

How does soy promote weight loss? Scientist finds another clue

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Research shows that when soy consumption goes up, weight goes down. A new University of Illinois study may help scientists understand exactly how that weight loss happens.

"We wanted to compare the effects of soy protein hydrolysates and soy peptides with those of leptin because we hypothesized that soy might behave in the body in a similar way. Leptin is a hormone produced in our adipose tissue that interacts with receptors in the brain and signals us that we're full so we stop eating," said Elvira de Mejia, a U of I assistant professor of food science and human nutrition.

The researchers wanted to see if soy protein hydrolysates could affect these regulatory hormones and their receptors.

"And we found that soy did have an effect on these mechanisms and hormones that are induced in the body to help us degrade lipids and reduce body weight, but it did so by boosting metabolism and not by reducing food intake," she said.

To compare soy peptides with leptin, de Mejia's graduate student Nerissa Vaughn, with the help of associate professor Lee Beverly, implanted cannulas in the brains of lab rats; they then injected leptin as a positive control. When the scientists could see their model was working, they injected two formulations of hydrolyzed soy protein and soy peptides so the scientists could monitor the effects of each on food intake and weight loss.



Injections were given three times a week for two weeks; during that time, the animals had unlimited access to food and water. Food intake was measured 3, 6, 12, 24, and 48 hours after injection, and the rats were weighed 24 and 48 hours after injection. All rats received the same amount of exercise, and all rats lost weight.

But, after the third injection, de Mejia and Vaughn noticed a significant weight loss in the group of animals that had received one of the soy hydrolysates, even though the animals hadn't changed their eating habits. In this instance, soy protein appeared to have caused weight loss not by reducing food intake but by altering the rats' metabolism.

The experiment not only showed that soy peptides could interact with receptors in the brain, it also demonstrated that eating less isn't always the reason for weight loss, the researcher said.

"Weight loss is a complex physiological event. It's not always as simple as 'Eat less or exercise more,' said de Mejia.

"Losing weight is a cascade of many steps, beginning with the production of certain hormones and continuing with their action in the brain. Some people are resistant to these hormones, just as other people are insulin-resistant. These people never receive the message from the brain that tells them they're full," she added.

de Mejia plans to continue investigating the effects of soy proteins on weight loss. She believes soy contains anorectic peptides that signal a feeling of satiety as well as peptides that boost the metabolism. Her next step will be to fractionate and purify the soy hydrolysates so that she can identify each peptide and understand its bioactivity.

Source: University of Illinois at Urbana-Champaign



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