

What Happens to the Human Body in Space?

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Space is one of the harshest places the human body has ever had to deal with. There's no gravity, no natural day-night cycle, and no easy way to get medical help if something goes wrong. That's what space medicine is about – figuring out how to keep people healthy in a place the human body was never built for.

The first things that change are the heart and blood vessels. On Earth, gravity pulls blood down toward your legs, so your heart works to push it back up. In space, that pull disappears, so blood moves more toward the head and chest. This is why astronauts often get a puffy face soon after reaching orbit and why many feel dizzy or lightheaded when they return to Earth and gravity kicks back in.

Bones and muscles also weaken. Since astronauts aren't standing, walking, or carrying weight, their bodies stop needing as much bone and muscle strength, so both start to break down. Astronauts exercise almost every day on the ISS, usually for around two hours, just to slow down the loss.

Sleep gets harder too. The ISS orbits Earth every 90 minutes, which means astronauts see about 16 sunrises and sunsets a day. Without a normal day-night cycle, the body's internal clock gets confused, so many astronauts struggle to sleep well.

None of these problems are separate from each other. Poor sleep affects the immune system, weaker bones affect balance, and blood shifts affect heart function. That's why space medicine isn't just about treating one issue at a time. It's about understanding the whole body as one connected system.