



# CRIME AND NOURISHMENT

THE PRISON STUDIES THAT DISCOVERED HOW FOOD CAN AFFECT YOUR BEHAVIOUR

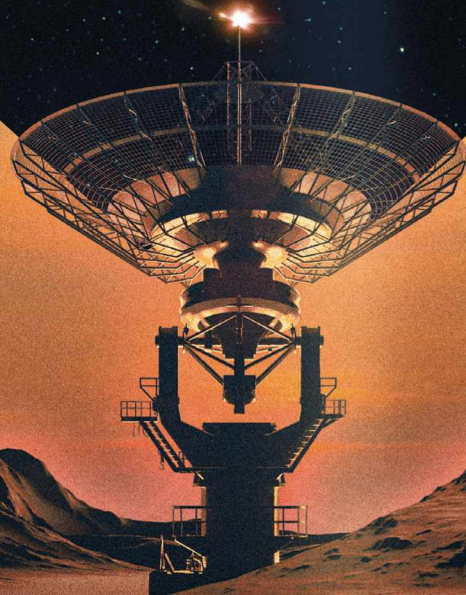
# Science Focus

*Biobots built to uncover*  
**NATURE'S BEST KEPT SECRETS**

*The truth about*  
**'HEALTHY' VEGAN FAST FOOD**

# SIGNS OF ALIEN LIFE

**THERE'S A NEW PLAN TO FIND EXTRATERRESTRIALS  
AND THEY MIGHT BE CLOSER THAN WE THINK...**



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## SPACE

# Exoplanet shaped like a rugby ball spotted by Cheops telescope

The European Space Agency's (ESA) exoplanet-hunting satellite has caught a glimpse of a planet deformed by the strong tidal pull of its host star for the first time.

Named WASP-103b, the planet is located in the constellation of Hercules around 35 light-years from Earth and is about twice the size of Jupiter with 1.5 times its mass. The planet is so close to its host star WASP-103, which is about 200°C hotter and 1.7 times larger than the Sun, that it completes a full orbit in less than a day.

Astronomers suspected that such close proximity between the star and its planet would cause a strong tidal pull, but up until now they haven't been able to measure it.

Cheops measures exoplanet transits – the dip in light caused when a planet passes in front of its star. Thanks to the

high precision of the measurements the satellite took of WASP-103b over multiple transits, the researchers were able to determine that the gravitational pull of its host star is strong enough to stretch the planet into the shape of a rugby ball.

“The resistance of a material to being deformed depends on its composition,” said lead author Susana Barros, of Instituto de Astrofísica e Ciências do Espaço and University of Porto, Portugal. “For example, here on Earth we have tides due to the Moon and the Sun but we can only see tides in the oceans. The rocky part doesn't move that much. By measuring how much the planet is deformed we can tell how much of it is rocky, gaseous or water.”

The team was able to use the data collected by Cheops to determine WASP-103b's Love number – a measure of how

mass is distributed within a planet. The Love number for WASP-103b is comparable to Jupiter, which suggests that the internal structure is similar, despite WASP-103b having twice the radius, the researchers say.

They now hope to study the planet further using observations from Cheops and the newly launched James Webb Space Telescope to shed further light on its internal structure.

“It's incredible that Cheops was actually able to reveal this tiny deformation,” said Jacques Laskar of Paris Observatory, Université Paris Sciences et Lettres, and co-author of the research. “This is the first time such analysis has been made, and we can hope that observing over a longer time interval will strengthen this observation and lead to better knowledge of the planet's internal structure.”

The planet WASP-103b has been pulled into the shape of a rugby ball, thanks to its proximity to its host star

