

# Nutrition Action<sup>®</sup>

CENTER FOR SCIENCE IN THE PUBLIC INTEREST



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## THE RESULTS ARE IN

Surprising findings from 5 recent studies



**Celiac disease**  
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**Real men**  
**eat meat?**

**Smoothie**  
*standouts*

## A Debt of Gratitude



On this page, I often tell you about the recent accomplishments of the Center for Science in the Public Interest, which publishes *Nutrition Action*. This month, I'd like to honor two people—one still with us and one, sadly, not—whose dedication and leadership helped make those achievements a reality.

“Queen of Wellness” **Deborah Szekely**, who turns 100 on May 3, was raised as a vegetarian and learned organic farming in the 1930s, when fresh produce was scarce. In 1940, Szekely and her husband, Edmond, who was fleeing conscription into Hitler’s army, founded a health camp in Mexico where guests worked in the vegetable garden for two hours a day.



Deborah Szekely

Rancho La Puerta was a sensation, attracting names like Burt Lancaster and Aldous Huxley. It’s now rated number one among the world’s destination spas.

Szekely’s relationship with CSPI began in the 1980s, while she was serving as president of the Inter-American Foundation in Washington, D.C. That began a four-decade partnership with us, both as a supporter and board member.

“*Nutrition Action* is a treasured resource I’ve been drawing on for decades,” she once said. “It truly has influenced the way I’ve run Rancho La Puerta.”

We wish Deborah a happy 100th birthday and offer our sincere thanks for her many years of leadership.

**Jeremiah Stamler**, who died at age 102 in January, was a trailblazing researcher of remarkable vision, perseverance, and courage.

Known as the father of preventive cardiology, Stamler was the founding chair of preventive medicine at the Northwestern University



Jeremiah Stamler

Feinberg School of Medicine and was still involved in research at 102.

His work in the 1970s helped identify the key risk factors for heart disease: high blood cholesterol, high blood pressure, smoking, and diabetes.

He heartily endorsed—and enjoyed—a Mediterranean diet rich in fruits, vegetables, and fish and low in saturated fat, salt, and sugar.

“We can end the heart disease epidemic in the U.S.,” Stamler told *Nutrition Action* in a 2003 interview. “The science is no longer in doubt.” The problem, he argued, wasn’t a lack of evidence; it was the food industry’s influence.

“The government doesn’t spend enough money to counter the marketing, advertising, and politicking that industry uses to promote products,” he said.

Stamler’s impact went beyond health. In 1965, he was subpoenaed to testify before the House Un-American Activities Committee (HUAC), made infamous by Sen. Joseph McCarthy.

Instead of appearing, Stamler and a colleague sued, arguing that the committee was unconstitutional. In 1973, the committee dropped its contempt charges against him, and in 1975, HUAC disbanded.

Stamler served on *Nutrition Action’s* Science Advisory Board since the 1980s. We are grateful for his wise, inspirational, and unwavering guidance.



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# THE RESULTS ARE IN

Surprising findings from 5 recent studies

BY BONNIE LIEBMAN

“Heart health.” “Improves memory.” “Supports immunity.” Those and similar claims rule the supplement aisle. But few are based on double-blind, randomized controlled trials, the *crème de la crème* of research. Here’s a handful of findings from some of the latest randomized trials.

## 1 Cocoa Flavanols & the Heart

“In short-term clinical trials looking at changes in blood pressure and blood vessel dilation, cocoa flavanols looked promising, and reductions in cholesterol and inflammatory markers were also seen in some trials,” says JoAnn Manson, chief of preventive medicine at Brigham and Women’s Hospital and professor of medicine at Harvard Medical School.

“So we were interested in launching a large-scale randomized trial that would look at heart attacks, strokes, cardiovascular deaths, and similar clinical events.”

In 2014, Manson and Howard Sesso—her colleague at Brigham and Harvard—started the COcoa Supplement and Multivitamin Outcomes Study (COSMOS).

COSMOS randomly assigned 21,442 men 60 or older and women 65 or older to take a cocoa flavanol supplement (500 milligrams a day) or a placebo for roughly 3½ years.<sup>1</sup>

(The study was an academic-private-public partnership funded by grants from Mars Edge, a research segment of Mars, Inc., and the National Institutes of Health.)

The primary results: Compared to the placebo group, the cocoa flavanol group did not have a statistically significant drop in *total* cardiovascular events: heart attacks, strokes, cardiovascular deaths, coronary bypasses, angioplasties, unstable angina, and carotid or peripheral artery surgery.

End of story? Not to Manson and her colleagues.

“We saw several signals that pointed to cardiovascular protection,” she says. For example, cardiovascular *deaths* were 27 percent lower in the flavanol group. (Put another way, 110 people would have to take cocoa flavanols for 3½ years to prevent one cardiovascular death.)

“And when we looked at the participants who were taking the flavanol or the placebo pills regularly, total cardiovas-



**Give Your Heart Some Love**  
**Promote Vascular & Heart Health with Powerful Cocoa-Based Bioactives**

Despite this ad for the flavanols in CocoaVia’s Cardio Health supplement, more trials are needed to know if flavanols help protect the heart.

cular events were 15 percent lower, and cardiovascular deaths 39 percent lower, in the flavanol group,” notes Manson.

Her takeaway: “We’re not recommending that everyone start taking a cocoa flavanol supplement. But these promising signals for cardiovascular protection warrant further trials.”

In the meantime, says Manson, “people could consider a heart healthy

diet that’s rich in berries, grapes, tea, and other foods that are high in flavanols.”

What’s not on that list? Chocolate.

“This was not a chocolate trial,” notes Manson. “You would need about 4,000 calories a day of milk chocolate—or maybe 600 calories a day of dark chocolate—to get the 500 milligrams of cocoa flavanols we used in the trial.”

What’s more, “the flavanol content of chocolate is not reliable,” she adds. “It varies tremendously depending on harvesting and processing.”

“Chocolate is a wonderful treat, but it is not a health food.”

## 2 Multivitamins & Cancer

COSMOS, like many trials, was able to test two interventions for essentially the price of one. The second:

“We were interested in trying to replicate the findings from the Physicians’ Health Study II, which we had completed about a decade earlier,” says Manson. “It found a small, 8 percent reduction in total cancers in men aged 50 or older who were randomly assigned to take a multivitamin.”<sup>2</sup>

(Put another way, roughly 80 men would have to take the multi for 11 years to prevent one cancer.)

So COSMOS randomly assigned the same 21,442 older people to take either a placebo or a Centrum Silver multivitamin. (Centrum’s manufacturer supplied the pills.)

After 3½ years, the multivitamin takers had no lower risk of cancer than the placebo takers.<sup>3</sup> However, it’s possible that COSMOS was too short to see an impact on cancer, which can take many years to be detected.

“The Physicians’ Health Study II was an 11-year trial, and it wasn’t possible to extend COSMOS for a decade,” Manson points out.

### 3 Multivitamins & Memory

The COSMOS-Mind trial was funded by the National Institute on Aging to see if cocoa flavanols or multivitamins could help people stay mentally sharp as they age.

“We enrolled 2,262 participants aged 65 or older who were in the parent trial,” says Laura Baker, professor of gerontology and geriatric medicine at the Wake Forest School of Medicine.<sup>4</sup>

“We administered a cognitive assessment on the phone, which took about an hour. And then we repeated the assessment every year for three years.”

The tests weren’t easy.

“We pushed the envelope on cognitive testing,” notes Baker. “Simple tests are not very useful. If it’s too easy, everybody gets 100 percent correct. But if it’s too challenging, very few people get a



The COSMOS trial saw signals that CocoaVia’s cocoa flavanols may protect your heart, but not your memory.

correct score. So you have to find that sweet spot.”

