Sweet Lies: Meet the ASS in Your Pantry

Aspartame, Sucralose, Saccharin – And the Not-So-Sweet Story Behind Them

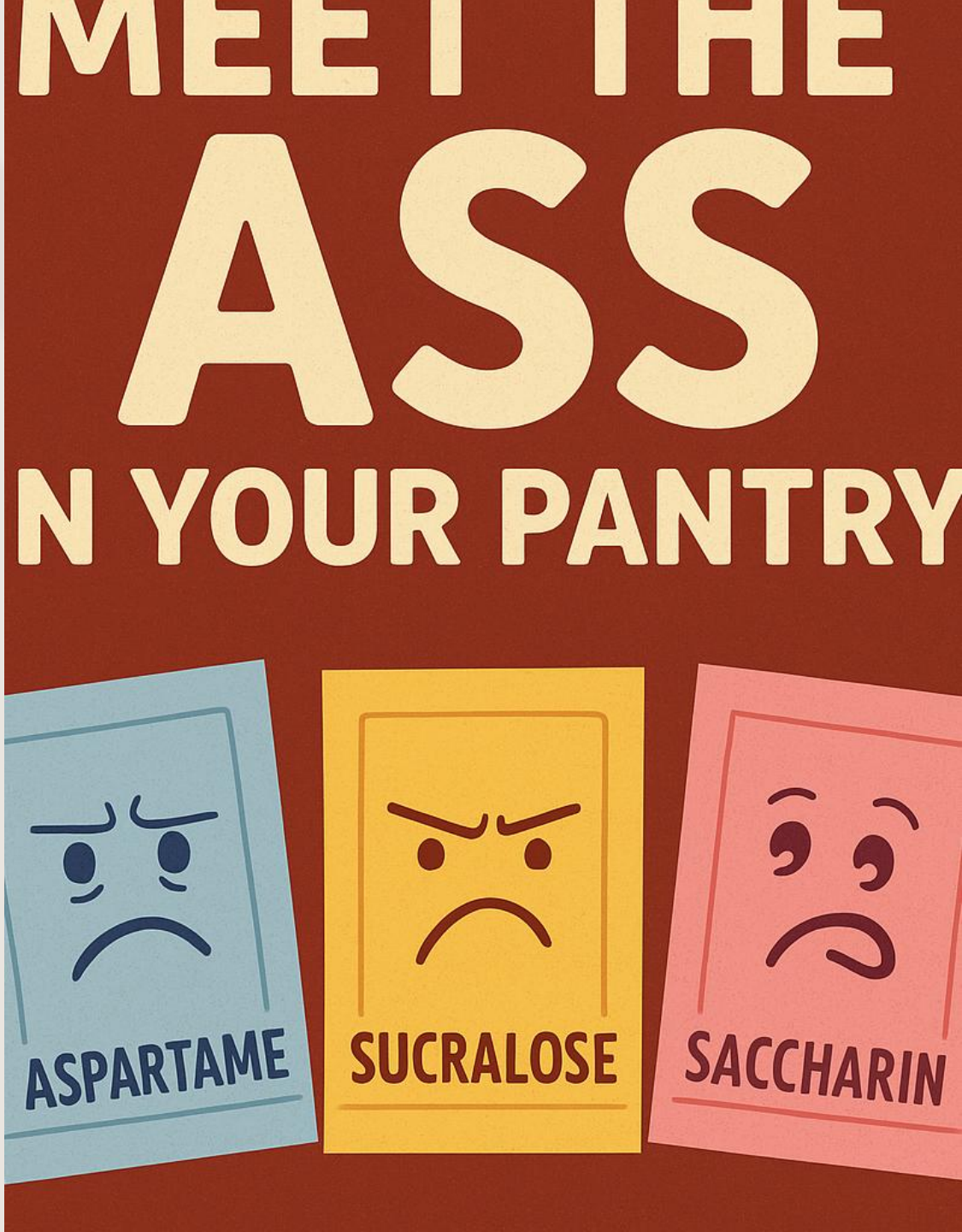
Part 3 of the Wondrous Roots *Stop Eating C.R.A.P.!* Series

Welcome back, sweet sleuths! 🍭

Today, we're cracking the case on one of the most deceptive ingredients lurking in your pantry – artificial sweeteners. They wear the mask of "zero calories" and "sugar-free," but the story underneath? Let's just say… it's anything but sweet.

What we'll cover…

"Today, we're zeroing in on the artificial sweeteners that sweet-talk their way into your pantry – but may leave your health in the dust. Meet the notorious trio I like to call the **ASS gang**: Aspartame, Sucralose, and Saccharin."



🧪 Artificial Sweeteners: Sweet but Sinister

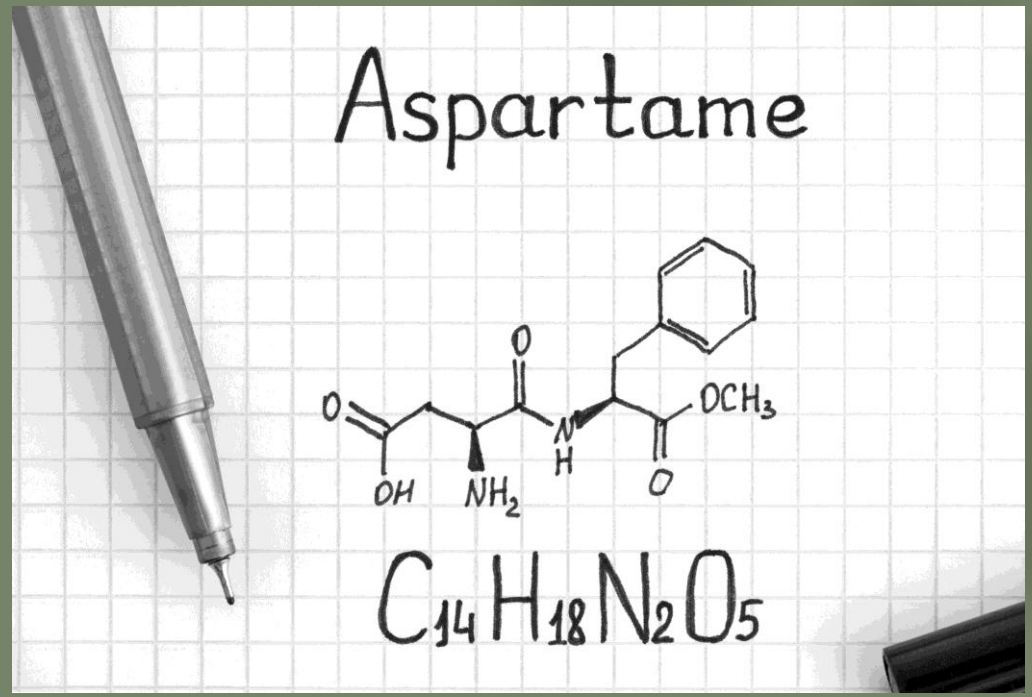
Let’s start with **aspartame**, the drama queen of the artificial sweetener world.

"But it's FDA-approved!"
Yes. And so was thalidomide once. Let's take a peek behind the curtain.

Aspartame: first, let's break it down

Synthetic compound made of two amino acids: aspartic acid + phenylalanine, plus a methyl group

Chemical formula: $C_{14}H_{18}N_2O_5$



For our reference!

