

Study: Reasonable quantities of red pepper may help curb appetite

April 25 2011, by Amy Patterson Neubert

Spicing up your daily diet with some red pepper can curb appetite, especially for those who don't normally eat the popular spice, according to research from Purdue University.

"We found that consuming red pepper can help manage [appetite](#) and burn more calories after a meal, especially for individuals who do not consume the spice regularly," said Richard Mattes, distinguished professor of foods and nutrition who collaborated with doctoral student Mary-Jon Ludy. "This finding should be considered a piece of the puzzle because the idea that one small change will reverse the [obesity epidemic](#) is simply not true. However, if a number of small changes are added together, they may be meaningful in terms of [weight management](#). Dietary changes that don't require great effort to implement, like sprinkling red pepper on your meal, may be sustainable and beneficial in the long run, especially when paired with exercise and healthy eating."

Other studies have found that capsaicin, the component that gives chili peppers their heat, can reduce hunger and increase [energy expenditure](#) - burning calories. The amounts tested, however, were not realistic for most people in the U. S. population, Mattes said.

The current study measured the spice's effects using quantities of red pepper - 1 gram or half a teaspoon - that are acceptable for many consumers. Other studies also have looked at consumption via a capsule, but Ludy and Mattes' study demonstrated that tasting the red pepper may optimize its effects. The findings are published in *Physiology &*

Behavior.

This study used ordinary dried, ground cayenne red pepper. Cayenne is a chili pepper, which is among the most commonly consumed spices in the world. Most, but not all, chili peppers contain capsaicin.

Twenty-five non-overweight people - 13 who liked spicy food and 12 who did not - participated in the six-week study. The preferred level of pepper for each group was determined in advance, and those who did not like red pepper preferred 0.3 grams compared to regular spice users who preferred 1.8 grams. In general, red pepper consumption did increase core body temperature and burn more calories through natural energy expenditure.

This study found that those who did not consume red pepper regularly experienced a decrease of [hunger](#), especially for fatty, salty and sweet foods.

"The appetite responses were different between those who liked red pepper and those who did not, suggesting that when the stimulus is unfamiliar it has a greater effect. Once it becomes familiar to people, it loses its efficacy. The finding that there is a difference between users and non-users is novel and requires further study to determine how long it will be effective and how to adjust the diet to improve continuous effectiveness."

The failure to account for individual differences in liking the burn of chili peppers may explain why some previous studies varied on capsaicin's impact on appetite suppression and thermogenic response, which is an increase in body heat produced when digesting food.

Mattes said the findings also show that red pepper should be consumed in non-capsule form because the taste - the sensory experience -

maximizes the digestive process.

"That burn in your mouth is responsible for that effect," he said. "It turns out you get a more robust effect if you include the sensory part because the burn contributes to a rise in body temperature, energy expenditure and appetite control."

Mattes, who specializes in taste and directs Purdue's Ingestive Behavior Research Center, studies the role taste plays in feeding and digestion.

"Taste works on two very different levels," he said. "First, it determines the palatability of foods, and that influences food choice. Second, it influences physiology, so it alters how you digest foods and the efficiency with which you absorb the nutrients from them and use them throughout the body."

More information: The Effects of Hedonically Acceptable Red Pepper Doses on Thermogenesis and Appetite, Mary-Jon Ludy, Richard D. Mattes, *Physiology & Behavior*.

ABSTRACT

Previous studies suggest consumption of red pepper (RP) promotes negative energy balance. However, the RP dose provided in these studies (up to 10g/meal) usually exceeded the amount preferred by the general population in the United States (mean = ~1g/meal). The objective of this study was to evaluate the effects of hedonically acceptable RP doses served at a single meal in healthy, lean individuals on thermogenesis and appetite. Twenty-five men and women (aged 23.0 ± 0.5 years, BMI 22.6 ± 0.3 kg/m², 13 spicy food users and 12 non-users) participated in a randomized crossover trial during which they consumed a standardized quantity (1g); their preferred quantity (regular spicy food users 1.8 ± 0.3 g/meal, non-users 0.3 ± 0.1 g/meal); or no RP. Energy expenditure, core body and skin temperature were measured. Postprandial energy

expenditure and core body temperature were greater, and skin temperature was lower, after test loads with 1g RP. Respiratory quotient was lower after the preferred RP dose was ingested orally, compared to in capsule form. These findings suggest that RP's effects on energy balance stem from a combination of metabolic and sensory inputs, and that oral exposure is necessary to achieve RP's maximum benefits. Energy intake was lower after test loads with 1g RP in non-users, but not in users. Preoccupation with food, and the desire to consume fatty, salty and sweet foods were decreased more (or tendered to be decreased more) in non-users than users after a 1g RP test load, but did not vary after a test load with no RP. This suggests that individuals may become desensitized to the effects of RP with long-term spicy food intake.

Provided by Purdue University

Citation: Study: Reasonable quantities of red pepper may help curb appetite (2011, April 25)
retrieved 18 April 2024 from

<https://medicalxpress.com/news/2011-04-quantities-red-pepper-curb-appetite.html>

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