The Lifetime Surveillance of Astronaut Health NEWSLETTER

October 2025 | Vol 30 Issue 2

Editor's Note

BY **RONNIE RAFANAN (Aegis Aerospace)**

Welcome to the October 2025 issue of the Lifetime Surveillance of Astronaut Health (LSAH) Newsletter. In this issue, we will share some insight on how several LSAH programs are contributing to NASA's understanding of the effects of spaceflight on the human body. Be sure to also check out our recurring *HRP Corner* and *Formers' Corner featuring helpful travel tips and a special message from Astronaut Story Musgrave. Enjoy!*

In this Issue…

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In this Issue... *(Cont'd)*

Inside NASA's 2025 Astronaut Candidate Selection

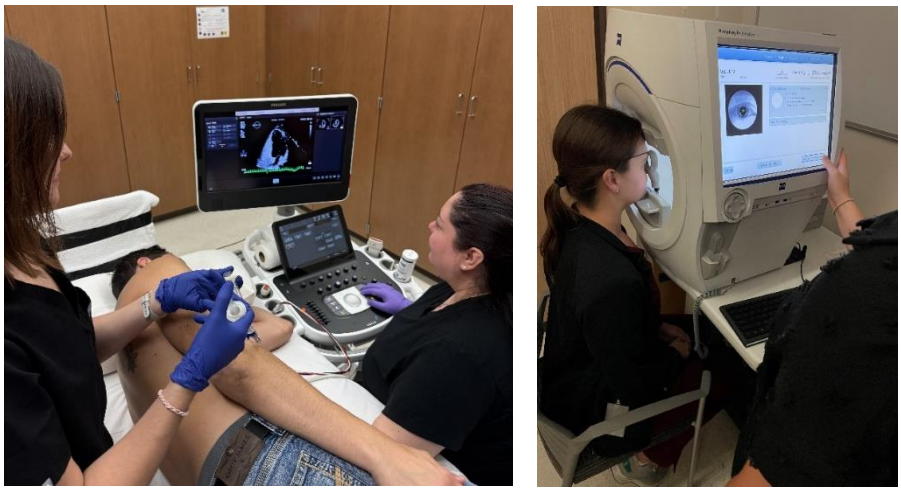
By **Stephanne Ploeger (NASA JSC)**

On September 22nd of this year, NASA announced its 2025 Astronaut Candidate Class. They were chosen from a pool of more than 8000 applicants after extensive recruitment, testing, and evaluations. Here are a few words from some of the teams that had significant roles in the selection process.

2025 Astronaut Candidate Class

The Flight Medicine Clinic (FMC)

The Flight Medicine Clinic (FMC) of the Space and Occupational Medicine Branch (SD3) led the medical portion of astronaut selection. Our aerospace medical team evaluated the initial 120 applicants through their medical histories, physical exams, laboratory testing, eye and hearing exams, bone density scans, and more. For the 40 candidates advancing to Round 2, FMC enlisted the help of JSC's physiology labs in the Biomedical Sciences Branch and arranged for their providers to be clinically credentialed to perform cardiac echocardiograms—saving applicants valuable time during their busy schedules. The physiology labs also supported other critical testing. FMC physicians supervised all cardiac imaging and stress tests, while our FMC nurses, paramedics, and lab staff conducted pulmonary function tests, bloodwork, ultrasounds, and X-rays. Behind the scenes, Medical Referral and Billing Coordinator Stephanie Baldwin coordinated all outside appointments including the many MRIs required for each applicant; the medical records team (Tami Bradley, Marlana Jones, and Lisa Marak) entered the huge volume of medical data for each applicant into the electronic record; and last but not least, Amy Trabue at the FMC front desk created and coordinated the applicant's entire schedule while they were here at JSC with the help of the Astronaut Selection Board—a role she has expertly fulfilled for every astronaut selection since 2004. This immense effort reflects the dedication of a talented team who is proud to participate in selecting America's next class of astronaut candidates!



