

Space experiment sheds light on immune struggles

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A lab experiment that rode to space two years ago has offered new clues about why astronauts' immune systems struggle to perform in zero gravity, US military researchers said on Monday.

Researchers sent cells found on the inside of blood vessels to the [International Space Station](#) and let them rest for six days.

Then, astronauts introduced the cells to a potent endotoxin lipopolysaccharide, or LPS, that can cause widespread [blood infection](#) known as sepsis.

After six days of simply being in space, the cells began to show genetic changes that are typical of lowered immunity in [zero-gravity](#), a condition often seen in astronauts.

"When we added the agonist, they didn't respond very well," said Marti Jett, director of the Integrative [Systems Biology](#) Program at the US Army Medical Command, who presented the research at the [Experimental Biology](#) 2013 conference in Boston.

Scientists replicated the experiment on Earth to see how the infections progressed under normal gravity conditions compared to those in space.

The experiment has offered new clues in hunt for treatments for sepsis, which researchers said strikes about 750,000 Americans every year and can be deadly if left untreated. Sepsis is a leading cause of death after

surgery.

Previous research has shown how being in space can take a toll on astronauts, ranging from loss of [bone density](#) and muscle to raising the risk of Alzheimer's disease.

And the military researchers realized, in the course of the study, that they had seen similar effects in Army Rangers who saw their immunity dip while under the stress of an intensive training regimen.

According to Saralyn Mark, a medical consultant to NASA who was not involved in the study, doctors are keen to learn more about the way space and stress affects the immune system so that they can keep astronauts healthy on long-term missions.

"Space is a wonderful environment for these microbes to flourish, it is almost like they are coming home in a way," she told AFP.

"Then you have got this other issue where your immune system is becoming impaired, and that is a very difficult equation. It can set you up for increased infection," she added.

"Is it the impact of microgravity? Is it the impact of radiation on the immune system? We are looking at all those parameters to see how the body is adapting."

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