

The Lifetime Surveillance of Astronaut Health

NEWSLETTER

October 2026 | Vol 31 Issue 2

Editor's Note

BY **RONNIE RAFANAN (Aegis Aerospace)**

Welcome to the October 2026 issue of the Lifetime Surveillance of Astronaut Health (LSAH) Newsletter. The LSAH Newsletter is distributed twice a year, aimed at encouraging both former and current NASA astronauts to participate in the LSAH Surveillance Program after retirement, as well as keeping them informed about how the data collected throughout their careers is being used to help mitigate risks in future human spaceflight.

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JSC CLINIC CORNER



BY **RYAN LINDE (KBR)**

A few changes happening at the JSC Clinic:

1. **Susan Bourbonais,** our Chief Nurse, has taken a new role at JSC and will be leaving the Clinic. Her replacement, **Debbie Skillman**, started on September 28th. We also have a new JSC Flight Medicine Nurse, **Courtney Valenzuela BSN**, who started on October 5th.

2. In July, our EHR system was upgraded to a new vendor, Enterprise Health, which includes a new **Patient Portal**.

   - The new Portal can be accessed at https://clinic.jsc.nasa.gov/webchart.cgi.
   - If you do not have a NASA-issued PIV badge, please log in using https://login.gov.
   - For any login issues, contact SAIT at svjsjsc-sa-service@mail.nasa.gov.
   - Prior to your LSAH appointment, you will receive an email indicating that clinic forms need to be completed. Please log into the Patient Portal to complete these forms.



Portal log in page

   - The Patient Portal will also provide access to your past medical reports. When your exam is completed, the reports will be there to view just a few days after your visit.

3. The Clinic acquired a new PCR screening instrument, **BIOFIRE**. This instrument greatly expands the clinic's ability to screen for respiratory viruses.

If you are interested in scheduling your annual visit, on-site or virtual, please feel free to call the FMC and we will help you get it set up. **Flight Medicine Clinic (FMC): (281)483-7999**

Your New NASA Electronic Health Record is Here!

BY DAVID REYES, MD (NASA JSC)

NASA has launched Enterprise Health, a new electronic health record (EHR) system that makes your clinic visits faster, simpler, and more secure.

What's new

Enterprise Health meets stringent federal security requirements for transferring medical data electronically. One of its most useful features for you is access to electronic patient questionnaires. You can now receive, complete, and return your forms online before your appointment. Your answers flow directly into your health record and are automatically placed where they belong. That means less time filling out paperwork in the clinic, more time for your clinician to review your information before you arrive, and fewer chances for transcription errors.

How you'll access the Patient Portal

As a former astronaut, you'll sign in to the Enterprise Health Patient Portal through **Login.gov**, the federal government's secure sign-in service with multi-factor authentication (MFA). You'll need two accounts:

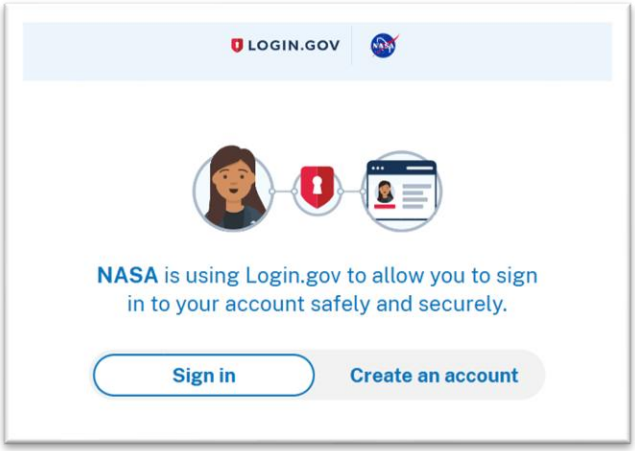
- A **NASA Guest Account** (NAMS), which NASA creates for you after you schedule your annual exam
- A **Login.gov account**, which you create and link to your Guest Account

Getting set up

1. **Watch for your confirmation email.** Its subject line will read *"Fw: [IdMAX] Notice: NASA Guest User Account Status".* It confirms your Guest Account has been created with access to the Enterprise Health Portal. The email will also contain the following content.

