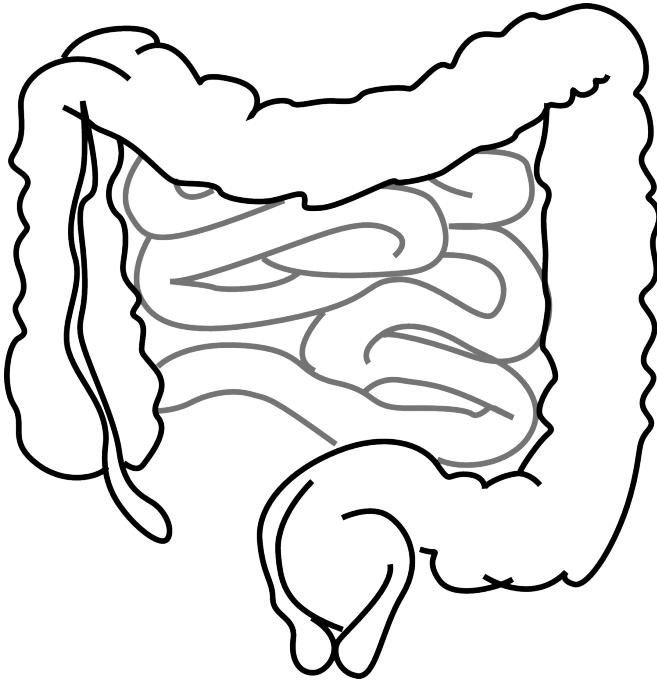


Cracking the colon code – new light shed on gut function

29 October 2019



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New insights into how the colon functions and actually expels its contents have been revealed for the first time following decades of study by Flinders University researchers.

It promises new diagnostics tools and treatments for [gastrointestinal disorders](#) to address problems with [bowel movements](#) leading to constipation, diarrhea and pain, affecting hundreds of millions of people worldwide.

Propulsion of intestinal contents is controlled by millions of neurons within the wall of the gut, known as the enteric nervous system. Capable of operating independently of the brain, a functioning enteric nervous system is essential for life—but exactly how it functions has been a mystery.

By unravelling the neural circuits of the enteric nervous system in guinea pigs and humans Professor Marcello Costa and colleagues are able to understand how the [enteric nervous system](#) ensures that food is slowly mixed and propelled along the digestive tube, allowing for absorption of nutrients and excretion of waste.

"For the first time we have combined video recording intestinal movements with a pressure-measuring manometric probe, enabling movements, pressures and electrical activities to be recorded all at the same time within the colon.

"This powerful combination of techniques applied to a [guinea pig](#) colon identified several distinct neural mechanisms involved in the propulsion of colonic contents.

"This answers the deceptively simple question of how neural mechanisms within the colon manage the propulsion of bowel contents" Professor Costa says.

"The findings also show how studies in human and animals can be complementary, identifying fundamental mechanisms that are shared across species—in this case guinea [pigs](#) and humans.

"Currently we treat intestinal disorders by addressing the symptoms, such a stopping-up diarrhea or softening stools to ease constipation, but as a result of this new understanding of the neural networks of the enteric system, clinicians may be able to develop treatments that treat the cause of the problems" Professor Costa says.

The paper, "Roles of three distinct neurogenic motor patterns during pellet propulsion in guinea pig distal [colon](#)" is featured on the cover of the *Journal of Physiology*.

More information: Marcello Costa et al. Roles of three distinct neurogenic motor patterns during

pellet propulsion in guinea?pig distal colon, *The Journal of Physiology* (2019). DOI: [10.1113/JP278284](https://doi.org/10.1113/JP278284)

Provided by Flinders University

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