Food Wisdom In The Age Of Misinformation

Discussion of the food myths and why they happen

What type of research to look for

Exercise

Examples

Gut microbiome aspects sprinkled throughout

What food myths/facts are you concerned about?

How does the misinformation arise?

Hippocrates (5th century BCE) and later Galen framed health around the humoral theory—disease arose when the four humors (blood, phlegm, black bile, yellow bile) became imbalanced.

Foods were classified as “hot,” “cold,” “dry,” or “moist,” and illness was often seen as arising from eating foods that disrupted this balance.

ie: “heavy” meats could cause melancholia (black bile).

Food wasn’t seen as “bad” in itself, but the wrong food for the wrong person or season could tip health out of balance.

In the Middle Ages, food was often blamed for **epidemics** and digestive distress (before germs were known). Spoiled or “corrupted” food was thought to spread illness.

Certain foods were also tied to **moral and spiritual weakness**.

ie: gluttony was a sin, and “luxury foods” (sugar, spices, wine) were sometimes considered harmful to body and soul.

As medical science advanced, specific foods began to be identified as problematic:

1790s–1800s: Excess meat was blamed for gout (“the disease of kings”).

19th century: Vegetarian reformers in Europe and the U.S. (like Sylvester Graham, of graham cracker fame, and later John Harvey Kellogg) warned that meat, alcohol, and processed foods caused disease, immorality, and even sexual deviance.

This period also saw the start of food fads and elimination as a health strategy.

With the discovery of vitamins (1910s–1930s), foods started being labeled as “deficient” or “superior.”

At the same time, foods were demonized

1910s–20s:

Refined sugar and white flour were blamed for modern illness.

1950s–70s: Ancel Keys and others promoted the idea that saturated fat (and thus butter, meat, and dairy) was the root cause of heart disease.

This entrenched the “food-as-problem” narrative in modern medicine.

From the 1970s onward, foods have been cyclically demonized:

Fat → the enemy of the 1980s.

Carbs & gluten → the enemy of the 1990s–2010s.

Lectins, oxalates, seed oils → more recent “bad guys” promoted by alternative health movements.

The rise of social media amplified this—now single compounds or food groups get cast as the universal root of disease, often with little context.

The Resulting Issues

Guilt & shame → eating becomes moralized ("good" vs "bad" foods).

Fear & restriction → unnecessary eliminations, nutrient gaps, disordered eating.

Loss of body trust → people rely on external rules instead of listening to their own cues.

Cultural stigma → divides people by diet choices, adds moral weight to food.

Oversimplification → complex health issues reduced to a single "bad food," delaying real solutions.

Why Do People Come Up With These Theories

Desire for simple answers → “Fat makes you fat.”

Need for control → Going gluten-free for unexplained symptoms.

Cultural & moral beliefs → Sylvester Graham in the 1800s: meat causes lust/immorality.

Profit & popularity → A certain doctor’s “Lectin-Free Diet.”

Personal anecdotes → “I cut out dairy and my skin cleared up.”

Fear of modernity → Seed oils demonized for being “industrial.”

How does it spread?

We do it.