Service	Details
Enterprise Health Portal - Limited Access	• Your NASA Guest Account has been created, and you have been provisioned access to the following service: Enterprise Health Portal - Limited Access. • You will need to create a Login.gov Account, set up multi-factor authentication (MFA), and link your NASA Guest Account with your Login.gov Account. Please click on the following link to start the process: https://auth.launchpad.nasa.gov/fed-idp?idp=login.gov&redirect_uri=https://guest.nasa.gov/manage. • Refer to the document "How to Set Up Your Login.gov Account" to complete Login.gov registration. • After your NASA Guest Account and Login.gov Account have been linked, go to the Enterprise Health login page at https://clinic.jsc.nasa.gov/webchart.cgi and select "LOGIN.GOV" option to authenticate. ❖ You will also receive an email with the subject "Subject: [NASA Guest] Reset your Guest account password". Please disregard this email since your NAMS Guest Account does not require a password. ❖ If you have any questions, please contact SA IT Help Desk at svjsjsc-sa-service@mail.nasa.gov.

2. **Create your Login.gov account and link it.** Use this link to set up Login.gov, configure MFA, and connect it to your Guest Account: secure.login.gov/. The guide *"How to Set Up Your Login.gov Account"* walks you through each step.



Login.gov page

3. **Log in to the Portal.** Once your accounts are linked, go to clinic.jsc.nasa.gov and select **"LOGIN.GOV".**



Portal log in page

One email you can ignore: You may also receive a message titled *"[NASA Guest] Reset your Guest account password."* Please disregard it. Your Guest Account does not use a password.

Training and support

You'll be contacted by NASA email with training on using the Patient Portal. Questions in the meantime? Contact the SA IT Help Desk at svjsjsc-sa-service@mail.nasa.gov.

Meet JSC's Newest Medical Director,
Dr. Mark Prete, MD

BY **MARK PRETE, MD (NASA JSC)**



Dr. Mark Prete, MD

In August of 2026, I had the honor of starting a new position within NASA as Medical Director of the Johnson Space Center (JSC) Flight and Occupational Medicine Clinic.

In my new role, I will be providing medical leadership and oversight to ensure the delivery of high-quality clinical care across all NASA JSC Space and Occupational Medicine Branch clinical locations and programs. This includes the JSC Flight Medicine, Occupational Medicine and Astronaut Clinic, Neutral Buoyancy Laboratory (NBL), Ellington Field Joint Reserve Base, Star City, the Astronaut Gym, White Sands Test Facility, Human Subject Research and Human-in-the-Loop (HITL) testing, and all analog environments. I will also be supporting the operational flight surgeons at JSC and contributing to the medical standards process used for astronaut selection and retention.

A little about my background:

Prior to JSC, I was Chief Medical Officer and Flight Surgeon at NASA Armstrong Flight Research Center from 2024–2026.

In July 2024, I retired as a USAF Colonel and Commander of the 104th Medical Group and Flight Surgeon with the 131st Fighter Squadron, MA ANG. I am a Board-Certified Emergency Medicine Physician with residency training in the US Army and with 8 years of AD experience in operational and combat medicine. I attended medical school at Georgetown University School of Medicine. On the civilian side, I have experience as a physician executive in hospital medical affairs and running a large medical group with Hartford Healthcare in Connecticut.

One of my immediate priorities is ensuring we have a fully implemented EMR and that we can reproduce the access, reports, and documentation that JSC employees and retired astronauts are used to. It's a work in progress, but we will routinely send out updates, resources for access, and a "what's new" email.

I am also integrating and training to support the JSC operational space medicine team as well as science and research programs.

I look forward to this exciting opportunity and working alongside all the JSC Team and supporting the retired astronaut corp.