Symbol	Element Name	What It Does / Why It's There
C	Carbon	The backbone of all organic molecules (like sugar, sweeteners, fats, proteins)
H	Hydrogen	Binds with carbon and oxygen; helps form water (H_2O) and hydrocarbons
O	Oxygen	Common in alcohol groups (-OH), acids, and other functional groups; helps define sweetness
N	Nitrogen	Found in amino acids (like in aspartame: phenylalanine and aspartic acid); indicates protein-based structure
S	Sulfur	Present in saccharin and sulfa-related compounds; gives it that sulfonamide group
Cl	Chlorine	Present in sucralose (a chlorinated sugar); not typically found in natural sugars

Not the same molecular structure as sucrose

Sucrose (table sugar):

- Natural disaccharide made of glucose + fructose
- Chemical formula: $C_{12}H_{22}O_{11}$
- Derived from sugarcane or sugar beets
- Digested in the small intestine via the enzyme sucrase, then absorbed into the bloodstream as glucose and fructose
- Provides **4 calories per gram** and spikes blood sugar and insulin

Sucrose is a carbohydrate

Your body recognizes it, breaks it down, and uses it for energy – for better or worse.

$C_{14}H_{18}N_2O_5$

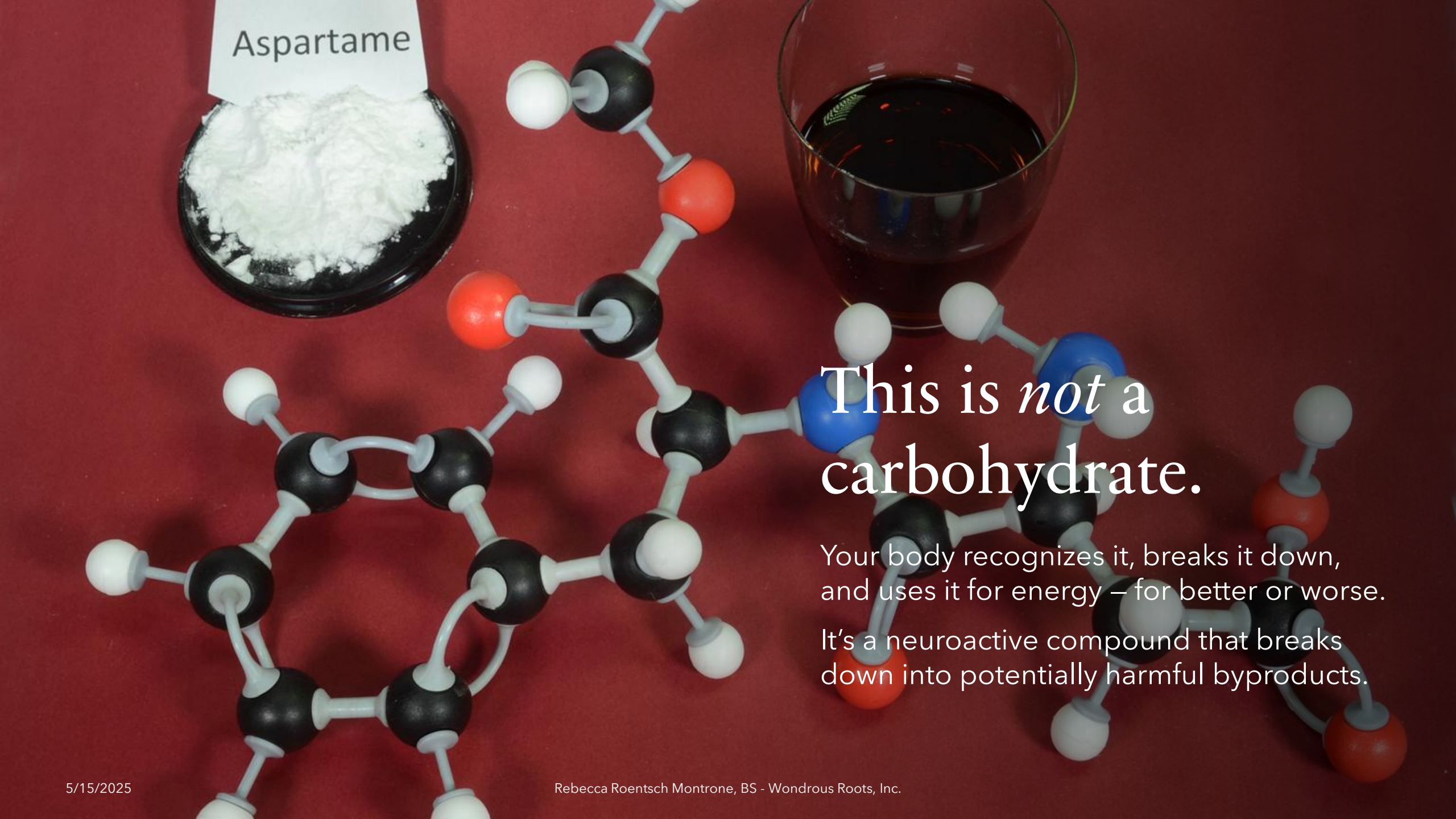
- Synthetic compound made of two amino acids: aspartic acid + phenylalanine, plus a methyl group
- Chemical formula: $C_{14}H_{18}N_2O_5$
- ~200 times sweeter than sucrose, so much less is needed
- Provides **4 calories per gram**, but so little is used that it's functionally zero-calorie

Upon digestion it breaks down into:

Aspartic acid (an excitatory neurotransmitter)

Phenylalanine (affects neurotransmitter balance, problematic for people with PKU)

Methanol, which is converted in the body to formaldehyde, then formic acid



This is *not* a carbohydrate.

Your body recognizes it, breaks it down, and uses it for energy – for better or worse.

It's a neuroactive compound that breaks down into potentially harmful byproducts.

🍬 Aspartame (Equal, NutraSweet, AminoSweet)

Aspartame is a trio of aspartic acid, phenylalanine, and methanol – which your body can convert into formaldehyde. Yes, *that* formaldehyde.

You'll find it in diet sodas, sugar-free gum, yogurts, and "lite" snacks – the usual suspects

Aspartame Brand Names & Synonyms

- Equal®
- NutraSweet®
- AminoSweet®
- Canderel® (common in Europe)
- Sugar Twin® (some formulations)
- Spoonful®
- Blue Packet (visual shorthand in restaurants)

Some products containing aspartame…

Many so-called “health” products, especially those marketed to children or the weight-conscious crowd, **absolutely do contain aspartame** – even though it’s the nutritional equivalent of letting a clown drive the ambulance.

⚠️ Surprising Products That May Contain Aspartame

👶 **Children's Vitamins**	Flintstones Vitamins (especially chewable varieties)	Gummy vitamins (various brands)
Often contain aspartame or sucralose as a sweetener	**Children's chewable calcium or vitamin C tablets**	Some contain a blend of aspartame + acesulfame potassium (Ace-K)

🍡 Nutritional Supplements & Powders

Emergen-C (some flavors) – some versions have used aspartame or sucralose

Protein powders & meal replacements (especially weight loss/"lite" varieties)

Brands like SlimFast, Atkins shakes, or even popular meal replacement bars

💊 Over-the-Counter Medications

Children's Tylenol / Motrin
(chewables or syrups)

Fiber gummies, calcium chews, and even laxatives
(e.g., Fiber Choice, Caltrate)

Weight-Loss & Diabetic Products

"Diet" or "lite" anything – if it's sugar-free, it might be aspartame-based

"Diabetic-friendly" drinks, snacks, or syrups often use aspartame or sucralose instead of sugar

Here is a list of popular items that contain aspartame:

