In mouse study, black raspberries show promise for reducing skin inflammation

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A new study shows eating black raspberries reduce skin inflammation associated with allergies in mice. Credit: Pixabay

Eating black raspberries might reduce inflammation associated with skin allergies, a new study indicates.

In a study done with mice and published earlier this month in the journal *Nutrients*, researchers found that a diet high in black raspberries reduced inflammation from contact hypersensitivity—a condition that causes redness and inflammation in the skin.

"A lot of times, treatments are directly applied to the skin—things like steroids," said Steve Oghumu, senior author on the paper and an assistant professor of pathology at The Ohio State University.

"And it was interesting that the mere consumption of a fruit can achieve the same effects."

The researchers put a group of mice on a diet that incorporated black raspberries—equivalent to a single serving per day for humans. They also kept a control group, where mice were fed the same diet, but without black raspberries.

Three weeks after the diets began, the researchers exposed one of each mouse's ears to irritants that caused contact hypersensitivity. Then, they measured the reductions in swelling, comparing the ears of each mouse.

They found that in mice fed a diet that included black raspberries, swelling went down compared to the mice that did not eat black raspberries.

The researchers found that the black raspberries appear to modulate dendritic cells, which act as messengers to the body's immune system, telling the immune system to kick in or not—essentially whether to create inflammation or not.

"The immune system is very complex, with multiple players, and so once you begin to identify the unique cells that are being affected by the berries then it helps us to see how berries are inhibiting inflammation," Oghumu said. "A lot of the bad effects that we see are not always due to the pathogens or allergens themselves, but are due to the way our body responds to these triggers."

In the case of contact hypersensitivity, for example, a person's skin encounters an allergen and the body responds by flooding the area with cells that cause inflammation and itchiness.

"And so one way to manage these types of diseases is controlling that response, and that is one of the things black raspberries appear to be able to do," he said.

Oghumu and colleagues in his lab have been studying the effects of black raspberries on inflammation for years. A diet rich in black raspberries has shown promise in reducing inflammation associated with some types of cancer, and Oghumu and his team have wondered if fruit might also help reduce inflammation in other conditions.

This study is an early indication that those benefits might exist, Oghumu said. He noted that more work needs to be done to determine what specific properties of black raspberries lead to a decrease in inflammation.

More information: Kelvin Anderson et al. Black Raspberries and Protocatechuic Acid Mitigate DNFB-Induced Contact Hypersensitivity by Down-Regulating Dendritic Cell Activation and Inhibiting Mediators of Effector Responses, *Nutrients* (2020). DOI: 10.3390/nu12061701