FMC Team Testing and Examinations

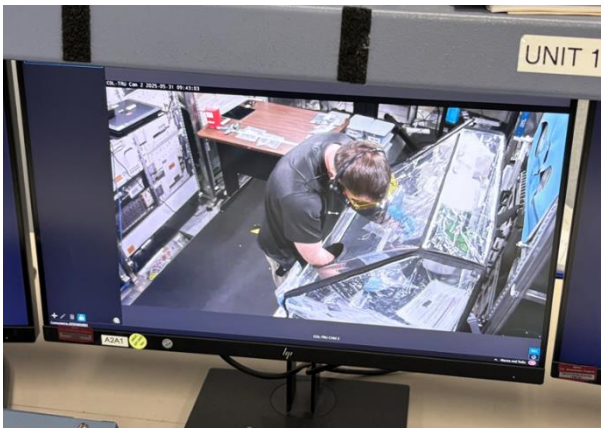
The Biomedical Sciences (SK3) Labs

The Biomedical Sciences (SK3) Branch successfully completed physiological and anthropometric testing on 40 astronaut candidates (ASCANs) during Round 2 interviews at NASA Johnson Space Center. The Anthropometry, Injury Biomechanics, and Ergonomics Laboratory (AIBEL) team collected key anthropometric and strength data, while the Exercise Physiology and Countermeasures (EPC) Lab conducted direct VO_2max assessments to evaluate aerobic fitness—an essential metric for predicting in-flight performance. The Cardiovascular and Vision Lab (CVL) introduced first-time screenings for patent foramen ovale (PFO) and visual fields, addressing emerging operational needs.

EPC Astronaut Candidate Team

The Behavioral Health and Performance (BHP) Operations Group

The Behavioral Health and Performance Operations Group conducted a comprehensive multi-method assessment of the behavioral health status and psychological suitability for spaceflight in astronaut applicants over two rounds of astronaut selection activities. For this effort, this groups stands up a complex assessment center utilizing best practices in selection for operational jobs. Their approach comprises interviews, psychological tests, and individual and team simulations during an intensive week of Round 2 interviews. Selection activities are designed to mirror the operational demands of the job and place applicants in highly dynamic situations to elicit the individual and team competencies required to be an astronaut. These complex simulations rely on technical and facility support within JSC as well as other government agencies. The results of these assessments are used by the Astronaut Selection Board in their process for deciding the best applicants to become astronauts.



Applicant in B5/SSTF Columbus Module Completing Individual Exercise

Applicants completing the Team Reaction Exercise

The NASA Electronic Health Record Project: A Continued Evolution in Recordkeeping

By **Mike Maloy (NASA JSC)**

Thirty years ago, the Johnson Space Center Clinic began efforts to purchase its first Electronic Medical Record (EMR), a system that has evolved to meet the unique needs of human spaceflight since its inception. In April 2025, a new chapter in this evolutionary story began when Enterprise Health was awarded the contract to provide a new Electronic Health Record (EHR), replacing the existing EMR in July 2026. The new EHR seeks to leverage the core capabilities of a modern system, including increased security and workflow automation, while still meeting the unique medical documentation needs involved in human spaceflight and subsequent research.

The combined project team is laser-focused on data integrity as it works on transitioning to the new EHR. Additionally, significant efforts are being made to improve processes and further leverage automated workflows where feasible, so clinicians can—as expertly said by one of the team members—"spend more time on the mission, less time on the system."

Two critical capabilities worth noting to this audience are a new patient portal and the improved use of data to support current and future human spaceflight. Enterprise Health's patient portal meets stringent government security requirements for the electronic transfer of medical data. The clinic team plans to utilize this portal allowing the secure sending and receipt of electronic patient questionnaires. This will allow questionnaires to be completed and returned electronically, then ingested into the EHR with data being mapped to the appropriate locations automatically. This will benefit patients by reducing time spent filling out forms in the clinic and allow clinicians more time to review the information prior to appointments, simultaneously minimizing opportunities for transcription errors. With respect to improving the use of data, the new EHR software has additional native capabilities that will replace existing "bolt on" applications used by the current system. This will reduce reliance on third party systems and integrations, consolidate data, and provide a more secure and queryable database in one location instead of certain data being contained in specific systems that need to be accessed separately.