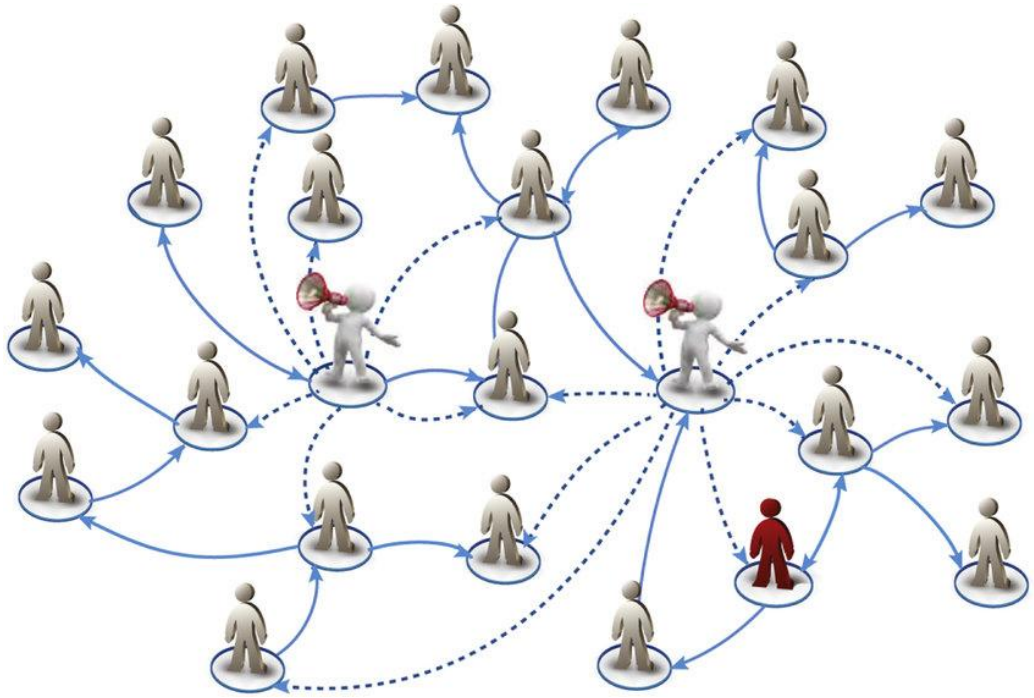
In the past, many of these theories had limited exposure

Now they spread like wildfire

Become common knowledge easily (internet)

Punchlines in TV shows

Tossed off as asides in talks by “health experts” (like everyone already agrees with it)



Where Does Science and Research Fit Into The Story?

Test-tube (petri dish) / animal studies overstated:

→ Lectins shown to bind gut cells in a petri dish
→ promoted as proof that beans and tomatoes “damage your gut” (ignoring how cooking and microbes change them in humans).

Observational studies confused with causation:

→ People who eat more red meat also smoke more, exercise less, and eat fewer vegetables
→ “Red meat causes heart disease.”

Cherry-picking studies:

→ Dozens of trials show dairy lowers inflammation, but a few showing negative reactions in milk-allergic individuals get highlighted to claim “dairy is inflammatory.”

Outdated science held as truth:

→ 1960s fat–heart hypothesis → “Butter and eggs cause heart disease,” even though later research corrected it.

Short-term effects generalized:

→ Blood sugar spikes after white bread in a lab setting → becomes “All carbs are bad for your health.”

How To Find Good Quality Information

The goal is to get past the articles on the internet

Get the studies

What studies to look for?

1. Human clinical studies ideally with people consuming the food

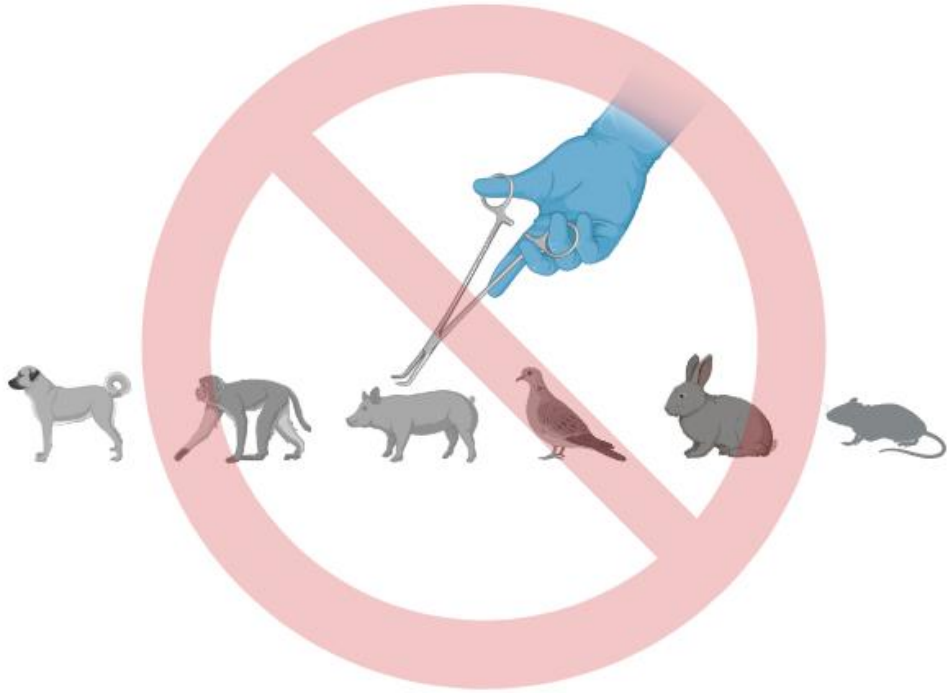
2. Human clinical studies with people consuming an element in the food