The cocoa flavanols flamed out.

“We were expecting to see something, because of promising evidence that cocoa flavanols may have beneficial cardiovascular effects,” says Baker.

“But we found there was no difference in test scores between participants who received the cocoa flavanols and those who received the placebo.”

Instead, it was the multivitamin takers’ scores that stood out.

“We were excited to see a significant improvement in cognition for folks who received the multivitamin,” says Baker.

“We saw a difference in global cognitive function and in tests of short-term memory and executive function, abilities that tend to decline with normal aging and with the development of Alzheimer’s disease and other forms of dementia.”

(Baker presented the results at a scientific meeting in November, but they hadn’t been fully published when this article went to press.<sup>5</sup>)

By the end of the three-year study, the multivitamin takers’ scores showed only 1.2 years—rather than 3 years—of

## Should You Take a Multivitamin?

“H<sup>e</sup>lps promote heart health, supports normal brain function, and maintains healthy eyes in older adults,” says Centrum Silver’s website.

Vitamin makers can get away with claims like “promotes,” “supports,” or “maintains” health with only weak evidence.

But the COSMOS-Mind trial now offers solid evidence that taking Centrum Silver may slow cognitive decline in older people.<sup>1</sup>

That could be a game-changer, especially if the results are borne out by a new trial, now in the works.

What to do in the meantime? Here’s why taking a multi may make sense:

■ **Vitamin B-12.** Anyone over age 50 should get the Recommended Dietary Allowance (2.4 micrograms a day) from a supplement or a food with *added* B-12, according to the [National Academy of Medicine](#), which sets the RDAs.

That’s because some older people make too little stomach acid to digest and absorb the B-12 that occurs naturally in meat, dairy, and eggs. And a B-12 deficiency can cause irreversible nerve damage that can masquerade as dementia.



In a new study, Centrum Silver slowed cognitive decline in older people.

■ **Vitamin D.** An estimated 5 percent of Americans have blood vitamin D levels in the “deficient” range, and another 18 percent have “inadequate” levels.<sup>2</sup>

One reason: It’s tough to get the RDA from food. (The RDA is 600 IU a day up to age 70 and 800 IU over 70.)

Your body makes vitamin D from the sun’s UV rays, but not if you wear sunscreen (as you should) and not during the winter in most of the United States.

Just don’t go overboard. Taking more than 2,000 IU a day may raise the risk of falls in frail older people (see Nov. 2021, p. 3).

■ **Safety.** You can’t assume that all supplements are safe, but COSMOS-Mind looked for adverse effects from Centrum Silver.

“We saw no safety issues at all,” says Wake Forest’s Laura Baker. Nor did the VITAL trial.

Would *any* multivitamin curb cognitive decline? The trials only tested Centrum Silver, so there’s no way to know. One thing is certain: gummies are a bad bet. They often run short on many nutrients (see March 2020, p. 3).

<sup>1</sup> *J. Prev. Alz. Dis.* 8: S19, 2021.

<sup>2</sup> *Am. J. Clin. Nutr.* 110: 150, 2019.

cognitive decline.

“So the multivitamins cut 1.8 years of cognitive aging over the three-year trial,” says Baker.

Another interesting result: “People who had cardiovascular disease had a more potent response to the multivitamins,” notes Baker.

(That included people who entered the study taking statins, with plaque buildup in their arteries, with angina, or with a history of artery or heart surgery. People with a prior heart attack or stroke were not eligible.)

That matters, says Baker, because “we know these people are at higher risk for cognitive decline, and we currently have very little to offer them.”

Nevertheless, she cautions, “our findings need to be replicated.”

Only one other long-term trial—the Physicians’ Health Study II—tested Centrum Silver on memory loss. After 8½ years, it came up empty.<sup>6</sup>

“So the score is 1 to 1,” says Baker.

One key difference: “In the Physicians’ Health Study, the first cognitive assessment was, on average, 2½ years after the participants were randomized to start taking the multivitamin or placebo.”

In COSMOS-Mind, “we saw the biggest difference in the scores of the multivitamin compared to the placebo group between baseline and year two. The scores were stable after that. If we had completed our first assessment after 2½ years, we may not have seen a difference.”

The COSMOS-Mind team is already planning a new trial.

“We’re shooting for about 35 to 40 percent of the participants to have cardiovascular disease,” says Baker. “And we’ll have more diversity in terms of race, ethnicity, education, and economic status, so we’ll know that any benefits are accessible to everybody.”

Why might multivitamins matter?

“Many older adults are not at optimal nutritional status,” notes Baker. “That doesn’t mean they’re deficient, but they could be sub-optimal. Maybe a simple multivita-

min is enough to boost them back into the zone.”

Multivitamins aren’t a cure for memory loss, she emphasizes.

“But they may give you a layer of protection that can keep your cognitive function stable for a longer period of time.”

What’s more, taking a multivitamin like Centrum Silver is safe.

“Even if you don’t have Alzheimer’s in your family, cognitive decline affects all of us as we get older,” says Baker.

“No one can escape it. So anything that might give people a layer of protection and poses no risks is worth pursuing with a new trial.”

## 4 Vitamin D & Auto-immune Disease

When you have an autoimmune disease, your immune system mistakenly attacks your own organs, tissues, and cells.

In older people, rheumatoid arthritis, polymyalgia rheumatica, autoimmune thyroid disease, and psoriasis are among the most common autoimmune disorders. (Type I diabetes, lupus, and multiple sclerosis typically strike at younger ages.)

Medications or other treatments can help manage them, but “there are no known effective therapies to reduce the incidence of autoimmune diseases,” says Karen Costenbader, a rheumatologist at Brigham and Women’s Hospital and professor of medicine at Harvard Medical School.

So her study took advantage of the planned Vitamin D and Omega-3 Trial (VITAL) led by Harvard’s JoAnn Manson. VITAL randomly assigned nearly 26,000 people in their 50s or older to take either vitamin D (2,000 IU), fish oil omega-3s (460 mg of EPA plus 380 mg of DHA), both, or two placebos every day for roughly five years (see Jan./Feb. 2019, p. 3).<sup>28</sup>

Why test those supplements?

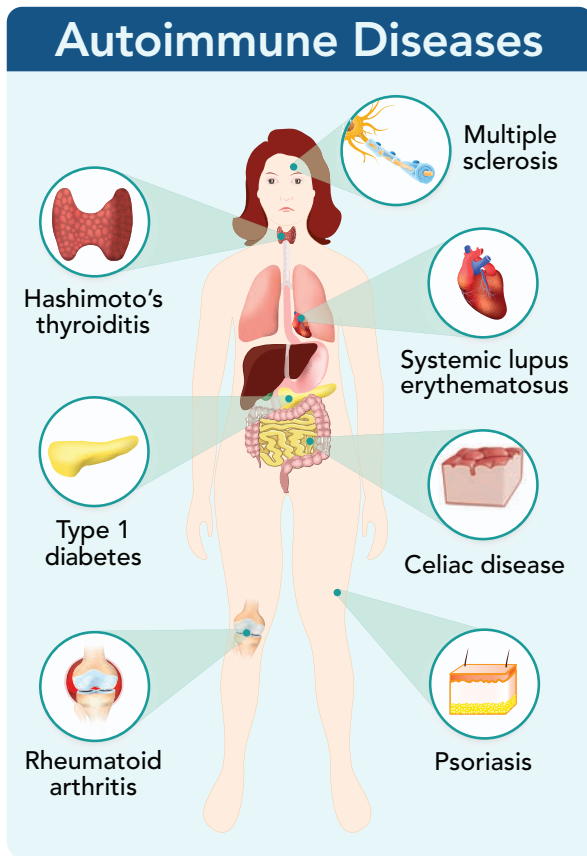
“Vitamin D is a hormone that goes into the nucleus of the cell and regulates a wide array of immune function genes,” explains Costenbader.

