

• NASA SPACE APPS 2026

NURTUREAISPACE

ASTRONAUT HEALTH & BIO-NUTRITION INTELLIGENCE

Personal-Baseline Health Monitoring • Storage Vitamin Decay Kinetics • What-To-Eat Guidance

• SPACE FOOD SYSTEMS

MARS FOOD INTELLIGENCE

Health monitoring that sees food-related risks before astronauts feel them

Challenge: **Create Health Monitoring Software for Astronauts on Space Missions**

Suleyman Hajizadeh · Banu Gurbanzada · Yunis Allahverdi · Faruk Karimli

THE EVIDENCE

On Mars, food slowly loses its vitamins — and nobody can check the crew’s blood in time.

32–83%

vitamin C lost from fruit products after 3 years

Cooper et al., 2017 · npj Microgravity

3%

thiamine remaining in beef-brisket after 2 years

Model-predicted, BBQ beef brisket, 720 days at 20 °C · Goulette et al., 2020 · Food Chemistry 302:125365

Blood samples are frozen, analyzed only after astronauts return to Earth.

“Inadequate nutrition” is a named spaceflight health risk.

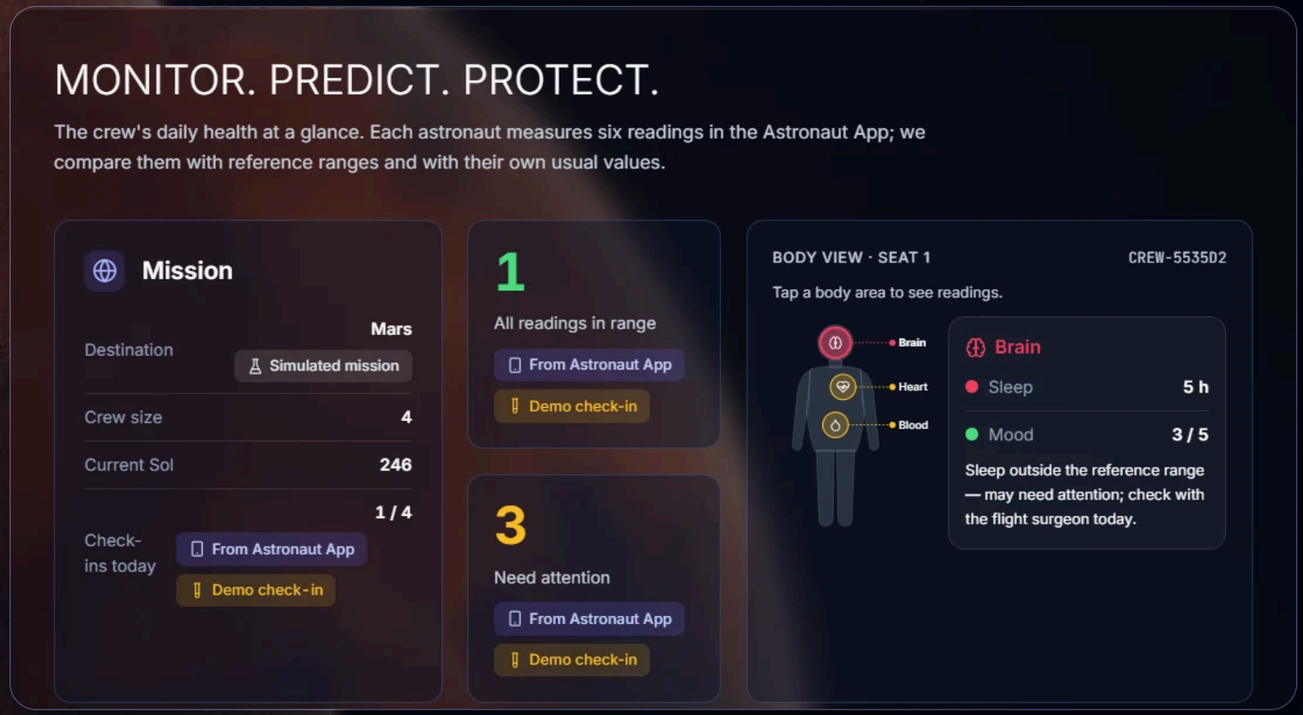
OUR SOLUTION

A daily health check-in that tells astronauts what to do.

- Log 6 indicators: heart rate, blood pressure, blood sugar, temperature, sleep, mood.
- Compare with their **OWN** normal.
- Forecast vitamin levels from food and storage.
- Green / Yellow / Red: what to eat and when to call the flight surgeon.

