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The latest on *ultra-processed foods*

BETTER THAN BUTTER?

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Make America Sick Again?

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Despite its "Make America Healthy Again" rhetoric, the Trump administration seems hell-bent on making our health *worse*.

Here's some of what we're tracking at CSPI (*Nutrition Action*'s publisher):

■ **U.S. Preventive Services Task Force.** The USPSTF weighs the evidence for mammograms, colonoscopies, and dozens of other tests or drugs. If they get USPSTF approval, insurance companies have to pay for them, thanks to the Affordable Care Act.

But in July, HHS Secretary Robert F. Kennedy Jr. abruptly canceled a USPSTF meeting, raising fears that he may never allow it to meet, as I told the *New York Times*. Or he might replace its experts with people who are unwilling or unqualified to weigh the evidence objectively, as he did with the Advisory Committee on Immunization Practices.

Could that mean that insurance would pay for a useless supplement but not your next cancer screening test?

■ **mRNA vaccine research funding.** In August, Kennedy canceled nearly $500 million in funding to develop new mRNA vaccines, claiming that they "fail to protect effectively against upper respiratory infections like Covid and flu."

In fact, mRNA vaccines likely saved millions of lives from Covid. They're more precise—and far quicker to develop—than the older technologies.

And mRNA vaccines could potentially treat cancers, prevent type 1 diabetes, and more. Why shut off that pipeline now?

RFK Jr. also adopted advice from his handpicked immunization advisory committee to ban thimerosal in flu vaccines after barring CDC experts from presenting data demonstrating the preservative's safety.

■ ***Dietary Guidelines for Americans.*** We joined 54 medical and public health organizations in urging Kennedy to issue the 2025-2030 *Dietary Guidelines* based on the conclusions of a panel of experts who examined the scientific evidence for nearly two years.

If RFK Jr.'s decisions depend on his gut rather than solid science, we're in trouble.

Instead of relying on those conclusions, as the *Guidelines* typically have, "We're going to have four-page *Dietary Guidelines* that tell people essentially, eat whole food, eat the food that's good for you," Kennedy told Congress.

There's a theme here: Don't worry about carefully evaluating the strongest science. Simply go with your gut—that is, Kennedy's gut—and whatever views are popular among your online influencers.

When crucial decisions about our health are based on flimsy or biased science, we're all in trouble.

Peter

Photos: Jennifer Urban - CSPI (top), Gage Skidmore (middle), Kaleb Lovell - unsplash.com (bottom).

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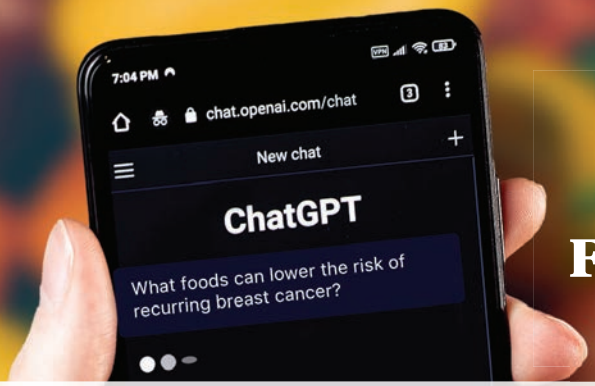


ChatGPT

Far from Goof-Proof Truth

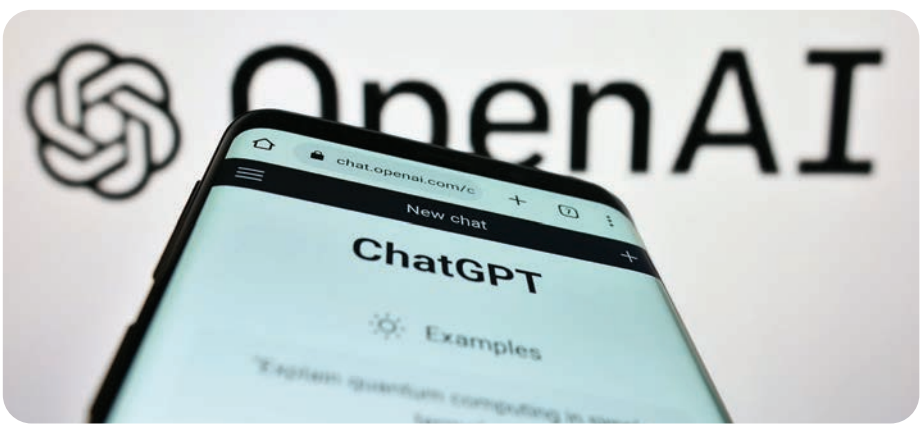
BY BONNIE LIEBMAN

Last year, we wrote about the pitfalls of using Google AI for advice about diet and health. What about ChatGPT? The popular AI chatbot has its own shortcomings. Here's a sampling of what to trust...and what to ignore.

1 Ask for ChatGPT's evidence. Unlike Google AI's overviews, which often grab advice about diet and health from random internet sites (like a company that sells kitchen wares or a website for learning Spanish), ChatGPT makes it easier to drill down to a scientific paper or other source of its advice.

Let's say you ask ChatGPT a question like "What foods can lower the risk of prostate cancer?" You can follow up by asking "What's the evidence for your advice?" (ChatGPT often starts its reply with "Great question." Gee, thanks!).

The chatbot then supplies a list of studies that may look impressive. But there's no guarantee that those studies are the most trustworthy.



Be skeptical of ChatGPT's answers. Start by asking for its evidence.

2 Check the sources. Click on every link to evidence. Don't be surprised if you find mistakes.

For example, some links go to studies that contradict ChatGPT's advice (oops!) or to animal or test-tube studies (not the strongest evidence). We also found broken links or studies on the wrong topic.

If ChatGPT cites a health authority (like the American Cancer Society), check the link to make sure the advice is really there.

But even when ChatGPT accurately cites studies, you can't be sure that they offer the best evidence. For example, it seems to *love* meta-analyses and reviews (which typically combine the results of dozens of studies). But those overall results sometimes gloss over weaknesses in the original studies.

Meanwhile, ChatGPT sometimes misses top-notch evidence from gold-standard randomized clinical trials that fail to support its advice.

3 Remember: ChatGPT aims to please. When it comes to questions like "What foods can lower the risk of [insert illness]?" ChatGPT rarely seems to say "Sorry, foods can't help."

For example, when we asked "What foods can prevent Covid?" the chatbot said "No food can *prevent* Covid-19 on its own, but a healthy diet can support your immune system, which may help your body better fight infections, including Covid-19."

Do they, though? ChatGPT's list of "Immune-Boosting Nutrients & Food Sources" starts with vitamins C and D. Yet in clinical trials, neither has helped speed recovery from Covid (see Mar./Apr. 2025, p. 18).

4 Ask for contradictory evidence. When we asked "What evidence contradicts your advice?" about pancreatic cancer, ChatGPT hedged. "Here's where the evidence becomes inconclusive, limited, or contradictory," it replied.

Another tip: Repeat the same questions to see if you get somewhat different answers.

For example, when we repeated the question "Which foods can lower the risk of pancreatic cancer?" several times, mushrooms, onions, and garlic made the list for a few of our queries and didn't make it for a few others.

"ChatGPT can make mistakes," the chatbot often notes. Indeed.

Turn the page to see the responses we got to several queries.

What foods can lower the risk of **recurring breast cancer?**

Foods may help, said ChatGPT.

■ **Fruits & vegetables (especially cruciferous).** Their antioxidants, carotenoids, and indoles can help, we were told.

But when we asked for evidence, ChatGPT noted that a 2013 study that pooled data on 11,390 women "found no significant link" between cruciferous vegetables and cancer recurrence.[1]

And the WHEL trial, which randomly assigned roughly half of 3,088 breast cancer survivors to eat more fruits and vegetables for seven years, "found no benefit" for recurrence, noted ChatGPT.[2] Hello?

■ **Omega-3 fats.** Fatty fish's "anti-inflammatory omega-3s (EPA and DHA) may reduce cancer-promoting inflammation," said ChatGPT.

Its evidence? A meta-analysis that didn't look at cancer recurrence.[3] Maybe that's why the chatbot added that "evidence in recurrence is not as strong as in primary prevention but promising."

Promising? Note to ChatGPT: Fish oil had no impact on breast cancer risk in the largest trial done.[4]

■ **Legumes & whole grains.** "High fiber intake has been associated with reduced breast cancer mortality," asserted ChatGPT.

It cited a 2012 "key meta-analysis" that reported that women who ate the most fiber had a 7 percent lower risk of being diagnosed with breast cancer than those who ate the least.[5] (So much for recurrence or "mortality.")

What ChatGPT missed: The WHEL trial, which encouraged breast cancer patients to consume 30 grams of fiber a day for seven years, came up empty.[2]

BOTTOM LINE: ChatGPT also recommended green tea, turmeric, garlic, onions, nuts, and seeds, but the evidence that any food can lower the risk of breast cancer recurring is limited.

After we probed, the chatbot's "Final Thoughts" changed its tune:

"The strongest evidence for diet and breast cancer recurrence comes from cohort and observational studies...but results are inconsistent and sometimes small. Large randomized trials like WHEL didn't show benefit, highlighting how hard it is to prove causation in nutrition." Coulda said that earlier...

[1] *Cancer Epidemiol. Biomarkers Prev.* 22: 1451, 2013.
[2] *JAMA* 298: 289, 2007.
[3] *BMJ* 346: f3706, 2013.
[4] *N. Engl. J. Med.* 380: 23, 2019.
[5] *Ann. Oncol.* 23: 1394, 2012.

What foods can lower the risk of **osteoarthritis pain?**

Try these, suggested ChatGPT:

■ **Fatty fish.** They're "rich in omega-3 fatty acids, which reduce joint inflammation and stiffness."

The chatbot cited a 2021 meta-analysis of six clinical trials on 454 people.[1] Unfortunately, differences between the six studies and other limitations "indicate low-quality evidence and do not provide a basis for clinical guidelines," said the meta-analysis's authors.