As for fish oil, “there’s evidence that omega-3 fats are anti-inflammatory, but no one had ever done a trial showing that taking a supplement would prevent or reduce the incidence of autoimmune disease.”

So every year of the VITAL trial, the researchers asked participants to report any new autoimmune diagnoses. They tried to confirm those reports with medical records.

“After five years, we saw a 22 percent reduction in new cases of autoimmune disease in people taking vitamin D,” says Costenbader.

The omega-3 group did not have a significantly lower risk.<sup>9</sup> However, when the researchers included not just confirmed cases, but also probable cases, they found an 18 percent lower risk of autoimmune disease in the omega-3 group. But those results need to be tested in a future trial.



Vitamin D may lower the risk of autoimmune diseases like rheumatoid arthritis, psoriasis, and Hashimoto’s thyroiditis in older people. Multiple sclerosis, lupus, and type 1 diabetes usually strike at younger ages.



Many “joint health” supplements include vitamin D, glucosamine, and chondroitin, even though all came up empty in trials.

“In particular, we had trouble confirming autoimmune thyroid disease because doctors don’t do a great job of pursuing whether a patient’s thyroid disease has an autoimmune cause,” explains Costenbader.

“Low thyroid levels in an older person usually have an autoimmune cause, but when doctors see a low or a high level of thyroid stimulating hormone, many just start treatment without confirming that the patient has autoantibodies.”

Costenbader’s takeaway: “These are relatively rare diseases, so roughly 230 people would have to take vitamin D and fish oil for five years to prevent one new diagnosis.”

“But I think it might be worth it, especially if you have a family history or are worried about autoimmune disease, because after rigorous testing in 25,000 adults for five years, we didn’t see any safety problems.”

However, adds Costenbader, “I’d say talk to your doctor before you start to take anything.” In some trials, large doses of vitamin D, especially when taken with calcium supplements, have increased the risk of kidney stones.

“And our results don’t apply to younger people,” she notes.

What about people with early symptoms of autoimmune disease?

“We don’t know the answer to that question,” says Costenbader. “It may be too late at that point.”

“But if people have early joint pains

without a lot of swelling and some autoantibodies are elevated, I think these supplements may be worth taking.”

## 5 Omega-3s & Vitamin D for Knee Pain

An estimated one out of four older adults have chronic knee pain, usually because of osteoarthritis.

“It’s very, very common,” says Costenbader. So she and her colleagues decided to see if vitamin D and fish oil omega-3s could help roughly 1,400 VITAL participants who had knee pain.

“These people were diagnosed with osteoarthritis by a doctor, they had chronic daily knee

pain, they had limitations on how much they could walk, and many were taking medications,” says Costenbader. “So their pain was fairly severe.”

Unfortunately, the results were disappointing.

“The supplements didn’t do much for their pain,” says Costenbader.<sup>10</sup>

That fits with three other recent trials that found no effect of vitamin D on knee pain or cartilage.<sup>11-13</sup>

The largest trial on glucosamine, chondroitin, or both supplements also came up empty.<sup>14</sup> And arthroscopic surgery works no better than physical therapy.<sup>15</sup>

“We don’t have any great medications for osteoarthritis,” says Costenbader.

Corticosteroid injections only relieve pain for short periods. NSAIDs like Advil or Aleve can curb pain, but they can have adverse effects like GI bleeding (see Oct. 2017, p. 3). Topical NSAIDs like Voltaren (a gel) are safer but don’t work for everyone.<sup>16</sup>

So far, your best bet—other than a knee replacement—is a mix of strength

training plus aerobic exercise *and* losing excess weight.<sup>17,18</sup>

“Building up muscle strength can protect the knee,” says Costenbader, adding that “high-intensity was no better than low-intensity strength training in a recent trial.”<sup>19</sup>

What may matter most: getting people to stick with an exercise program.

Costenbader cites a recent Veterans Affairs trial that assigned 345 vets (mostly men) to either an exercise or a control group.<sup>20</sup>

“The exercise group was given a prescription to an online exercise program at home, and if they didn’t improve after three months, they went

to the next step, which was biweekly coaching calls, and if they still didn’t improve after three more months, they went on to in-person physical therapy visits.”

After nine months, the exercise group reported significantly



Exercise that builds strength in muscles around the knee may help curb pain due to osteoarthritis.

less pain than the control group. “That kind of tailored exercise prescription may have the best effect,” says Costenbader. 🚫

<sup>1</sup> *Am. J. Clin. Nutr.* 2022. doi:10.1093/ajcn/nqac055.

<sup>2</sup> *JAMA* 308: 1871, 2012.

<sup>3</sup> *Am. J. Clin. Nutr.* 2022. doi:10.1093/ajcn/nqac056.

<sup>4</sup> *Contemp. Clin. Trials* 83: 57, 2019.

<sup>5</sup> *J. Prev. Alz. Dis.* 8: S19, 2021.

<sup>6</sup> *Ann. Intern. Med.* 159: 806, 2013.

<sup>7</sup> *N. Engl. J. Med.* 380: 23, 2019.

<sup>8</sup> *N. Engl. J. Med.* 380: 33, 2019.

<sup>9</sup> *BMJ* 2022. doi:10.1136/bmj-2021-066452.

<sup>10</sup> *Arthritis Rheumatol.* 72: 1836, 2020.

<sup>11</sup> *JAMA* 309: 155, 2013.

<sup>12</sup> *JAMA* 315: 1005, 2016.

<sup>13</sup> *Osteoarthritis Cartilage* 24: 1858, 2016.

<sup>14</sup> *N. Engl. J. Med.* 354: 795, 2006.

<sup>15</sup> *BMJ* 2017. doi:10.1136/bmj.j1982.

<sup>16</sup> *Arthritis Rheumatol.* 72: 220, 2020.

<sup>17</sup> *JAMA* 310: 1263, 2013.

<sup>18</sup> *Cochrane Database Syst. Rev.* 2015. doi:10.1002/14651858.CD004376.pub3.

<sup>19</sup> *JAMA* 325: 646, 2021.

<sup>20</sup> *Ann. Intern. Med.* 174: 298, 2021.

# Quick Studies

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

## Ultra-Processed + Soft = Trouble



People may eat more of ultra-processed foods in part because they're often soft and eaten quickly.

When scientists offered 50 people one of four unlimited meals (on four different days), they ate:

- 480 calories of hard minimally processed food (baked chicken, salad, apple, multigrain pilaf, plain yogurt),
- 630 calories of hard ultra-processed food (heat-and-eat seasoned chicken, fried vegetable snacks, waffle fries, dried mango, flavored yogurt),
- 720 calories of soft minimally processed food (salmon, steamed vegetables, banana, homemade mashed potatoes, unflavored yogurt drink), and

- 790 calories of soft ultra-processed food (battered fish, coleslaw, instant mashed potatoes, canned mango in syrup, flavored yogurt drink).

(The ultra-processed foods had more ingredients and additives. All meals had additional sauces.)

Softness and ultra-processing also led people to consume calories more quickly.

**What to do:** Load up on unprocessed foods like fresh fruits and vegetables. Minimize [ultra-processed foods](#), which are usually soft and calorie dense.

[Am. J. Clin. Nutr. 2022. doi:10.1093/ajcn/nqac068.](#)

## Low-Carb: No Magic Bullet

People lose little or no more weight on low-carb diets than on weight-loss diets with more carbs, according to a rigorous review of 61 clinical trials on 6,925 people. Only 14 of the trials tested very-low-carb diets, but they yielded no better results.

