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LAB-GROWN MEAT: WHAT YOU NEED TO KNOW

# Science Focus

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## PSYCHIATRY

# Weightlessness could decrease astronauts' ability to recognise emotions in crew mates

Being cooped up in a tin can that's flying through space with a bunch of strangers is likely to put a strain on anyone.

But now researchers at the University of Pennsylvania have found that weightlessness could reduce astronauts' ability to recognise emotions.

Over 60 days, the researchers had 24 participants spend all their time lying in a bed tilted at a 6° angle towards their heads to simulate microgravity, except for 30 minutes a day in which they were spun on a centrifuge with their head at the centre to mimic artificial gravity. Their cognitive performance was assessed before, during and after the bed rest, using tests

that measured differences in their spatial orientation, memory, risk taking, and emotion recognition that were specifically designed to determine the performance of astronauts on the International Space Station.

The researchers found that the participants' cognitive speed dropped once they went into simulated microgravity, but then stayed the same for the rest of the experiment. However, they got persistently slower at recognising emotions and were more likely to identify facial expressions as angry than happy or neutral.

"Astronauts on long space missions, very much like our research participants, will

spend extended durations in microgravity, confined to a small space with few other astronauts," said Prof Mathias Basner, from the University of Pennsylvania Perelman School of Medicine. "The astronauts' ability to correctly 'read' each other's emotional expressions will be of paramount importance for effective teamwork and mission success. Our findings suggest that their ability to do this may be impaired over time."

The effect might not be due to the simulated microgravity, though. It could be due to the participants being socially isolated over the study period.

"We cannot say whether the effects observed on the emotion recognition test were induced by simulated microgravity or by the confinement and isolation inherent to the study, with separate bedrooms and sporadic contact to the study team," said Dr Alexander Stahn, a co-author of the study. "Future studies will need to disentangle these effects."

In the future, the team plans to study whether longer periods of artificial gravity or a different amount of socialisation could solve these issues.