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Scientists get to the bottom of wombat cubed poo mystery

An international study into how wombats produce their distinctive cube-shaped poo has shed further light on the physics behind this biological puzzle.

The research, published today in the journal [Soft Matter](#), expands on the discovery that wombat poo forms its geometric shape within the wombat's intestines, not at the point of exit as previously thought.

The team of Australian and US scientists were awarded an Ig Nobel prize for 'research that makes you laugh then think' in 2019.

University of Tasmania wildlife ecologist Dr Scott Carver made the accidental discovery while dissecting a wombat cadaver as part of his primary research into treating mange disease in wombats.

The cubed poo study focuses on bare-nosed (common) wombats, which are predominantly found across south-eastern Australia.

"Bare-nosed wombats are renowned for producing distinctive, cube-shaped poos. This ability to form relatively uniform, clean cut faeces is unique in the animal kingdom," Dr Carver said.

"They place these faeces at prominent points in their home range, such as around a rock or a log, to communicate with each other. Our research found that these cubes are formed within the last 17 per cent of the colon intestine."

Through a combination of laboratory testing and mathematical models, the researchers discovered that there are two stiff and two more flexible regions around the circumference of the wombat intestine.

The combination of drying out of the faeces in the distal colon and muscular contractions forms the regular size and corners of the faeces.

Wombat intestines are approximately 10-metres long, or 10 times the length of a typical wombat's body.

When humans eat, food items travel through the gut in a matter of a day or two. A wombat's digestive process takes up to four times as long so it can extract all

the nutritional content possible. They are also more efficient at extracting water from the intestine, with their faeces a third drier than humans.

Dr Carver said the discovery highlights an entirely new way of manufacturing cubes – inside a soft tube – and the results could be applied to other fields including manufacturing, clinical pathology and digestive health.

The results could also be used to inform wombat monitoring and welfare management practices.

“Cube formation can help us understand the hydration status of wombats, as their faeces can appear less cubed in wetter conditions. It also shows how intestinal stiffening can produce smooth sides as a feature of pathology,” Dr Carver said.

“Now we understand how these cubes are formed, but there is still much to be learned about wombat behaviour to fully understand why they evolved to produce cubes in the first place.”

Information released by:

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