**What to do:** Pick any weight-loss diet—[low-carb or not](#)—that's healthy and cuts calories.



[Cochrane Database Syst. Rev. 2022. doi:10.1002/14651858.CD013334.pub2.](#)



## HIIT IT!

High-intensity interval training (HIIT) has benefits, even if you choose your own intervals.

Researchers randomly assigned 60 people with overweight or obesity to do three supervised weekly 45-minute cycling sessions at:

- continuous moderate intensity,
- high intensity for 1-minute in-

tervals with 1-minute recovery intervals, or

- high intensity for 1-minute intervals with ½-to-2-minute recovery intervals (chosen by the exercisers).

After two months, the two high-intensity groups gained more cardiorespiratory fitness than the moderate-intensity group.

**What to do:** Try adding brief high-intensity bouts to your exercise routine. 🚴

[J. Exerc. Sci. Fit. 20:172, 2022.](#)

## Bean Cuisine



Beans may help lower blood sugar in people with type 2 diabetes.

Researchers randomly assigned 300 adults with type 2 diabetes and over-

weight or obesity to a [DASH](#) (Dietary Approaches to Stop Hypertension) diet with or without beans.

Both groups were told to cut 500 to 700 calories a day and to eat a diet rich in fruits and vegetables, with whole grains, low-fat dairy, meat, nuts, and few sweets. The bean group was also told to replace a serving of meat and bread with a serving of beans five times a week.

After 16 weeks, fasting blood sugar dropped 9 milligrams per deciliter more in the bean eaters than in the bean-free group.

**What to do:** Give [beans](#) a chance. Even if they don't lower your blood sugar, they're fiber rich, planet friendly, inexpensive, and delicious.

[Eur. J. Nutr. 2022. doi:10.1007/s00394-022-02869-0.](#)

# Do real men eat meat?

Or do we just think so?

BY BONNIE LIEBMAN

Serving for serving, beef creates far more [greenhouse gases](#) than any other food. And processed meats like bacon, sausage, hot dogs, and cold cuts increase the risk of [colorectal cancer](#). Yet Americans eat much more meat than most of the world. And American men eat far more meat than American women. No doubt, many men enjoy their burgers, bacon, steak, and ribs. But could some men also prefer red meat because it's considered "manly"? Researchers decided to find out.

Hardee's Monster Roast Beef is "like doing donuts in a hotrod while catching a game-winning Hail Mary," says the 2019 [TV ad](#) featuring, well, a Monster-eating guy in a hotrod.

"You see advertisements with this portrayal that in order to be a man, you have to eat meat," says Bret Leary, associate professor of marketing at the University of Nevada, Reno. "The ideal that real men eat meat is so rampant."

Leary and his colleagues decided to find out why.

"We wanted to see if men who felt the stress of not living up to traditional masculinity ideals were more likely to eat meat to augment their masculine identity," he explains.

Leary's team conducted three online studies on some 200 to 400 U.S. and British men (average age: 32).<sup>1</sup> For each study, the men completed a questionnaire to measure "masculinity stress" by agreeing or disagreeing with statements like "I wish

I was more 'manly'" or "I worry that women find me less attractive because I'm not as macho as other guys."

■ **Study 1.** After viewing an ad for The Butcher Box, a fictitious meat home-delivery service, the men were asked, "How inclined are you to purchase a meat box containing 8 prime cut steaks, 24 sausages, and 6 lbs. of lean ground beef?"

"Men who were experiencing masculinity stress were more willing to buy the box," says Leary.

■ **Study 2.** Before being asked about the Butcher Box, some of the men were shown a fictional industry *Monthly Report* with the headline "Red Meat's Resurgence: Men Can't Get Enough."

Others saw the same report, but

the headline ended with "Women Can't Get Enough."

"When meat consumption was associated with femininity, men who were experiencing masculinity stress were not willing to pay as much for the meat," says Leary.



Men with "masculinity stress" who saw this fake headline weren't willing to pay as much for meat.



Eating meat is manly, suggest ads like this Hardee's 2019 commercial.

■ **Study 3.** First the men filled out a survey, agreeing or disagreeing with statements like "I have guns" and "I have thrown knives, axes, or other sharp things." Then they were randomly sent feedback saying either "our algorithm indicates you are less masculine than 85% of the population" or "our algorithm indicates you are more masculine than 85% of the population."

(The men were later told that the feedback was a fiction.)

"We wanted to activate this stress of 'I'm not man enough, and how am I going to compensate?'" says Leary.

Next, in an ostensibly unrelated study, the men were asked to choose one of four items from a menu: a meatball sub, a bacon and egg sandwich, a grilled chicken salad, or a tofu salad.

Sure enough, "those who received the feedback that said they were less masculine were more likely to choose either the meatball sub or the bacon sandwich than those who received the opposite feedback," says Leary.

"When men received affirmation of their masculinity, there was no need to augment their masculine identity by eating more red meat."

Hmm. Maybe real men *don't* need to eat meat to prove anything. 🍔

<sup>1</sup> [Appetite 2022. doi:10.1016/j.appet.2021.105729.](#)



# CELIAC DISEASE

## WHEN GLUTEN BECOMES A FOE



**Benjamin Lebwohl** is a gastroenterologist and the director of clinical research at the Celiac Disease Center at Columbia University. His research focuses

on the causes and long-term outcomes of celiac disease as well as strategies to improve patients' quality of life. Lebwohl spoke with *Nutrition Action's* Caitlin Dow.

### Celiac Basics

#### **Q: Why do people with celiac disease react to gluten?**

**A:** Celiac disease is an autoimmune condition where immune cells in the small intestine mistake gluten for a threat. The immune system sees gluten like it's a pathogen, similar to a bacteria or virus.

In response, the immune cells make antibodies and inflammatory proteins to deal with the perceived threat. That results in collateral damage to the villi of the intestine, which are the long finger-like projections that increase nutrient absorption by maximizing the surface area of the intestine's lining.

#### **Q: What's the consequence of that damage?**

**A:** It reduces the intestine's ability to absorb nutrients, which affects other body systems. For example, bone health takes a hit due to malabsorption of calcium and vitamin D. Anemia is also an issue due to impaired absorption of iron, folic acid, and vitamin B-12.

Celiac disease is on the rise. Is it because of how we grow wheat? Can you be sensitive to gluten—a protein found in wheat, barley, and rye—without having celiac? Should you buy an at-home antibody kit to test yourself? Can you trust gluten-free packaged and restaurant foods? Here's what you need to know.

#### **Q: How common is celiac disease?**

**A:** Somewhere around [0.7 to 1 percent](#) of the population has it. That includes people with undiagnosed celiac disease, which may be about half of people with celiac disease.

#### **Q: Is celiac disease inherited?**

**A:** Yes. There are two genetic markers. Without at least one of them, it's close to impossible to develop celiac disease.

But they're very common. [Around 30 to 40 percent](#) of us have at least one of them, though about 97 percent of those people never develop celiac. But if you have a first-degree relative—that is, a parent, child, or sibling—with celiac disease, your risk of having celiac [rises](#) from roughly 1 percent to 10 percent.

#### **Q: Why do only some people with the gene get celiac?**

**A:** There seems to be some environmental trigger—perhaps an intestinal infection—that leads some people to develop celiac.

There's more celiac disease now than there was a generation ago.