Dr. Mark Prete, MD

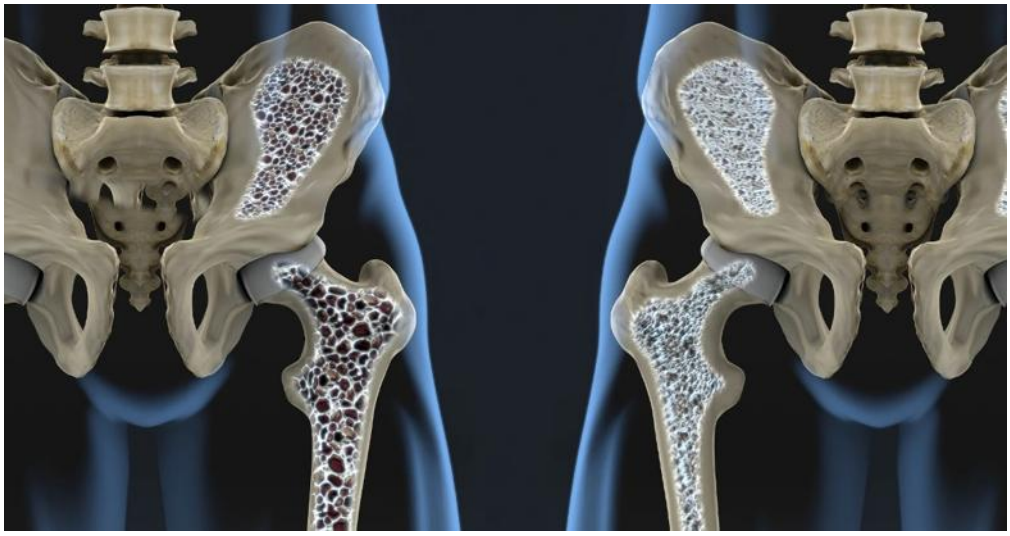
A New Perspective on Spaceflight-induced Bone Loss and Long-term Fracture Risk

By Jean Sibonga, PhD (NASA JSC) and Judith Hayes, PhD (NASA JSC)

A recent study published in Mayo Clinic Proceedings, by NASA Lead Bone Scientist, Dr. Jean Sibonga, and colleagues offer new insight into how long duration space flight may affect bone health later in life. For those who spent months living and working in microgravity, the findings highlight an important trend: astronauts who completed missions longer than 90 days experienced higher rates of hip fractures in the years after returning to Earth. While the overall counts of hip fracture events remain rare, the study provides valuable information for retired astronauts and the clinicians who care for them.

The NASA Human Research Program sponsored a JSC-led research team to analyze fracture data from the astronaut corps collected up through February 2022. To get the clearest picture, the authors compared astronauts only to one another, those who flew long-duration missions, those who flew shorter missions, and those who never flew. The team used a Bayesian statistical model to compare fracture rates within the astronaut cohort, avoiding confounding factors that arise when comparing astronauts to the general population. The analysis also adjusted for differences in age, varying lengths of medical follow-up, and repeated measures across exposure groupings.

The model revealed that the incidence of hip fractures is more common after long duration missions than after shorter missions or no missions at all. The statistical model suggests that the extended time in microgravity is associated with premature hip fractures. When compared with people on Earth, astronauts in their early sixties had hip fracture rates observed in adults aged 70 to 79. This finding indicates that long duration missions may shift the risk for hip fractures earlier than expected.



Bone Loss in the Pelvis, Hip Joint, and Femur

These results align with decades of research that have shown microgravity causes the skeleton to unload, leading to measurable decreases in bone mineral density. Studies of Mir cosmonauts reported bone losses ranging from 2.5% to more than 10%. Astronauts spending six months on the International Space Station have been found to lose around 10% of their bone density, and those on even longer missions often show slower recovery once back on Earth. Biochemical markers of bone turnover also change noticeably after the six-month point, reinforcing the idea that extended missions could induce profound changes to bone strength.