Worse yet, ChatGPT missed the VITAL trial, which gave 1,398 people with knee pain fish oil (840 mg of EPA plus DHA) or a placebo every day for five years. Pain scores? No different.[2]

And when we scrolled down far enough, ChatGPT told us that "omega-3 and vitamin E showed no significant changes" in a 2022 meta-analysis.[3] So much for reducing joint inflammation and stiffness.

■ **Leafy greens.** "A study in *American Journal of Medicine* found that low vitamin K levels were associated with more severe OA" (osteoarthritis), said ChatGPT.[4] (Wrong journal, but whatever.)

Too bad the chatbot missed a clinical trial that gave 378 people with hand osteoarthritis a daily multivitamin with or without vitamin K (which is abundant in leafy greens).[5] After three years, "there was no overall effect of vitamin K," concluded the authors.

■ **Low-fat dairy.** "Vitamin D is crucial for bone and joint health," said ChatGPT. "Low levels are linked with increased OA pain and progression."

Umm... Remember the VITAL trial on 1,398 people? After five years, those who were randomly assigned to take vitamin D (2,000 IU a day) had no less knee pain than those who got a placebo.[2]

BOTTOM LINE: ChatGPT also recommended turmeric, citrus fruits, berries, nuts, seeds, olive oil, whole grains, water, and green tea, but so far, there's no solid evidence that any food curbs osteoarthritis pain (see Jan./Feb. 2024, p. 10).

[1] *Oral Surg. Oral Med. Oral Pathol. Oral Radiol.* 132: 297, 2021.
[2] *Arthritis Rheumatol.* 72: 1836, 2020.
[3] *Nutrients* 14: 1607, 2022.
[4] *Arthritis Rheum.* 54: 1255, 2006.
[5] *Ann. Rheum. Dis.* 67: 1570, 2008.

Photos: stock.adobe.com - Taras Grebinets (top), JackF (bottom).

What foods can lower the risk of **cataracts?**

Foods rich in these components may matter, said ChatGPT:

■ **Lutein & zeaxanthin.** "These carotenoids accumulate in the lens and retina and filter harmful blue light," it declared. But in the AREDS2 trial—in people with intermediate or advanced age-related macular degeneration (AMD)—those who got lutein and zeaxanthin supplements had no lower risk of cataract surgery.[1]

Among people in the trial with the lowest intakes of lutein and zeaxanthin from foods (like leafy greens), those who got the supplements were 32 percent less likely to need cataract surgery. But researchers would need a new trial on people with low intakes to know if lutein and zeaxanthin matter.

■ **Vitamin C.** In studies that track people for years, those who eat vitamin C-rich foods (like broccoli, berries, and citrus fruit) have a lower risk of cataracts, noted ChatGPT.[2]

But vitamin C failed to prevent cataracts in clinical trials, suggesting that something else about fruit-and-vegetable eaters curbs their risk.[3]

■ **Vitamin E.** It's a "powerful antioxidant" in foods like almonds and avocados that's "associated with a lower risk of cataracts," said ChatGPT. But in clinical trials, vitamin E hasn't helped.[2,3]

■ **Omega-3 fats.** They're "linked to lower incidence of nuclear cataracts, though evidence is more robust for age-related macular degeneration than cataracts," said the AI tool.

More robust? It's more like a double bust. In the AREDS2 trial, omega-3 fats had no impact on macular degeneration *or* the risk of cataract surgery.[4]

■ **Zinc.** "While primarily focused on AMD, the protective role of zinc in oxidative stress supports its inclusion in cataract prevention," said ChatGPT.

Translation: We've got no good evidence that zinc protects against cataracts.

BOTTOM LINE: To help prevent cataracts, wear sunglasses with UV protection year-round, don't smoke, and get some lutein from foods like leafy greens, peas, broccoli, and yellow corn.

[1] *JAMA Ophthalmol.* 131: 843, 2013.
[2] *Am. J. Clin. Nutr.* 109: 43, 2019.
[3] *Cochrane Database Syst. Rev.* 2012: CD004567, 2012.
[4] *JAMA* 309: 2005, 2013.

What foods can lower the risk of **pancreatic cancer?**

These could do the trick, we were told.

■ **Fruits & vegetables.** They topped the list. But when asked for studies, ChatGPT said that only "cruciferous vegetables, not total produce, were inversely associated with pancreatic cancer" in a 2006 Swedish study.[1]

But, as it turns out, the link with cruciferous vegetables wasn't statistically significant either. Oops.

ChatGPT also cited two meta-analyses to back up its advice on cruciferous vegetables.[2,3] But the links were only significant in "case-control" studies, which compare what people with cancer (cases) say they typically ate before their diagnoses to what people without cancer (controls) say they typically ate.

That's weaker evidence because of "recall bias"—that is, a diagnosis may alter what people remember eating.

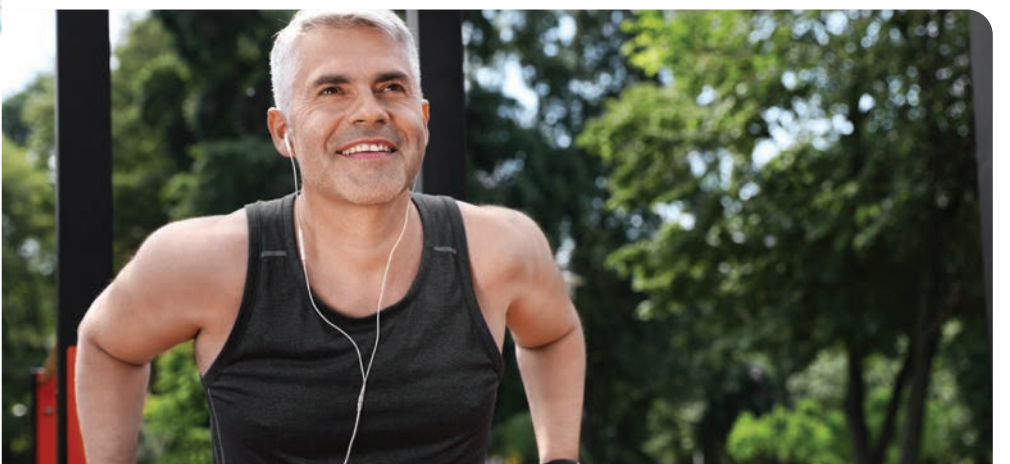
In a stronger 2012 meta-analysis, researchers pooled data on 862,584 people from 14 studies that asked people what they ate and then waited years to see who got cancer.[4]

"Fruit and vegetable intake...is not associated with a reduced pancreatic cancer risk," concluded the scientists.

■ **Fatty fish.** Omega-3 fats curbed the growth of pancreatic cells in test tubes and in mice in a 2011 study, said ChatGPT.[5] Evidence in humans? Scant.

BOTTOM LINE: ChatGPT also recommended whole grains, beans, nuts, and green tea, but there's little evidence that any food can lower pancreatic cancer risk.

The chatbot did recommend limiting red and processed meats to reduce the risk of pancreatic cancer, citing the International Agency for Research on Cancer and the American Institute for Cancer Research. At least that advice comes from human experts who can weigh the strength of the evidence!



[1] *Cancer Epidemiol. Biomarkers Prev.* 15: 301, 2006.
[2] *World J. Surg. Oncol.* 13: 44, 2015.
[3] *Eur. J. Nutr.* 63: 2421, 2024.
[4] *Am. J. Epidemiol.* 176: 373, 2012.
[5] *Pancreatol.* 22: 574, 2011.

What foods can lower the risk that **early-stage prostate cancer gets worse?**

Here's some of ChatGPT's advice:

■ **Tomatoes.** They're rich in lycopene, "a powerful antioxidant," noted the chatbot. "Some small trials showed that lycopene supplements or tomato products might reduce PSA levels."

(Elevated PSA, or prostate-specific antigen, is a marker of prostate cancer.)

Hmm. In the trial that we *think* ChatGPT meant to cite—we're not sure because the link was broken—PSA levels were not significantly lower in lycopene takers.[1]

■ **Cruciferous vegetables.** They "contain sulforaphane, which may inhibit cancer cell growth," said ChatGPT.

"May" is right. "This study does not provide compelling evidence of a protective influence of cruciferous vegetables on prostate cancer risk," said the study that we think ChatGPT meant to cite.[2] (Bad link again.)

■ **Soy foods.** They "contain isoflavones (e.g., genistein), which may have anti-androgenic effects," explained ChatGPT.

We gave up trying to find the studies that it meant to cite.

But we did find a 2021 review of randomized controlled trials on isoflavones. They "seem to have no influence on PSA levels in localized prostate cancer," it concluded.[3]

BOTTOM LINE: ChatGPT also recommended green tea, pomegranates, legumes, berries, and fatty fish, despite weak evidence.

What's more, ChatGPT ignored the MEAL trial, which randomly assigned 443 men with early-stage prostate cancer to a control group or to eat at least seven daily servings of vegetables (especially cruciferous, leafy green, or carotenoid-rich ones). After two years, the veggies had no impact on cancer progression.[4]

Veggies can still help protect your heart and waist. Prostate? Not clear.

[1] *Cancer Epidemiol. Biomarkers Prev.* 10: 861, 2001.
[2] *Cancer Epidemiol. Biomarkers Prev.* 12: 1403, 2003.
[3] *Nutr. Cancer* 73: 361, 2021.
[4] *JAMA* 323: 140, 2020.

What foods can lower the risk of **hair loss?**

We got some interesting answers on this one.

■ **Protein.** "Hair is primarily made of a protein called keratin, so a protein-rich diet is essential," explained ChatGPT. According to its source, "protein malnutrition, such as in kwashiorkor and marasmus, can result in hair changes that include hair thinning and hair loss."[1]

No doubt. But what if you're not severely malnourished?

"It is unclear what role, if any, is played by amino acid and protein supplementation in the absence of known deficiency," said the source.[1]

■ **Zinc.** "Lower zinc levels were found in patients with alopecia areata," noted ChatGPT. "Supplementation showed improvement in some cases."