What about animal studies?

Depends on what they're looking at:

Feeding an animal a food (usually an element in food) and measuring gut bacteria can be useful

Feeding a mouse a type of diet, and looking for a disease outcome – not helpful

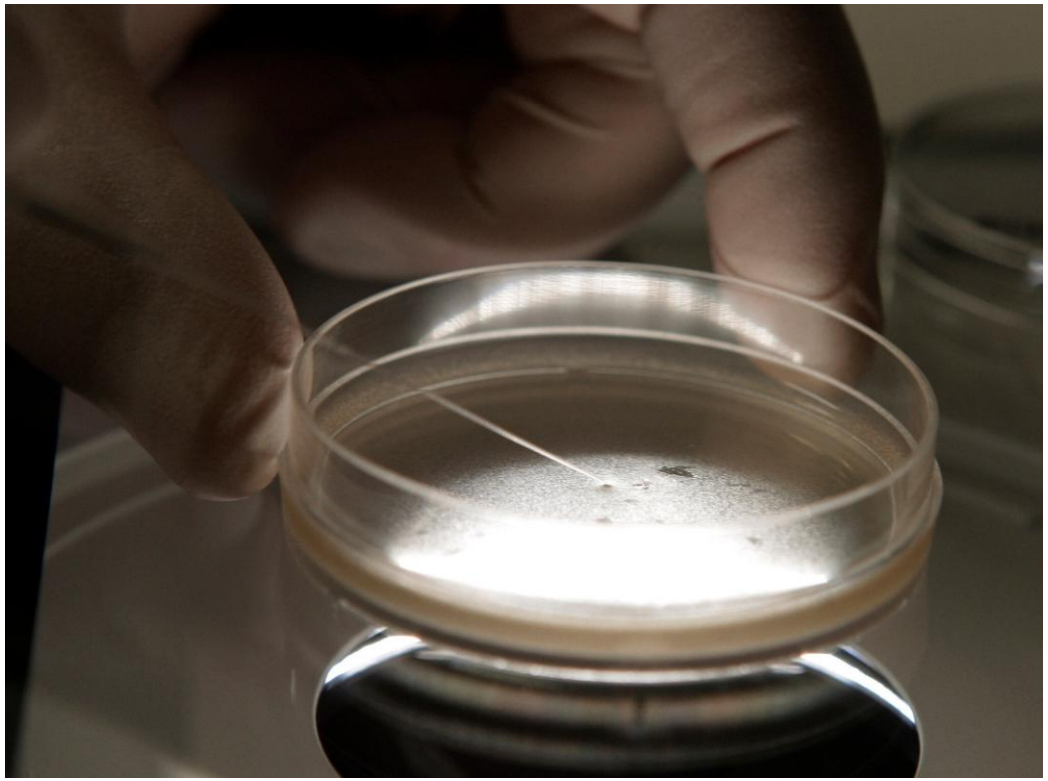


Avoid:

In-vitro studies – may be helpful for understanding mechanisms, but not applicable to human consumption

Ex-vivo studies – human cells (or animal) removed and put in a petri dish

Do not simulate the real process of going through the GI Tract



Watch out for this:

Scary Headline (Relative Risk)“Eating [X food] increases cancer risk by 40%!”

