

Low number of taste buds linked to older age, higher fasting blood sugar

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A study finds that the number of taste buds we have on our tongue decreases as we get older, and that the lower the number of taste buds, the more likely for fasting blood glucose (sugar) levels to be higher than normal. The results were presented Sunday at the joint meeting of the International Society of Endocrinology and the Endocrine Society: ICE/ENDO 2014 in Chicago.

Because high fasting blood sugar level is a main characteristic of [diabetes](#), the study findings suggest that the number of taste buds plays a role in glucose metabolism—how the body uses sugar—during aging, the authors proposed.

"The reduced number of taste buds with advancing age might be linked to the increased incidence of Type 2 diabetes among older adults," said the study's lead investigator, Chee Chia, MD, a medical officer at the National Institute of Aging (NIA) in Baltimore.

Diabetes affects more than 25 percent of Americans over age 65, according to the National Institute of Diabetes and Digestive and Kidney Diseases.

Chia explained why she and a co-worker at the NIA, Josephine Egan, MD, thought there might be a connection between taste buds and diabetes. Taste buds at the tip of the tongue, whose medical term is "fungiform papillae," contain sweet taste receptors, and past studies show that people with Type 2 diabetes have impaired sweet taste.

Furthermore, animal studies suggest that taste buds produce hormones that are important for glucose metabolism and that, in rodents, taste buds decrease in number with age.

To learn whether humans also have an age-related decline in the density of taste buds, Chia and Egan analyzed data from 353 adults who participated in the NIA's Baltimore Longitudinal Study of Aging between 2011 and 2014. This ongoing observational study of normal aging in community-dwelling volunteers included counts of the density, or number, of taste buds at the tip of the tongue after staining the subject's tongue with blue food dye.

The researchers found that older age was associated with fewer taste buds, a finding also seen in a larger clinical study published last October (Beaver Dam Offspring Study).

In addition, Chia reported that the fewer taste buds that subjects had, the higher their fasting [blood sugar levels](#) were and the less they had of a beneficial fat cell hormone called adiponectin. Prior studies found that obesity and Type 2 diabetes are associated with lower adiponectin levels.

"To my knowledge, this is the first association found between the number of taste buds and fasting glucose," Chia said. "It's very possible they could be unrelated, so we plan to do the study over a longer time, to confirm our findings."

"It's also possible," she added, "that having fewer [taste buds](#) means fewer hormones are secreted that may control [glucose metabolism](#)."

Provided by The Endocrine Society

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