

Study suggests textbooks are wrong about how the tongue tastes things

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Dr. Josephine Egan, senior investigator at the National Institutes of

Health's National Institute on Aging, in Baltimore, has conducted research revolving around the sense of taste. In her [review](#), now published in *The New England Journal of Medicine*, she notes that much of what people learned in school is wrong.

In 1901, German scientist David Hanig conducted research to better understand how the [sense of taste](#) works in humans. Unfortunately, his results were misinterpreted, and that misinterpretation was used in biology textbooks.

Specifically, it was reported that the [taste buds](#) are organized by sensitivity type on the tongue—the tip tasting sweet, the sides salty and the back bitter, for example.

Since that time, Egan notes, researchers have made multiple discoveries about the sense of taste, the tongue and the cells involved in responding to chemicals in foods.

In her review, Egan states that researchers have found that the perception of taste is far more complicated than previously thought. As an example, she points out that cells with taste receptors are not confined to the mouth. There are some in the brain, in some muscles, the lungs, thyroid and pancreas—even the liver.

She says that, obviously, these other cells do not respond in the same way as cells that line the [tongue](#), but they do react to chemicals in [food](#), and most of them send signals to other parts of the body, including the brain.

Cells lining the gut, she gives as one example, respond to the presence of sugar—when it is detected, signals are sent to the brain which responds by alerting other organs, getting them ready to help with processing

nutrients so that they can be used by the body for sustenance and energy.

Egan states that our sense of taste is not just a way to help us decide what tastes good and what does not—it also helps us to choose foods that are nutritious or not. It also helps to stop us from eating harmful things. Most people know, for example, that if a food they are sampling tastes "bad," they better not eat it, lest they get sick.

She also claims that the powerful human response to sweet-tasting foods has a [biological basis](#)—sweet foods tend to be less likely to harm us and they also provide lots of calories, which humans used to need more than they do now.

She suggests much more is still to be learned about our sense of taste and how it impacts our physical and emotional well-being.

More information: Josephine M. Egan et al, Physiological Integration of Taste and Metabolism, *New England Journal of Medicine* (2024).

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