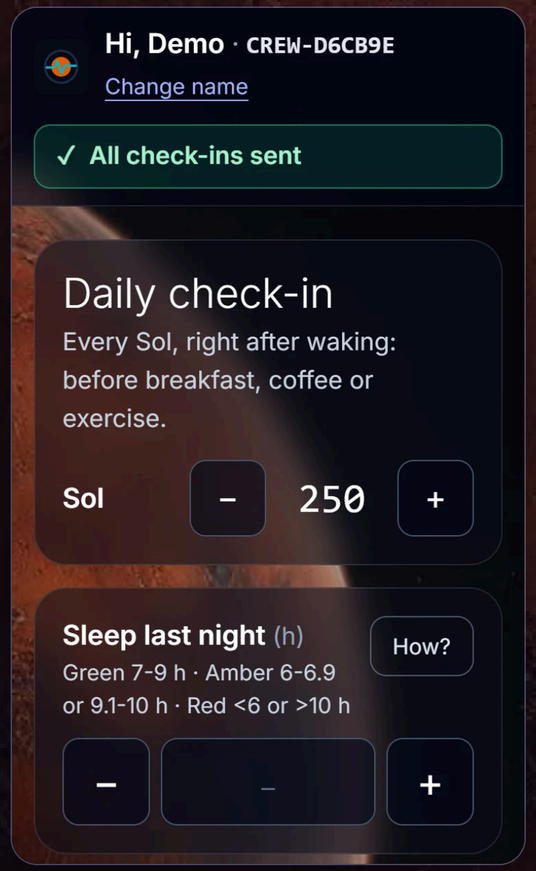
- **GREEN** Healthy
- **YELLOW** Action needed
- **RED** Call the flight surgeon

CREW SCREEN · BODY VIEW



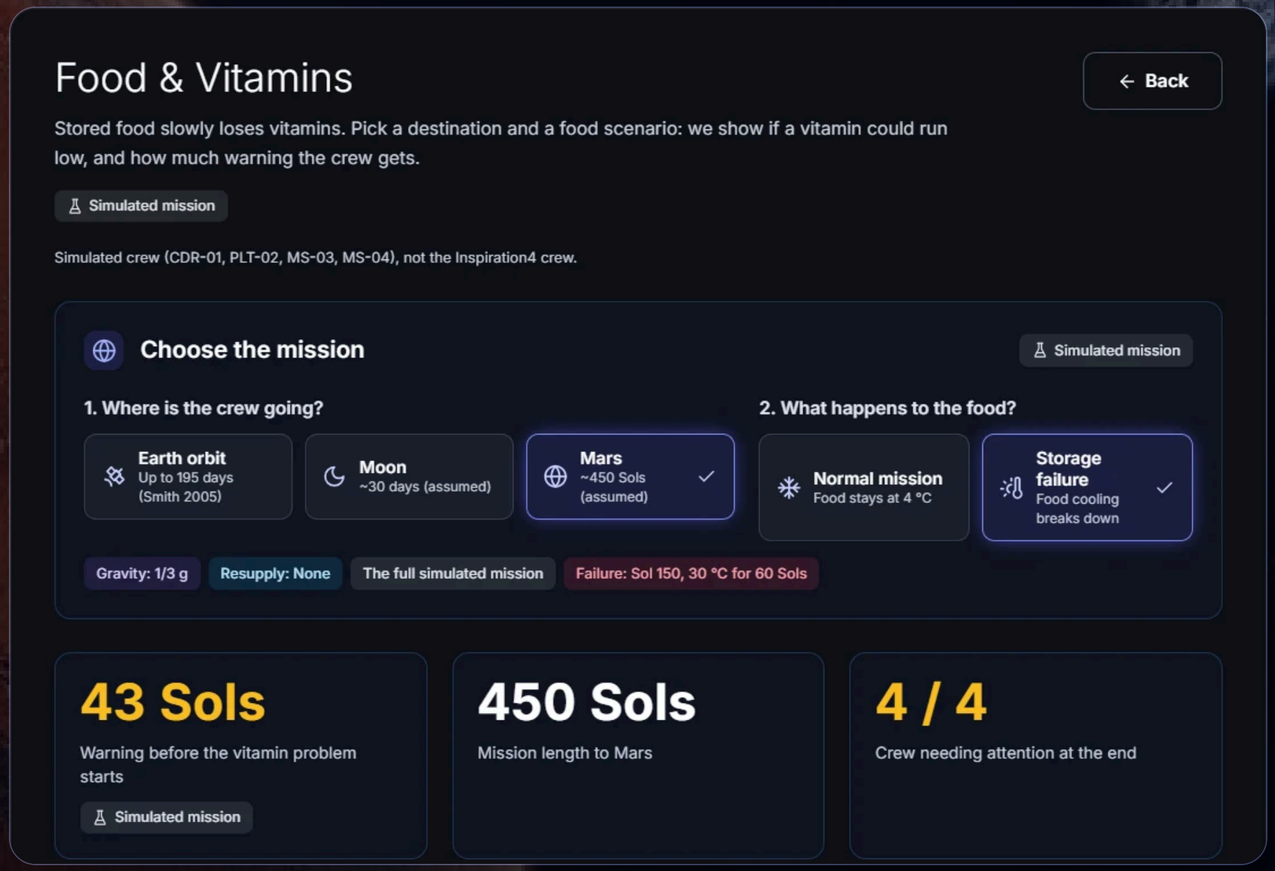
SEE IT IN ACTION

LIVE CHECK-IN



Astronaut App

STORAGE FAILURE



Food screen, Mars + storage failure: **warning 43 Sols** before the problem.