Product	Parent company
Diet Coke	Coca-Cola
Extra sugarfree chewing gum	Mars
Jell-O sugarfree gelatin dessert mix	Kraft Heinz
Snapple zero sugar tea and juice drinks	Keurig Dr Pepper
Sugar Twin 2 sweetener packets	B&G Foods
Equal Zero Calorie Sweeteners	Whole Earth Brands
Trident sugar-free peppermint gums	Mondelez International /Perfetti Van Melle

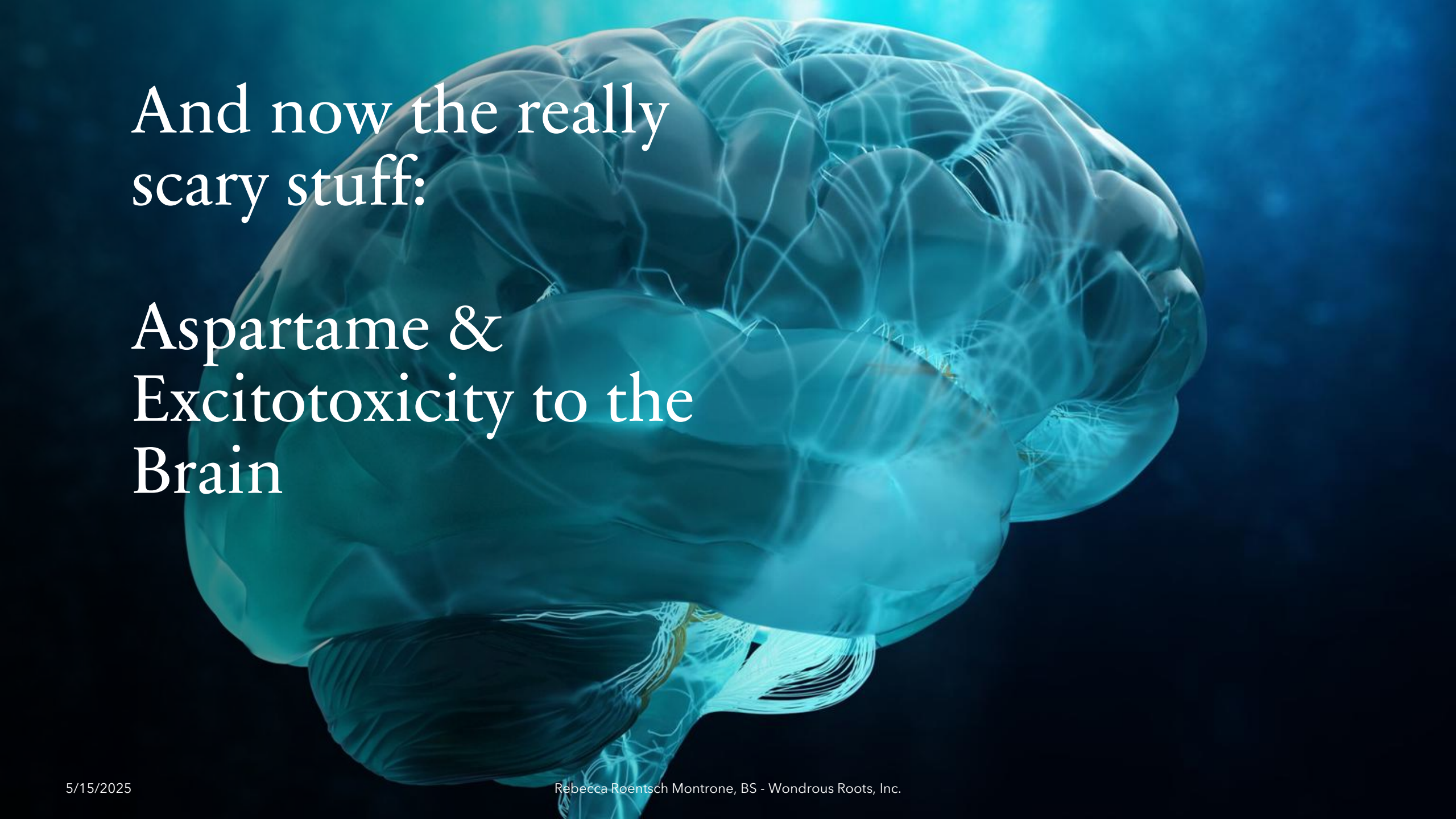
Why it’s a problem

Aspartame’s presence in these products:

Trains the palate to expect artificial sweetness

Delivers formaldehyde-forming compounds directly to developing brains

Contradicts the entire concept of “health support”



And now the really scary stuff:

Aspartame & Excitotoxicity to the Brain

🔥 What's Excitotoxicity?

Excitotoxicity happens when too much stimulation by excitatory neurotransmitters (like glutamate or aspartate) causes neurons to fire excessively – and eventually die.

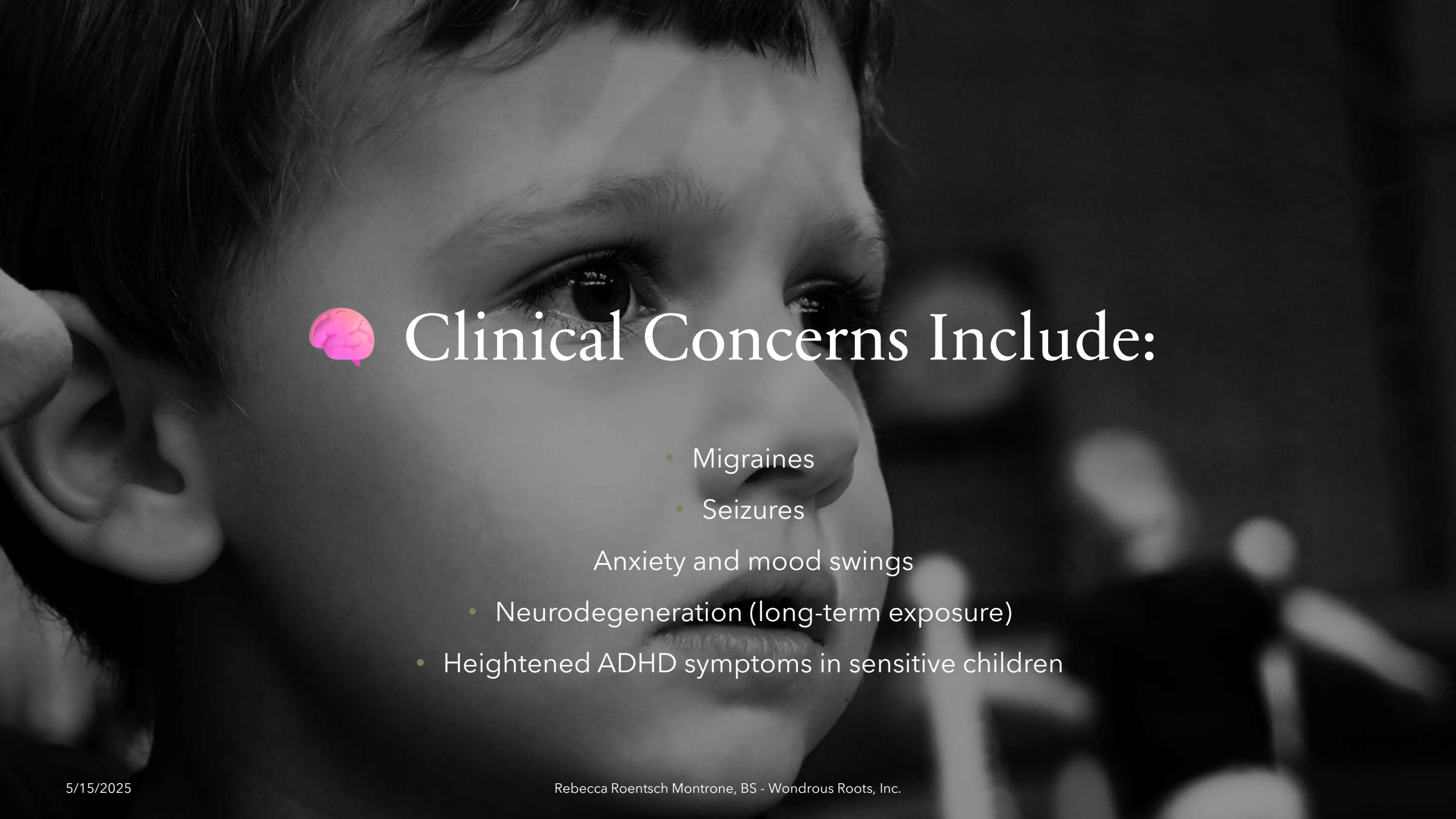
The brain runs on finely tuned chemistry. But when receptors like NMDA and AMPA are overstimulated, calcium floods in, triggering:

- Oxidative stress
- Mitochondrial damage
- Cell death (apoptosis or necrosis)

Russell Blaylock, MD (author of *Excitotoxins: The Taste That Kills*), is one of the key figures who's drawn attention to this issue – warning particularly about the **synergistic danger** of aspartame + MSG (monosodium glutamate).

⚠️ How Aspartame Contributes to Glutamate Toxicity

- Aspartic acid mimics glutamate and acts on the same receptors in the brain
- Phenylalanine, another aspartame byproduct, disrupts neurotransmitter balance – especially dopamine and serotonin
- The result? A hyperexcitable nervous system that may be especially dangerous for:
  - Children
  - People with neurodegenerative conditions (Parkinson's, Alzheimer's, MS)
  - Anyone with BBB (blood-brain barrier) permeability or inflammation
- **Additive Risk:** Many processed foods contain both aspartame and MSG – creating a perfect storm of excitatory overload



🧠 Clinical Concerns Include:

- Migraines
- Seizures
- Anxiety and mood swings
- Neurodegeneration (long-term exposure)
- Heightened ADHD symptoms in sensitive children

Direct and indirect cellular effects of aspartame on the brain

- **Abstract**
- The use of the artificial sweetener, aspartame, has long been contemplated and studied by various researchers, and people are concerned about its negative effects. Aspartame is composed of phenylalanine (50%), aspartic acid (40%) and methanol (10%). Phenylalanine plays an important role in neurotransmitter regulation, whereas aspartic acid is also thought to play a role as an excitatory neurotransmitter in the central nervous system. Glutamate, asparagines and glutamine are formed from their precursor, aspartic acid. Methanol, which forms 10% of the broken-down product, is converted in the body to formate, which can either be excreted or can give rise to formaldehyde, diketopiperazine (a carcinogen) and a number of other highly toxic derivatives. Previously, it has been reported that consumption of aspartame could cause neurological and behavioural disturbances in sensitive individuals. Headaches, insomnia and seizures are also some of the neurological effects that have been encountered, and these may be accredited to changes in regional brain concentrations of catecholamines, which include norepinephrine, epinephrine and dopamine. The aim of this study was to discuss the direct and indirect cellular effects of aspartame on the brain, and we propose that excessive aspartame ingestion might be involved in the pathogenesis of certain mental disorders (DSM-IV-TR 2000) and also in compromised learning and emotional functioning.

Excitotoxins in foods

- **Abstract**
- Evidence is reviewed pertaining to excitatory neurotoxins (excitotoxins) encountered in human food supply. The most frequently encountered food excitotoxin is glutamate (Glu) which is commercially added to many foods despite evidence that it can freely penetrate certain brain regions and rapidly destroy neurons by hyperactivating the NMDA subtype of Glu receptor. Hypersensitivity of NMDA receptors during development makes the immature nervous system especially sensitive to Glu excitotoxicity. On the other hand, elderly consumers are particularly sensitive to domoic acid, a powerful excitotoxic Glu analog that activates both NMDA and non-NMDA receptors. A high content of domoic acid in shellfish caused a recent food poisoning incident that killed some elderly victims and caused brain damage and memory impairment in others. Neurolathyrism is a crippling neurodegenerative condition associated with ingestion of a legume that naturally contains BOAA, an excitotoxic Glu analog that hyperactivates non-NMDA receptors. Thus, the human food supply is a source of excitotoxins that can damage the brain by one type of mechanism to which immature consumers are hypervulnerable, or by other mechanisms to which adult and elderly consumers are peculiarly sensitive.

Chronic Effect of Aspartame on Ionic Homeostasis and Monoamine Neurotransmitters in the Rat Brain

Abstract

Aspartame is one of the most widely used artificial sweeteners globally. Data concerning acute neurotoxicity of aspartame is controversial, and knowledge on its chronic effect is limited. In the current study, we investigated the chronic effects of aspartame on ionic homeostasis and regional monoamine neurotransmitter concentrations in the brain. Our results showed that aspartame at high dose caused a disturbance in ionic homeostasis and induced apoptosis in the brain. We also investigated the effects of aspartame on brain regional monoamine synthesis, and the results revealed that there was a significant decrease of dopamine in corpus striatum and cerebral cortex and of serotonin in corpus striatum. Moreover, aspartame treatment significantly alters the tyrosine hydroxylase activity and amino acids levels in the brain. Our data suggest that chronic use of aspartame may affect electrolyte homeostasis and monoamine neurotransmitter synthesis dose dependently, and this might have a possible effect on cognitive functions.

Simply Put

"Aspartame contains aspartic acid, which acts like glutamate in the brain. It overstimulates nerve cells – just like MSG – and in high amounts or sensitive individuals, this can lead to neurological damage. Think of it as turning the volume knob to 11… and then snapping it off."