Alopecia areata is an autoimmune disease in which the immune system mistakenly attacks hair follicles, causing inflammation and hair loss.

We couldn't find the cited study on zinc. (ChatGPT's link went to a rat study on selenium nanoparticles.) But the only double-blind trial testing zinc on alopecia areata came up empty.[2]

■ **Vitamin A.** "A 2019 review noted both deficiency and excess can harm hair," cautioned ChatGPT.

Its link sent us to a *retracted* 2019 study on osteosarcoma cells, but we managed to find the right one. The review's advice: "As a general rule, consuming too much or over-supplementing vitamin A can cause hair loss."[3] In other words, vitamin A is *not* good for preventing hair loss.

■ **Biotin.** It "only helps those with a diagnosed deficiency (which is rare)," said ChatGPT.

Correct! So why list eggs as a biotin-rich food that can help prevent hair loss?

BOTTOM LINE: ChatGPT also recommended foods rich in selenium, omega-3 fats, and vitamin C, but don't count on any food to prevent or treat hair loss. Ditto for the chatbot's "Bonus Tips" like stay hydrated, limit processed foods and sugar, and check for iron, vitamin D, zinc, and B-12 deficiencies.

How about evidence deficiencies?

[1] *Dermatol. Pract. Concept.* 7: 1, 2017.
[2] *Br. J. Dermatol.* 104: 483, 1981.
[3] *Dermatol. Ther.* 9: 51, 2019.

Photos: stock.adobe.com - sevenSkies (top), Александра Замулина (bottom)

Seeds of doubt

WHAT TO KNOW ABOUT SEED OILS

BY CAITLIN DOW

If you believe the rumors, you might assume that seed oils are pro-inflammatory wrecking balls, devoid of nutrients, and toxic for your health. What does the evidence say?

Oils 101

Seed oils come from the seeds of plants. Think soy, canola, corn, sunflower, and safflower. Other oils, like olive, coconut, palm, and avocado, come from fruits.

All oils contain a mix of saturated, monounsaturated, and polyunsaturated fatty acids. (Polys are further broken down into omega-6 and omega-3 fatty acids.)

Olive, avocado, and canola oils are mostly monounsaturated fats, while soybean, corn, and grapeseed oil are particularly high in polyunsaturated omega-6 fats. Coconut oil, on the other hand, is almost all saturated fat. (For a list of different oils and their fat content, check out cspi.org/seedoils.)

What about those bottles of "vegetable oil" on supermarket shelves?

That's a generic term for any oil made from plants (as opposed to, say, butter, lard, or tallow). But the term typically refers to refined seed oils that have a pale color and neutral flavor that serve as a blank canvas for cooking. It's typically soybean oil (or a blend of soybean and other seed oils).

Are seed oils really unhealthy?

In a word, no. In studies that ask thousands of people what they eat, then follow them for decades, those who report eating more unsaturated, plant-based fats have better health outcomes than those who say they eat more saturated, animal-based fats (like butter).

For example, in one recent study that followed more than 220,000 people for up to 33 years, participants who ate the most plant-based oils (which included olive and seed oils) had a lower risk of dying during the study. Replacing about two teaspoons of butter with plant-based oils each day was linked to a 17 percent lower risk of early death. And those benefits held true when the researchers looked at canola, soybean, and olive oils separately.[1]

Those results jibe with the American Heart Association's advisory on dietary fats and cardiovascular disease.[2]

"The best intervention studies show that rates of heart disease are nearly 30 percent lower when you replace animal fats with plant oils, primarily soybean oil," says Alice H. Lichtenstein, leader of the diet and chronic disease prevention for healthy aging directive at the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University.

And in studies that followed thousands of people for decades, those who consumed the most polyunsaturated or monounsaturated fats had a lower risk of heart disease than those who consumed the most saturated fat, noted the heart association.

Those results were backed up by studies reporting that the arteries of

Seed oils are healthy. They don't cause inflammation, and they lower your risk of heart disease compared to saturated fats like butter, beef tallow, and coconut oil.

Photos: stock.adobe.com - New Africa (top), Halfpoint (bottom).

Don't worry about exaggerated claims that seed oils have been stripped of their nutrients or contain toxic chemicals.

nonhuman primates (like rhesus monkeys) were more clogged when they were fed saturated fats rather than polyunsaturated fats.

What's more, clinical trials in humans show that replacing saturated fats with unsaturated fats lowers LDL—the "bad" cholesterol that promotes artery clogging.

Taken together, the research makes it crystal clear that seed oils are healthy, not harmful.

Does the ratio of omega-6 to omega-3 fats matter?

For decades, some people have argued that your health depends on how much omega-6 fats you eat versus how much omega-3 fats you eat.

"Historically, human diets contained roughly equal amounts of omega-6 and omega-3 fats, or at most, about four times as much omega-6," writes functional medicine doctor Mark Hyman on his website (drhyman.com).

"But with the rise of seed oils and processed foods, that ratio has skyrocketed—often reaching 10 times, 20 times, or even higher."

Why might that matter?

"Omega-6 and omega-3 fatty acids compete for certain enzymes," explains Lichtenstein. Those enzymes can convert the omega-6 fat linoleic acid into an omega-6 fat called arachidonic acid, which can then get converted into compounds that promote inflammation.

But those enzymes also convert the most abundant omega-3 fat in our diet, alpha-linolenic acid, into other omega-3 fats that have anti-inflammatory effects.[3]

"So if you accept that omega-6 fatty acids are pro-inflammatory and omega-3 fatty acids are anti-inflammatory, then the ratio seems important," says Lichtenstein. "It sounds credible. But it's not evidence-based."

In reality, inflammatory processes are far more complex.

For starters, only 0.2 percent of the linoleic acid we eat is actually converted to arachidonic acid.[4] And in trials that slashed linoleic acid intake by up to 90 percent or boosted it nearly six-fold, levels of arachidonic acid in the blood didn't budge.[5]

So the focus on linoleic acid's effect on arachidonic acid is misplaced.

What's more, an analysis of 30 randomized controlled trials found that eating more linoleic acid was not linked to higher blood levels of inflammatory markers.[6]

And in an analysis of data from nearly 70,000 people, higher blood levels of both linoleic acid and arachidonic acid were linked to a *lower* risk of cardiovascular disease.[7] (That study was partially funded by Unilever, which makes omega-6-rich mayonnaise.)

The takeaway: Omega-6 fats aren't pro-inflammatory, so you can ignore claims about the ratio of omega-6 to omega-3 fats.

How are seed oils made?

Why do oils need to be refined?

"A crude vegetable oil is pretty inedible," says Eric Decker, professor of food science at the University of Massachusetts Amherst. "It's not something you'd want to consume."

The refining process removes components of crude vegetable oils that can lead to rancidity, splattering, unpleasant flavors, or a dark color. The result: a neutral-tasting oil with a long shelf life that can be used at high heat without smoking.

Some oils—like extra-virgin olive oil or finishing oils (like toasted sesame or walnut) that are used in salad dressings or added after cooking—are made by using a press to force the oil out of the seed or fruit.

But most other oils are extracted using chemicals like hexane or a mix of mechanical and chemical methods.

Why do seed-oil processors use hexane?

"Hexane is used because the manufacturer is trying to recover 100 percent of the oil from the fruit or seed," Decker explains.

"When pressing, you leave a lot of the oil in the pomace, which is the solid material that's left behind. Hexane is just the most efficient way to get everything out."

After the oil is extracted, the hexane is evaporated off. Very little, if any,

remains. Also, "if you cook with the oil, you'll probably evaporate off any remaining hexane," says Decker.

That said, the Food and Drug Administration hasn't set a hexane limit for cooking oils.

"It would be great if there was more transparency," says Decker. "I'm pretty confident that the industry knows how much residual hexane is in the oil, but they've chosen not to make that data public."

Is hexane harmful?

It can cause neurological problems—like muscle weakness, numbness, and decreased sensation—in people who work with hexane and inhale it regularly, like in shoe factories where hexane is used as a component of glue.[8]

"But there's no evidence that the amount in your cooking oil would be a concern," says Decker.

Even so, the European Food Safety Authority is re-evaluating the use of hexane in producing food. So stay tuned.

In the meantime, if you want to avoid hexane, buy extra-virgin olive oil or any organic oil. (Organic oils can't be made using hexane.)

Are seed oils devoid of antioxidants?

The downside of refining is that it's hard to remove the stuff you don't want—like off-flavors and compounds that can make the oil go rancid—and keep the stuff you do want, like antioxidants. But you don't lose everything in a refined oil.

"People say refining strips oils of all their antioxidants," says Decker. "That's wrong."

The refining process does remove some tocopherols, which are forms of vitamin E that act as antioxidants.

"But manufacturers recover those tocopherols and can add them back to get to the optimum level," notes Decker.

That's not necessary with soybean oil. "Soybean oil has more tocopherols than the optimum level," says Decker. "So they take that extra tocopherol that's removed during refining and sell it as a vitamin E supplement or as an antioxidant to be used in foods."

And despite some claims, all oils (even refined ones) contain tocopherols. "They provide resistance to oxidation," Decker explains. "If they weren't there, the oil would oxidize in the bottle in just a couple days."

Why do seed oils get such a bad rap?

It's not just claims about inflammation, toxic chemicals, and lost nutrients. Seed oils may also be guilty by association because they're often used in ultra-processed foods.

But there's no reason to assume that seed oils explain why people who eat more ultra-processed foods have a higher risk of some illnesses.

Something else about those foods—which are often high in calories, white flour, added sugars, and salt—or something else about the people who eat them could explain those higher risks.

"A lot of the criticism of seed oils is because of their use in frying oil," says Decker. "Yet nobody seems to be saying 'Eat less fried food.'"

Some companies are making things worse by bowing to pressure and switching from seed oils to fats that are truly unhealthy.

(The Steak 'n Shake chain, for example, recently replaced seed oils with cholesterol-raising beef tallow as the frying fat for its fries, onion rings, and chicken tenders.)