The Absolute Risk Reality: Suppose the baseline lifetime risk of this cancer is 0.5% (5 in 1,000 people).

A 40% increase raises that to 0.7% (7 in 1,000 people).

That means only 2 additional cases per 1,000 people — not nearly as frightening as “40% higher risk” sounds.

Why This Matters

Relative risk exaggerates perception (“40% more cancer!”).

Absolute risk shows the true impact (0.2% higher overall).

Headlines often highlight relative risk because it grabs attention, even though it may be clinically trivial.

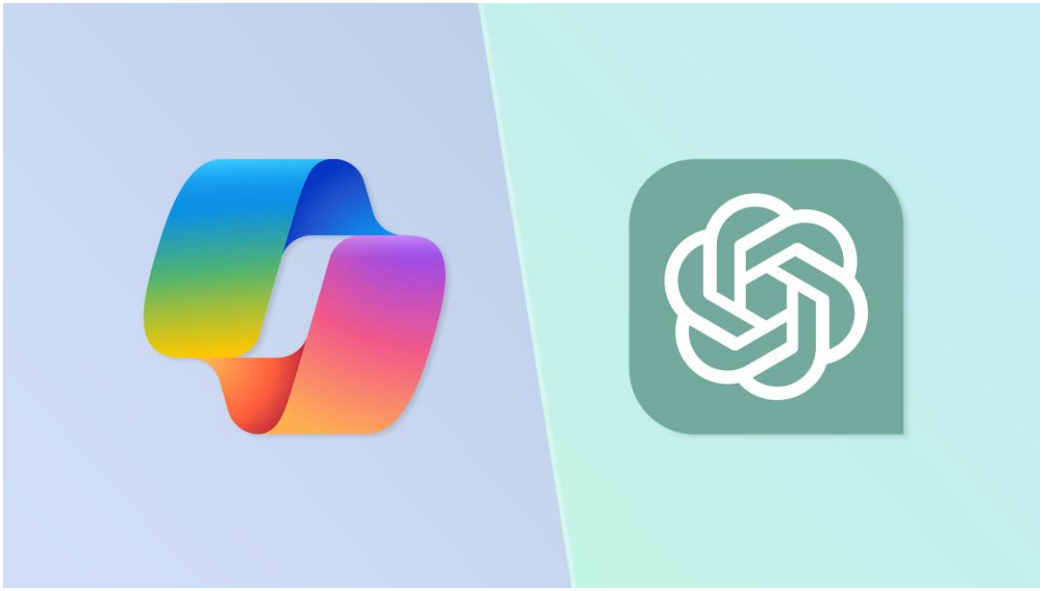
Real-world parallel: The World Health Organization’s classification of processed meats found about a 17–18% relative risk increase for colorectal cancer in high consumers. But in absolute terms, lifetime risk only shifts from about 5% to 6% — a 1% change.

Exercise

1. We’re going to pick the topic and question to ask either ChatGPT or Google

2. We’ll each search on our own computers and compare notes

3. We’ll then refine our questions to see how much detail we can get or how the answer can change



Here’s How I Research A Topic

I use ChatGPT primarily

I ask the question as generically as possible

Once I see the answer, I ask more questions

Sometimes, if I know the answer is missing information I have (like a study), then I add it so it can now incorporate it into the answer

Then I apply critical thinking and ask different questions to see how that refines the answer

I always ask for citations – if links are provided, check them

Some examples

Dairy, Calcium & Inflammation: Myth vs. Fact

Myth	Fact
Dairy 'leaches' calcium from bones.	Early studies misinterpreted higher calcium in urine. Later research shows it reflects better absorption, not bone loss.
Protein in dairy makes it inflammatory.	Calcium balance ≠ inflammation. Bone calcium shifts are hormonal, not immune-driven.
Dairy is inflammatory.	Human trials show dairy is neutral or anti-inflammatory, especially fermented dairy.
Avoiding dairy protects bones & reduces inflammation.	Dairy supports bone health; removing it without replacing nutrients may raise osteoporosis risk.

