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The following abstracts were withdrawn or not presented: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 Patel1

1King'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 Ledderhos1, Michael Nehring2, Frank Weber1, André Gens1

1German Air Force Center of Aerospace Medicine, Fürstenfeldbruck, Germany); 2German Air Force Center of Aerospace Medicine, Königsbrück, Germany);

[42] NAVIGATING INSTITUTIONAL REVIEW BOARDS AND SURVIVING THE JOURNEY

Michael Wiggins1

1Embry Riddle Aeronautical University, Daytonna Beach, Florida, United States

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

Chair: Duane Chin

Co-Chair: Jamie Moore

Abstracts 77-80 were nnot printed. in March 2022.

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

Rodger Vanderbeek1, Eduardo Rizo2

1Air Force Recruiting Service, San Antonio, Texas, United States); 2Air 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 McKee1, Corey Tomlinson2, Nigel Donley3, Juan Wachs4, Andrew Kirkpatrick1

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

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

Chung-Yu Lai1, Hsin Chu2, Min-Yu Tu3, Kwo-Tsao Chiang4

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

[127] BLACK-HOLE APPROACH ILLUSION

Kevin Gildea1, Harriet Lester2

1Federal Aviation Administration, Norman, Oklahoma, United States); 2Federal Aviation Administration, Jamaica, New York, United States

[146] CARDIOPULMONARY RESPONSES TO CENTRIFUGE SIMULATED PARABOLIC FLIGHT

Harshith H S1, Nataraja M S2, Sneha Dinakar3

1Institute of Aerospace Medicine, Bangalore, India); 2Institute Of Aerospace Medicine, Bangalore, India); 3Institute of Aerospace Medicine, Bangalore, India

[151] THE MORTALITY OF AEROSPACE SPECIALISTS IN RUSSIA

Igor Bukhtiyarov1, Evgeny Zibarev1, Kristina Betts1, Igor Ushakov2, Yuri Voronkov3, Marina Bukhtiyarova4

1Federal State Budgetary Scientific Institution "Izmerov Research Institute of Occupational Health", Moscow, Russian Federation; 2Russian State Research Center – Burnasyan Federal Medical Biophysical Center of Federal Medical Biological Agency, Moscow, Russian Federation;35State Research Center, Institute of Biomedical Problems, Russian Academy of Sciences, Moscow, Russian Federation; 4Occupational 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 Dalal1, Pascal Lee2

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

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

Richard S. Whittle1, Hrudayavani S. Vellore1, Eric A. Hall1, Fèlix Real Fraxedas1, Katherine H. Findlay2, Nathan Keller1, Lindsay M. Stapleton1, Bonnie J. Dunbar1, Ana Diaz-Artiles1

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

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

Mustafa Alaziz1

1Wright State University, Dayton, Ohio, United States

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

Matthew Terry1

1University of Edinburgh, Edinburgh, United Kingdom

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

Sindujen Sriharan1, Gemma Kay2, Yu Chan Lee3, Ross Pollock2, Thais Russomano2

1University of Nottingham, King's College London, London, United Kingdom; 2King's College, London, London, United Kingdom); 3King's College, London, Singapore, Singapore

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

Patricia Barrientos1, Giancarlos Conde2, Alexandra Mejia3, Johana Giraldo3, Maria Angelita Salamanca1

1Aerocivil - Civil Aviation Authority of Colombia, Bogotá, Colombia; 2Universidad de Cartagena, Cartagena, Colombia; 3National University of Colombia, Bogotá, Colombia

[254] MULTIPLE SCLEROSIS IN CIVIL AVIATORS: CASE SERIES

Johana Giraldo1, Giancarlos Conde2, Alexandra Mejia1, Maria Angelita Salamanca3, Patricia Barrientos3

1National University of Colombia, Bogotá, Colombia; 2Universidad de Cartagena, Universidad Rafael Nuñez, Cartagena, Colombia; 3Aerocivil - Civil Aviation Authority, Bogotá, Colombia

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

Devdeep Ghosh1, SS Rao2

1Institute of Aerospace Medicine, Bangalore, India; 2AFCME, 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 Pipraiya, 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 Tolton1, Edward Brook2

1Transport Canada, Vancouver, British Columbia, Canada; 2Transport 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 Kasture, 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 Schwerer

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 Kirkpatrick1, Jessica Mckee1, Heather Wright Beatty2
1University of Calgary, Calgary, Alberta, Canada; 2NRC-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 Cunningham1, Nathan Smith2, Emma Barrett2, Pete Roma3, Robert Wuebker4
1University of Warwick, Coventry, United Kingdom; 2University of Manchester, Manchester, United Kingdom; 3Leidos/Naval Health Research Center, San Diego, USA; 4University of Utah, Salt Lake City, UT, USA
[409] BREATHING RHYTHM COMPLEXITY AS AN INDICATOR TO RESPIRATORY COMPROMISE FOR FUTURE FLIGHT DECK SYSTEMS
Jeremy Prieto1, Rheagan Horne1, Chad Stephens2, Kellie Kennedy2, Nicholas Napoli1
1University of Florida, Gainesville, FL, USA; 2NASA 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 Ivan1, Douglas Ivan2, Thomas Tredici3
1Vernon College, Wichita Falls, TX, USA; 2ADI Consultants, San Antono, TX, USA; 3(Posthumously) University of Texas Health Sciences, San Antonio, TX, USA
[446] DESIGNING RESTRAINT SYSTEM FOR SIMULATING LATERAL ACCELERATION
Parul Goel, Anupam Garwal2
1indian Air Force, New Delhi, India; 2indian Air Force, Allahabad, India
[448] MEDICAL LESSONS FROM THE UNDERWATER NEPTUNE MISSION
Shawna Pandya1, Dr. Joseph Dituri2, Paul Bakken3, Doug Campbell4, Kyle Foster5
1University of Alberta, Edmonton, Alberta, Canada; 2International Board of Undersea Medicine, Tampa, FL, USA; 3Bakken Offworld Research Products, Eagan, MN, USA; 4Saskatchewan Health Authority, Saskatoon, Saskatchewan, Canada; 5George Mason University, Fairfax, VA, USA
[449] SELECTION OF AIR TRAFFIC CONTROLLER TRAINEES
Krisztina Szabo, Mate Petrekanits, 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[1], Hrudayavani S. Vellore[1], Eric A. Hall[1], Fèlix Real Fraxedas[1], Katherine H. Findlay[2], Nathan Keller[1], Lindsay M. Stapleton[1], Bonnie J. Dunbar[1], Ana Diaz-Artiles[1]
[1]Texas A&M University, College Station, TX, United States; [2]Independent Researcher, College Station, TX, United States
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[1], Margaret Siu[1], Arthur Formanek[2], Gladys Fernandez[1], Dana Levin[3]
[1]Baystate Health, Springfield, MA, USA; [2]Brigham and Women's Hospital, Boston, MA, USA; [3]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^3±0.47 for standing and 3.68m^3±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^3±0.41 and 3.74m^3±0.53, respectively, p=0.90). **DISCUSSION:** The habitable volume of capsules ranges from 8.95m^3 (NASA's Orion) to 916m^3 (International Space Station). Future vehicles range from NASA's Gateway Lunar Station at 125m^3 to SpaceX's Starship at 825m^3. Mean volume to perform kneeling appendectomy was 3.68m^3. 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.