BOTTOM LINE: Don't worry about the seed oils in your mayonnaise, salad dressing, buttery spread, or cooking oil. Replacing ultra-processed foods with fruits, vegetables, beans, whole grains, and other unprocessed foods can't hurt, but chicken, fries, or onion rings that are fried in beef tallow rather than seed oils are no gift to your arteries.

(For more information on how oils are refined, which cooking oils to choose, and how to store your oils, visit cspi.org/seedoils.)

Ultra-processed foods often contain seed oils. But that doesn't mean that they're to blame for the illnesses linked to those foods.

Photo: Emvats - stock.adobe.com.

[1] *JAMA Intern. Med.* 185: 549, 2025.
[2] *Circulation* 136: e1, 2017.
[3] *Prostaglandins Leukot. Essent. Fatty Acids* 32: 34, 2018.
[4] *J. Lipid Res.* 46: 269, 2005.
[5] *Nutr. Metab.* 2011. doi:10.1186/1743-7075-8-36.
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Food Intelligence

A CAPTIVATING DIVE INTO FOOD & HEALTH

Kevin Hall's pioneering research—on ultra-processed foods, weight loss, and more—has made headlines. Hall left the National Institutes of Health in April, charging that political appointees had censored his work. In a new book, *Food Intelligence*, Hall and co-author Julia Belluz turn nutrition science into a fascinating read. Here's a glimpse into what it reveals.

KEVIN HALL is a former researcher at the National Institute of Diabetes and Digestive and Kidney Diseases and co-author of *Food Intelligence: The Science of How Food Both Nourishes and Harms Us.* He spoke with *Nutrition Action's* Bonnie Liebman.

What explains the U.S. obesity epidemic? Is it our genes?

KH: There's a huge genetic component to body size. Heritability accounts for 40 to 70 percent of the variability in body size between people in a given environment.

But genes did not change enough to give rise to the explosion of people with obesity in many westernized countries over the past half-century.

Something else had to generate the weight gain in the most genetically susceptible people.

What might that be?

KH: We incentivized our food system to produce a calorie glut because of a longstanding fear that population growth would outpace our ability to grow enough food.

As late as the 1980s, when obesity rates were starting to climb, we had biologists like Paul Ehrlich portending mass starvation in America. Fortunately, the science and policies of the Green Revolution averted this disaster by driving up the calories and protein we were producing.

Far more than we needed?

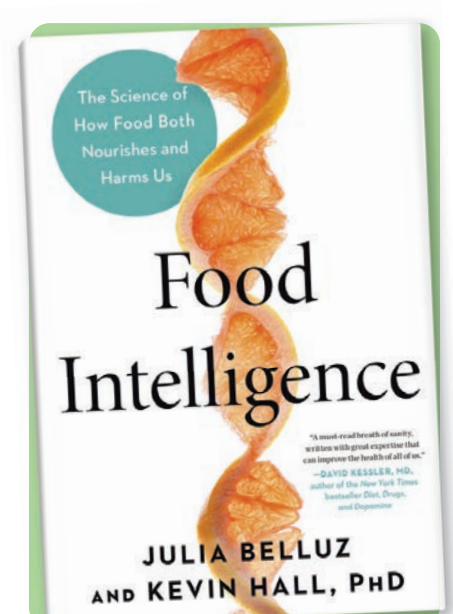
KH: Yes. If you look at the four major U.S. food commodity crops—corn, soy, wheat, and rice—we produce 15,000 calories per person per day.

How have the commodity crops changed our food supply?

KH: They're not directly eaten by people. Rather, they're exported or used to produce biofuels or feed animals, and some are used as cheap inputs for ultra-processed foods.

When you walk around a supermarket, you have the illusion of diversity, but you're mostly looking at commodity crops in various guises.

The rows of soda and sweet drinks, the aisles stocked full of snacks and candy, the freezers brimming with ready-to-heat meals. Most are derived from corn, rice, wheat, or soy, mixed with artificial colors and flavors.



Meanwhile, we tell people to eat more vegetables, but we don't grow enough to feed them, and we don't subsidize their production at the scale required to make them affordable.

And our food system is harming the planet?

KH: Yes. Almost half of the Earth's habitable land is used to grow food. And nearly 80 percent of that is devoted to producing livestock, both for grazing and producing feed.

Worldwide, agriculture is responsible for about 70 percent of our fresh water use, and it's responsible for a quarter of greenhouse gas emissions. The vast quantities of fertilizer, pesticides, and herbicides used in agriculture have poisoned our land and waterways.

What did your study on ultra-processed foods, or UPFs, find?

KH: Our first study showed that a diet that was high in UPFs led people to overconsume calories—an extra 500 per day—compared to a diet with no UPFs that had the same amounts of nutrients like sodium, sugar, carbs, and fat.

As a result, people gained weight on the UPF diet and lost weight on the diet without UPFs.

So the question was: What are the main drivers of this effect?

Which drivers were the most likely?

KH: One was the calorie density—the calories per gram—of the meals on the plate, not counting the beverages. Second was the number of so-called hyperpalatable foods—that is, foods that were high in fat *and* sugar or high in fat *and* salt or high in carbs *and* salt. Our new study—which is still ongoing—is using four diets to test those two factors.

What are the four test diets?

KH: The first diet is minimally processed, so it has no UPFs, and it's also low in both calorie density and hyperpalatable foods. The second diet is high in UPFs, with meals that are high in calorie density and hyperpalatable foods.

The third diet is also high in UPFs, but it's low in both calorie density and hyperpalatable foods. The fourth diet is high in UPFs and calorie density, but low in hyperpalatable foods.

All four diets have the same amount of sodium, sugar, fat, carbs, fiber, and protein.

What have you seen so far?

KH: When we looked at the first half of the participants, people consumed about 1,000 calories a day more on the UPF diet that was high in calorie density and hyperpalatability compared to the minimally processed diet. And they gained about two pounds in a week.

However, people didn't overconsume calories on the UPF diet that didn't have a high calorie density or as many hyperpalatable foods.

UPFs: What matters?

Hall's ongoing study is testing four diets. Here are sample foods that would fit into each one. A "hyperpalatable" food is high in fat + sugar (like donuts) or fat + salt (like sausage) or carbs + salt (like pretzels).

↓ UPFs
↓ Calorie dense
↓ Hyperpalatable

↑ UPFs
↑ Calorie dense
↑ Hyperpalatable

↑ UPFs
↓ Calorie dense
↓ Hyperpalatable

↑ UPFs
↑ Calorie dense
↓ Hyperpalatable

Typical ultra-processed foods: sugary drinks, chips, ice cream, chocolate, packaged breads, cookies, pastries, cakes, breakfast cereals, bars, frozen pizza, fish sticks, chicken nuggets, sausages, hot dogs, instant soups.

So the additives in UPFs may not matter?

KH: We didn't test that directly, but it doesn't seem that additives are very important for overconsuming calories. The UPF diet that was low in both calorie density and hyperpalatable foods still had many food dyes, preservatives, emulsifiers, and other additives. Yet the diet didn't lead to overconsumption.

And the fourth diet?

KH: On the UPF diet with a high calorie density but few hyperpalatable foods, people still overconsumed calories, though perhaps not as much as when the diet had hyperpalatable foods.

What about the new British study that you co-authored?

KH: It provided 55 people with either ultra-processed or minimally processed foods to eat at home for eight weeks each. Both diets met British guidelines for eating healthy foods like vegetables, fruits, whole grains, and low-fat dairy.

The participants lost about two pounds on average after the ultra-processed diet. But they lost about four pounds on average after the minimally processed diet, which was lower in calorie density. So even if an ultra-processed diet meets nutritional guidelines, people lose more weight eating a minimally processed diet.

What myths about weight loss have you debunked?

KH: When I first arrived at NIH, the 3,500-calorie rule was popular with dietitians, the American Society for Nutrition, and the government.

The idea was that a pound of body fat stores 3,500 calories. So if I cut 500 calories a day from my diet, I'd lose a pound of fat tissue after a week.

Which 100 calories fills you up?

You may feel less full after eating 100 calories' worth of the foods with high calorie density (the left two in each row) than the foods with low calorie density (the right two).

And if I did that for a year, I'd lose about 50 pounds. And if I then went back to eating what I was eating before, I'd maintain that weight loss because the fat would be gone from my body.

But it's not so simple?

KH: No. When you lose weight, you don't just lose body fat, like the 3,500-calories-per-pound rule suggested. You also lose fat-free mass, some of which is muscle.

More importantly, as you lose weight, the number of calories your body burns—your metabolic rate—decreases and your appetite grows.

Smaller bodies require less energy to move around than larger bodies. We've estimated how those changes play out over time.

Does your Body Weight Planner take that into account?

KH: Only partially. It tells you the calories and activity needed to reach your goal weight and maintain it over time. You can find it at niddk.nih.gov/bwp. But it doesn't include the appetite changes that tend to gradually drive intake higher as weight is lost.

What did you learn testing low-fat versus low-carb diets?

KH: While people can find success using both dietary approaches, the differences in body-fat loss are minuscule once you account for the calories consumed. We need to move beyond the idea that some ratio of carbs and fat can magically give rise to a lot of body-fat loss.

And what did you find by studying the contestants on "The Biggest Loser" TV show?

KH: This was a controversial show where the contestant who lost the greatest percentage of their original body weight after 30 weeks went home with a $250,000 cash prize.

The participants drastically cut their calorie intake, by about 65 percent. And they burned about 4,500 calories a day doing three or more hours of vigorous exercise on the ranch.

After 13 weeks, the contestants went home, where they burned around 3,000 calories a day. By 30 weeks, they had lost, on average, 130 pounds.

What had the largest impact on weight loss?

KH: It wasn't just exercise, as implied on TV. Those who cut the most calories lost the most weight.

Did their metabolic rate change?

KH: By the show's finale, their metabolic rates had dropped spectacularly. They were burning several hundred fewer calories per day.

That contradicted the idea—in countless fitness books and magazines—that working out to build and maintain muscle "boosts" metabolism during weight loss.

What could explain that?