🔒 Name stays on the phone — only an anonymized code is sent.

Scenario data is simulated and clearly labeled in the app.

NASA OSDR · EVIDENCE

Tested on real astronaut blood tests from NASA

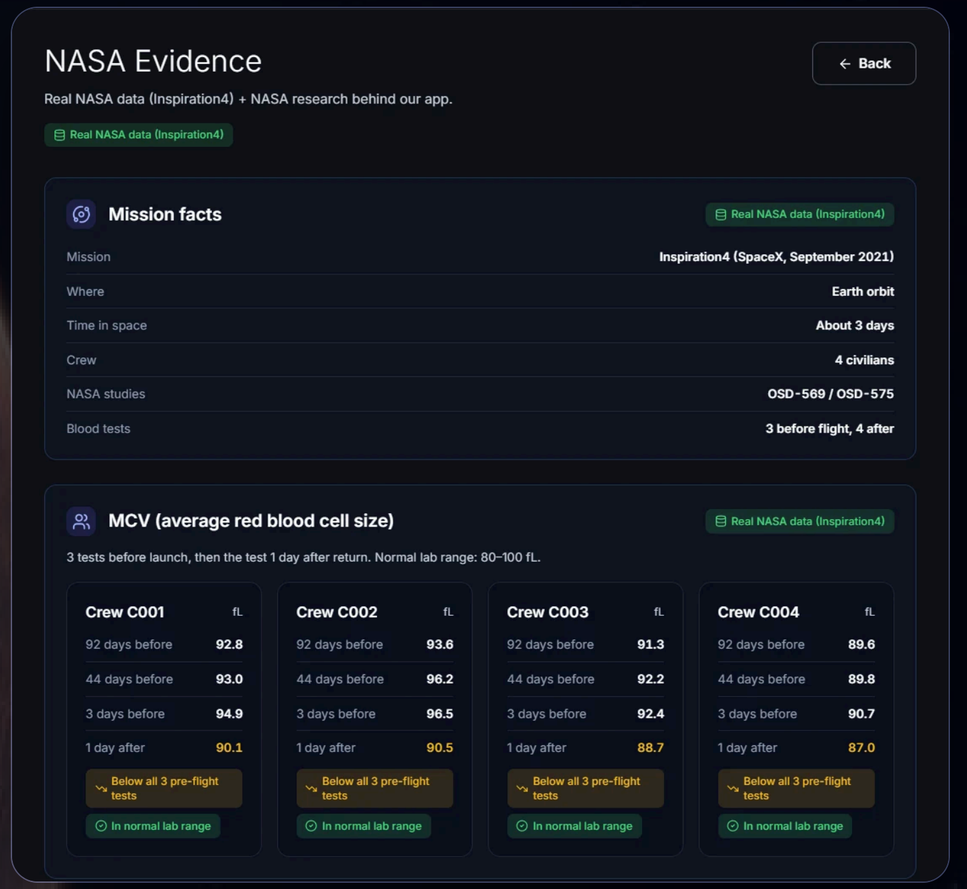
OSDR shares Inspiration4 blood tests before and after its 3-day flight: datasets **OSD-569** and **OSD-575**.

MCV: 1 day after landing, lower than **ALL** of each person's pre-flight tests, across all 4 people, yet still within the normal lab range.

Personal comparison catches what standard checks miss.

Limit: 4 people, 3 pre-flight tests each.

NASA EVIDENCE SCREEN



HONEST BY DESIGN

What we built, and when.

BUILT BEFORE

- **Nov 8–11:** original food & simulator app.
- **Nov 13:** first crew-health model.

BUILT DURING (NOV 14–15)

- NASA data analysis & NASA Evidence screen
- literature-based parameters + vitamin D
- daily check-in
- offline Astronaut App with anonymized codes
- body view
- QR join
- Earth orbit / Moon / Mars forecast
- life-support module
- public website

Every number has a source: **NASA OSDR** · **NASA JSC nutrition studies** · **NASA BVAD baseline** · **peer-reviewed papers**. Simulated data is labeled.

THE BIG PICTURE

Built for Mars. Useful on Earth.

ON EARTH

Antarctic research stations, submarines, remote communities — anyone living for months on stored food.

NEXT

Connect real wearable sensors · validate with more astronaut data · add more nutrients · live solar-radiation alerts (NASA DONKI).

Catch the problem before the symptom.

https://nurtureaispace.github.io github.com/NurtureAISpace/mars-food-intelligence