

Space travel may impact how the body handles sodium

May 12 2020



Credit: NASA

A new study reports that astronauts excrete less sodium in space than on

land, a finding that could have implications for the heart health of future space travelers.

Past research shows exploring the cosmos poses a range of health risks for humans, affecting their brain, eyes and bones. Space travel has a particularly noticeable impact on the cardiovascular system.

Without the pull of gravity, blood and water move into an astronaut's upper body and head, making the face look puffy. The lack of gravity confuses the body into producing less blood and water, and that causes astronauts to become dehydrated when they return to Earth.

The new research, published Monday in the American Heart Association journal *Circulation*, focused on cardiac natriuretic peptides, a hormone which helps the body urinate out [sodium](#). Researchers said the study was the first to measure these peptides in astronauts eating a high-sodium versus low-sodium diet in space and on Earth.

The study included eight male astronauts who each ate both low- and high-sodium diets in space and on Earth. The low-sodium diet was 2 grams a day and the high-sodium diet was 5.5 grams. In addition, 16 cosmonauts were assessed for changes in blood volume before, during and after being in space.

The study found that while in space, [astronauts](#) excreted less sodium and their cardiac hormone levels were lower compared to when they were on Earth, regardless of which sodium diet they were on.

"A key finding from our study is that in space, although cardiac natriuretic peptide concentrations respond to changes in sodium intake, they are reset to lower levels," the authors wrote.

In the cosmonauts, blood volume levels also were lower in space than on

Earth.

Dr. Michael Bungo, who was not involved in the research, said the study adds to the growing [body](#) of evidence that [space travel](#) has a profound impact on the [human body](#).

"Astronauts on the news might look like they're having a fun camping trip up there in their short sleeves and their temperature- and oxygen-controlled environment. But a lot of changes actually do occur in their bodies," said Bungo, a cardiologist and former head of the Cardiovascular Laboratory at Houston's NASA Johnson Space Center.

"In the short course—six months or less—none of those changes are deleterious. But what are the [long-term effects](#) if we're going to Mars for a three-year trip? What if humans start living in [space](#) for a long time?" he said.

"There are a whole host of questions, and the answer to all of them is, "We just don't know."

More information: Petra Frings-Meuthen et al. Natriuretic Peptide Resetting in Astronauts, *Circulation* (2020). [DOI: 10.1161/CIRCULATIONAHA.119.044203](#)

Provided by American Heart Association

Citation: Space travel may impact how the body handles sodium (2020, May 12) retrieved 25 April 2024 from <https://phys.org/news/2020-05-space-impact-body-sodium.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is

provided for information purposes only.