KH: We're not sure. Maybe when you have physical activity demands and not enough calories coming in, the body turns down some functions, like a cell phone that goes into power-saving mode when the battery is running low.

Did the contestants' metabolic rates return to normal?

KH: No. Six years later, when they had regained, on average, about two-thirds of the weight that they'd lost, their metabolic rates hadn't changed.

But the people who were the most active sustained the most weight loss, even though they'd also had the greatest slowing of metabolism.

People think a higher metabolic rate is always better. In fact, both during the weight-loss competition and six years later, the Biggest Losers who had the greatest slowing of metabolism had the most weight loss.

Photos: Jennifer Urban - CSPI.

Marketing magic?

9 foods that look healthier than they are

BY LINDSAY MOYER

Food marketing is like magic. It can turn processed cereals into fonts of fiber, sugary drinks into fruit, and plastic bottles of water into balanced hydration. Here are nine strategies that give ho-hum foods a healthy-image boost.

Show real fruit but just add flavoring

The Special K Peaches & Crème Cereal box features a slice of juicy peach, but there's not even a sprinkle of dried peaches (or any fruit) in the ingredients list.

What gives? The smaller print under the large "Peaches & Crème" notes that the cereal is "naturally flavored" and contains "crunchy wheat & rice peach flavored flakes."

It's not just Kellogg's fault. The FDA's labeling rules allow pictures of fruit even if a food only contains the fruit's flavor. (Peach Flavored Wheat & Rice Flakes & Crème probably wouldn't sell as well.)

We've seen this movie before—it's a supermarket staple—but Special K is a pro at it (see Sept./Oct. 2024, p. 20).

What about the "made with REAL oat clusters" on the box? The cereal has more refined rice and added sugar than oats. Repeat after us: "made with" can mean "made with very little."

"Special K is focused on bringing you real ingredients," says the box. Hmm…maybe start with some real peaches? Or more real oats?

BOTTOM LINE: Special K's specialty: Pile on more added sugar than the healthiest cereals and dress up the box with whatever sells. You can do better.

Add protein, subtract seed oils

"Khloud Protein Popcorn, the better-for-you snack brand founded by Khloé Kardashian, is a breakout success in the salty snack category," trumpeted the company's June press release. "Khloud was created in response to the increased consumer demand for convenient protein sources, debuting with a popcorn offering triple the protein of other popcorn brands."

"Triple the protein" sounds good, but popcorn doesn't have much to start with: just 2 grams in a 1 oz. serving.

Khloud Kettle Corn's 7 grams of protein doesn't hold a candle to low-fat Greek yogurt or cottage cheese, which supplies two or three times that much for the same 150 calories. And plenty of other snacks—like a string cheese, a hard-boiled egg, or an ounce of peanuts, pumpkin seeds, or crispy chickpeas—have 6 or 7 grams of protein.

So there's no need to sprinkle popcorn with "Khloud dust" (it's just milk protein isolate) unless you're trying to sell more popcorn…or more pretzels, chips, or cookies.

As for the "no unhealthy seed oils" promise on the bag, ignore it. Seed oils aren't unhealthy (see p. 7).

What is? The coconut oil that Khloud uses instead. Even though there's also some healthy olive oil, your poor arteries end up with 4 grams of saturated fat (20 percent of a day's max) from each serving.

BOTTOM LINE: Most adults eat far more protein than they need. But if you're trying to get more, snack on healthy foods like nuts, seeds, beans, and low-fat dairy.

Illustration: Pisahouse - stock.adobe.com. Photos: Marlena Koch - CSPI.

Pump up the (processed) fiber

"Check out Magic Spoon Protein + Fiber, our new line of cereals available exclusively at Whole Foods Market nationwide!" the cereal company announced on Facebook.

How does the new "High Fiber" version of grain-free Magic Spoon Fruity Protein Cereal get 6 grams of fiber per serving? The company adds "soluble tapioca fiber," which counts as fiber on Nutrition Facts labels because studies show that it boosts calcium absorption in the gut. (Only processed fibers with an approved health benefit can count as "fiber" on labels, says the FDA.)

But if you're like many people, boosting calcium may not be the benefit you're looking for from a high-fiber cereal.

The wheat bran that's added to bran flakes and that occurs naturally in shredded wheat, on the other hand, can help you stay regular. And the soluble oat fiber that occurs naturally in oatmeal or the psyllium fiber that's added to Kellogg's All-Bran Buds can help keep a lid on your cholesterol.

Don't expect those benefits from Magic Spoon.

BOTTOM LINE: Don't assume that all "high fiber" cereals are equally good for your health.

Bring your own strength training

Pop quiz: What makes an Atkins Strong Chocolate Chip Cookie Dough High Protein Bar (which "helps maintain muscle") different from any other food with 20 grams of protein?

Answer: Only the fine print.

"Helps maintain lean muscle mass when used in conjunction with an exercise routine," it says.

But that's no surprise. The evidence is clear that strength training, not endless amounts of protein, is the key to getting stronger. (You need *enough* protein, but most U.S. adults already eat more than they need.)

BOTTOM LINE: Strength training—not a snack, even a "Strong" one—is the way to build or maintain muscle.

Photos: Jamba (bottom right), Marlena Koch - CSPI (all others)

Take a dip in Greek yogurt

Clio Yogurt Dipped Strawberry Banana Mini Greek Yogurt Bars have some yogurt, but it's mixed with cane sugar (5 grams per bar) and saturated palm kernel oil, plus about a dozen other ingredients like dry milk, whey protein, tapioca dextrin, yogurt powder, xanthan gum, and soy lecithin.

If you're looking for yogurt, you can do better. Much better.

Each 70-calorie mini Clio bar has just 3 grams of protein and a mere 33 milligrams of calcium. That's far less than you'd get from the real deal: A 70-calorie serving of plain Fage 2% (low-fat) Greek Yogurt has three to four times as much protein (10 grams) and calcium (120 mg).

Of course, the itty-bitty Clio bar would deliver more protein and calcium—but also more sugar and calories—if it were bigger. Each mini Clio is about the same size and has about the same number of calories as a fun-size Snickers bar.

BOTTOM LINE: A processed not-much-yogurt bar isn't a substitute for real yogurt in your healthy breakfast or snack. Instead, think of mini Clios as petite desserts. (The company even touts the bars' texture as cheesecake-like.)

Dress up a sugary drink with "superfruits"

"Last month, Jamba introduced its first major menu launch since 2019 with an all-new line of Over Ice beverages," said the March press release.

Let's look at the Mango-morphosis, which "comes with the tangy flavors of passion fruit & mango and a zest of lemonade and layered with a delicious housemade dragon fruit puree."

Turns out dragon fruit is the *last* ingredient. The drink is mostly a mix of reconstituted "passion fruit mango concentrate" (which has more concentrates of pear and grape juice than of mango, orange, or passion fruit juice) plus lemonade.

And Jamba's website doesn't say how much of its sugar (31, 38, or 54 grams in a small, medium, or large) comes from the juices and how much comes from added sugar.

BOTTOM LINE: Skip sugary fruity drinks like Jamba Over Ice, Starbucks Refreshers, and Dunkin' Refreshers.

Push a pH gimmick

Whether it's about pH, electrolytes, or the vague promise of "hydration," CORE Hydration sure can push a plastic bottle of water.

CORE has "pH balance," says the bottle. But the water's neutral pH—around 7 on the 0-to-14 pH scale—is nothing out of the ordinary. You'd expect the pH of drinking water from the tap to be similar (unlike gimmicky "alkaline water," which some companies bottle and sell at a premium for its 8-to-9 pH). The truth is, there's no need to buy water that touts *any* pH. Our bodies keep our blood's pH within a tight range, regardless of what we eat or drink.

Then there are the electrolytes, which CORE notes "are added for taste." Translation: Don't expect much. CORE adds no sodium, a key electrolyte in sports drinks and Pedialyte. And it adds other electrolyte minerals at levels so low that the Nutrition Facts label doesn't have to disclose the amount.

Of course, for many of us, getting more electrolytes doesn't even matter. Unless you're doing prolonged, sweaty exercise, all you need is plain water plus the electrolytes that are naturally present in the food you eat.

BOTTOM LINE: *Any* water "helps you stay hydrated and feeling your best."

Sprinkle in (a few) high-value nuts

What's the main ingredient in Walmart's store-brand Bettergoods White Hazelnut Spread, with its "perfect balance of roasted hazelnut and rich milky taste"?

Hazelnuts? Nope. Milk? Try again.

Turns out the spread has more sugar and vegetable oils (canola and sunflower)—the first two ingredients—than skim milk powder or hazelnuts. Then come cocoa butter, whey powder, lecithin, and natural flavor.

That explains why each two-tablespoon serving delivers 15 grams of added sugar. That's only 1 gram less than you'd get in 2 tablespoons of Duncan Hines Whipped Fluffy White Frosting, though the frosting has fewer calories (110 vs. 200).

And speaking of marketing-speak, we asked Walmart what the label means when it says "crafted artisanally." Is the spread manufactured by small-scale artisans? Or do they even make any of its eight ingredients? By our deadline, we hadn't heard back.

BOTTOM LINE: Nuts are healthy, but a nut "spread" can be code for "more sugar and oil than nuts." (Nutella has cashed in on that ploy for years.) In contrast, "peanut butter" must be at least 90 percent peanuts and typically has just 0 to 2 grams of added sugar per serving.

Fortify your way to immunity

"Immunity" in a bottle. How does Ocean Spray do it?

Every 10 oz. Ocean Spray Immuni+y Cranberry Blueberry Acai contains enough added vitamins and minerals to supply 15 percent of a day's zinc and vitamin E plus 130 percent of a day's vitamin C.

Here we go again. Fortifying juices, cereals, and other foods with vitamins and minerals that "support immunity" is one of the oldest tricks in the book. As long as marketers don't name a disease or health condition, they can make claims about how a food or beverage affects the "structure or function" of the body with little oversight by the FDA.