One reassuring aspect of the study is that the increased fracture rate was limited to the hip. Other bones did not show higher fracture rates after long duration missions. The hip is particularly sensitive to changes in weight-bearing and balance, so it is not surprising that it would be the site most affected by months of microgravity.

While other bones did not show higher fracture rates after long-duration missions, the increased rate of hip fractures may serve as an indicator that prior exposure to prolonged microgravity may have consequences to overall long-term skeletal health. Nevertheless, there are other factors that can influence this increased hip fracture rate; advanced age and an increased fall risk (with muscle loss and balance disorders) are known contributors to hip fractures and are being explored in astronauts further.

Bone loss in microgravity has long been recognized as a primary risk of space exploration and these findings offer a retrospective insight into how weightlessness may shape skeletal health over a lifetime. Because spaceflight-induced structural changes can persist or interact with normal age-related bone loss, tailored monitoring remains essential upon return to Earth. For former astronauts, the practical message this study reinforces is the need for continued surveillance. In consultation with your clinical team, routine monitoring can inform targeted, evidence-based strategies, including high-impact weight-bearing exercises, fall prevention, dietary adjustments, and pharmacological options. Notably, clinicians should keep in mind that a history of long-duration spaceflight may shift hip fracture risk to an earlier age than typically anticipated.

As NASA prepares for longer missions, to the lunar surface or eventually to Mars, understanding how extended time in microgravity affects the body is more important than ever. This study provides evidence that hip fracture risk increases after long-duration missions and underscores the value of continued health monitoring for those who have already helped pave the way for future explorers.

Citation:

Taylor, T. N., Young, M., Spector, E. R., Kreykes, A., & Sibonga, J. D. (2026). Increased rates of hip fractures associated with longer spaceflight durations. *Mayo Clinic Proceedings*, *101*(10), 1700–1711. https://doi.org/10.1016/j.mayocp.2026.06.025

Want to Participate in a Long-Term Health Study of Astronauts' Eyes and Brains?

By **Mohi Kumar (PCI PRODUCTIONS)**, **Brandon Macias, PhD (NASA JSC)**, **and Cherie Oubre, PhD (NASA JSC)**

Seventy percent of astronauts experience swelling in the back of their eyes during spaceflight. This is known as SANS, or Spaceflight Associated Neuro-ocular Syndrome. Scientists believe it results from upward fluid shifts in weightlessness.

But a key question remains: Do these changes fully resolve after flight or do they persist? To find out, a new study from NASA's Human Research Program is looking at the long-term effects of flight-induced eye and brain changes in astronauts five years or more after their mission. Both active and retired crews have the option to go through a series of exams that assess visual fields, eye pressure, cognitive function, and more. By keeping an eye on the vision and brain health of spacefarers, NASA will be better equipped with the protocols needed to ensure humans are healthy on missions to the Moon, Mars, and beyond.

You may be eligible to participate in this study if you returned from a spaceflight mission lasting approximately 4–6 months or longer at least five years ago.

A short summary video can be viewed here. https://bit.ly/hrp-eye-and-brain-health



NASA astronaut Jonny Kim, assisted by JAXA astronaut Takuya Onishi, performs an eye ultrasound on the International Space Station

Benefits to You. If desired, your data can be provided to you as a summary of the study compared to aggregated study data.

Where and when will this study take place?

- JSC Building 21 and Houston Physicians' Hospital (~10 minutes from JSC).
- We will work around your schedule, and we can schedule your participation to coincide with a visit to JSC for your annual exam. Additional lodging support can be provided if needed.

What would you be doing?

- Eye testing: visual field, optical biometry, intraocular pressure measures, electroretinography, and optical coherence tomography imaging.
- Time commitment: ~2 hours 30 minutes
- Brain testing: cognitive and neuropsychological measures; a blood sample to measure brain biomarkers; and an MRI exam at Houston Physicians' Hospital to investigate brain structures.
- Time commitment: ~4 hours

To be eligible to participate you must not:

(1) Be at risk of narrow angle glaucoma because you have narrow angles in the anatomy of your eye; and/or

(2) Have any magnetic implants (e.g., cochlear device, stents, aneurysm clips, etc.)