The Clinic and IT support teams have excelled at adjusting to almost three decades of evolving medical records systems, and they continue to do so during this EHR replacement project. While change is never easy, the expertise of the teams involved will drive a successful outcome in this endeavor. I have no doubt that an updated and more capable EHR in the hands of these experienced professionals, who continue to focus on improved patient care and more efficient research, will continue to shape a better understanding of the medical impacts of human spaceflight for the foreseeable future.

Enterprise Health logo

The Importance of Longitudinal Data

By **Ruth Reitzel (NASA JSC)**

Your data and information are critical to NASA, specifically the Lifetime Surveillance of Astronaut Health (LSAH), in understanding the effects of spaceflight on the human body.

Longitudinal data is data repeatedly collected from the same subjects over a given amount of time, allowing observers to measure change. LSAH uses longitudinal data for surveillance to detect adverse health outcomes that may be associated with spaceflight and occupational exposures, develop countermeasures to prevent, and understand how spaceflight exposures may impact long term health.

Throughout an astronaut's career and retirement, LSAH collects a multitude of longitudinal data. This includes health data from active annual exams, health data associated with a mission, and—for those that choose to participate—health data from LSAH Formers exams (See figure 1). While the vast amount of data collected allows for analyses, what may be more important is the consistent collection of data over time.

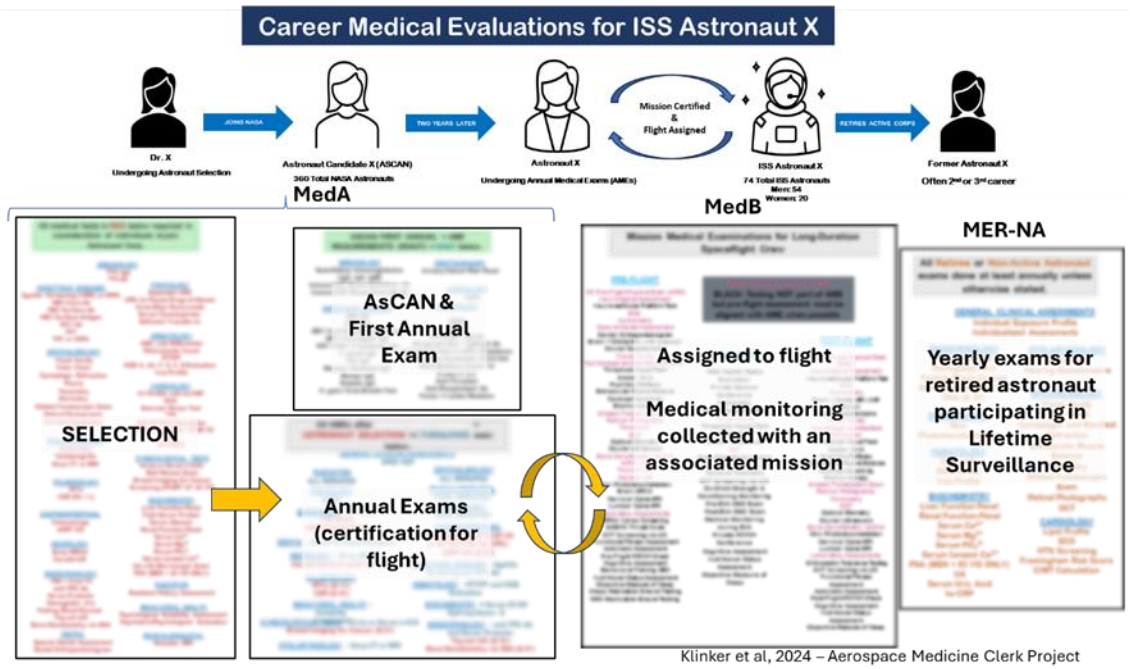


Figure 1 – Longitudinal data collected throughout an astronaut's

The monitoring and longitudinal data collection over time impacts

- the individual astronaut (current and former) by enabling the flight surgeon to monitor individual trends which increases chances for early detection of disease;
- the individual and astronaut corps contributing to NASA's understanding of long-term health and the challenge of what physiological changes may occur due to normal aging compared to what changes are compounded by exposure to microgravity, radiation, and other factors in the extreme space environment; and
- the astronaut corps in development of targeted surveillance and countermeasures on longer duration and exploration missions based on the understanding of individual variability in the differences of how crewmembers respond to spaceflight exposures.

