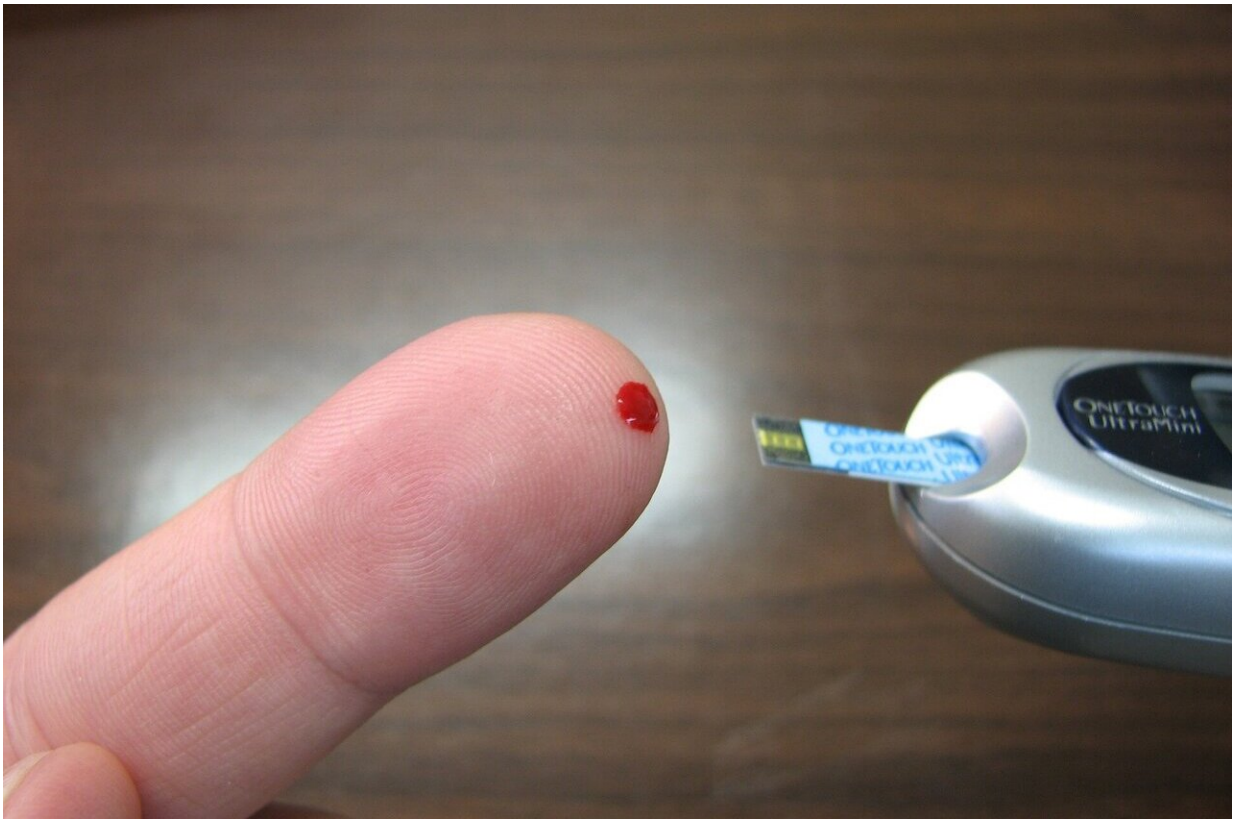


# How gut bacteria negatively influences blood sugar levels

September 16 2019

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Millions of people around the world experience serious blood sugar problems which can cause diabetes, but a world first study is revealing how gut bacteria impact the normally feel good hormone serotonin to

negatively influence blood sugar levels.

Serotonin, a neurotransmitter in the brain, is nicknamed the 'happy hormone' and is normally linked with regulating sleep, well-being and metabolism. But the gut actually produces 95 percent of it, and not in the happy form like we know about in the brain.

In a study published in the leading international journal *Proceedings of the National Academy of Sciences (PNAS)* today, researchers from Flinders, SAHMRI, and McMaster University in Canada show exactly how [bacteria](#) living in the guts of mice, the microbiome, communicate with cells producing [serotonin](#) to influence blood sugar levels in the host body.

Professor Damien Keating, Head of Molecular and Cellular Physiology at Flinders University and Deputy Director of the Flinders Health and Medical Research Institute, says this study sheds light on the unanswered question about exactly how bacteria in the microbiome communicate to control [glucose levels](#) in the metabolism.

"We found that the microbiome worsens our metabolism by signalling to cells in the gut that produce serotonin. They drive up serotonin levels, which we previously showed to be increased in obese humans, and this rise in blood serotonin causes significant metabolic problems."

"The next step will be to understand exactly which bacteria do this, and how, in the hope that this could lead to new approaches to regulating [blood](#) sugar levels in humans." says Professor Keating

This study is the first to show how the microbiome, the bacteria that lives in the gut, effectively communicate with an organism to impact the hosts metabolism.

If researchers can better understand which bacteria cause the signals to produce serotonin in the gut, treatments could one day be developed to reduce [blood sugar levels](#), and this is a first step towards better understanding this process.

"This is an exciting revelation that can one day have direct implications for human health disorders such as diabetes, but much more research like this is required in the years to come."

**More information:** Alyce M. Martin et al., "The gut microbiome regulates host glucose homeostasis via peripheral serotonin," *PNAS* (2019). [www.pnas.org/cgi/doi/10.1073/pnas.1909311116](http://www.pnas.org/cgi/doi/10.1073/pnas.1909311116)

Provided by Flinders University

Citation: How gut bacteria negatively influences blood sugar levels (2019, September 16)  
retrieved 4 February 2024 from  
<https://medicalxpress.com/news/2019-09-gut-bacteria-negatively-blood-sugar.html>

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