Medical Xpress

Singaporean Chinese, Malays and Indians produce different insulin responses to a bowl of rice

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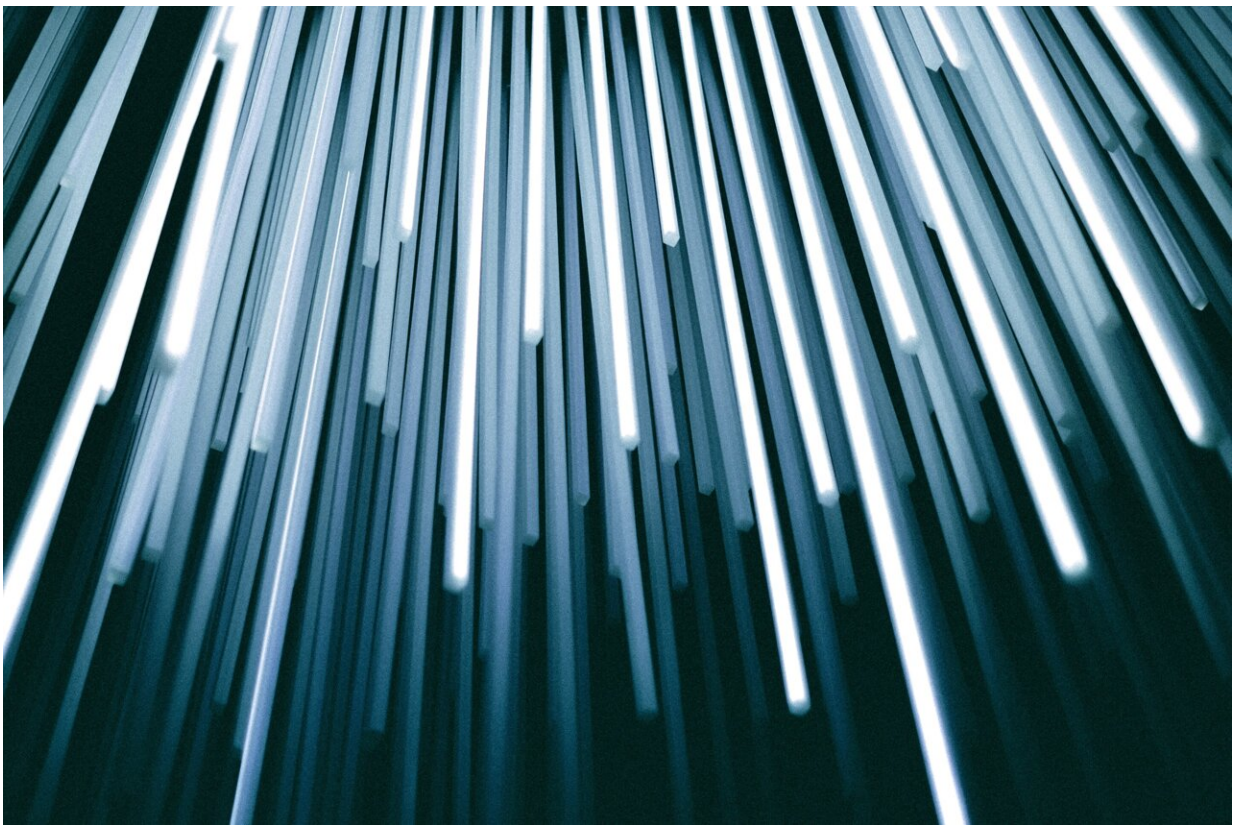

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Following a carbohydrate-rich meal, Singaporean-Indians have more insulin released into their bloodstreams than their Chinese and Malay

compatriots to maintain the same blood sugar levels, according to a clinical study by researchers at the A*STAR Singapore Institute for Clinical Sciences (SICS). The results suggest that consuming fewer carbohydrates and choosing those with a lower impact on blood glucose levels could benefit populations—including Singaporean-Indians—that have a high prevalence of type 2 diabetes.

"The global literature on blood glucose levels is largely based on Caucasian subjects consuming Western foods," says the director of the SICS Clinical Nutrition Research Centre, Christiani Jeyakumar Henry, who led the study along with Verena Tan. "Our study and our center is focusing on the metabolic response of what we call the Asian phenotype and Asian foods."

The researchers selected 75 healthy Singaporean males—25 from each ethnic group—and gave them a serving of either Jasmine rice, Basmati rice or a control course of glucose. The subjects' blood glucose and insulin levels were measured before each meal, and then at fifteen- and thirty-minute intervals after eating.

Overall, the Indians were found to have significantly higher blood insulin levels than the Chinese and Malay participants for up to two hours after every meal. The researchers hypothesize that Indians, who are more resistant to the effects of insulin, secrete excess amounts of the hormone to maintain normal glucose levels. This insulin surge in turn makes them more resistant, "like a boxer receiving one-too-many punches," says Henry. "It's a vicious cycle."

The team also found that the subjects' blood glucose and insulin levels varied depending on the consumed food's glycaemic index, better known as its GI, and its insulinaemic index. Jasmine rice has a higher glycaemic and insulinaemic index than Basmati rice, and therefore resulted in higher levels of glucose and insulin, regardless of ethnicity.

Considering the high proportion of carbohydrates in the Asian diet, choosing rice varieties and other foods with lower glycaemic and insulinaemic indices could help prevent the onset of type 2 diabetes, which is a large and growing public health crisis in the region.

Henry and his team at the Clinical Nutrition Research Centre have recently published the glycaemic index values of 15 popular foods consumed in South-east Asia, including the fried Chinese breadstick, youtiao, the coconut-infused rice dish, nasi lemak, and iced green tea. "We are conducting fundamental research to help Asians make more informed decisions about the foods that they eat," says Henry.

More information: "Glycaemic and insulin responses, glycaemic index and insulinaemic index values of rice between three Asian ethnic groups." *British Journal of Nutrition* 113, 1228–1236 (2015). dx.doi.org/10.1017/S0007114515000586

"Glycaemic index and glycaemic load of selected popular foods consumed in Southeast Asia." *British Journal of Nutrition* 113, 843–848 (2015). dx.doi.org/10.1017/S0007114514004425

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