Missing longitudinal data still provides data that is workable for analyses; however, LSAH and Biostatisticians then must employ statistical methodologies to "fill in the gaps", likely leading to results with wider uncertainty. Consistent collection of your data allows for a more accurate, precise, and robust surveillance analyses.

As many of you have generously donated time, effort, and longitudinal data to the LSAH to further expand our database on the human response to short and long duration spaceflight, we graciously thank you for your ongoing participation. This would not be possible without you.

Thank you!

NASA's LSAH Former Astronaut Autopsy Program

BY **JOE NEIGUT (NASA JSC)**

Astronaut health and medical data is essential to the LSAH program. This data from individual astronauts and their missions are critical to influence future mission design and to reduce risk of future astronauts on the space missions of tomorrow. As NASA and JSC look towards extended human missions to the Moon, Mars, and beyond, understanding and mitigating the effects of spaceflight and the spaceflight occupation on the human body is paramount.

Those who participate in the LSAH program are aware of their contributions to these future missions and astronauts, and the newsletter is one way we communicate how your data is being used in the effort of reducing health risks for all astronauts. A relatively new component in the LSAH program is the LSAH Former Astronaut Autopsy Program.

During an astronaut's career, as well as post-retirement, medical data obtained from physical exams, imaging, blood labs, health outcomes (illnesses, disease), and medical care records provide valuable information about how the astronauts as a population are similar to, and more importantly, different from those who are not astronauts. This information is curated by our Epidemiology team who provide the relevant, protected information to the Human Systems Risk Boards, Crew Health and Safety and the Astronaut Occupational Health Management Group, and spaceflight programs. This invaluable information may help develop countermeasures to prevent, additional surveillance to detect, and methodologies to treat conditions like vision changes, bone loss, cardiac effects, cancers and other conditions that may be influenced by spaceflight.

Codified in 14 CFR Part 1241, To Research, Evaluate, Assess, and Treat (TREAT) Astronauts, The LSAH Former Astronaut Autopsy Program supplements LSAH objectives by providing information and data gained during a post-mortem examination. This will provide additional insight and data about structural changes to the brain, eyes, heart, bones and other body systems. Data obtained post-mortem allows the NASA teams to better understand the challenge of what physiological changes occur due to normal aging and what changes are compounded by exposure to microgravity, radiation, and other factors in the extreme environment of space. Information gained from the autopsy will be provided back to the family member of the astronaut who authorized the autopsy.

Either the Armed Forces Medical Examiner (AFME) in San Antonio, Texas, or Dover, Delaware, will perform the procedure, collect samples, conduct imaging and write a final report for NASA. The autopsy can be customized to accommodate any specific wishes of the astronaut and family, and NASA will pay for the costs, including the transportation to and from AFME.

AFME's vast experience in post-mortem examinations provides NASA with the ability to provide this service with little disruption to final preparations by the family. If you are interested in learning more about the process, please contact the LSAH team, Dr. David Reyes, or ask for more information during your next LSAH visit.

FREQUENTLY ASKED QUESTIONS

Q – How do I get more information about this program?

A – *Talk with your flight surgeon at your next LSAH Annual Exam. They will have more detailed information and resources to inform your decision.*

Q – I would like to participate in the NASA autopsy program. How does NASA know that I have passed?

A – *Thank you for your interested in this program. Please discuss your wishes with your family now to make sure they understand what you want. Ultimately it will be your family's decision to contact NASA soon after your death in order to participate in this program.*

Q – If I choose to participate in the NASA autopsy program, will my family still be able to have an open casket funeral?

