

Saccharin and Cancer

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Does saccharin cause cancer? The short answer is "yes, if you are a male rat and saccharin has made up more than 1% of your diet since your were born." But that's not a very satisfying answer for you or me.

In 1970 there were reports that saccharin and saccharine + cyclamate combinations caused bladder tumors in rats ^[1,2]. Since then, there have been many additional studies, investigating such variables as species (the effect is seen only in rats, not in mice, hamsters, guinea pigs, or monkeys), gender (the effect is observed primarily in male rats), and dosage (tumor incidence increases as the dosage of saccharin goes from 1% to 7% of the total diet (for comparison, saccharin would make up no more than 0.01% of a sweetened soft drink).

In the USA, the FDA was prepared to ban the use of saccharin in 1977, but Congress intervened, passing legislation that, instead, required saccharin-containing foods to carry the following warning label:

USE OF THIS PRODUCT MAY BE HAZARDOUS TO YOUR HEALTH. THIS PRODUCT CONTAINS SACCHARIN WHICH HAS BEEN DETERMINED TO CAUSE CANCER IN LABORATORY ANIMALS.

In 2000, the warning labels disappeared. Why? Because scientists learned that rats have a unique combination of high pH, high calcium phosphate, and high protein levels in their urine^[3,4]. One or more of the proteins that is more prevalent in male rats combines with calcium phosphate and saccharin to produce microcrystals that damage the lining of the bladder. Over time, the rat's bladder responds to this damage by over-producing cells to repair the damage, and this leads to tumor formation. Meanwhile, numerous tests showed that saccharin does not damage DNA, the usual way by which carcinogens cause cancer.

Since we know how saccharin causes cancer in rats, and we know these conditions are unique to the rat, and we know saccharin does not damage DNA, we can be pretty sure saccharin doesn't cause cancer in humans. You might think twice if you are prone to kidney stones, but even then you would could never come close to the level of saccharin consumption the rats were exposed to.

References:

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