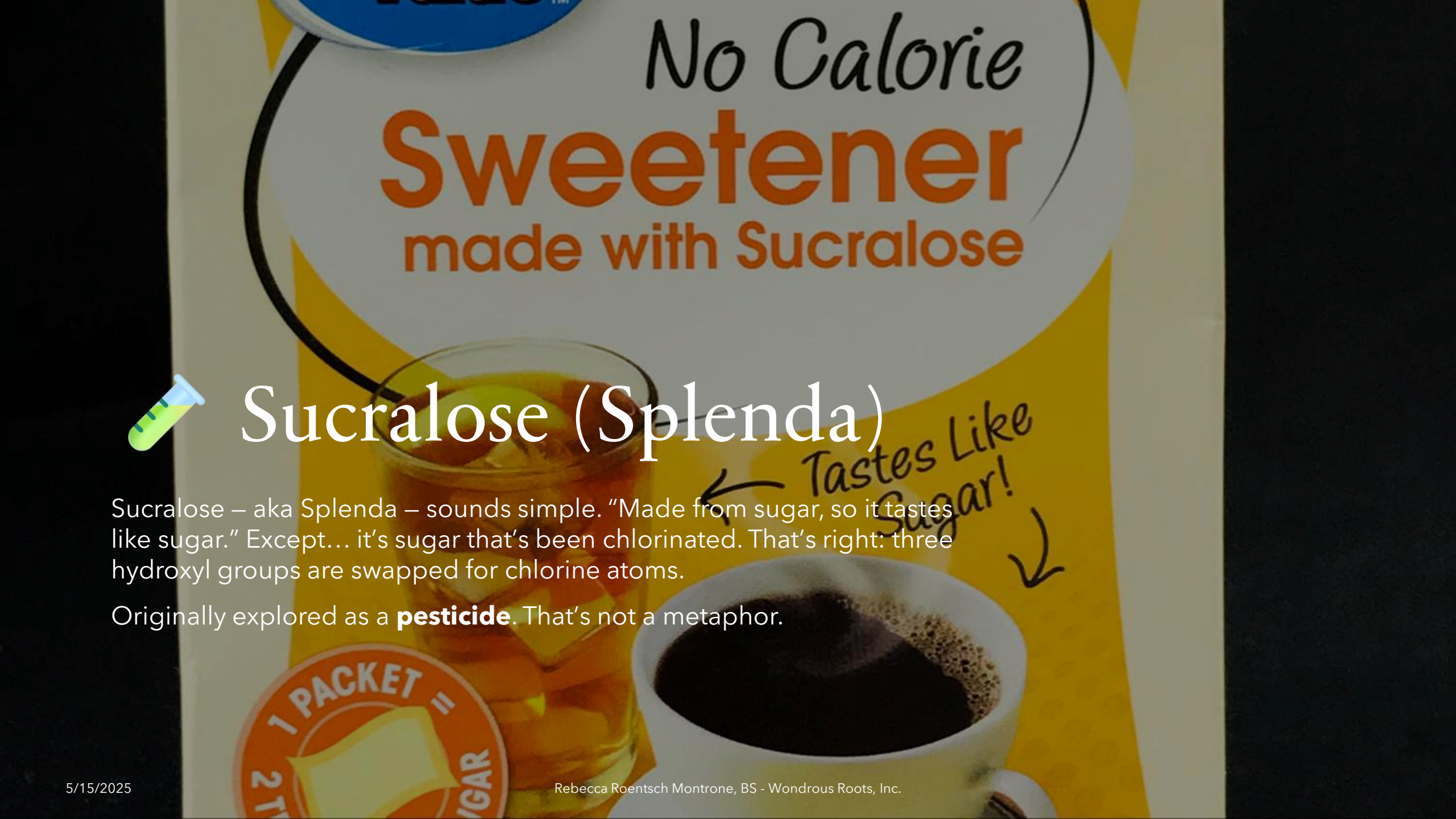
And yet… the Industry Advertises as “Healthy”

“Substituting aspartame for sugar or other calorie-containing sweeteners allows people to indulge sweet cravings while consuming fewer calories. That can provide a number of potential benefits.” aspartame.org

But here's the real kicker…

Aspartame was rejected *repeatedly* by the FDA because of concerns over brain tumors in animal studies. But after a little political reshuffling (hello **Donald Rumsfeld, former CEO of G.D. Searle**, and hello new **Reagan-appointed FDA commissioner**), the rejections were tossed out and aspartame got the green light.

Coincidence? You decide.

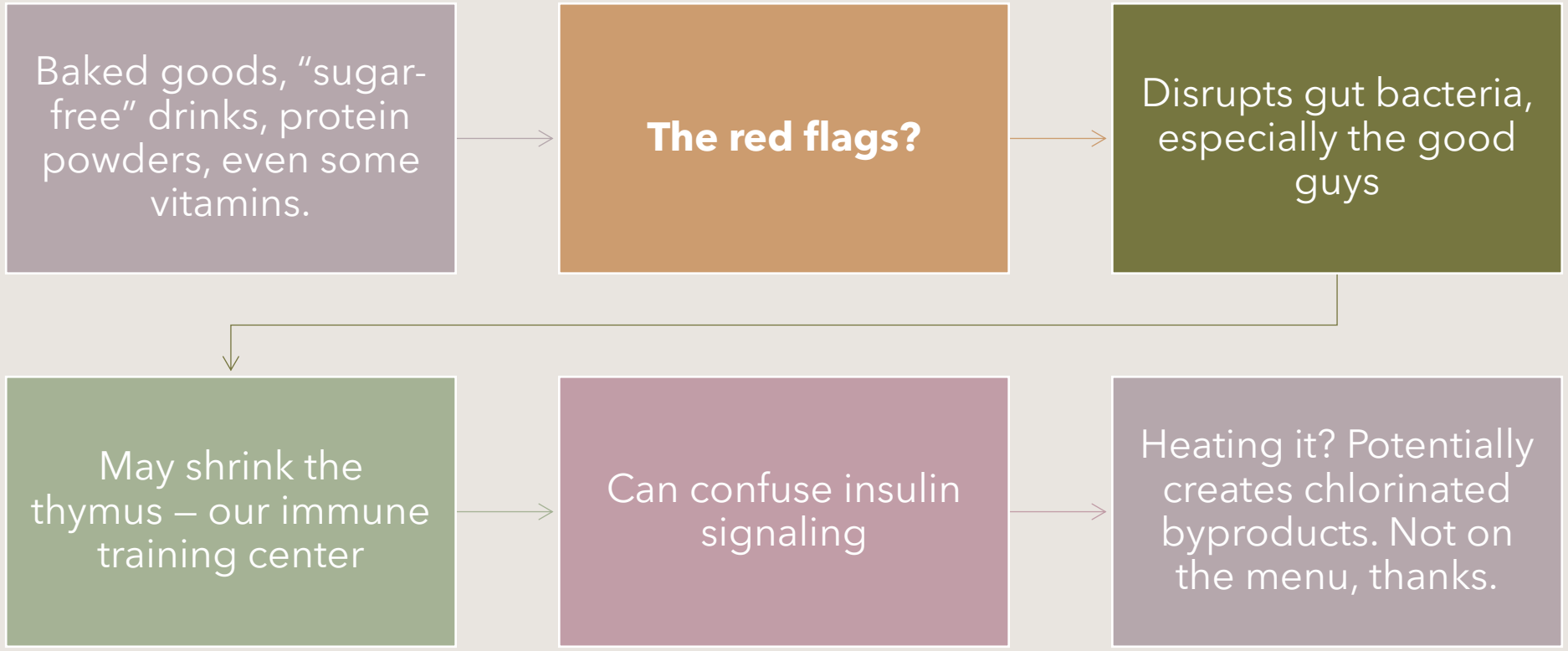


🧪 Sucralose (Splenda)

Sucralose – aka Splenda – sounds simple. “Made from sugar, so it tastes like sugar.” Except… it’s sugar that’s been chlorinated. That’s right: three hydroxyl groups are swapped for chlorine atoms.

Originally explored as a **pesticide**. That’s not a metaphor.

You'll find it in:



🧪 The Origin Story of Sucralose: A Sweet Mistake

The origin story of sucralose (aka Splenda) is one of those *"accidental discovery meets chemical wizardry"* tales that sounds more like a Marvel origin story than a health product. Let’s peel back the sweet yellow wrapper.

🧪 How it all began…

Discovery Year: 1976
Discovered By: Scientists at *Queen Elizabeth College* in London, working with the British sugar company Tate & Lyle in collaboration with researchers at King's College

🧪 What Were They *Trying* to Do?

They were actually conducting research on **chlorinated sugars** – specifically to develop **new insecticides**.