A – *Yes, AFME will ensure that your body will have a normal cosmetic appearance when returned to the funeral home. No one at a funeral would know that you participated.*

Q – What types of medical tests will be done during my autopsy?

A – *Several standardized autopsy tests and imaging will be conducted, such as full body MRI. Additionally, some of your tissue samples will be collected and stored. This will allow for testing to be done with current scientific technology, but more importantly, it will allow for the possibility of future technology.*

Human Research Program (HRP) Corner

BY **MOHI KUMAR (PCI PRODUCTIONS)**

NASA's Human Research Program (HRP) is continuing to advance our knowledge about how spaceflight affects human bodies and behaviors through research conducted in laboratories, ground-based analogs, the International Space Station, and commercial missions.

Catch up on recent HRP research and funding highlights:

Artemis II Crew to Advance Human Spaceflight Research

During their approximately 10-day mission around the Moon, the Artemis II crew will conduct health studies to explore how deep space affects the human body, mind, behavior, and cells.
The crew will collect and store their saliva for immune system insights, while select crew members will also don wrist monitors to track movement and sleep. Other research will look at how spaceflight affects multiple physiological systems. In addition, organ chips containing the astronauts' cells will gather information on the biological effects of microgravity and deep space radiation.

Read more about human health research on Artemis II: https://www.nasa.gov/humans-in-space/artemis-ii-crew-to-advance-human-spaceflight-research/

Get an overview of all Artemis II science: https://www.nasa.gov/general/artemis-ii-crew-both-subjects-and-scientists-in-nasa-deep-space-research/

Newly Published Research: Arteries Stay Normal After Extended Spaceflight

Astronauts' arteries seem to be resilient to effects of spaceflight, according to a new study published in the *Journal of Applied Physiology*. The research, funded by NASA's Human Research Program, shows that arteries appear to be disease-free for at least 5 years post-spaceflight. Read the article here.

NASA Announces CHAPEA Crew for Year-Long Mars Simulation

Four research volunteers will participate in NASA's year-long simulation of a Mars mission inside a habitat at the agency's Johnson Space Center in Houston. The crew will undergo realistic resource limitations, equipment failures, communication delays, isolation and confinement, and other stressors, along with simulated high-tempo extravehicular activities. This mission will provide NASA with foundational data to inform human exploration of the Moon, Mars, and beyond.

Read more about CHAPEA and the new crew here: https://www.nasa.gov/missions/analog-field-testing/chapea/nasa-announces-chapea-crew-for-year-long-mars-mission-simulation/

NASA Tests Mini-X-Ray Technology to Advance Space Health Care

As NASA plans future human exploration missions to the Moon, Mars, and beyond, new and unique challenges emerge—like communication delays and limited return-to-Earth options—making enhanced medical care capabilities critical. Crews will need non-invasive imaging technology to diagnose medical conditions, like broken bones or dental injuries. Scientists at NASA's Glenn Research Center in Cleveland are testing portable, handheld X-ray systems for use during future extended space missions.

Read more about the technology here: https://www.nasa.gov/centers-and-facilities/glenn/nasa-glenn-tests-mini-x-ray-technology-to-advance-space-health-care/

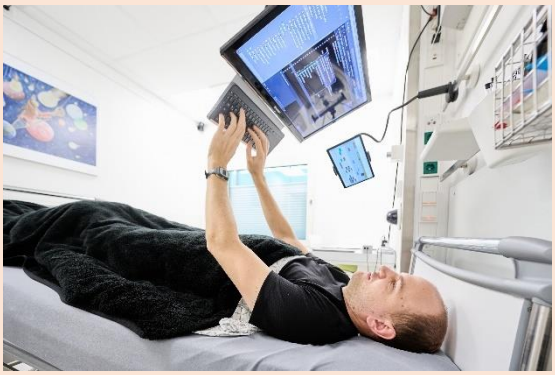
New Bedrest Data Available for Download

Explore some of the first open-access human health data available through NASA! The individual-level data, gathered from bedrest studies, is anonymized and now ready for researchers to download. This trove, curated by NASA's Life Science Data Archive, covers research conducted over a 60-day period on participants who lay in bed in a head-tilted down position, which closely simulates on Earth the low-gravity conditions astronauts encounter in space.