If you are interested, please email jsc-lsahconsent@mail.nasa.gov.

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!



Join Us at the 2027 Investigators' Workshop!

Looking to join scientists across NASA, the nation, and the world as they report on exciting developments in human spaceflight research? Register now for the 2027 Investigators' Workshop (IWS), taking place January 20–22, 2027, in Galveston, Texas!

Hosted by NASA's Human Research Program, IWS will feature top scientists, leaders, industry experts, and more as they showcase the cutting-edge work that helps ensure safe, productive, and efficient human spaceflight. This year's IWS theme is "Moonbound!"

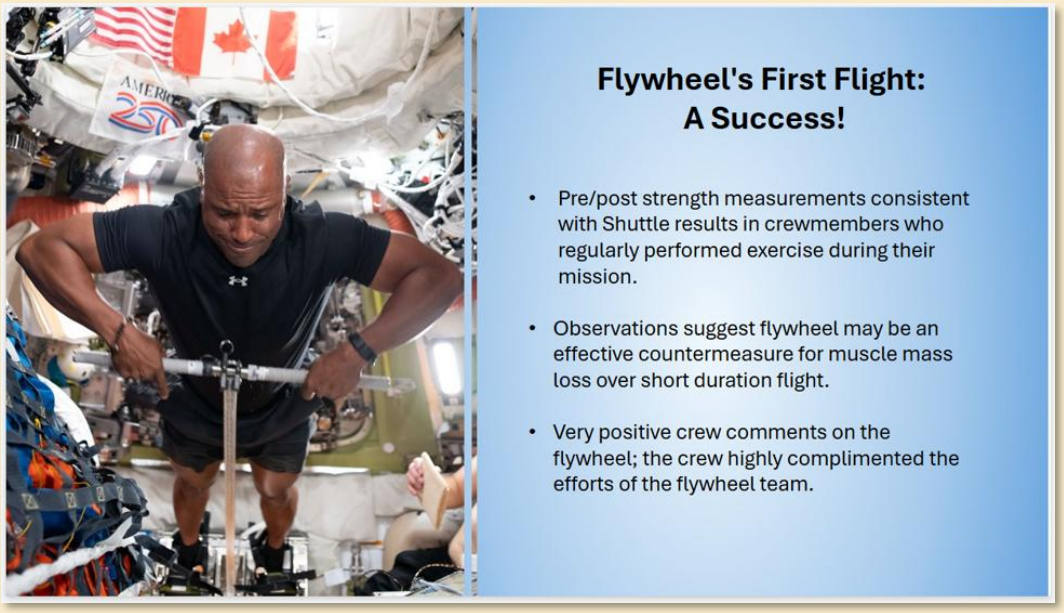
As NASA works to establish a permanent, sustainable human presence on the Moon in our future Moon Base, researchers need to learn all they can about how humans can live and thrive in such an environment. Work presented at IWS will outline the steps being taken toward this goal and highlight scientific and technical progress made on Earth, in low Earth orbit, and on Artemis missions. For more information and to register to attend virtually or in-person, visit: https://www.nasa.gov/hrp/investigators-workshop/

