

# 'Space headaches' come out of the blue

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This NASA image shows a close-up of astronaut John Grunsfeld performing a spacewalk to work on the Hubble Space Telescope. Astronauts who have no history of bad headaches can be prone to disabling attacks while in space, a phenomenon that suggests "space headaches" deserve a medical category all of their own, neurologists said.

Researchers are calling for space headache to be established as a new secondary disorder after carrying out a study of 17 astronauts, published in the June issue of *Cephalalgia*.

Their study jettisons the theory that astronauts' headaches are normally caused by space motion sickness, after showing that more than three-quarters of those studied had no connection.

"Our research shows that space flights may trigger headaches without other space motion sickness symptoms in otherwise super healthy

subjects" says lead researcher Dr Alla Vein from Professor Michel Ferrari's Headache Research team at the Department of Neurology, Leiden University Medical Center, The Netherlands.

"We propose to classify space headache as a separate entity among the secondary headaches attributed to disorders of homeostasis, which is the maintenance of a constant internal environment within the body."

The research team asked one female and 16 male [astronauts](#), ranging from 28 to 58 years of age, to provide anonymous feedback on headaches experienced during four specific time frames - launch, the stay at the space station, activities outside the space station and landing.

All the astronauts had undergone rigorous medical examinations before they went into space. Nine has taken part in short-duration missions averaging just under 11 days and eight had taken part in long-duration missions averaging just under 202 days.

Key findings included:

- 12 of the 17 astronauts (71 per cent) reported 21 headache episodes during the space missions - nine during launch, nine during the stay at the space station, one during activities outside the space station and two during landing. None of the astronauts had a history of recurrent headache on earth.
- Five astronauts reported headaches during one of the time frames, six during two time frames and one during four time frames.
- Headache severity ranged from mild to severe, with 29 per cent reporting mild intensity, 65 per cent reporting moderate intensity

and six per cent reporting severe intensity.

- Only two of the headaches, during launch, matched the international criteria for migraine and the remainder were tension-type or non-specific headaches.
- In 77 per cent of the episodes the astronauts described their headache as "exploding" and, or, "heavy feeling".
- Launch headaches lasted for an average of 5.6 hours and space station headaches for an average of 1.6 hours.
- When each headache was assessed, 76 per cent demonstrated no association with the main symptoms of space motion sickness, such as nausea, vomiting or vertigo.

"Although headaches in space are not generally considered to be a major issue, our study demonstrated that disabling headaches frequently occur during space missions in astronauts who do not normally suffer from headaches on earth" says Dr Vein.

"Previous research has shown that astronauts can be reluctant to reveal all the physical complaints they experience in space, so the actual incidence could be even higher than our study suggests."

The authors state that there are a number of reasons why space travel could cause headaches including the physical effects of microgravity.

"Our research shows that space headache is a common and often isolated disabling complaint during space flight" concludes Dr Vein.

"As such we feel that it should be classified as a new secondary headache."

More information: [Space](#) headache: a new secondary [headache](#). Vein et al. *Cephalalgia*. 29, 683-686. (June 2009).

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