Access the data here: https://nlsp.nasa.gov/view/lsdapub/lsda_mission/6eaf1654-72d4-5d71-a9dd-a02e674c6473%c2%a0

Crew-11 to Support Health Studies for Deep Space Travel

NASA's SpaceX Crew-11 astronauts are helping unravel complex health challenges that explorers may face on deep space missions to the Moon and Mars. Select crewmembers have volunteered to participate in a series of experiments, including simulated Moon landings, investigations of space-related eye and brain changes, and other human physiology studies led by NASA's Human Research Program. Click here to learn more.



How Lying in Bed for 60 Days Helps Astronauts

Would you pause your life to lie in bed for 60 days for scientific research? About a dozen volunteers did exactly that, all while keeping their heads titled slightly downward, as part of a NASA study simulating what happens to the body in microgravity. In a new episode of NASA's Curious Universe podcast, hear from a study volunteer and researchers as they talk about how to play video games with your feet and other ins and outs of this Human Research Program-led work. Click here to listen to the podcast!

FORMERS' CORNER:

Travel Tips and Reimbursements

BY **DENISE PATTERSON (KBR)**

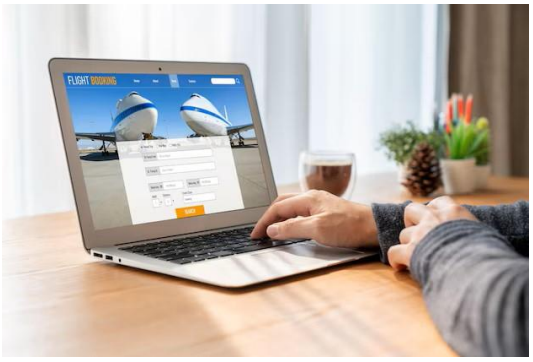
➢ Attention: KBR transitions to electronic payments

For all former non-local NASA crew members, KBR is transitioning to electronic reimbursement payments for your LSAH annual examination. You probably received a letter from KBR early November informing you of the change along with "Action Required" instructions. We have heard from many of you that you were unable to access the KBR Supplier Portal. To make this easier, if you are not already set up on direct deposit, the required forms will be prepared for you to complete when you come in for your annual exam. The LSAH office will submit the forms to KBR Accounts Payable department on your behalf. If you no longer return to JSC for annual exams or you are local to Houston, there is no action required.

➢ Book "Choice" when traveling with Southwest Airlines for your next LSAH Exam

Travel can be hard to navigate, and when airlines make changes, it becomes even more difficult to know what is allowable to book for your annual LSAH examination. Here is a quick list explaining recent changes to their fare classes:

- **Choice Extra** (formerly known as Business Select)
  - Two free checked bags
- **Choice Preferred** (formerly known as Anytime)
  - Regular checked bag fees
- **Choice** (formerly known as Wanna Get Away Plus)
  - Regular checked bag fees
- **Basic**
  - Regular checked bag fees



When booking your travel for the LSAH exam, select **Choice** in order to be eligible for reimbursement. It his highly recommended that you do not select **Basic,** due to its very restrictive nature.

A-List members and Rapid Rewards Credit Cardmembers will be allowed one free checked bag.

Please refer to Southwest Airlines policy changes site for full information on all changes: https://support.southwest.com/helpcenter/s/article/policy-changes

When traveling with other airlines, economy/coach are the reimbursable choices.

Travel points to purchase airline tickets and Early Bird Check-in is <u>not</u> reimbursable.

➢ **Do NOT use third-party internet and direct travel supplier booking websites**

KBR policy strictly prohibits the use of third-party travel agencies, whether offline or online and booking directly on travel supplier websites or alternative online booking sites for all categories (air, car, or hotel) reservations. The following travel booking sources are considered non-compliant/non-reimbursable.

