

Mouse embryos grown in space for first time: Japan researchers

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The mice embryos were thawed and grown on the International Space Station.

Mouse embryos have been grown on the International Space Station and developed normally in the first study indicating it could be possible for humans to reproduce in space, a group of Japanese scientists said.

The researchers, including Teruhiko Wakayama, professor of University

of Yamanashi's Advanced Biotechnology Centre, and a team from the Japan Aerospace Space Agency (JAXA), sent frozen [mouse embryos](#) on board a rocket to the ISS in August 2021.

Astronauts thawed the early-stage [embryos](#) using a special device designed for this purpose and grew them on the station for four days.

"The embryos cultured under [microgravity conditions](#) developed" normally into blastocysts, cells that develop into the fetus and placenta, the scientists said.

The experiment "clearly demonstrated that [gravity](#) had no significant effect," the researchers said in a study that was published online in the scientific journal [iScience](#) on Saturday.

They also said there were no significant changes in condition of the DNA and genes, after they analyzed the blastocysts that were sent back to their laboratories on Earth.

This is "the first-ever study that shows mammals may be able to thrive in space," University of Yamanashi and national research institute Riken said in a joint statement on Saturday.

It is "the world's first experiment that cultured early-stage mammalian embryos under complete microgravity of ISS," the statement said.

"In the future, it will be necessary to transplant the blastocysts that were cultured in ISS's microgravity into mice to see if mice can give birth" to confirm that the blastocysts are normal, it added.

Such research could be important for future space exploration and colonization missions.

Under its Artemis program, NASA plans to send humans back to the moon in order to learn how to live there long-term to help prepare a trip to Mars, sometime towards the end of the 2030s.

More information: Sayaka Wakayama et al, Effect of microgravity on mammalian embryo development evaluated at the International Space Station, *iScience* (2023). DOI: 10.1016/j.isci.2023.108177 , [www.cell.com/iscience/fulltext ... 2589-0042\(23\)02254-X](https://www.cell.com/iscience/fulltext...2589-0042(23)02254-X)

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