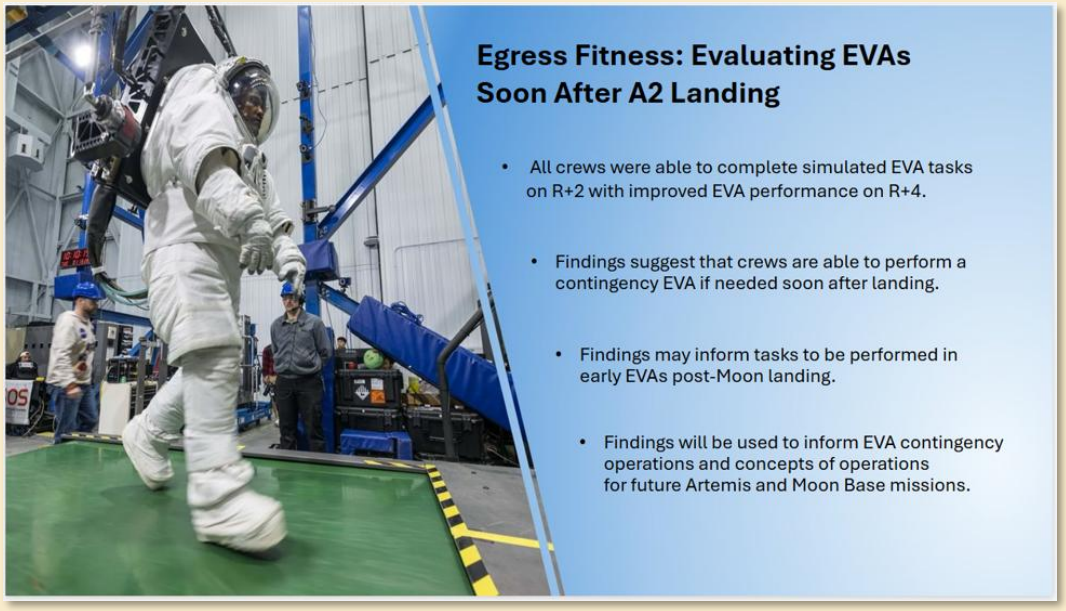
Check Out Key Updates and Results from the Artemis II Mission

Since NASA's Artemis II crew members safely splashed down in the Pacific Ocean on April 10 after their record-setting mission around the Moon, science teams have been busy combing through observations collected on the test flight.

In the hours, days, and weeks after landing, the Artemis II crew members contributed critical data to help the agency understand how the human body reacts to spaceflight. Collecting this data as soon as possible after landing is important to understand how the body adapts from microgravity to Earth's gravity. Read more: https://science.nasa.gov/missions/artemis/artemis-2/nasas-artemis-ii-moon-mission-research-continues-on-earth/

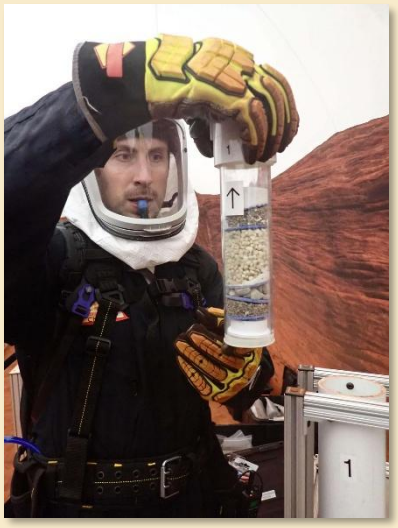
HRP already has some important results to share from the Artemis II Mission:





NASA to Study Human Health, Performance During Crew-13 Mission

During NASA's SpaceX Crew-13 mission aboard the International Space Station, astronauts will support a series of biomedical and human performance investigations, including a new collaborative effort to study how spaceflight affects blood flow and clotting. NASA also will be testing crew members' manual piloting skills, evaluating methods to counter vision and brain changes, gathering essential health data to inform future missions, and measuring forces astronauts experience during return-to-Earth to help refine re-entry hardware and procedures. Read more: https://www.nasa.gov/humans-in-space/nasa-to-study-human-health-performance-during-crew-13-mission/



NASA's Simulated Yearlong Mars Mission Will Egress Soon!

A crew of four research volunteers will egress from NASA's CHAPEA (Crew Health and Performance Exploration Analog) habitat on October 31, 2026, after 378 days of living inside a 3D printed facility at the agency's Johnson Space Center in Houston.

The CHAPEA Mission 2 crew, commanded by Ross Elder and with medical officer Ellen Ellis, science officer Matthew Montgomery, and flight engineer James Spicer, entered the habitat last year on October 19. The crew is providing NASA with valuable insights and data on how humans adapt to isolation, confinement, and resource limitations—all critical factors for future exploration of the Moon and Mars.