But unless you're actually deficient in vitamins C or E or zinc, consuming more of them is unlikely to ward off infections. And if you're worried that you might be getting too little of those nutrients, it's easy to cover your bases with a cheap multivitamin-and-mineral supplement. Many multis come closer to supplying a day's worth of zinc and vitamin E—plus other key vitamins and minerals—than a bottle of Immuni+y does.

Maybe the vitamin-and-mineral claims help Ocean Spray distract shoppers from noticing that its Cranberry Blueberry Acai juice drink is really grape, blueberry, and cranberry juice plus "natural acai flavor." In fact, only those who read down to the label's fine print will see that they're about to buy a "Flavored Juice Drink with 3 Juices from Concentrate and Other Natural Flavor." Geez.

BOTTOM LINE: Fortified juice is no immune booster. And while Ocean Spray Immuni+y Cranberry Blueberry Acai's 17 grams of sugar from juices may not count as "added" sugar, they're still liquid calories (80 in each 10 oz. bottle) that are less likely to keep you full than chewing on whole fruit. Skip it.

Photos: NIQ Product Explorer (top left), Marlena Koch - CSPI (all others).

Quick Studies

A snapshot of the latest research on diet, exercise, and more.

Staying sharp as you age

What can keep the old noggin in shape as you get older?

Scientists randomly assigned 2,111 people aged 60 to 79 who were at risk for cognitive decline to either a "structured" or a "self-guided" intervention. ("At risk" meant that they were sedentary, had a suboptimal diet, and had at least two risk factors like high blood pressure or being male.)

The structured intervention included 38 team meetings, exercise training at a gym, advice on the MIND diet, social engagement, online cognitive training using BrainHQ, and a biannual review of risk factors. The self-guided group got general healthy lifestyle advice and $75 gift cards at six team meetings, plus annual clinic visits.

After two years, global cognitive scores rose in both groups, but significantly more in the structured group. Of the scores' three components, executive function—but not processing speed or episodic memory—improved more in the structured group.

WHAT TO DO: Keep your mind and body active. (See Nov./Dec. 2023, p. 3.)

JAMA 2025. doi:10.1001/jama.2025.12923, doi:10.1001/jama.2025.12500.

Cannabidiol risk

Could high doses of cannabidiol (CBD) pose a risk to your health?

Researchers randomly assigned 151 healthy people to get CBD (2.3 milligrams per pound of body weight per day) and 50 to get a placebo. (The CBD was Epidiolex, a drug that's approved to treat certain seizures.)

After 28 days, liver enzyme levels were 3 times the upper limit of normal in 8 of the CBD takers (and in no placebo takers). Two met the criteria for potential drug-induced liver injury by day 21, and 5 met that criteria by day 28. (All levels returned to normal after discontinuing CBD.)

WHAT TO DO: Don't assume that high doses of CBD are safe for everyone.

JAMA Intern. Med. 2025. doi:10.1001/jamainternmed.2025.2366.

Dodging diverticulitis

A healthy lifestyle may curb your risk of diverticulitis (inflamed pouches in the colon), whatever your genetic risk.

Scientists tracked 179,564 people for roughly 20 years. Five "lifestyle factors"—eating more red meat, eating less fiber, doing little exercise, being a current or past smoker, or having excess weight—were each linked to a 9 to 44 percent higher risk of diverticulosis.

Moreover, people with none of those factors had roughly half the risk—even if their genetic risk was high—compared to people with all five factors.

WHAT TO DO: This study can't prove that a healthy lifestyle cuts the risk of diverticulitis, but whaddya got to lose?

And don't worry that nuts, seeds, or fruit with edible seeds causes diverticulitis. In yet another study, they didn't.

Gut 2025. doi:10.1136/gutjnl-2025-335364.
Ann. Intern. Med. 178: 788, 2025.

Beans vs beef and pork

Is red meat better than beans?

Scientists randomly assigned 102 men to get equal amounts of protein from either:

- 27 oz. per week (about 4 oz. a day) of red or processed meat or
- 7 oz. per week (1 oz. a day) of red or processed meat *plus* 33 to 44 oz. per week (5 to 6 oz. a day) of beans and peas.

After 6 weeks, LDL ("bad") cholesterol fell by 7 points in the bean eaters and rose by 6 points in the meat eaters. The bean eaters also lost 2 pounds.

WHAT TO DO: Cut back on beef and pork...for your health *and* the planet's.

Eur. J. Nutr. 64: 259, 2025.

Gluten, wheat, & IBS

Does gluten or wheat trigger symptoms of irritable bowel syndrome (IBS), as many people believe?

Researchers randomly assigned 28 of those people to get wheat, purified gluten, and sham (gluten-free, wheat-free) diets for 1 week each with 2 weeks in between. (The study was partly funded by Nestlé's research arm.)

The three diets led to no differences in the worsening of IBS symptoms overall or in symptoms like bloating or abdominal pain.

WHAT TO DO: Don't assume that gluten and wheat trigger your IBS symptoms. But a diet low in FODMAPs (which include wheat plus many other foods) may help curb IBS symptoms. (See Jul./Aug. 2022, p. 3.)

Lancet Gastroenterol. Hepatol. 10: 794, 2025.

Golf course proximity & Parkinson's

Do pesticides that are used on golf courses raise the risk of Parkinson's?

Researchers looked at the home addresses of 419 people with Parkinson's disease (cases) and 5,113 people without Parkinson's (controls).

Those who lived within 1 mile of a golf course were twice as likely to have Parkinson's than those who lived more than 6 miles away. People whose tap water came from service areas with a golf course also had double the risk.

WHAT TO DO: Far more studies are needed to know if the pesticides used on golf courses boost the risk of Parkinson's. Stay tuned.

JAMA Network Open 8: e259198, 2025.

Do GLP-1 drugs harm vision?

Do GLP-1 drugs like semaglutide (sold as Ozempic or Wegovy) raise the risk of vision loss caused by age-related macular degeneration (AMD)?

Scientists compared the health records of 46,334 people with diabetes who were prescribed GLP-1 drugs for at least six months to the records of 92,668 people with diabetes who weren't prescribed GLP-1 drugs. All were aged 66 or older.

Over 2½ years, the risk of neovascular (wet) AMD was 2.2 times higher in the GLP-1 takers. However, the risk was still low—2 out of every 1,000 people taking a GLP-1 drug versus 1 out of every 1,000 people who didn't take a GLP-1 drug.

WHAT TO DO: It's too early to know if GLP-1 drugs raise the risk of AMD, because something else about people who take them may explain the results. It's also possible that other diabetes drugs—like metformin or sodium-glucose cotransporter-2 inhibitors—*lower* AMD risk.

JAMA Ophthalmol. 143: 587, 594, 2025.

Do potatoes raise type 2 diabetes risk?

Are white potatoes unhealthy? It depends.

Researchers tracked 205,107 people without diabetes for roughly 25 years.

Those who ate french fries at least 5 times a week had a 27 percent higher risk of developing type 2 diabetes than those who rarely ate fries. However, those who ate baked, boiled, or mashed potatoes or potato chips at least 5 times a week had no higher risk of diabetes. (The study didn't look at sweet potatoes.)

WHAT TO DO: If eating fries raises diabetes risk—something this kind of study can't prove—then how the potatoes are cooked may be what matters. Then again, something else about the people who eat fries may explain the link.

BMJ 390: e082121, 2025.

The Healthy Cook

Get saucy!

Salads aren't the only dishes that sparkle when they get dressed up. A bold sauce is one of the simplest ways to layer flavor on a vibrant plateful of produce. These zippy sesame, Caesar, and honey mustard sauces are all favorites of mine.

SESAME GREEN BEANS

Why steam the beans before stir-frying them? Steaming gets them tender. Stir-frying adds flavor. If you don't have tahini on hand, use peanut butter.

- 2 Tbs. tahini
- 1 Tbs. reduced-sodium soy sauce
- 2 tsp. rice vinegar
- ½ tsp. toasted sesame oil
- ½ tsp. molasses
- 2 Tbs. extra-virgin olive oil
- 1 lb. green beans, trimmed
- 1 red bell pepper, sliced
- ½ red onion, sliced
- 1 Tbs. toasted sesame seeds

1. Make the sauce: In a small bowl, whisk together the tahini, soy sauce, vinegar, sesame oil, and molasses with 1 Tbs. water.
2. In a large nonstick pan over medium-high heat, add the olive oil, ½ cup water, and the green beans. Cover with a tight-fitting lid and cook, shaking the pan occasionally, until the beans are almost tender, 7–8 minutes.
3. Remove the lid and cook off any remaining water, 1–2 minutes. Add the peppers and stir-fry until they start to soften slightly, 2–3 minutes. Add the onion and stir-fry until softened, 1–2 minutes.
4. Transfer to a serving dish. Drizzle with the tahini sauce and sprinkle with the sesame seeds.

TIME: 25 MINUTES | SERVES 4

PER SERVING (1 cup): calories 170 | total fat 13 g | sat fat 2 g | carbs 13 g | fiber 4 g | total sugar 6 g | added sugar 1 g | protein 4 g | sodium 150 mg

For cooking advice, write to Chef Kate at healthycook@cspi.org

Photo: Kate Sherwood - CSPI.

BROCCOLI WITH CAESAR SAUCE

I love Caesar salad, but I like to switch up the base vegetable. In this variation, the lightly steamed broccoli is delicious either chilled or at room temperature. Spoon the sauce on the broccoli just before serving.

- ¼ cup mayonnaise
- 2 tsp. fresh lemon juice
- ½ tsp. Worcestershire sauce
- 1 clove garlic, finely grated or minced
- 4 cups broccoli florets, halved if large
- 1 tsp. chili oil (optional)

TIME: 15 MINUTES | SERVES 4

PER SERVING (¾ cup): calories 130 | total fat 12 g | sat fat 2 g | carbs 4 g | fiber 2 g | total sugar 1 g | added sugar 0 g | protein 2 g | sodium 115 mg

1. Make the sauce: In a medium bowl, whisk together the mayonnaise, lemon juice, Worcestershire sauce, and garlic.
2. In a large pan over high heat, bring ½ cup water to a boil. Add the broccoli in a single layer and cook, tossing with tongs, until the broccoli is tender-crisp and bright green, 2–3 minutes.
3. Cool the broccoli under running water, then drain it well. Transfer to a serving dish.
4. Spoon the sauce over the broccoli and drizzle with the chili oil, if using.

