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Sugar substitute? Or embalming fluid?

BYLINE: Juliann Fraser, Yukon News

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I don't know how many cans of Diet Coke my father-in-law drinks in a day, but it's a lot.

He has Type 2 Diabetes and is understandably trying to limit his sugar intake.

He drinks Diet Coke because, instead of sugar, it contains **aspartame**, a chemical sweetener also known by the manufacturer brands NutraSweet and Equal, which is approved in more than 100 countries and distributed worldwide in over 6,000 foods and beverages.

Some hail **aspartame** is the solution for diabetics and dieters.

Others say it's a poison that kills.

I often wonder if my father-in-law has any reservations about his Diet Coke habit. I think he should.

Since the use of **aspartame** in foods is legal in Canada, it seems logical that Health Canada should defend **aspartame**, which it does, specifically refuting links between **aspartame** and seizures, brain cancer and brain tumours.

The World Health Organization also approves the use of **aspartame** in foods.

And yet health activists are still urging people like my father-in-law to abandon it before it ruins their health, or worse.

Those lobbyists, some of them physicians and PhDs, are linking **aspartame** to brain damage, brain cancer, lymphoma, mood disorders, eye damage and vision loss, migraines, tremors, depression, anxiety attacks, insomnia, Lou Gehrig's Disease, thyroid disorders, gastrointestinal problems, Chronic Fatigue Syndrome, MS, epilepsy and unusual sudden deaths.

Aspartame is exceedingly popular among food manufacturers, particularly the diet industry, because it is 180 times sweeter than sugar -- but without the calories.

It is the staple of many diet plans and is often recommended to diabetics by their family physicians.

James M. Schlatter, a chemist with G.D. Searle & Company, accidentally discovered **aspartame** in 1965 when he licked his fingers while concocting a drug intended for ulcers.

There was such division over the safety of aspartame, however, that is wasn't until 1981 that the US Food and Drug

Administration approved it for human consumption.

To help its members come to a decision, in 1980 the administration convened a public board of inquiry to examine the possible relationship between **aspartame** and brain cancer.

The board concluded that **aspartame** does not cause brain damage, but it recommended against approving **aspartame**, citing unanswered questions about cancer in lab rats.

The following year, the Food and Drug Administration commissioner appointed by President Ronald Reagan approved **aspartame** for use in dry goods, citing data from a Japanese study that had not been available to the members of the board of inquiry.

In 1983, the administration further approved **aspartame** for use in carbonated beverages, and for use in other beverages, baked goods and confections in 1993.

In 1996, it removed all restrictions from **aspartame**.

The administration recently admitted that **aspartame** accounted for over 75 per cent of the official complaints it received.

Aspartame is made of three components: 50 per cent phenylalanine, 40 per cent aspartic acid and 10 per cent **methanol** (wood alcohol).

Or, as Ajinomoto Food Ingredients LLC, a manufacturer of aspartame, prefers to explain:

"Aspartame ... is made from two building blocks of protein, just like those found naturally in many everyday foods such as meat, fish, cheese, eggs and milk."

In our bodies, aspartame breaks down into methanol, a chemical also present in alcoholic beverages and fruit juices.

Where the scientific community is divided on **aspartame** is whether the **methanol** it produces then turns into formaldehyde.

The term "formaldehyde" conjures up images of biology class and the stench of embalmed frogs and pig fetuses ready for dissecting. It is not something any of us would knowingly eat or drink.

In the human body, formaldehyde causes gradual, but eventually severe, damage to the neurological system and immune system, and causes permanent genetic damage (cancer) even in extremely low doses.

Fruit juices contain natural protective chemicals that prevent the **methanol** from turning into formaldehyde. **Aspartame** does not.

However, the **aspartame** industry maintains the opposite conclusion, i.e., that **aspartame** adds nothing to our bodies that we don't already get from natural foods such as fruit juices.

Obviously, not everyone is convinced.

In Europe, **aspartame** is banned from all products aimed at children.

In the United States, New Mexico is considering a bill introduced by Senator Jerry Ortiz y Pino to ban aspartame.

The Coca Cola company, however, has weighed heavily into the debate, not by arguing **aspartame** is safe, but by threatening to lay off 600 of workers in that state if its diet beverage line was eliminated.

Diet Coke, which uses NutraSweet, a product owned by Monsanto from 1985 to 2000, gave a large amount of money to the American Diabetes Association so it could open a cooking school in Chicago to teach diabetics how to cook -- with NutraSweet.

Some doctors have warned that **aspartame** has actually exacerbated diabetes in their patients by intensifying hypoglycemia, impaired vision and **neuropathy** and, in some cases, bringing on convulsions.

But the arguments against aspartame are not relegated to medical journals.

The US Air Force magazine Flying Safety and the US Navy magazine Navy Physiology have run articles warning that **aspartame** can make pilots more susceptible to seizures and vertigo, with some pilots reporting grand mal seizures in the cockpit.

Juliann Fraser is a writer living in Whitehorse.

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