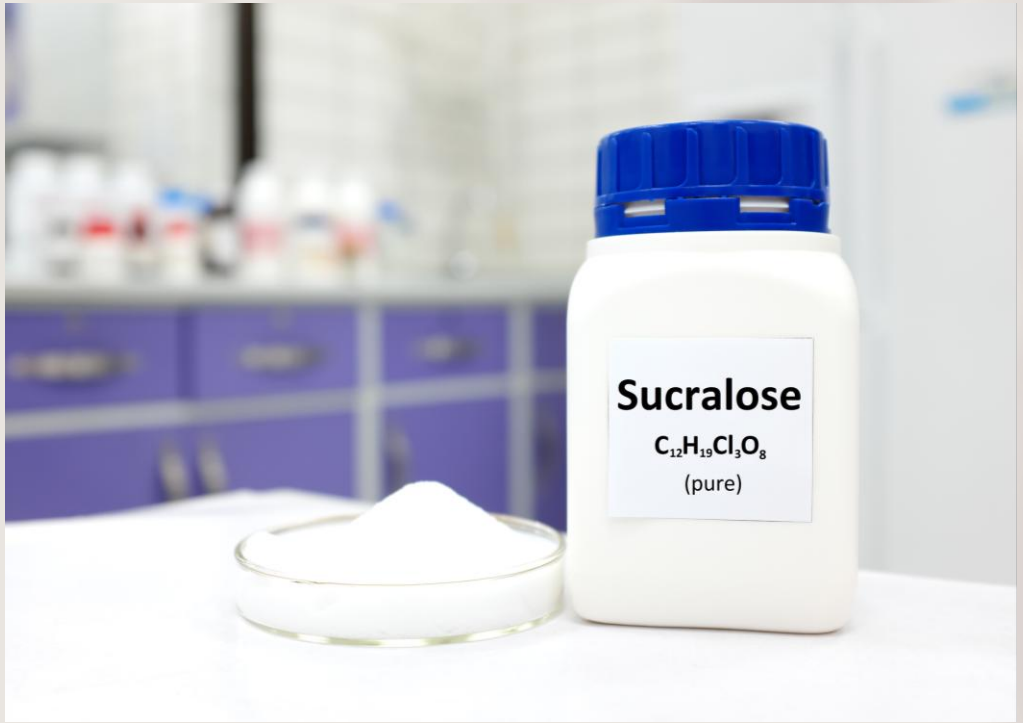
Yep – **sucralose started as pesticide research**.

One researcher, **Shashikant Phadnis**, reportedly **misheard "test this compound" as "taste this compound"** – and did. He discovered it was intensely sweet – about **600 times sweeter than sugar**.

The rest, as they say, is synthetic history.

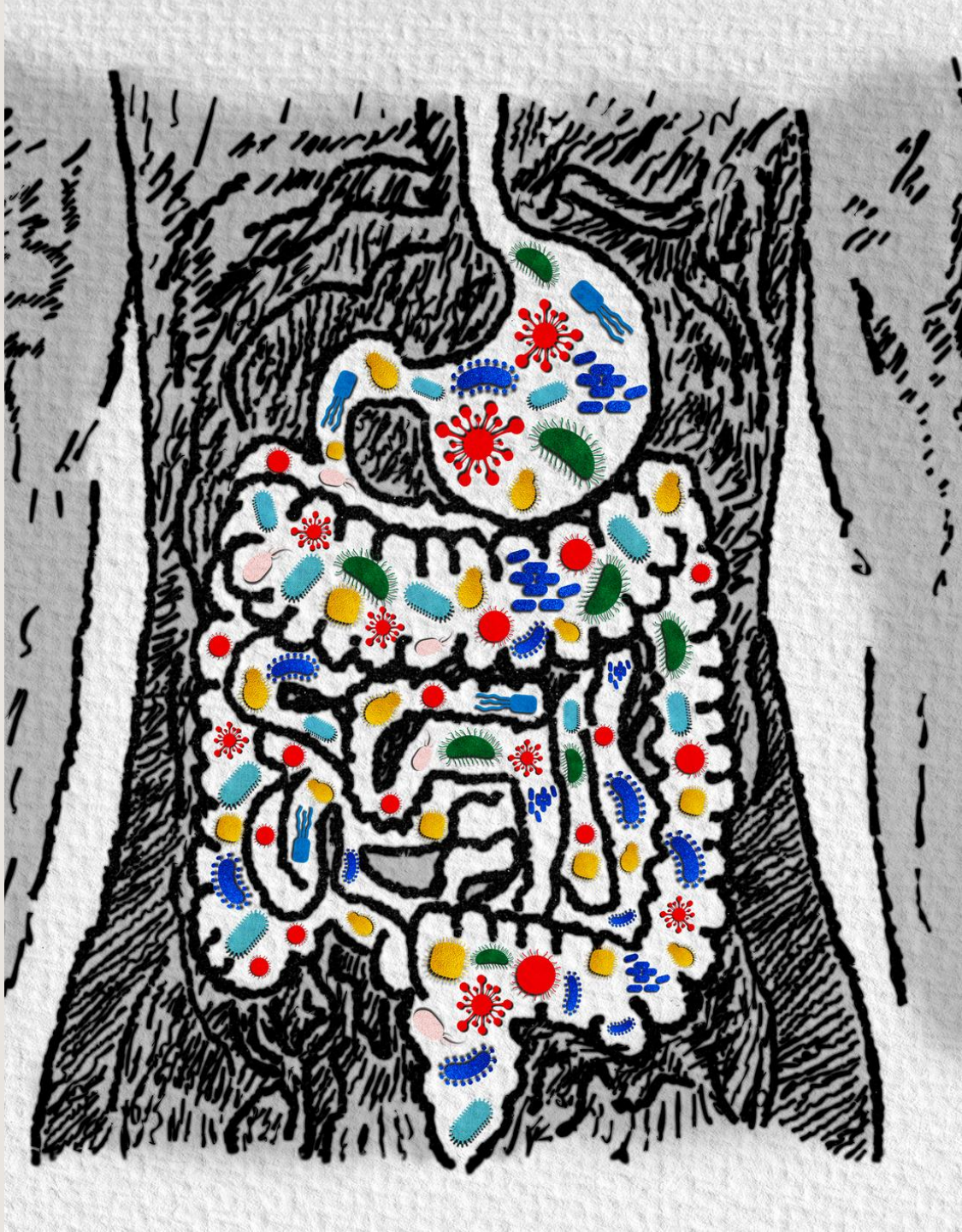
🔬 Breaking it down…

- Sucralose is **not found in nature**. It's made by chemically modifying a sugar molecule:
- Start with **sucrose** (table sugar)
- Replace **three hydroxyl groups (-OH)** with **chlorine atoms (Cl)**
- Result = **1,6-dichloro-1,6-dideoxy-beta-D-fructofuranosyl-4-chloro-4-deoxy-alpha-D-galactopyranoside** (say that three times fast)



Why this matters:

- Your body doesn't recognize sucralose as food, so most of it passes through **undigested**. But it's not inert – studies have shown:
- Disruption of **gut microbiota**
- Possible **DNA damage** under certain conditions
- Formation of **chlorinated byproducts** (like dioxins) when **heated**



FDA Approval & Market Rise

- **Approved by the FDA in 1998**
- Marketed heavily under the name **Splenda** with the now-infamous tagline:

"Made from sugar, so it tastes like sugar."

This branding led many consumers to believe it was a natural product — despite its synthetic, chlorinated nature.

💗 Saccharin: The First Sweet Fix with a Backstory as Sticky as Syrup

Saccharin is the OG artificial sweetener — discovered by accident, rose to fame with diet sodas like TAB, and survived a decades-long battle over its cancer risk. While it's not banned today, it carries baggage — from metallic taste to questionable history. It's calorie-free, but not controversy-free.

Rebecca Roentsch Montrone, BS - Wondrous Roots, Inc.


DIET
TAB
BOTTLED UNDER THE AUTHORITY
OF THE COCA COLA COMPANY

🧪 What Is Saccharin?

