Patterson AFB, OH, USA

#### [444] WORLD WAR I BRITISH FLYING ACE EXTRAORDINAIRE, MAJOR EDWARD "MICK" MANNOCK, VC, DSO, MC: DID HE REALLY HAVE ONLY ONE GOOD EYE?

Adrien Ivan<sup>1</sup>, Douglas Ivan<sup>2</sup>, Thomas Tredici<sup>3</sup>

<sup>1</sup>Vernon College, Wichita Falls, TX, USA; <sup>2</sup>ADI Consultants, San Antonio, TX, USA; <sup>3</sup>(Posthumously) University of Texas Health Sciences, San Antonio, TX, USA

#### [446] DESIGNING RESTRAINT SYSTEM FOR SIMULATING LATERAL ACCELERATION

Parul Goel, Anupam Garwal<sup>2</sup>

<sup>1</sup>Indian Air Force, New Delhi, India; <sup>2</sup>Indian Air Force, Allahabad, India

#### [448] MEDICAL LESSONS FROM THE UNDERWATER NEPTUNE MISSION

Shawna Pandya<sup>1</sup>, Dr. Joseph Diturio<sup>2</sup>, Paul Bakken<sup>3</sup>, Doug Campbell<sup>4</sup>, Kyle Foster<sup>5</sup>

<sup>1</sup>University of Alberta, Edmonton, Alberta, Canada; <sup>2</sup>International Board of Undersea Medicine, Tampa, FL, USA; <sup>3</sup>Bakken Offworld Research Products, Eagan, MN, USA; <sup>4</sup>Saskatchewan Health Authority, Saskatoon, Saskatchewan, Canada; <sup>5</sup>George Mason University, Fairfax, VA, USA

#### [449] SELECTION OF AIR TRAFFIC CONTROLLER TRAINEES

Krisztina Szabo, Mate Petrekani, Botond Szucs

Pharmaflight International Science and Service Center, Debrecen, Hungary

#### [461] DISCLOSURE RATES OF SARS-COVID19 INFECTION DURING AEROMEDICAL SCREENING AND VACCINATION HESITANCY IN A SAMPLE OF US AVIATORS

William Hoffman

Brooke Army Medical Center, Ft Sam Houston, TX, USA

#### ERRATA:

[S-62] PANEL: THE NUTS AND BOLTS OF BEING A CHIEF MEDICAL OFFICER FOR PRIVATE SPACE COMPANIES will be presented on Thursday, May 26 at 10:00 a.m.

[456] Will be presented by Yoshiaki Inuzuwa. There was a misspelling of his name in the printed program.

#### [210] CARDIOVASCULAR, AUTONOMIC, AND CEPHALAD DOSE-RESPONSE TO GRADED LOWER BODY NEGATIVE PRESSURE

Richard S. Whittle<sup>1</sup>, Hrudayavani S. Vellore<sup>1</sup>, Eric A. Hall<sup>1</sup>, Fèlix Real Fraxedas<sup>1</sup>, Katherine H. Findlay<sup>2</sup>, Nathan Keller<sup>1</sup>, Lindsay M. Stapleton<sup>1</sup>, Bonnie J. Dunbar<sup>1</sup>, Ana Diaz-Artiles<sup>1</sup>

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*The lower body negative pressure (LBNP) chamber we have been using had a software calibration factor bug, such that the actual applied pressure was only half of the indicated pressure. The measured values for the dependent variables are still correct, however the independent variable (LBNP pressure) is out by a factor of 2. The affected pressures are bolded and underlined below.*

**INTRODUCTION:** (Same as print.) **METHODS:** Twelve male subjects (age 26.9±2.9 years, height 179.0±8.3 cm, weight 84.7±18.7 kg) were placed in an LBNP chamber in both supine and 15° head down tilt postures. A graded LBNP profile was applied from 0 mmHg to **-25 mmHg in 5 mmHg** increments. Measures of systemic cardiovascular parameters and autonomic indices were taken along with intraocular pressure, ultrasonography of the left and right common carotid arteries and internal jugular veins, and jugular venous pressure. **RESULTS:** The application of **-25 mmHg** of LBNP caused a drop in systolic blood pressure from 133.2±14.9 mmHg to 121±15.7 mmHg