Lectins

Claim: “Lectins are toxic proteins that damage the gut lining, cause leaky gut, and trigger inflammation. To be safe, they should be eliminated from the diet.”

The Context (What the Science Really Says)

Found in beans, lentils, whole grains, tomatoes, potatoes, and other plants

Proper preparation (soaking, cooking, fermenting) neutralizes lectins

In a healthy gut, the mucus layer + microbes help prevent lectin effects

Lab concerns come from concentrated lectins in animals/cell studies—not real diets

Human studies: diets high in legumes, grains, and tomatoes reduce inflammation and support gut & metabolic health

Beans naturally contain phytohemagglutinin, a lectin especially high in red kidney beans

In humans, eating raw/undercooked beans can cause nausea, vomiting, and diarrhea

Why it's there: phytohemagglutinin protects the seed (the bean is the plant's storage and survival form) from insects and animals

Cooking: boiling beans destroys phytohemagglutinin, making them safe and highly nutritious

Sprouting: reduces lectins as enzymes activate, but beans must still be cooked after sprouting for safety

Kidney beans are high in phytohemagglutinin; mung beans are low

The Gut Lining

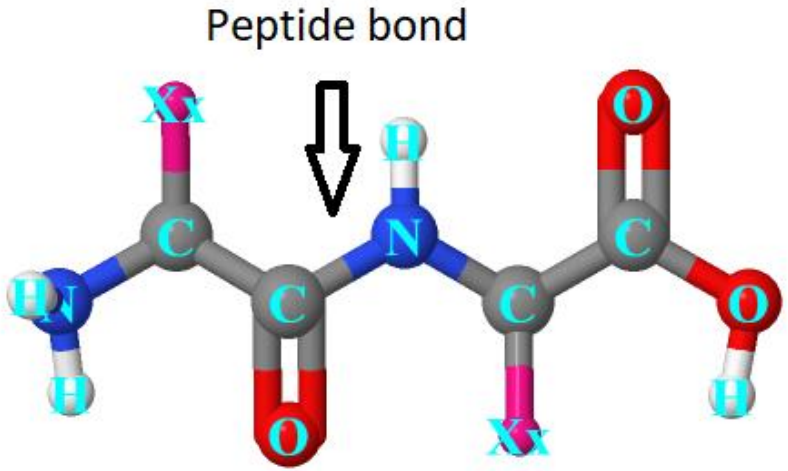
Peptides (any partial protein molecules) can lock onto receptor sites on the intestine's wall lining

Triggers the tight junctions to open – endotoxins can enter the bloodstream and potentially cause an inflammatory response

Mucus lining protects the gut lining and prevents this

Mucus lining maintained by gut microbes

Ex vivo studies on lectins don't reflect this



Gluten

The Claim (Fear)“Gluten damages the gut and should be avoided by everyone.”

The Context (What the Science Really Says)

- Celiac disease: In genetically susceptible individuals, gluten triggers an autoimmune response that damages the small intestine.

- Non-celiac gluten sensitivity (NCGS): Symptoms may occur with gluten, but often overlap with sensitivities to fructans (a FODMAP in wheat).