Chemical name: *o-sulfobenzoic imide*

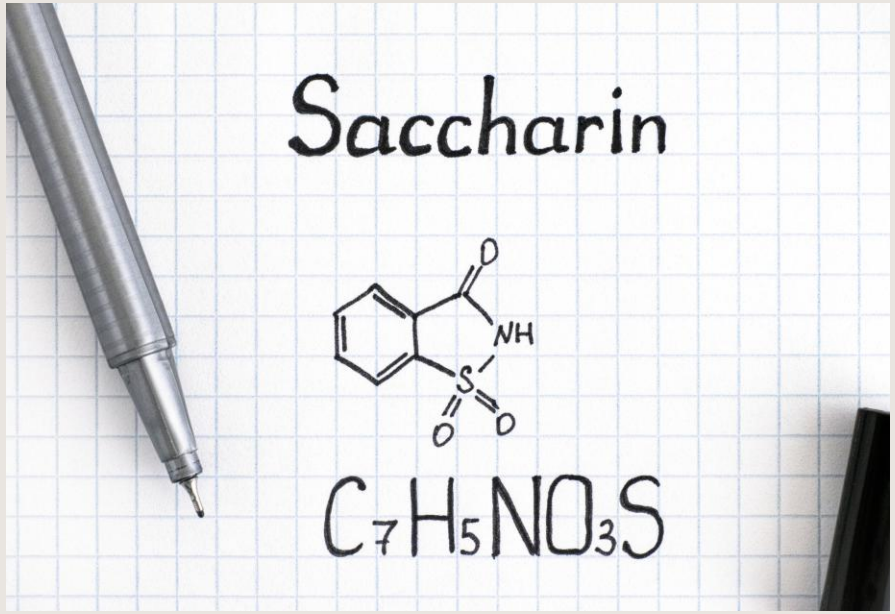
Discovered in **1879** by **Constantin Fahlberg**, a chemist working at Johns Hopkins University

Fahlberg accidentally discovered it when he ***didn't wash his hands*** before dinner and noticed a sweet taste on his bread (yep, science was wild back then)

300–500 times sweeter than sugar, with a slight metallic or bitter aftertaste in higher concentrations

🧠 How It Works (Chemically)

- Saccharin is a **benzoic sulfinide**, not metabolized by the body – it passes through the digestive system unchanged
- **Zero calories**, zero blood sugar impact
- Its structure includes a **sulfonamide group**, which is related to sulfa drugs – this is why some people with **sulfa allergies** report sensitivity



Early Use & the Rise of TAB

- First popularized during **sugar shortages in WWI and WWII**
- Gained fame in the **1960s and 70s** with the diet soda boom – most notably in **TAB**, Coca-Cola's first "diet" soda marketed to women
- TAB became iconic for its pink can and strong aftertaste – guess what sweetener it used? **100% saccharin**
- TAB's marketing relied on weight-conscious culture and drove saccharin into the mainstream

⚠️ The Controversy: Cancer Scare & Label Warnings

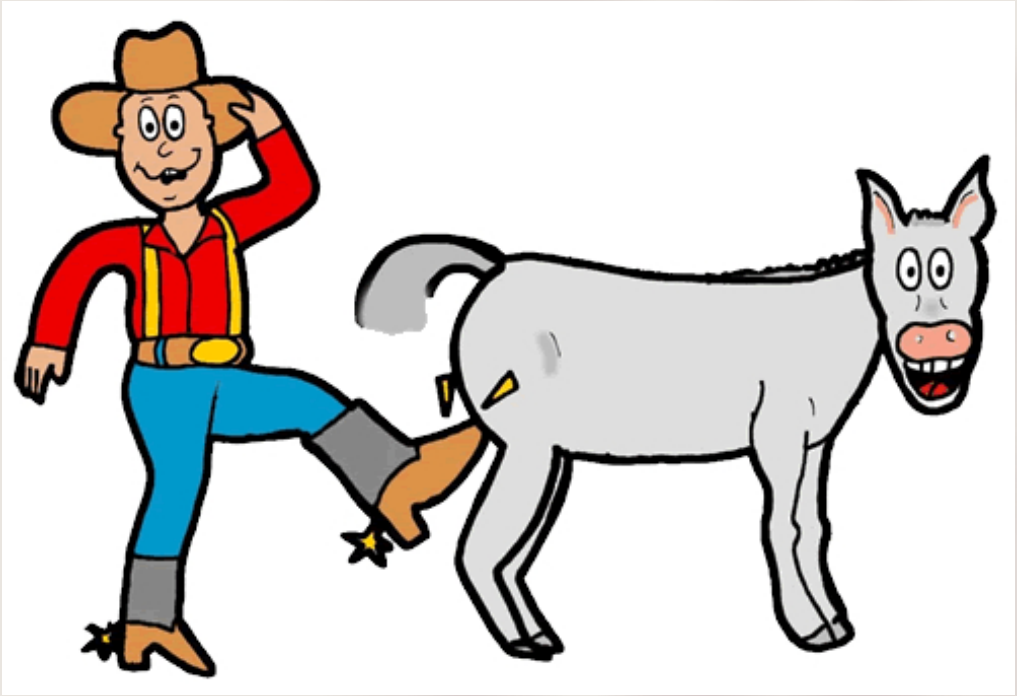
- In the **1970s**, studies found that high doses of saccharin caused **bladder cancer in rats**
- This led to the **FDA proposing a ban in 1977**, but it was blocked by public backlash — especially from diabetics who depended on it
- Instead, Congress passed a law requiring a **warning label**:
- *"Use of this product may be hazardous to your health. This product contains saccharin, which has been determined to cause cancer in laboratory animals."*
- That label stayed on until **2000**, when saccharin was **removed from the carcinogen list** after mechanistic studies suggested the rat-specific effect didn't apply to humans

📦 Where You'll Still Find Saccharin

- **Sweet'N Low** (the pink packet)
- Some brands of **diet sodas, cough syrups, chewable meds**, toothpaste, and old-school diabetic products
- Still used globally – particularly where cheaper production costs are prioritized over taste or PR

📜 Wrap-Up Summary: Kicking ASS, One Packet at a Time

So let's take a final look at the *Artificial Sweetener Syndicate* — or as we've affectionately (and accurately) dubbed them: **the ASS gang**.



💙 Aspartame

Born from lab experiments, propped up by politics

Breaks down into brain-stimulating, neuron-fragging byproducts

Still hiding in your gum, yogurt, and kids' vitamins

"Sweet... until your neurons scream."