(p = 0.003), whilst diastolic pressure was maintained. Similarly, cardiac output and stroke volume decreased linearly, from 5.3±1.1 l/min to 4.2±0.7 l/min (p < 0.001) and 76.5±17.9 ml to 58.4±10.1 ml (p < 0.001), respectively. Autonomic indices showed no significant change in vagal activity, but a slight increase in sympathetic nervous activity. Jugular venous pressure and intraocular pressure were reduced with the application of LBNP, however the differential rate slowed at pressures below -10 mmHg. **DISCUSSION:** (Same as print.)

#### Additions:

**Wednesday, 05/25/2022 10:30 AM in Tuscany 5/6**

**[S-46]: POSTERS: HUMAN PERFORMANCE: PAN TOPIC LOOK**

**[477] CAN OPEN ABDOMINAL SURGERY FIT IN THE VOLUME OF THE ORION CAPSULE: A PILOT STUDY**

Tovy Kamine<sup>1</sup>, Margaret Siu<sup>1</sup>, Arthur Formanek<sup>2</sup>, Gladys Fernandez<sup>1</sup>, Dana Levin<sup>3</sup>

<sup>1</sup>Baystate Health, Springfield, MA, USA; <sup>2</sup>Brigham and Women's Hospital, Boston, MA, USA; <sup>3</sup>Columbia University, New York, NY, USA

(Original Research)

**INTRODUCTION:** This pilot study investigated the minimum volume needed to safely perform an open abdominal procedure to understand if current and planned spacecraft have sufficient volume to handle surgical emergencies should they occur. **METHODS:** The axes of a simulated operating room were marked and cameras placed to capture movements. An expert surgeon, chief surgical resident, junior surgical resident, and a non-surgeon physician each performed a Focused Assessment with Sonography for Trauma and an open appendectomy on a simulated patient. A second participant intubated and monitored the simulated patient. Time and volume data were collected and compared using unpaired t-tests. **RESULTS:** Mean volume needed to complete all tasks was 3.83 m<sup>3</sup>±0.47 for standing and 3.68m<sup>3</sup>±0.49 for kneeling, p=0.72. There were differences in the x, y, and z dimensions between the two groups, X: 90.1cm±5.0 v. 121.1cm±6.8, p=0.04; Y: 210.5cm±22.7 v. 237.5cm±3.8, p=0.08; Z: 174.4cm±5.0 v. 127.7cm±13.4 p < 0.01. Differences between Seniors (attending and PGY5) and Juniors (PGY2 and non-surgery physician) were not significant (3.78m<sup>3</sup>±0.41 and 3.74m<sup>3</sup>±0.53, respectively, p=0.90). **DISCUSSION:** The habitable volume of capsules ranges from 8.95m<sup>3</sup> (NASA's Orion) to 916m<sup>3</sup> (International Space Station). Future vehicles range from NASA's Gateway Lunar Station at 125m<sup>3</sup> to SpaceX's Starship at 825m<sup>3</sup>. Mean volume to perform kneeling appendectomy was 3.68m<sup>3</sup>. Even the smallest of these spacecraft, the Orion Capsule, may accommodate simple open abdominal procedures. However, this study included only 4 participants and does not account for environmental aspects of spaceflight such as microgravity.

#### Learning Objectives:

1. The audience will learn about the minimal spatial volume necessary to perform open abdominal operations.
2. The audience will learn how the volumetric constraints of the Orion capsule affect the ability to perform open abdominal operations.

## Call for Papers

The Abstract Submission site opens on September 1.  
The Deadline for Abstracts is November 1.  
See the Call for Papers in the front of the journal and on the AsMA website under Meetings.

## Future AsMA Annual Scientific Meetings

May 21-25, 2023

Sheraton New Orleans Hotel  
New Orleans, LA

May 5-9, 2024

Hyatt Regency Chicago  
Chicago, IL

June 1-6, 2025

Hyatt Regency Atlanta  
Atlanta, GA