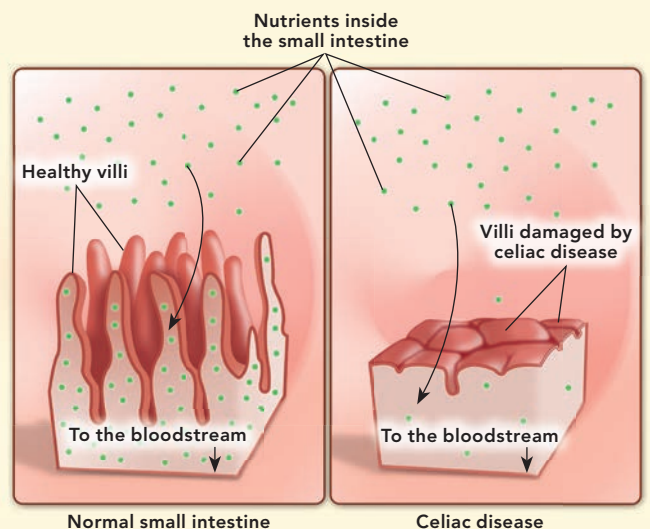
That suggests that there are important environmental determinants because our genetics haven't changed over a generation, though increased awareness and improved diagnostic techniques may have played a role.

#### **Q: Determinants like what?**

**A:** The most widely accepted theory is related to the hygiene hypothesis. We have less exposure to germs, fewer early-life infections, and greater use of antibiotics, which means that the immune system



### CELIAC'S DAMAGE



In celiac disease (right), the immune system damages the villi—the tiny, finger-like protrusions that line the inside of the small intestine. Without healthy villi, celiac patients can't absorb enough nutrients into the bloodstream.

# HOW TO EAT GLUTEN-FREE

A gluten-free diet can be as healthy, delicious, and adventurous as any other.

Fruits, vegetables, beans, dairy, nuts, meat, poultry, and seafood are naturally gluten-free, says Anne Lee, assistant professor of nutritional medicine at the Celiac Disease Center at Columbia University. Only wheat, barley, and rye—or foods contaminated with those grains—are off the table.

Here are Lee's other tips:

■ **"Gluten-free" labels.** If a packaged food says it's "gluten-free," you can generally trust it. But it's always a good idea—especially for traditionally flour-based foods like pasta, bread, cereal,

crackers, and baked goods—to also check the ingredients for wheat, barley, rye, or malt (which is made from barley).

Other no-noes: soy sauce and brewer's yeast (unless they're labeled "gluten-free").

■ **Gluten-free... and junkier.** Many gluten-free breads, crackers, cookies, etc., add starches from potato, rice, corn, or tapioca, so they fall short on fiber.



And plenty try to improve their texture and flavor by bumping up the

sugar, salt, or fat.

■ **Good grains.** Whole grains like quinoa, brown rice, millet, amaranth, sorghum, and buckwheat are safe.

■ **Alcohol.** You can't trust that all the gluten has been taken out of "gluten-removed" beer. Skip it. Wine is safe, as are all distilled spirits (including rye whiskey).

**WANT MORE INFORMATION?** Check out [celiac.org/gluten-free-living/gluten-free-foods](https://celiac.org/gluten-free-living/gluten-free-foods).

hasn't gotten enough practice learning what's a real threat. Those changes in hygiene may have contributed to the rise of certain autoimmune conditions, including celiac disease.

## Q: Are we also eating more wheat?

**A:** In fact, [we eat less wheat now](#) than we did at the turn of the 20th century. There's also a lot of online misinformation about genetically modified wheat. There is no GMO wheat in the food supply. And it's likely that the gluten content of wheat hasn't changed drastically over time.

## Diagnosing Celiac

### Q: What are the signs and symptoms of celiac disease?

**A:** It is a real chameleon when it comes to symptoms. Some people have many and some have zero. Most, however, fall somewhere in between.

Some of the most common symptoms include weight loss, diarrhea, abdominal pain, and bloating, though constipation can also sometimes be a symptom. Some people have anemia, elevated liver enzymes, peripheral nerve damage, headache, female infertility, or balance issues. And in children, falling off the growth curve can be a sign.

### Q: How do people with no symptoms get diagnosed?

**A:** From screening due to their family history or because they have type 1 diabetes, which is also an autoimmune disorder. People with type 1 diabetes have about an eight-fold increased risk of celiac disease.

It's a well-established link, though not completely understood. People with one autoimmune condition often have others.

### Q: Is celiac often missed by doctors?

**A:** Yes. Many people with celiac disease may have been told many years prior that they have some other condition like irritable bowel syndrome, because the symptoms can overlap.

### Q: How is celiac diagnosed?

**A:** The first step is a blood test. The most reliable marker is an antibody called tissue transglutaminase—or tTG-IgA.

If the antibody is abnormally elevated, the next step is a biopsy of the duodenum, the first part of the small intestine. If the biopsy shows damage to villi, then you get a diagnosis of celiac disease.

### Q: Are at-home celiac tests reliable?

**A:** Even if an at-home test shows elevated antibodies, you still need an intestinal biopsy to confirm the diagnosis. These tests could lead people to bypass a formal diagnosis and adopt a gluten-free diet when it's not necessary.

### Q: Who should get tested for celiac?

**A:** Certainly anyone with irregular bowel habits or a diagnosis of irritable bowel syndrome. Unexplained weight loss, iron-deficiency anemia, osteoporosis, or female infertility can also be cause for testing.

And possibly people with no symptoms who are at increased risk because they have type 1 diabetes or first-degree

relatives with celiac disease.

### Q: What's the harm in not testing?

**A:** For people with symptoms, the downside is that you'll have untreated symptoms that impair your quality of life.

And untreated celiac and ongoing intestinal damage may increase the risk of long-term consequences like cancer. For example, people with celiac have a four-fold increased risk of non-Hodgkin lymphoma. It's likely that with diagnosis and treatment, that risk goes down.

### Q: Why can't people who suspect they have celiac just stop eating gluten?

**A:** It's important to get tested before you self-prescribe a gluten-free diet. Once the diet begins, the clock starts ticking. The antibody blood tests and biopsy findings become normal over time once you remove gluten from the diet. So your tests could come back negative even if you have celiac disease.

### Q: But if you've stopped eating gluten, why should that matter?

**A:** Celiac disease increases the risk of other health issues like infertility, cancer, osteoporosis, and other autoimmune diseases, so it's important for you and your doctor to know. And since celiac runs in families, you can alert family members to get tested.

### Q: What's the difference between celiac disease and gluten sensitivity?

**A:** Non-celiac gluten sensitivity is [poorly understood](#). The symptoms—

## GLUTEN-FREE FINDS

which can mimic those of celiac—seem to be triggered by gluten or wheat, but there are no blood markers or intestinal damage like you see in celiac disease. We don't have a reliable biomarker to identify gluten sensitivity. It's based on an individual's experience and history, assuming celiac disease has been thoroughly ruled out. [See Nov. 2019, p. 8.]

### Bye Bye Gluten

#### Q: How is celiac disease managed?

**A:** The most important thing is to see a dietitian who's an expert in a gluten-free diet. There's a lot of information online, but it's often mixed with misinformation. And, especially in social media groups, it is very common to see one-upmanship in terms of the vigilance that's required to avoid gluten.

#### Q: Is a gluten-free diet hard to stick to?

**A:** Most people with celiac disease do very well, their symptoms resolve, and their intestines heal. But nearly everyone gets inadvertently exposed to gluten at some point. If it's occasional enough, it doesn't cause any substantial clinical consequences.

But some people have ongoing symptoms despite trying to be gluten-free, which could be due to inadvertent gluten exposure.