- **Example: Third-party internet/mobile travel websites: Expedia/Kayak/Priceline/Travelocity, etc.**

If you need assistance with any travel or reimbursement questions, please reach out to **Denise Patterson** at **denise.a.patterson@nasa.gov** or at **281-244-5195.**

Safe travels!

FORMERS' CORNER:
Story's Story

Story Musgrave with Denise Patterson

My life is my seven children and my three grandchildren! Lorelei is the oldest child at 64, followed by Scott 63, Holly 62, Todd 60, Lane 38, and Little Story is the youngest child at 19, so far (Jeff was the fourth child, but has passed). NASA folks may already know some of them, as Lane is currently flying B-1s with the Air Force, and all the older ones frequently went to the astronaut gym with their dad.

After over 30 wonderful years with NASA, I moved from El Lago to Kissimmee, Florida, in 1997, but some of my gang and their mom just stayed in the old El Lago house and are still there today after close to 60 years. So, when it came time to celebrate my 90th birthday this past summer, it was so convenient to have it in the Houston Clear Lake area at Frenchy's and the Hilton.

Up the road from there are "my" Northrop T-38s at Ellington Field. I miss them terribly; one of the most beautiful and honest airplanes ever created, never ever did anything that was not asked for and expected. I marveled in all of it, but my favorite flying was the functional test flying. When an aircraft had gone through some serious work or repairs, I would take it for a functional test flight to see that all worked before returning it to the squadron. In doing such, I developed a powerful bond with the crew chief mechanics. I had been there before as a crew chief on the AD Skyraider aircraft with the Marine Corps in Korea.

Flying the T-38 allowed me to continue my part-time work as a trauma surgeon at the University of Colorado for three to four days a month throughout my NASA career.

Three years ago, little Story—then at 16—and I built our own open cockpit two motor amphibious aircraft. We have been flying it over those three years, mostly just leaping off the Florida peninsula to the Bahamas, Puerto Rico, and on down the Caribbean chain.

I was truly blessed to have flown seven missions with the NASA in my 40s, 50s, and 60s. Some of those were very, very demanding, and some had multiple failures along the way, but we and Mission Control succeeded and got the job done. I am best known for my flights, but maybe just as important was my work as a spacecraft communicator in Mission Control for 25 missions. I adored working there, super folks and by far the best decision-making group and process that I have ever come across. Such a privilege, pleasure and education to have been part of that team!

Today my only formal contact with the NASA is through the Lifetime Surveillance of Astronaut Health group. I cannot say it enough, they are massively caring, considerate, and competent. They are a spectacular path to health, longevity and the spirit of NASA and spaceflight, thank you ever so much L.S.A.H.!!

Your ***Story***

Story Musgrave, MD
NASA Astronaut (Ret.)

Link to NASA Bio

PUBLICATIONS CORNER 2025

Attached are publications from August 2024 through August 2025 related to LSAH data requests and other papers that may be of interest. For your convenience, each publication has a link to take you directly to the abstract or publication online. For papers not available via open source, the corresponding author may be able to provide you with a copy.

*Sanders LM, et al, (2024). "Celebrating 30 years of access to NASA space life sciences data." Gigascience: **13**:giae066.*

*Hughes-Fulford M, et al. (2024). "Women in space: A review of known physiological adaptations and health perspectives." Exp Physiol. **2024**:1-24.*

*Abercromby A, et al., (2024). "NASA's top human system research and technology needs for Mars." Acta Astronaut. **3**:931-939.*

*Wostyn P, et al., (2024). "New insights in brain-to-eye transport: Can excess cerebrospinal fluid in astronauts escape into the eye?" Eye (Lond). **39:**210–212.*

*Piltch O, et al., (2024). "Changes to human sleep architecture during long-duration spaceflight." J Sleep Res. **4**(3):e14345.*

*Dev SI, et al., (2024). "Cognitive performance in ISS astronauts on 6-month low earth orbit missions." Front Physiol. **15**:1451269.*

*Gebre SG, et al., (2024). "NASA open science data repository: Open science for life in space." Nucleic Acids Res. **53**(D1):D1697–D1710.*

*Poveda L, et al., (2024). "Thoracolumbar spine muscle size and composition changes in long-duration space missions." Life Sci Space Res. **44**:1-8*

Precision Medicine for Long and Safe Permanence of Humans in Space. (2024). (C. Krittanawong, Ed): Academic Press, Elsevier Science.