"Having limited resources, be it tools, equipment, software, supplies, or no internet, really bounds what you have to solve problems," said Montgomery. "Finding creative and clever solutions has been both challenging and rewarding."

Hear an audio log from the crew on a recent episode of "Houston, We Have a Podcast".
https://www.nasa.gov/podcasts/houston-we-have-a-podcast/chapea-2-audio-log-3/

And catch recent, in-mission photos of the crew here: https://www.nasa.gov/humans-in-space/chapea/chapea-mission-2/

PUBLICATIONS CORNER 2026

By **Mary Wear, PhD (KBR)**

Attached are manuscripts published from August 29, 2025, through August 28, 2026, 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.

Aldeghi TM, et al., (2026). "Identifying predisposing factors for hyperopic shift in long-duration spaceflight." Aerosp Med Hum Perform. **97**(8):627-32. doi: 10.3357/AMHP.6896.2026.

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Jacobs S, et al., (2026). “Astronauts of the US National Aeronautics and Space Administration (NASA): Cohort profile.” BMJ Open. **16**(6):e112490. doi: https:// doi.org/10.1136/bmjopen-2025-112490.

Joel H., et al., (2026). “Use of DXA-based software to identify astronauts at risk for persisting spaceflight-induced bone loss.” Osteoporos Int **May 19**. doi: 10.1007/s00198-026-07875-0.

Kholwadwala A, et al., (2026). “Updates on spaceflight-associated neuro-ocular syndrome: Intracranial changes.” Neurologic Clinics. **44**(2):269-278. doi: 10.1016/j.ncl.2026.01.001.

McGregor HR, et al, (2025). “Crewmember demographic factors and their association with brain and ocular changes following spaceflight.” npj Microgravity. **11**:59. doi: 10.1038/s41526-025-00505-9.

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FORMERS' CORNER:
Rusty Schweickart



"To Denise & Amy— the two essential ingredients that make the whole Astro physical system work for all the rest of us!"



Russell L. "Rusty" Schweickart Jr.
NASA Astronaut (Former)

Link to NASA Bio

Callouts & Announcements

Astronaut Reunion 2026!
December 3-4 | Houston, TX

BY **KATE SPIES (NASA JSC)**

Join the **Association of Space Explorers** and the **JSC Astronaut Office** for two exciting days of connection, exploration, and celebration! Thursday will spotlight the rapidly evolving commercial and private space industry, featuring Venus Aerospace, Firefly Aerospace, Axiom Space, Voyager Technologies, Intuitive Machines, VAST, Ad Astra, SpaceX, and Blue Origin.

Friday will feature Lockheed Martin's Orion Spacecraft, additional JSC-briefed technical sessions, and tours of the Center. The reunion culminates Friday evening with the Gala Banquet Dinner, beginning at 6 p.m., featuring keynote speaker Jared Isaacman. And yes, the DJ from the CB holiday party is back, so bring your dancing shoes!

Reconnect with old friends, explore what's next in human spaceflight, and celebrate the astronaut community!

This is a private, invitation-only event. To register with your invitation code, please visit reunion26.space-explorers.org, or to request an invitation, please visit reunion26.space-explorers.org/request-invite.

KBR is becoming *Trinzic!*

KBR is spinning off one of its business units into an independent corporation, soon to be known as "Trinzic." If you are a former astronaut who is scheduling your LSAH exam, you will start seeing correspondence from Trinzic and not from KBR. The full transition to Trinzic will happen in January, 2027. We aren't expecting many changes with the reimbursement process, but we will communicate those to you as we learn about them.

TRINZIC

Trinzic logo

Let us know how you're doing!

What have you been up to lately? 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

Lifetime Surveillance of Astronaut Health (LSAH)
Flight Medicine Clinic/SD3C
NASA Johnson Space Center
2101 NASA Parkway
Houston, TX 77058-3696
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**.