Elon Musk trip to Mars will kill all travelers by destroying their guts, finds Nasa-funded study

Previous work has shown that astronauts could age prematurely and have damaged brain tissue after long journeys

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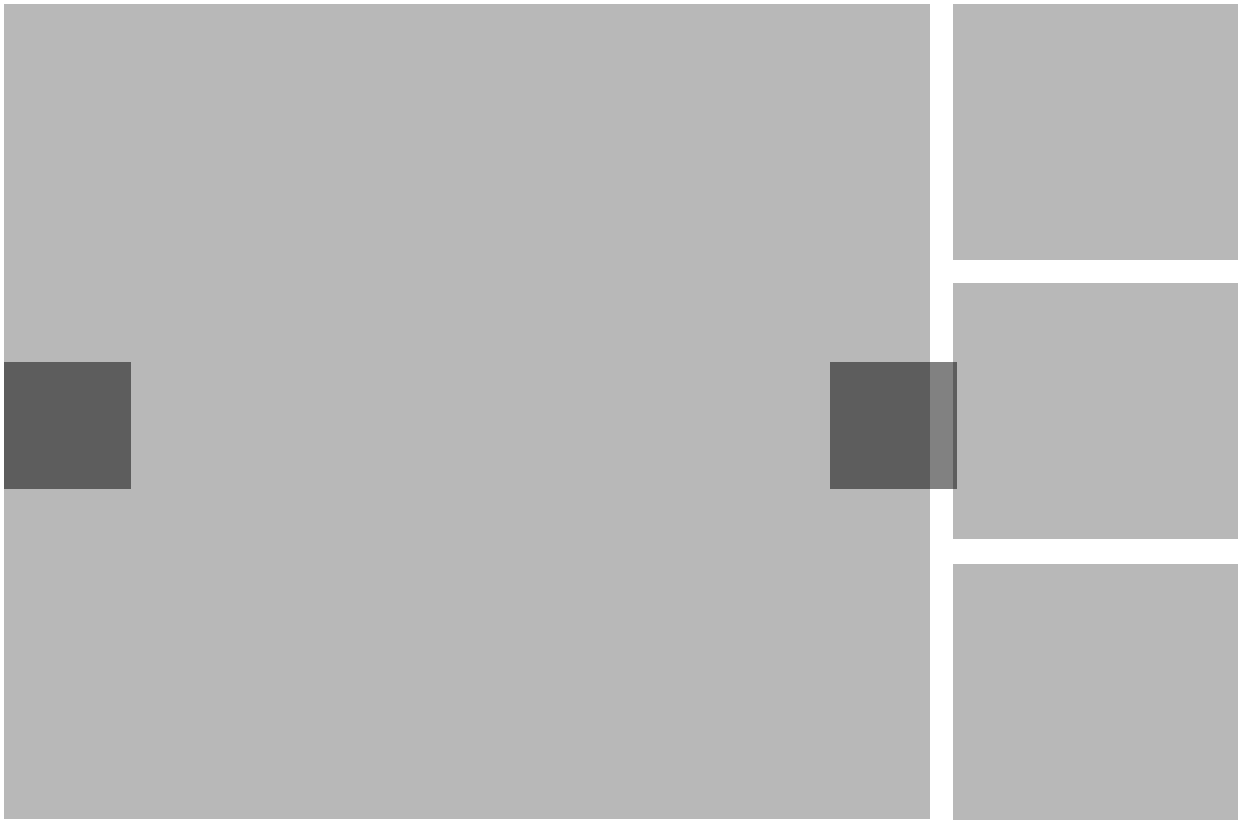
The new research subjected mice to the same kinds of bombardment by galactic cosmic radiation that would affect humans if they were on long space journeys *(Getty)*

Travelling long distances in space could destroy astronauts' guts, according to a major new Nasa-funded study.

The research raises substantial red flags about the possibility of humans taking journeys to places such as Mars.

It follows previous studies that suggested such journeys could do significant damage to people's brains and might age them prematurely.

Nasa's most stu Show all 30



The new research subjected mice to the same kinds of bombardment by galactic cosmic radiation that would affect humans if they were on long space journeys.

That radiation could cause damage to the gastrointestinal tissue that would lead to long-term functional alterations. And the study also raises concerns that those

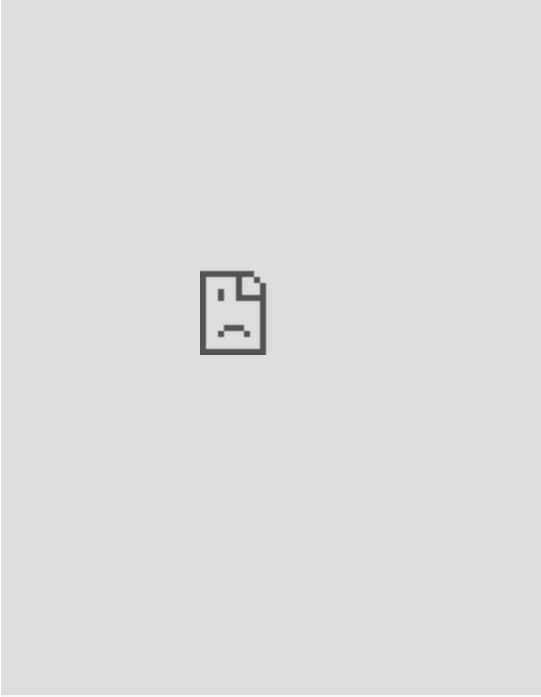
astronauts would be at high risk of developing tumours in their stomach and colon.

“Heavy ions such as iron and silicon are damaging because of their greater mass compared to no-mass photons such as x-rays and gamma (γ)-rays prevalent on earth as well as low mass protons in outer space,” said the study’s senior investigator, Kamal Datta, a senior scientist at Georgetown University Medical Centre and Nasa.

“With the current shielding technology, it is difficult to protect astronauts from the adverse effects of heavy ion radiation. Although there may be a way to use

medicines to counter these effects, no such agent has been developed yet.

“While short trips, like the times astronauts travelled to the Moon, may not expose them to this level of damage, the real concern is lasting injury from a long trip such as a Mars or other deep space missions which would be much longer.”



Nasa Mars Helicopter Technology Demonstration

The GI tract is in a continuous state of self-renewal and replacement, as its cells continually

change. The top layer is replaced every three to five days as new cells move to take the place of older ones.

“Any disturbance of this replacement mechanism leads to malfunctioning of physiologic processes such as nutrient absorption and starts pathologic processes such as cancer,” said Albert Fornace Jr, the director of the NASA Specialised Centre of Research at GUMC.

Even though the dose given to the mice was very low, it lasted a long time to simulate the effect of a deep space mission. And it appears that the changes are irreversible.

Scientists now believe that the same problems could apply to other organs and that further work needs to be done to understand the full damage that deep space travel might do to human bodies.

“We have documented the effects of deep space

radiation on some vital organs, but we believe that similar damage responses may occur in many organs," says Mr Datta. "It is important to understand these effects in advance so we can do everything we can to protect our future space travellers."