*Levin DR, et al., (2024). "Predicting exploration crew medical officer training needs: Applying evidence-based predictive analytics to space medicine training." Wilderness Environ Med. **36**(1):Suppl.*

*Solano MM, et al., (2024). "Ocular biomechanical responses to long-duration spaceflight." IEEE Open J Eng Med Biol.**6**:127-32.*

*Walle M, et al., 2024. "Tracking of spaceflight-induced bone remodeling reveals a limited time frame for recovery of resorption sites in humans." Sci Adv. **10**(51):eadq3632.*

*Tays GD, et al., (2025). "The microgravity environment affects sensorimotor adaptation and its neural correlates." Cereb Cortex. **35**(2): bhaf050.*

*Ong J, et al., (2025). "The ocular surface during spaceflight: Post-mission symptom report, extraterrestrial risks, and in-flight therapeutics." Life Sci Space Res (Amst). **46**:169-186.*

*Galdamez LA, et al., (2025). "A multifactorial, evidence-based analysis of pathophysiology in Spaceflight Associated Neuro-Ocular Syndrome (SANS)." Eye (Lond). **39:**700–709.*

*Poveda L, et al., (2025). "Thoracolumbar spine muscle size and composition changes in long-duration space missions." Life Sci Space Res. **44**:1-8.*

*Anderson A, et al., (2025). "Development of progressively Earth-independent medical operations to enable NASA exploration missions." Wilderness Environ Med. **36**(1):Suppl.*

*Ward GH, et al., (2025). "Peri-flight neuromusculoskeletal injuries in astronauts." Aerosp Med Hum Perform. **96**(2):155-67.*

*Nguyen T, et al., (2025). "Spaceflight associated neuro-ocular syndrome (SANS) and its countermeasures." Prog Retin Eye Res. **106**:101340.*

*Klein GL, et al., (2025). "Elevated coronary artery calcium scores in astronauts." Aerosp Med Hum Perform. **96**(4):356-9.*

*Svoronos AA, et al., (2025). "Analysis of spaceflight-associated biometric and refractive changes in astronauts." Am J Ophthalmol. **276**:146-156.*

*Fiedler B, et al., (2025). "Spaceflight missions over 6 months significantly increase the risk of shoulder pathology and rotator cuff tears." JSES Int. **9**(2):380-4.*

*Lee R, et al., (2025). "Spaceflight ass12(2):ociated dry eye syndrome (SADES): Outflow biophysics and infection risk." J Space Saf Eng. **12**(2):377-380.*

*Lee SMC, et al., (2025). "Arterial structure and function in the years after long-duration spaceflight." J Appl Physiol. **138**(6): 1474-1488.*

Let us know how you're doing!

How are you spending your retirement? Please feel free to send us any pictures you would like to share, along with a brief description/quote, and we will be happy to publish it here for all your fellow formers to enjoy! Email us at jsc-lsah@mail.nasa.gov and include "**Formers' Corner**" in the subject line. Looking forward to hearing from you!

Ask LSAH…

Do you have any questions you would like the LSAH team to answer? We would love to hear from you! Please send your question(s) for us to answer in the upcoming issues of the LSAH Newsletter. Email us at jsc-lsah@mail.nasa.gov and include **"Q&A: Crew Questions"** in the subject line. Looking forward to hearing from you!

Did you move? New email address? Remember to update us so we can continue to send you the LSAH Newsletter, LSAH invitational physical exam letters, and any other news we may need to share with you. Contact Denise Patterson at 281-244-5195 or denise.a.patterson@nasa.gov.

You may also write us at

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Or email us at Jsc-lsah@mail.nasa.gov

For past newsletters, please visit the LSAH website on the new NASA Life Sciences Portal

This newsletter is funded by **Crew Health and Safety/Space Operations Mission Directorate**.