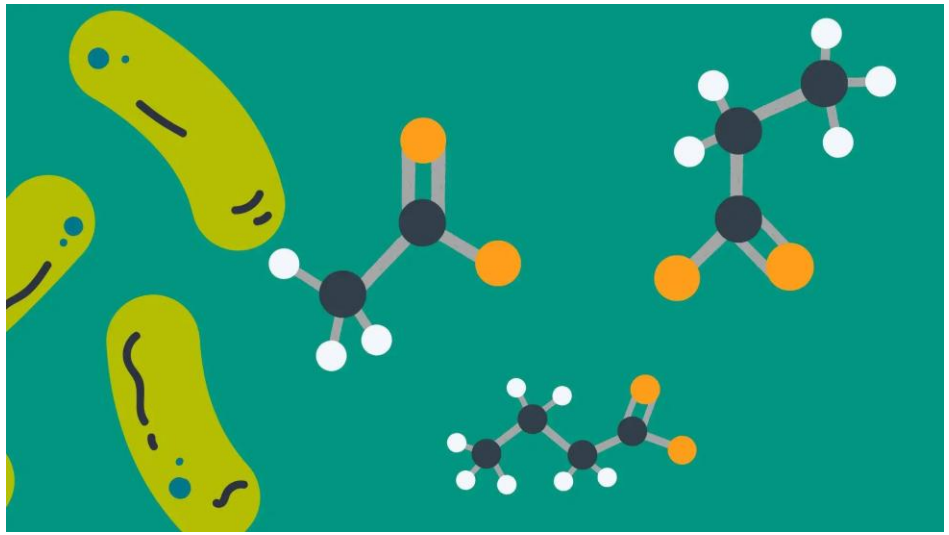
Controlled studies suggest fructans — not gluten — explain symptoms in many cases – a microbe issue.

The Microbe Connection

A healthy, balanced microbiome ferments fructans into **SCFAs like butyrate**, which support colon health and reduce inflammation.

But if someone has **low diversity or imbalance** (e.g., low butyrate producers, more gas-producers), symptoms are more likely.

Some people may also have slower gas clearance (linked to methane-producing microbes), which makes discomfort worse

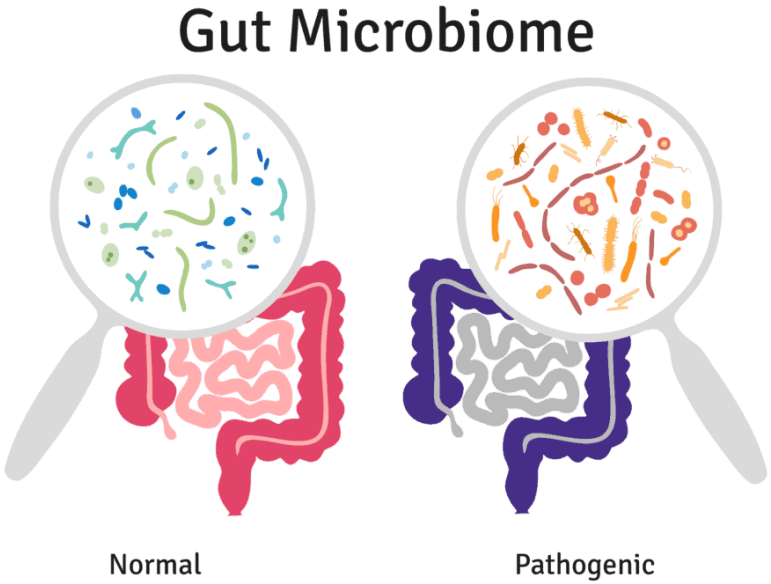


- Gut barrier context: The damage seen in celiac and NCGS is strongly associated with:

• Diminished mucus lining, reducing gut protection.

• Dysbiosis (microbial imbalance), making the gut more reactive to food peptides (gluten, casein, peanuts, etc.).-

- Healthy individuals: Gluten does not damage the gut lining if the mucus barrier is intact and the microbiome is diverse.



- Microbial fuel: Gliadin peptides can be degraded by gut microbes in the colon, generating nitrogen and short-chain fatty acids (SCFAs) that feed beneficial bacteria.

- Immune balance: SCFAs from gluten fermentation support regulatory T-cells, promoting tolerance rather than inflammation.

- Nutrients: Gluten-containing whole grains supply B vitamins, iron, magnesium, and phytonutrients. Also contains prebiotic fiber and resistant starch

- Chronic disease protection: Large population studies link whole-grain consumption (including gluten-containing grains) with reduced cardiovascular risk and overall mortality.

- Diet quality: Eliminating gluten unnecessarily often reduces fiber-rich, nutrient-dense whole-grain intake.