#### Q: How does gluten slip in to people's diets?

**A:** "Gluten-free" labels on packaged foods can be trusted. But restaurants may be another story. We did an [analysis](#) of a crowdsourced opt-in app that was used by owners of a portable gluten sensor who tested various restaurant foods. Gluten was detected in about a third of all the foods—and in about half of the pastas



Oats are naturally gluten-free, but they can be contaminated with gluten if they've been grown in the same fields—or processed on the same equipment—as wheat, barley, or rye.

So if you're avoiding gluten, look for oats labeled or certified "gluten-free." Baking? Try gluten-free oat flour. Or toss gluten-free rolled oats into a food processor or blender to grind your own.



Whole-grain, organic **Mary's Gone Crackers** are mostly brown rice, quinoa, flax seeds, and sesame seeds, with no added starches. That adds up to a nice 3 grams of fiber per 12-cracker serving...and a whole lot of crunch. Mary's **Super Seed** crackers have the same main ingredients, plus pumpkin and sunflower seeds.



Gluten-free pasta with as much fiber as whole-wheat pasta—and more protein? Yup.

Say hello to legume pastas. Brands like **Barilla** and **Tolerant Organic** have just one ingredient: lentil (or chickpea) flour.

Tip: They cook quickly. To avoid gummy pasta, check the cook time before you turn on the burner.



Most gluten-free breads have added starches (see "How to Eat Gluten-Free").

But **Outer Aisle Original Cauliflower Sandwich Thins** skip the grains altogether. Instead, there's real cauliflower plus a little egg, parmesan, and nutritional yeast. Lightly toast them under the broiler. Mmm.

and pizzas—that were labeled "gluten-free."

This was all voluntary reporting, so users may have only entered data when it was perhaps a bit more surprising or interesting. Still, we do believe there is a problem with restaurant foods.

#### Q: Why do pasta and pizza seem to be more of a problem?

**A:** Gluten-free pasta might be prepared in a pot of water that recently had regular pasta. Or gluten-free pizza might share oven space with gluten-containing pizza.

#### Q: Is there any reason to avoid gluten if you aren't sensitive to it?

**A:** There are claims that a gluten-free diet offers benefits for cardiovascular health, cancer risk, blood sugar, cognition, and more, but there's really no evidence to support that. And the gluten-free diet is often higher in sugar and fat and lower in fiber. So why try it if you don't need to?

#### Q: Can pills that digest gluten protect against inadvertent gluten exposure?

**A:** There are two categories of gluten-digestive agents. One kind is being developed under rigorous clinical testing through an FDA-approval pathway. And it is [showing promise](#) in early clinical testing.

Unfortunately, the larger category—and what's available to consumers now—is over-the-counter supplements. The few studies that have evaluated them have shown that they [do not break down gluten sufficiently](#) to be useful for people with celiac disease.

#### Q: What's in the pipeline?

**A:** A growing number of non-dietary therapies are being tested. Some are drugs that would make the immune system [more tolerant of gluten](#).

The drugs, which are in various phases of clinical testing, would afford additional protection when inevitable gluten exposure occurs. Others may allow people to eventually eat a gluten-containing diet, though that's a distant goal. 🍷

# The Healthy Cook

## Paella, please!



Not your traditional paella, this vegetarian version gets its savoriness from mushrooms. For an evenly crispy base, use a large pan. To kick up the flavor a notch, top with a dollop of aioli (see back cover). 🌶️

### Spring Veg Paella

- |  |  |
|--|--|
| 1 lb. mushrooms, any kind              | 3 cloves garlic, minced                                  |
| 3 Tbs. + 1 Tbs. extra-virgin olive oil | 2 cups short-grain brown rice                            |
| 1 large onion, finely chopped          | 4 cups mushroom or vegetable stock (preferably homemade) |
| 1 Tbs. Worcestershire sauce            | ½ tsp. kosher salt                                       |
| 2 Tbs. reduced-sodium soy sauce        | 2 cups frozen peas                                       |
|  | 1 bunch scallions, sliced                                |

- 1 Preheat the oven to 325°F. Slice 6 mushrooms and set them aside. Finely chop the remaining mushrooms. In a large, heavy, oven-safe pan over medium-high heat, heat 3 Tbs. oil until shimmering. Sauté the chopped mushrooms and onion until they start to brown, 5–7 minutes.
- 2 Add the Worcestershire sauce, soy sauce, and garlic. Cook, stirring, for 1 minute. Stir in the rice and stir-fry for 2 minutes. Stir in the stock and salt. Bring to a boil.
- 3 Cover tightly with a lid or foil. Place in the oven and bake until the rice has absorbed all the stock and has started to crisp at the bottom, 40–45 minutes.
- 4 In a medium pan over medium-high heat, heat the remaining 1 Tbs. oil until shimmering. Sauté the reserved 6 sliced mushrooms until lightly browned, about 3 minutes. Add the peas and scallions and stir-fry until hot, 1–2 minutes. Spoon over the rice.



MAKES 6 CUPS

PER SERVING (1 cup): calories 390 | total fat 11 g | sat fat 1.5 g | carbs 64 g | fiber 6 g | total sugar 7 g | added sugar 0 g | protein 11 g | sodium 460 mg

### For Smoky Veggie Paella

Go to [cspinet.org/paella](https://cspinet.org/paella)

#### FOR COOKING ADVICE

Write to Chef Kate at [healthycook@cspinet.org](mailto:healthycook@cspinet.org)



# Blending In

## THE BEST SMOOTHIES & SHAKES

BY LINDSAY MOYER



At shops like Jamba Juice, most smoothies aren't just fruit plus milk or yogurt. They often contain sugary sherbet, juice, lemonade, frozen yogurt, etc. So even the smallest sizes typically start at 250 to 400 calories. In other words, they just can't beat the smoothies you whip up at home. Here's our DIY guide. Short on time, or on the go? Turn the page for bottled smoothies and shakes.

**1 Start with frozen fruit.** It's a quick route to an icy, refreshing smoothie. Berries, cherries, mango, pineapple, peaches, bananas, you name it...all fruits are good fruits. And frozen fruits are just as rich in vitamins and minerals as fresh.

Aside from packs of sweetened açai berry purée and tubs of sugary sliced strawberries, added sugar is rare in the frozen-fruit case. You won't find any in our frozen Best Bites (see p. 15).

Bonus: Frozen fruit is ready when you are, it's food-waste-proof, and it's also at home in your yogurt or cereal bowl.

**2 Blends make it easy.** To make your smoothie prep a snap, grab a frozen fruit blend. See the photos below for some of our favorites...or let them inspire your own combos.

**3 Want vegetables?** Add your own (see "Extras," p. 14). Most frozen fruit-and-vegetable blends don't add many veggies. For example, Dole Fruit & Veggie Fruit 'n Greens has more mango, banana, apple, and pineapple than spinach, the Berries 'n Kale has more strawberries, banana, and blueberries

than kale, and the Tropical Avocado with Kale has more banana, pineapple, and mango than avocado or kale.

Do you *need* vegetables in a smoothie? Nope. But if you bought a blend for its veggies, you may be underwhelmed.

Food-safety tip: Skip frozen vegetables (like spinach, carrots, or kale) if they come with heating instructions on the package. That means they're not intended to be eaten without cooking.

**4 Skip the juice.** Fruit is healthier than juice, so blend your real fruit and/or veggies with another liquid (see No. 5).

It's not just that juice has no intact fiber (it often has no fiber at all). The concentrated dose of fruit sugars in juice also boosts a smoothie's calorie density—the calories per swallow.

And keep in mind that neither juice nor smoothies may curb your appetite like whole fruit. [Studies](#) show that when people drink—rather than chew—their calories, they're unlikely to fully compensate by eating less food later. Over time, that can lead to unhealthy weight gain.