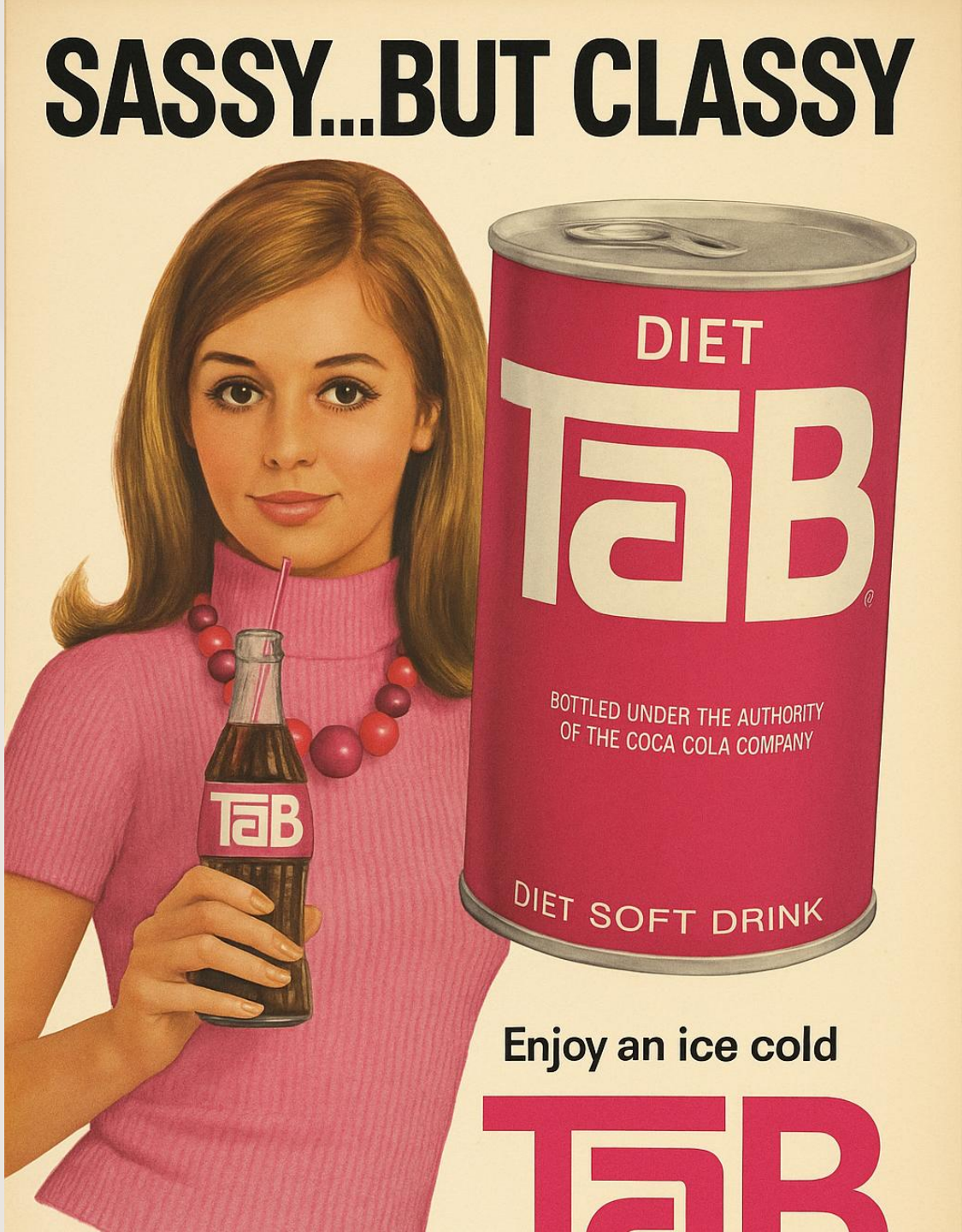
Sucralose

- A chlorinated sugar with a chemical twist
- Once considered a pesticide, now found in protein shakes
- May disrupt gut health, insulin response, and form toxic byproducts when heated
- ***"Sweet... but shady."***

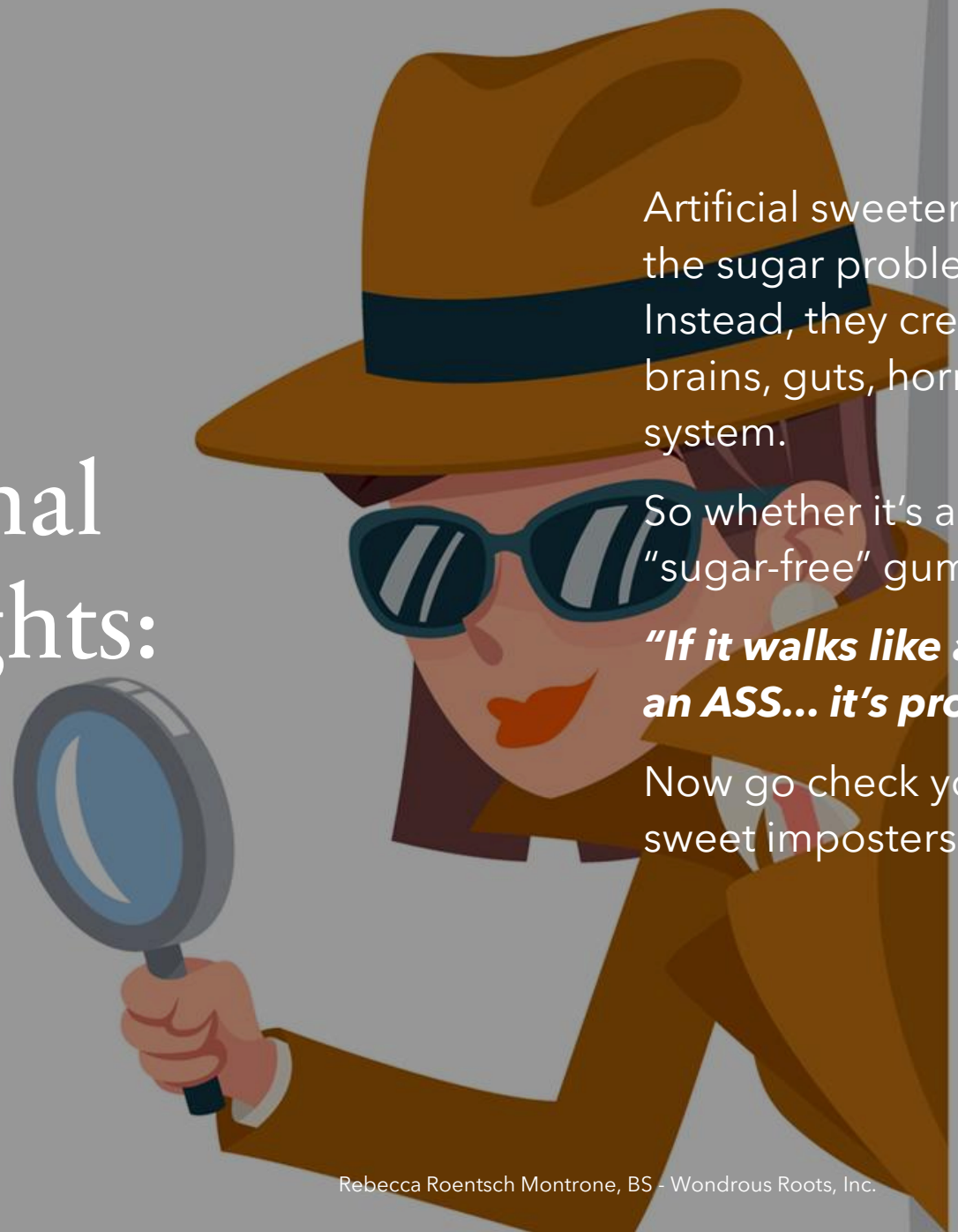
Saccharin

- The OG of the group – discovered by accident, revived by diet culture
- Linked to bladder cancer in rats, banned and unbanned, still used today
- Metallic aftertaste with a dash of vintage drama

"Sweet... with a side of scandal."



🧠 Final Thoughts:



Artificial sweeteners were supposed to solve the sugar problem.
Instead, they created new ones – in our brains, guts, hormones, and trust in the food system.

So whether it's a soda can, a pink packet, or a "sugar-free" gummy bear, remember:

"If it walks like an ASS and metabolizes like an ASS... it's probably not a sweet deal."

Now go check your pantry – and give these sweet imposters the kick they deserve. 🫏💥

🚫 Don’t Just Go with the Flow — Kick the ASS to the Curb!

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- www.wondrousroots.org