RED CABBAGE WEDGES WITH HONEY MUSTARD SAUCE

It doesn't take much to turn the humble cabbage into a star. Roasting coaxes out its mellow, nutty flavor...and a drizzle of tart honey mustard sauce makes it sing.

- ½ head red cabbage, cut into 4 wedges
- 2 Tbs. extra-virgin olive oil
- 1 Tbs. red wine vinegar
- 1 Tbs. Dijon mustard
- 1 Tbs. whole-grain mustard
- 1 tsp. honey
- ⅛ tsp. kosher salt

TIME: 30 MINUTES | SERVES 4

PER SERVING (1 wedge with sauce): calories 100 | total fat 7 g | sat fat 1 g | carbs 8 g | fiber 2 g | total sugar 5 g | added sugar 1 g | protein 1 g | sodium 240 mg

1. Preheat the oven to 450°F. Brush the cabbage with the oil and roast on the lowest rack on a rimmed baking pan until the bottoms are browned, about 10 minutes.
2. Remove the cabbage from the oven, flip it over, and roast until the other side is browned, about 10 minutes.
3. Remove the cabbage from the oven and cover tightly with foil. Allow to stand until tender, 5–8 minutes. Meanwhile, make the sauce: In a small bowl, whisk together the vinegar, mustards, honey, and salt.
4. Transfer the cabbage to a serving platter and drizzle with the sauce.

Photos: Kate Sherwood - CSPI.

5 things to know about food storage

BY CAITLIN DOW

Does freezing kill harmful bacteria? Can reheating make improperly stored food safe? Some simple rules can keep you safer in the kitchen…but some beliefs are more superstition than science. Here's what to know.

1 How long is refrigerated food safe after a power outage?

There are no hard and fast rules for how long your food is safe during a power outage, though most foods will be okay for about four hours.[1]

But your food may be safe for a little less or a little more time "depending on a lot of factors," says Ben Chapman, head of the department of agricultural and human sciences at NC State University.

For starters, more food in your fridge is better than less for keeping things cool when the power goes out.

"Food is a better insulator than air," notes Chapman. (That said, when the power is on and your fridge is working, you don't want to overpack it. Cold air needs to circulate in order to keep foods chilled.)

The more often the fridge is opened and the warmer the room, the less time it takes for your food to become unsafe.

The type of food also matters. "Condiments like ketchup or mustard or pickles are refrigerated for quality reasons, but they are not going to grow pathogens because of their high acidity levels," says Chapman.

To play it safe, discard any perishable foods like meat, poultry, fish, eggs, soft cheeses, milk, and leftovers that have been above 40° F for over two hours. (Keeping a basic thermometer in your fridge can help you monitor the temperature anytime… not just following a power outage.)

"If the power was out for, let's say, 10 days, and I never opened up my refrigerator, I would be confident eating the ketchup or mustard," says Chapman, "but I wouldn't eat the leftovers." (For more guidance on what to keep or discard after a power outage, go to cspi.org/poweroutage.)

2 Can I leave rice in my rice cooker?

"As long as the rice cooker is on warm mode, and that warm mode keeps the rice above 135 degrees Fahrenheit, you can leave your rice in the cooker for as long as you want," says Chapman. "The pathogens that we're worried about are not going to grow above 135."

(To find out if your rice cooker's warm mode is warm enough, you'll have to check the user manual, email the manufacturer, or—better yet—use a food thermometer to do a temperature check on rice in the cooker that's been set to warm mode.)

What pathogens does Chapman worry about with rice?

"The biggest concern for rice is *Bacillus cereus*," he says. The bacteria grows in soil and can contaminate rice crops. What makes *Bacillus cereus* unlike many foodborne pathogens is that it forms tough spores that allow it to survive a wide range of temperatures and levels of acidity.

"Those spores don't germinate until they're in the right conditions," explains Chapman.[2] A couple of hours in that Goldilocks zone—a not-too-hot-and-not-too-cold 41° F to 135° F—and the spores can germinate and grow into bacteria that create the toxins that make you sick.

"But if the rice in the rice cooker is always above 135 degrees, it's too hot for the *Bacillus cereus* to grow," says Chapman.

You can keep rice in your rice cooker on warm mode as long as the rice stays above 135° F.

3 Does reheating make improperly stored food safe?

Didn't get your leftovers into the fridge within two hours after cooking? Don't rely on your microwave to make that food safe.

Photos: stock.adobe.com - Jason (top), lesterman (bottom).

"You can still get food poisoning, even if you reheat your food hot enough," says Chapman.

"The impact of reheating the food depends on the pathogen. If you have live *E. coli* growing in the food, heating enough is going to kill it and any other bacteria that may be present."

But reheating won't kill spores that can germinate into more bacteria. Nor will it destroy the toxins or spores that some bacteria produce that cause food poisoning.

In addition to *Bacillus cereus*, other toxin-forming bacteria include *Clostridium perfringens* (which causes about one million cases of food poisoning each year in the U.S.) and *Staphylococcus aureus*.

Both are often found in foods that aren't stored in cold enough temperatures or are left at room (or warmer) temperatures for too long.[3]

And since you don't know which pathogen might be contaminating your food, don't take any chances by trying to reheat foods that weren't stored properly.

Rule of thumb: Leftovers shouldn't be left at room temperature for more than two hours (or one hour if you're outside and it's warmer than 90 degrees).[4]

Rules for leftovers

4 Does freezing kill harmful bacteria?

No. "In fact," Chapman points out, "in the world of microbiology, we freeze pathogens to preserve them. All freezing does is halt growth. It doesn't kill bacteria or inactivate viruses. It essentially puts them to sleep."

And it doesn't matter how long the food is in the freezer. "We freeze pathogens for years, even decades," says Chapman. "It's not like if a food has been frozen for a month, you'll get rid of pathogens."

Once your frozen food thaws enough to reach the temperature "danger zone" (about 40° F to 140° F), any bacteria that's present may begin to multiply.

Note: Bacteria won't multiply if frozen food is thawed in the refrigerator and then cooked. Both refrigerator and cooking temperatures will prevent bacterial growth.

5 Is it unsafe to put hot food in the refrigerator?

If you've been told that you shouldn't put hot foods in the refrigerator because it will raise the temperature of the fridge—or worse, break your fridge—relax.

"You *should* put hot food in the refrigerator," says Chapman.[4]

Where did the idea that doing so would be dangerous come from?

"Historically, refrigerators were not able to handle hot food," Chapman explains.

"Old refrigerators worked on a cycle where you could hear the condenser kick off, which would cause the temperature inside to rise and a temperature sensor to kick the condenser back on."

"So putting hot food in old refrigerators—and by old I mean pre-1970s—meant the refrigerator would have to work harder to do its job, leading it to break."

Modern refrigerators, on the other hand, maintain a constant temperature, Chapman notes. "They can handle having hot food in there."

Even so, to ensure that your hot food cools down quickly, it's best to store it in wide, shallow containers so that it's no more than two inches deep.

That keeps the food out of the danger zone where bacteria can easily grow.

"Let's say you put a pot of chili that's really deep into the refrigerator," says Chapman. "Days later, the middle of that pot could still be at 50 or 60 degrees. It's insulated, so while the outside cools down, it takes a long time to cool the center."

Got something really hot that you want to cool faster? Follow the two-inch rule and leave the container uncovered or partially covered.

"Covering it traps in heat," says Chapman. "So better cooling happens when it's uncovered." (Once it's cooled down, you can cover it.)

[1] cdc.gov/food-safety/foods/keep-food-safe-after-emergency.html.
[2] *Foods* 2023. doi:10.3390/foods12030626.
[3] cspi.org/article/what-you-need-know-about-food-poisoning.
[4] fda.gov/food/buy-store-serve-safe-food/refrigerator-thermometers-cold-facts-about-food-safety.

Better than butter

HOW TO SPOT THE BEST SPREADS

BY LINDSAY MOYER & MARLENA KOCH

The alt-butter aisle's on fire. There's plant "butter" made from oat milk or avocado oil, butter with olive oil, yogurt spreads, and more. Their unhealthy trans fat is long gone, their fats sure beat butter, and their taste keeps getting better. Here's how to bring home a winner.

I Can't Believe It's Not Butter! The Light One
A tablespoon of regular butter has triple the calories (100) of this light spread (35).

Benecol Original
Benecol's Best Bite spreads also add cholesterol-lowering plant stanols.

Brummel & Brown
A touch of yogurt makes for a fantastic-tasting buttery spread.

Smart Balance Low Sodium
The lowest-sodium spread we found... *and* it's a Best Bite. Impressive!

Land O Lakes Light Butter with Canola Oil
Butter for its flavor. Canola oil to keep its saturated fat in check.

1 Replace butter with a spread.

Regular butter comes with at least 7 grams of unhealthy saturated fat per tablespoon. Some "extra creamy" or "European Style" butters have 8 grams. And ghee (clarified butter) can have 9 or 10 grams. ("Clarifying" removes the butter's milk solids and water, leaving more concentrated dairy fat behind.)

That's up to half a day's max (20 grams). In contrast, our Best Bites have a mere 2 grams of sat fat or less.

2 When possible, pick a tub, not a stick.

Whether it comes in a tub or a stick, a buttery spread like Country Crock or I Can't Believe It's Not Butter! is a blend of oils and water.

The difference: Sticks are more solid, so they contain more saturated-fat-rich oils (like palm, palm kernel, or coconut). Tub spreads are made with more healthy oils like canola or soybean. (Both are seed oils…and that's fine. See p. 7.)

Soft, spreadable tubs do the trick for buttering vegetables, grains, or toast and even for baking many cakes, muffins, and quick breads. But if you need a more-solid, more-saturated fat for a pie crust, some kinds of cookies, or other flaky baked goods, then you need a stick.

