

Video: The sweet smell of life support

April 4 2018

When NASA astronaut Kjell Lindgren blasted off from Kazakhstan in July of 2015 for his first expedition aboard the International Space Station, he had some lofty expectations:

"I was eager to see Earth from space," he says. "And I couldn't wait to float in microgravity."

And, he confessed, "I kind of expected the International Space Station to smell like a [locker room](#)."

After all, what would you expect? It's an airtight spaceship continuously occupied 24/7, 365 days a year by as many as half a dozen hardworking (and exercising) astronauts.

Lindgren was in for a surprise, however. "The air in the space station actually smelled great. The filters in the [life support](#) system do a great job cleaning the air. There were no issues at all."

First contact with the space station's clean air reminded Lindgren, a flight surgeon, of the impressive technology underlying the station's [life support](#) system.

"On the International Space Station we're testing technologies that will allow us to live comfortably during long journeys into the solar system. Our life support systems provide a properly pressurized atmosphere with the right amount of oxygen; it scrubs [carbon dioxide](#) from the air; keeps the temperature in a comfortable range; and provides fresh water, light,

and everything we need for good hygiene."

Hence the sweet smell of the air.

He says, "While I was on the International Space Station, I felt a lot like a bridge builder, helping to pave humanity's path to Mars."

As mission planners look toward the red planet, "we are definitely evolving from the lessons learned on ISS," says Molly Anderson, a Principal Technologist at NASA. "We want to increase the level of recycling wastes beyond what we do on the station now. Our ISS water system can recycle about 93 percent of the wastewater back to clean water. The leftover fluid is referred to as 'brine', and we are flying a demonstration technology on station soon that will recover most of that water too."

"On the station, if all the systems are working, we can recycle a little less than 50 percent of the carbon dioxide back into oxygen. We're trying to get that number much higher, to at least 75 percent and even up near 100 percent," she continues.

While the [space station](#) still relies on cargo vessels to bring fresh supplies and equipment, improved life support systems can help reduce those needs, leaving more room for science and science equipment going to the station. Plus, Earth won't be able to help on missions that leave Earth orbit.

"Hundreds of millions of miles from Earth, no one will be able to bring us [fresh water](#) or replace malfunctioning systems," says Lindgren. "We will be on our own—just us and the life support system."

That's why it is crucial for life support development to proceed aboard the [station](#)—an excellent testbed for future deep [space](#) flight.

More information: For more from the International Space Station go to www.nasa.gov/station

Provided by NASA

Citation: Video: The sweet smell of life support (2018, April 4) retrieved 10 May 2024 from <https://phys.org/news/2018-04-video-sweet-life.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.