**5 Pick a lower-sugar liquid.** If you're aiming for a lower-calorie snack, blend your fruit with water or unsweetened nut milk.

Want more sweetness? Add banana. Or try a splash of coconut water. It has half the calories of other juices (50 per cup), yet as much or more potassium than most. And unlike coconut *milk*, it's free of saturated (unhealthy) fat.

Looking for more protein and calcium? Use fat-free or 1% dairy milk or a fortified soy or pea protein plant milk like unsweetened or original Ripple or Silk Protein. Or go with a plain or lower-sugar kefir (see p. 14) or yogurt (see back cover).

**6 Go green.** A do-it-yourself smoothie isn't just good for you. It also eliminates a bottled smoothie's thick plastic, which rarely gets recycled (see April 2021, p. 8).

Another way to minimize excess packaging: Buy larger bags of frozen fruit. And skip frozen blends that come in individually portioned bags, like Dole Crafted Smoothie Blends.

Or go greener: Freeze your own smoothie ingredients in reusable containers.

**7 Cut food waste.** Got fresh bananas, berries, or other fruit on the verge of spoiling? Slice or wash them (if needed), then freeze. Ta-dah! A future smoothie awaits.

Photos: (top): Daniel Vincek/stock.adobe.com, (bottom, left to right): Lindsay Moyer/CSPi, Wyman's, Whole Foods, Lindsay Moyer/CSPi, Lindsay Moyer/CSPi.



Berries, bananas, whey, almond butter. Just add unsweet almond milk.



The main event in Wyman's blends: tiny, flavorful wild blueberries.



Blend some in...or just snack on the icy mango chunks. Mmm.



Haven't tried a blend with dark sweet cherries? You're gonna love 'em.



To dodge the sat fat, pick tropical blends with no coconut (like Target's).



Any flavored Lifeway 1% or 0% Kefir is an Honorable Mention.

## Yogurt & Kefir Smoothies

Cultured dairy drinks don't have much fruit, but they do deliver a smoothie with calcium and potassium in one easy pour. Some highlights:

■ **Chobani Complete Shake.** The super thick, creamy Best Bite has 25 grams of protein, 25 percent of a day's calcium, and 10 percent of a day's potassium, all for only 200-or-so calories per 10 oz. bottle of drinkable yogurt. Impressive!

■ **Lifeway Kefir.** The "champagne of dairy" tastes like a pleasantly tangy sip of yogurt. All of Lifeway's 0% and 1% kefirs get either Best Bites (plain) or Honorable Mentions (flavored). None top our added-sugar limit of 9 grams (2 teaspoons) per 8 oz.

■ **Siggi's Probiotic Drinkable Nonfat Yogurt.** Like kefir, it's a yummy, tangy winner for dairy drinkers. (For more on probiotics in yogurt, see May 2021, p. 13.)

Looking for plant-based smoothies? We didn't find any Best Bites or Honorable Mentions. **Siggi's Plant-Based Probiotic Coconut Drink** has 8 grams of (pea) protein—rare in the cultured plant-based aisle. And taste-wise, it's a convincing dairy dupe. But with 4½ grams of saturated fat per cup—more than our two-gram limit—it's close to a *whole-milk* yogurt drink. And since it's dairy-free (and unfortified), there's little calcium or potassium.

## Protein Shakes

Perusing protein shakes? Some pointers:

■ **Milkshake in disguise?** "Protein" is a health halo that sells sugar-loaded drinks like **Bolthouse Protein Plus**, with up to 23 to 37 grams (5½ to 9 tsp.) of added sugar per 15.2 oz. shake. **Naked's** same-size **Chocolate** and **Vanilla Protein** almondmilk smoothies hit 46 grams (11 tsp.)—just 1 teaspoon shy of a day's max!

■ **Less sugar.** Honorable Mentions **Evolve**, **Koia Protein**, **Owyn**, and **Silk Ultra Original** have just 1 tsp. added sugar per bottle or cup.

■ **Risky sweeteners.** **Special K Protein**, **Fairlife**, and some others add low-calorie sweeteners like sucralose and acesulfame potassium, which we rate as "Avoid" (see [chemicalcuisine.org](http://chemicalcuisine.org)).

■ **Chicory caution.** Processed chicory root fiber (aka inulin) is in lower-sugar protein shakes like **Koia Protein** and **Iconic** (and in some yogurt ones like **Chobani**). It's safe, but it gives some people gas.

■ **"Keto" decoded.** It usually means no added sugar, but coconut milk and MCT oil can add a half to a full day's saturated fat.

■ **Need it?** Do you need the 20-plus grams of protein—40 percent of a day's worth—in many shakes? Not if it's just a snack. Our Best Bites and Honorable Mentions have at least 8 grams of protein per cup—what you'd get in a yogurt smoothie. That may be plenty for you.



Plant-based protein with just a teaspoon of added sugar.

## Juice Smoothies

We didn't give juice-plus-purée smoothies Best Bites or Honorable Mentions because they're heavy on juice (see p. 13) and not as healthy as they look. Take **Bolthouse Blue Goodness**:

■ **"No sugar added."** True, but a 15.2 oz. bottle still squeezes in 52 grams (12½ tsp.) of juice-plus-purée sugars and 280 liquid calories.

■ **"3¼ servings of fruit."** That's no surprise, since ½ cup (4 oz.) of juice counts as a serving, says the U.S. Department of Agriculture. But juice doesn't curb your appetite like whole fruit.

■ **11 grams fiber.** Much of it comes from processed dextrin and chicory root. They can't match the intact fiber in whole berries. (Blue Goodness only has berry juice, not berries.)

■ **Nutrient-poor apple juice.** The smoothie's first ingredient: apple juice from concentrate. Not that you could tell from the picture on the front of the bottle, of course. The apple is largely hidden behind a pile of berries...with no sign of the second ingredient (banana purée).



Goodness...or good marketing?

## Extras

Blending your own smoothie? For extra nutrients, try:

■ **Chia or hemp seeds.**

A tablespoon adds a bit of fiber (chia) or plant protein (hemp), plus minerals.

■ **Baby kale.** Keep a bag in the fridge for salads, sides, *and* smoothies. Kale beats spinach

A spoonful adds a nice dose of nuttiness.



because the oxalates in spinach bind to the calcium in milk or yogurt, so you absorb less of it.

■ **PB2.** Nut butters are full of healthy fats, but each 100-calorie spoonful adds up. Not so with **PB2**, a powder made of peanuts that have been pressed to remove most of their oil. Each tablespoon has 30 calories, a mere half gram of added sugar, and plenty of nutty flavor. PB2-banana smoothie, anyone? 🍌

# Mix It Up

**Frozen fruit blends: Best Bites (✓✓)** have no added sugar and no more than 2 grams of saturated fat per serving. They're ranked from least to most saturated fat, then added sugar.

**Smoothies & shakes: Best Bites (✓✓)** have no added sugar. **Honorable Mentions (✓)** can have up to 2 teaspoons per cup (8 oz.). Both also have at least 8 grams of protein and no more than 2 grams of saturated fat per cup. We disqualified shakes with acesulfame potassium or sucralose as well as all juice smoothies. Smoothies and shakes are ranked from least to most saturated fat and added sugar, then most to least protein. Juice smoothies are first ranked from least to most calories. (Why? See p. 13, No. 4.)

