

# New Scientist

WEEKLY 7 October 2023

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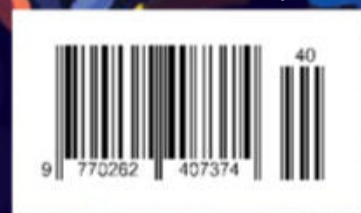
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## Health

# Frequent cannabis use may raise the risk of heart attack

Grace Wade

**PEOPLE with cannabis use disorder have an increased risk of heart attack, stroke and other major cardiovascular conditions, suggesting that frequent cannabis use may impair heart health.**

**Anees Bahji at the University of Calgary in Canada and his colleagues analysed the health records of 59,528 people living in Canada. Half had been diagnosed with cannabis use disorder – when someone uses marijuana despite it disrupting their life – between January 2012 and December 2019. The researchers tracked who had a heart attack, stroke or other major cardiovascular condition in this period.**

**After adjusting for factors such as age, gender and socioeconomic status, the researchers found that people with cannabis use disorder had a nearly 60 per cent higher risk of developing a cardiovascular condition than people without it. The risk worsened with the severity of the disorder. People who sought care for cannabis dependence five or more times were more than twice as likely to later have a heart or vascular problem than people without cannabis use disorder, for example (*Addiction*, doi.org/kwn4).**

**The findings suggest frequent cannabis use harms heart health, although the mechanism behind the association is unclear, says Bahji. It may be due to compounds in the drug, such as tetrahydrocannabinol, or THC, binding to receptors in the body. This can elevate heart rate, decrease blood pressure and affect blood clotting, he says.**

**However, many people use cannabis infrequently. “I would really like to see studies looking at how lower levels and short durations of cannabis use relate to heart health,” says Jennifer Bailey at the University of Washington, Seattle. “Or whether different cannabis products are differently related.” ■**

## Space

# Astronomers alarmed by satellite that outshines all but seven stars

Alex Wilkins

**A PROTOTYPE satellite for a proposed space-based mobile phone network is brighter than all but seven stars in the night sky. The satellite and others like it could force ground-based telescopes to either track and dodge satellite trails or prolong their observations to gather enough unspoiled data.**

**In 2022, Texas-based firm AST SpaceMobile put its BlueWalker 3 satellite into orbit to test the feasibility of a mobile phone network orchestrated from space. Early observations of BlueWalker 3’s 64-square-metre reflective antenna suggested it was brighter than most stars in the sky.**

**That has now been confirmed by a year-long monitoring campaign using telescopes in the US, Chile, the Netherlands and New Zealand. Siegfried Eggel at the International Astronomical Union in France and his colleagues have found that BlueWalker 3 is more brilliant than previous measurements indicated, having a similar brightness to the brightest stars in the constellations Canis Minor and Eridanus (*Nature*, doi.org/kwpw).**

**This presents a significant threat to ground-based astronomy, says Eggel,**

## 2022

**When AST SpaceMobile put the BlueWalker 3 satellite into orbit**

## 64

**The size in square metres of the satellite’s reflective antenna**

## 90

**Number of next-gen satellites planned by AST SpaceMobile**



A. BLOCK/IAU CPS; INSET: MICHAEL TZUKRAN

**Trail of the BlueWalker 3 satellite across the night sky, taken from a backyard in Tucson, Arizona. Inset: the satellite itself**

**including potential operational interventions”. It is also avoiding broadcasts in areas sensitive to radio astronomy, the spokesperson said, as well as controlling the satellite’s attitude to minimise brightness and developing anti-reflective coatings for its next generation of satellites, which it says will number around 90.**

**More observations are needed to understand the full impact these satellites may have on astronomy, especially for longer wavelengths of light, such as the radio band. Satellites like BlueWalker 3 are equipped with powerful radio transmitters, so they have the potential to do more damage to radio-based astronomy, says Eggel. “For optical light, these things are as bright as the stars in the sky, but for radio astronomy, they can be as bright as the sun,” he says.**

**Comprehensive observation projects like this are essential, says Aparna Venkatesan at the University of San Francisco, California, because “an individual satellite’s brightness is a complex, time-varying function of its design, area, viewing angle and altitude”.**

**“With ever more satellite launches planned by a rapidly rising number of state and private space actors, we must now consider not only the light pollution and electromagnetic interference from a diverse range of individual satellites, but the aggregate effects of all the satellite constellations slated for low Earth orbit,” she says. ■**

**especially for wide-angle surveys of the night sky, such as one that will be carried out at the Vera C. Rubin Observatory in Chile. “If there’s a bunch of these really bright objects, I think the danger is that there’s going to be potential large-scale data loss, if not damage to detectors, if that’s not mitigated,” he says.**

**Some of this might be avoided if telescopes adopt tracking and avoidance strategies, but these can still fail because satellites are hard to track. It might mean telescopes would need to periodically shut down while a satellite crosses their line of sight, potentially delaying observations or skewing datasets.**

**Eggel and his team also found that BlueWalker 3’s brightness fluctuated, depending on the attitude, or angle, at which it faced the sun. Companies like AST SpaceMobile have control over this angle, so they play a significant role in making sure that the satellite reflects minimal light, says Eggel.**

**In a statement, an AST SpaceMobile spokesperson said it is “collaborating with NASA and certain astronomy working groups to develop advanced industry solutions,**