Many buttery-spread sticks are still healthier than butter. Some of the best: Blue Bonnet, Blue Bonnet Plant Butter, and Earth Balance.

3 Don't assume that "plant butter" is best.

Many "plant butters" or "plant milk butters" use enough saturated coconut or palm oil to mimic the richer, more-solid texture of dairy butter. We found plant-based "butter" with anywhere from 2.5 grams of saturated fat per tablespoon (pretty good) to 8 grams (as high as butter).

Instead, opt for any of our Best Bite spreads. They may contain tiny amounts of whey, buttermilk, yogurt, or other ingredients derived from animals, but they're mostly unsaturated plant oils.

Vegan? Try I Can't Believe It's Not Butter! It's Vegan (that's really its name), which is a Best Bite. Or give Earth Balance Organic Whipped (which just misses a Best Bite) a whirl.

4 Want butter? Find one that's mixed with oil.

We get it. Some people just prefer the taste of butter. But you can still cut the saturated fat—and add good fat—if you try a tub of spreadable butter mixed with an oil like olive, canola, or avocado.

Land O Lakes Light Butter with Canola Oil, with 2 grams of sat fat per tablespoon, is the only Best Bite we found, but most other butter-plus-oil tubs have only 3 to 5 grams. That beats full-on butter's 7 grams.

And if only butter will do, try a whipped butter. They have more air, so every tablespoon has less butter

The spreadsheet

Best Bites (✔✔) have no more than 2 grams of saturated fat and 110 milligrams of sodium per tablespoon. We disqualified spreads with the additive TBHQ. Within each section, products are ranked from least to most saturated fat, then sodium.

	Calories	Sat Fat (g)	Sodium (mg)
Spreads—tubs *(1 Tbs.)*			
✔✔ I Can't Believe It's Not Butter! The Light One	35	1	85
✔✔ Benecol Light	50	1	95
✔✔ Country Crock Light	35	1	95
✔✔ Blue Bonnet	40	1	105
✔✔ Benecol Original	70	1	110
✔✔ Brummel & Brown	45	1.5	90
Smart Balance Light with a Hint of Flaxseed Oil*	50	1.5	90
✔✔ Country Crock Calcium	45	1.5	95
✔✔ Olivio Light	50	1.5	95
✔✔ Olivio Original	80	1.5	95
✔✔ Country Crock—Churn Style or Original	50	1.5	100
✔✔ Smart Balance Low Sodium	60	2	30
Smart Balance with a Hint of Extra Virgin Olive Oil*	60	2	70
✔✔ Land O Lakes Fresh Buttery Taste	70	2	80
✔✔ I Can't Believe It's Not Butter! It's Vegan	60	2	90
✔✔ I Can't Believe It's Not Butter! The Original	60	2	90
Earth Balance Made with a Hint of Olive Oil	80	2.5	75
Blue Bonnet Plant Butter	80	2.5	90
Earth Balance Organic Whipped	80	2.5	90
Smart Balance Original	80	2.5	90
Earth Balance Original	100	3	105
Land O Lakes Plant-Based	100	3	105
Earth Balance Soy Free	100	3	110
Melt Organic Plant Butter	80	3.5	80
Country Crock Plant Butter with Avocado Oil	100	4	105
Country Crock Plant Butter with Olive Oil	100	4	105
Miyoko's Salted Oat Milk Butter	80	4.5	70
Spreads—sticks *(1 Tbs.)*			
Blue Bonnet	60	3	110
Blue Bonnet Plant Butter	80	3.5	90
Earth Balance—Soy Free or Vegan	100	3.5	110
Melt Organic Unsalted Plant Butter	80	4.5	0
Melt Organic Salted Plant Butter	80	4.5	80
Land O Lakes Margarine	100	5	100
I Can't Believe It's Not Butter! Salted	100	5	105
Violife Unsalted Plant Butter	100	6	0
Trader Joe's Dairy Free Buttery Spread	100	6	85
Violife Salted Plant Butter	100	6	85
Country Crock Plant Butter with Avocado Oil	100	6	105
Country Crock Plant Butter with Olive Oil	100	6	105
Miyoko's Unsalted Plant Milk Butter	90	8	0
Miyoko's Salted Plant Milk Butter	90	8	65
Butter with oil—tubs *(1 Tbs.)*			
✔✔ Land O Lakes Light Butter with Canola Oil	50	2	90
Challenge Lactose Free Butter with Canola Oil	80	3	80
Land O Lakes Garlic & Herb Butter Spread	70	3	100
Challenge Butter with Canola Oil	90	4	80
Challenge Butter with Olive Oil	80	4	80
Land O Lakes Butter with Canola Oil	100	4	85
Land O Lakes Butter with Olive Oil & Sea Salt	90	4	90
Challenge Butter with Pure Avocado Oil	80	4	100
Kerrygold Irish Butter with Olive Oil	100	5	80
Butter or ghee *(1 Tbs.)*			
Land O Lakes Whipped Salted *(tub)*	50	3.5	50
Kerrygold Reduced Fat *(tub)*	80	5	45
Unsalted butter, most brands *(stick)*	100	7	0
Green Valley Lactose Free *(stick)*	100	7	30
Salted butter, most brands *(stick)*	100	7	90
Land O Lakes Extra Creamy Salted *(stick)*	110	8	75
Vital Farms 90% Grass-Fed Salted *(stick)*	110	8	80
Organic Valley Ghee *(tub)*	140	9	0
4th & Heart Original Recipe Ghee *(jar)*	120	10	0

✔✔ Best Bite | *Contains TBHQ.

Daily Values (DVs)—Saturated Fat 20 grams. **Sodium** 2,300 milligrams.

Sources: company information and NIQ Product Explorer. Nutrition Facts and ingredients can change; always check the label. The use of information from this article for commercial purposes is strictly prohibited without written permission from CSPI.

(and therefore less sat fat) than regular butter. But if the lighter, fluffier texture leads you to eat more, it's a wash.

5 Keep an eye on sodium. A tablespoon of most spreads has less than 110 milligrams of sodium, the limit for our Best Bites. But if you're watching every milligram, you can go even lower than that. Smart Balance Low Sodium has a mere 30 mg.

6 Don't fear unfamiliar ingredients. Look them up. Some additives are risky. Others only sound scary. Our Chemical Cuisine food additive safety ratings tell you which are which (see chemicalcuisine.org).

Take mono- and diglycerides, lecithin, potassium sorbate, citric acid, lactic acid, calcium disodium EDTA, and beta-carotene. Those safe additives may show up in buttery spreads because they keep oil and water from separating, prolong shelf life to help prevent food waste, keep oils from going rancid, or lend a natural buttery hue.

But we don't recommend spreads that contain ingredients with a Chemical Cuisine rating of "avoid." For example, our Best Bites have no TBHQ, which shows up occasionally in spreads.

FOOD FIND

Think small

When summer ends in September, we say sayonara to local summer squash, zucchini, and pattypans.

The silver lining: Most so-called "winter squash" varieties get their season started before the first day of fall hits. Hello butternuts, honeynuts, and friends!

And hello beta-carotene, fiber, potassium, and a boatload of other good stuff. Bonus: Since *all* winter squashes are nutrient winners, you can confidently play the field.

Want to keep things simple? Think small. A smaller squash is easier to cut safely than a big heavy one, and you don't even need to peel it. Three types to try:

- **Honeynut.** *Looks* like a baby butternut...and *tastes* like you cranked up the flavor and sweetness on a big butternut. Tip: Its skin starts out green and turns orange or golden as it ripens. So for the ripest squash, buy one with the fewest hints of green in its skin.
- **Delicata.** True to its name, expect the most delicate and edible skin of any winter squash. The yellowish flesh tastes like a mild, less-sweet butternut.
- **Acorn.** It's sized just right for one or two. And its skin is perfectly toothsome when the squash is roasted.

Need some inspiration? Head to cspi.org/recipes for a dozen of The Healthy Cook's winter squash favorites, including the simple, creamy squash soup pictured below.

Now *that's* what we call "M'm! M'm! Good!"

FOOD FAIL

Soda on steroids

"Our dirty secret is out," said the **Coffee-Mate** Instagram post in May announcing two limited-time **Dirty Soda Coffee Creamers**.

What's "dirty soda"? It's a trending beverage you make by adding half & half or coffee creamer and sometimes flavored syrups or candies to your soda.

Coffee-Mate's new creamers come in two varieties: Coconut Lime (designed to mix with Dr Pepper) and Orange Crème Pop (for Orange Crush).

Much like Coffee-Mate's coffee creamers, the "dirty" ones are largely flavored water, soybean oil, and sugar. Each 1 Tbs. serving has 5 grams (1 tsp.) of added sugar. That makes the "dirty" creamers about one-third sugar.

How much do people mix into 12 oz. of soda? The Coffee-Mate label is vague. But it does offer some "thoughtful portion" advice: "Use in moderation for your perfect pop. 1 TBSP = 35 Calories."

When we Googled "How much creamer should you add to dirty soda?" recommendations ranged from "just a splash" to four or more tablespoons.

All told, 12 oz. of Dr Pepper or Orange Crush plus one to four tablespoons of a dirty Coffee-Mate creamer racks up roughly 200 to 300 calories and 44 to 63 grams (10 to 15 teaspoons) of added sugar. There goes your day's recommended limit of 50 grams (12 tsp.).

Just what we needed! A nudge to add *more* calories and sugar to already-sugary soda.

QUICK DISH

DUKKAH (EGYPTIAN NUT-SEED BLEND)

Pulse 1 cup store-bought crunchy chickpeas with 2 Tbs. coriander seeds and 1 Tbs. cumin seeds in a food processor until coarsely ground. Add ½ tsp. kosher salt, ½ tsp. pepper, ¼ cup toasted sesame seeds, and ½ cup roasted, salted chopped pistachios and pulse once or twice to combine. Makes 20 Tbs. Sprinkle on vegetables, salads, chicken, grains, or soups.