Oxalic Acid/Oxalates

Oxalic acid and oxalates are accused of being:

- Anti-nutrients – binding calcium, magnesium, and iron, reducing absorption.
- Toxic – said to accumulate in tissues and contribute to pain or fatigue.
- Inflammatory – claimed to trigger systemic inflammation or autoimmune reactions.
- Kidney stone–forming – assumed to be the main driver of calcium oxalate stones.

These claims have led some people to avoid spinach, beets, rhubarb, nuts, and dark chocolate.

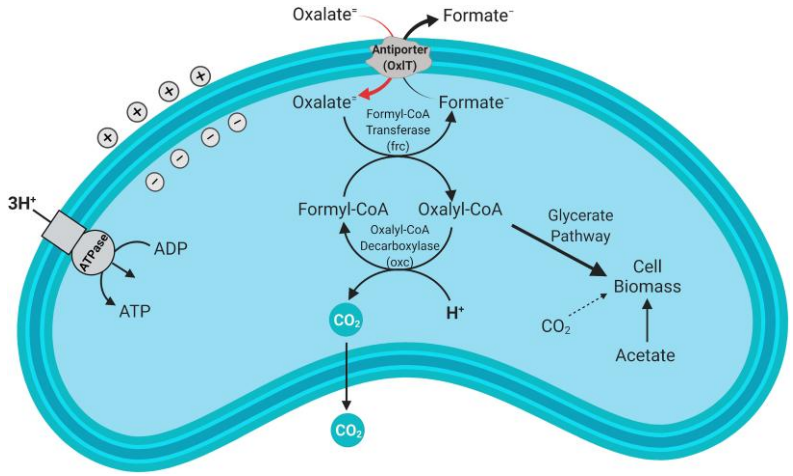
https://www.healthline.com/nutrition/oxalate-dumping#causes

Oxalic acid: an organic acid found naturally in plants.

• Oxalates: salts formed when oxalic acid binds to minerals.

They can be soluble (absorbed in the gut and excreted in urine) or insoluble (bound and passed in stool).

• It’s mainly soluble oxalates that affect kidney stone risk, while insoluble oxalates mostly reduce mineral absorption.



Oxalates do reduce mineral absorption from single foods (e.g., spinach calcium is poorly absorbed), but in a varied diet, this does not cause deficiencies.

- Most healthy individuals tolerate oxalates well; issues arise mainly in those with a history of kidney stones, fat malabsorption, or rare metabolic disorders.
- About 70–80% of kidney stones are calcium oxalate stones, but risk depends on hydration, calcium intake, microbiome diversity, and genetics.
- Cooking methods like boiling reduce oxalate content in vegetables.
- Gut microbes, including Oxalobacter formigenes and certain Lactobacillus/Bifidobacterium species, degrade oxalates and reduce urinary oxalate levels.

Foods high in oxalates are nutrient-dense and provide multiple health benefits:

• Anti-cancer potential: Spinach, beets, and certain fruits deliver polyphenols and compounds that support detoxification and inhibit tumor development.

Oxalates may also help regulate cellular calcium.

• Cardiovascular support: Leafy greens and beets provide nitrates, potassium, and magnesium, lowering blood pressure and supporting vascular health.

• Bone and connective tissue health: Many oxalate-containing foods are rich in vitamin K1, magnesium, and antioxidants.

• Gut microbiome support: Fiber and phytochemicals feed beneficial microbes, while **oxalates encourage colonization by oxalate-degrading bacteria**.

• Chronic disease risk reduction: Plant-forward diets high in oxalate-containing foods correlate with reduced risk of cardiovascular disease, diabetes, and cancer.

Phytic Acid & Cancer

aka IP6: Natural compound in beans, whole grains, nuts, seeds

Once labeled an “anti-nutrient” (binds minerals), but now recognized for health benefits

Research findings:

Inhibits tumor growth & spread in lab/animal studies

Acts as an antioxidant by reducing iron-driven free radicals

Supports immune defense & may enhance cancer therapy

Human studies: Small trials show promise, but more research is needed