	Calories	Saturated Fat (g)	Added Sugar (tsp.)	Protein (g)
<b>Frozen Fruit Blends</b> (1 serving, ¾-1½ cups)				
✓✓ Dole Boosted Blends Energize (1½ cups)	190	0	0	5
✓✓ Dole Boosted Blends Protein (1½ cups)	160	0	0	10
✓✓ Dole Crafted Smoothie Blends—except Strawberry Watermelon <sup>1</sup> (1 bag)	160	0	0	2
✓✓ Dole Fruit & Veggie <sup>1</sup> (¾ cup)	80	0	0	1
✓✓ Dole Keto Berry Blend (¾ cup)	80	0	0	1
✓✓ Dole Sliced Strawberries & Bananas (1 bag)	160	0	0	2
✓✓ Good & Gather Tropical Fruit Blend (1 cup)	80	0	0	1
✓✓ Trader Joe's Tropical Fruit Blend (1 cup)	90	0	0	1
✓✓ Trader Joe's Very Cherry Berry Blend (1 cup)	80	0	0	1
✓✓ Wyman's Banana Berry (1 cup)	80	0	0	1
✓✓ Wyman's Cherry Berry & Kale (1 cup)	60	0	0	1
✓✓ Wyman's Mango Berry (1 cup)	70	0	0	1
✓✓ Wyman's Triple Berry (1 cup)	80	0	0	1
✓✓ Sambazon Açai Pure Unsweetened (1 pack)	70	1	0	1
Sambazon Açai Original Blend (1 pack)	100	1	3	1
Dole Crafted Smoothie Blends Strawberry Watermelon (1 bag)	160	3.5	0	2

	Calories	Saturated Fat (g)	Added Sugar (tsp.)	Protein (g)
<b>Yogurt &amp; Kefir Smoothies</b> (1 bottle, unless noted)				
✓✓ Pillars Drinkable Greek Yogurt <sup>1</sup> (12 oz.)	100	0	0	18
✓✓ Lifeway 0% Kefir, plain (1 cup, 8 oz.)	90	0	0	10
✓✓ Siggi's Drinkable Nonfat Yogurt, plain (1 cup, 8 oz.)	80	0	0	8
✓ Lifeway Kefir 0% Strawberry (1 cup, 8 oz.)	130	0	2	10
✓ Siggi's Probiotic Drinkable Nonfat Yogurt, flavored <sup>1</sup> (1 cup, 8 oz.)	110	0	2	8
Lifeway Oat Cultured Oat Milk <sup>1</sup> (1 cup, 8 oz.)	140	0	2	4
✓✓ Chobani Complete Shake <sup>1</sup> (10 oz.)	190	1.5	0	25
✓✓ Lifeway 1% Kefir, plain (1 cup, 8 oz.)	110	1.5	0	11
✓ Lifeway 1% Kefir, flavored <sup>1</sup> (1 cup, 8 oz.)	140	1.5	2	10
Stonyfield Probiotic Protein <sup>1</sup> (10 oz.)	180	2	3.5	10
Chobani Greek Yogurt Drink <sup>1</sup> (7 oz.)	150	2.5	1.5	10
Bolthouse Breakfast Smoothie <sup>1</sup> (15.2 oz.)	370	3	7	11
Noosa Fruit Smoothie <sup>1</sup> (7 oz.)	160	3.5	2.5	5
Siggi's Plant-Based Probiotic Coconut <sup>1</sup> (8 oz.)	140	4.5	1.5	8
Lifeway 3.25% Kefir, plain (1 cup, 8 oz.)	150	5	0	8
Lifeway 3.25% Kefir, flavored <sup>1</sup> (1 cup, 8 oz.)	170	5	2	8
Siggi's Probiotic Whole Milk Drinkable Yogurt, flavored <sup>1</sup> (8 oz.)	180	5	2	8

	Calories	Saturated Fat (g)	Added Sugar (tsp.)	Protein (g)
<b>Dairy Protein Shakes</b> (1 bottle)				
✓✓ Iconic <sup>1</sup> (11.5 oz.)	140	0.5	0	20
Special K Protein <sup>1,5</sup> (10 oz.)	190	0.5	2.5	15
Bolthouse Vanilla Chai (15.2 oz.)	310	1	10.5	12
Fairlife Nutrition Plan <sup>1,5</sup> (11.5 oz.)	150	1.5	0	30
Bolthouse Mocha Cappuccino (15.2 oz.)	320	2.5	9.5	13
Bolthouse Protein Plus <sup>1</sup> (15.2 oz.)	370	3.5	7	30
Bolthouse Protein Keto <sup>1</sup> (15.2 oz.)	280	9	0	15

	Calories	Saturated Fat (g)	Added Sugar (tsp.)	Protein (g)
<b>Plant Protein Shakes</b> (1 bottle, unless noted)				
✓ Evolve <sup>1</sup> (11.2 oz.)	150	0.5	1	20
Naked Vanilla Protein (15.2 oz.)	370	0.5	11	30
✓✓ Silk Ultra Unsweet (1 cup, 8 oz.)	180	1	0	20
✓ Owyn <sup>1</sup> (12 oz.)	180	1	1	20
✓ Silk Ultra Original (1 cup, 8 oz.)	160	1	1	20
✓ Koia Protein <sup>1</sup> (12 oz.)	190	1	1	18
Silk Ultra Creamy Chocolate (1 cup, 8 oz.)	190	1	2.5	20
Naked Chocolate Protein (15.2 oz.)	410	1	11	30
Forager Nuts & Cocoa (12 oz.)	310	5	0	12
Koia Keto <sup>1</sup> (12 oz.)	200	13	0	12
Bolthouse Protein Keto Plant Based <sup>1</sup> (15.2 oz.)	230	16	0	12

	Calories	Saturated Fat (g)	Added Sugar (tsp.)	Protein (g)
<b>Juice Smoothies</b> (15.2 oz. bottle, unless noted)				
Koia Glowing Greens (12 oz.)	90	0	0	5
Koia—except Glowing Greens <sup>1</sup> (12 oz.)	120	3	0	5
Bolthouse Daily Greens	150	0	0	2
Suja Green Delight (12 oz.)	160	0	0	1
Welch's Protein Smoothie—Mixed Berry Concord Grape, Peach Mango, or Strawberry Banana <sup>1</sup> (6 oz.)	160	0	2.5	8
Bolthouse Green Immunity Boost	170	0	0	2
Naked Kale Blazer	180	0	0	4
Evolution Fresh Vital Berry	200	0	0	2
Naked Berry Blast	220	0	0	2
Naked Immune Support	220	0	0	2
Bolthouse Berry Boost	220	0	0	1
Bolthouse Amazing Mango	230	0	0	2
Evolution Fresh Super Fruit Greens	240	0	0	4
Bolthouse Green Goodness	240	0	0	3
Naked Strawberry Banana	250	0	0	2
Bolthouse Strawberry Banana	250	0	0	1
Naked Rainbow Machine	260	0	0	3
Naked Green Machine	270	0	0	4
Bolthouse Blue Goodness	280	0	0	1
Naked Piña Colada	310	3	0	2
Naked Plant Protein <sup>1</sup>	340	0	0	18
Naked Protein Double Berry	370	0.5	0	30
Bolthouse Protein Plus Mango	380	1	0	30
Naked Protein Greens	390	0.5	0	30

✓✓ Best Bite. ✓ Honorable Mention. <sup>1</sup>Average of the entire line or the varieties listed. <sup>5</sup>Contains acesulfame potassium and sucralose.

**Daily Values (DVs): Saturated Fat:** 20 grams. **Added Sugar:** 12 teaspoons (50 grams). **Protein:** 50 grams.

Source: company information. The use of information from this article for commercial purposes is strictly prohibited without written permission from CSPI.



## FOOD FIND

### Going Pro



Meet **Oikos Pro**, the new protein-packed lowfat yogurt on the dairy block.

Dannon uses cultured milk that's been filtered (which concentrates its protein and calcium) plus whey.

The result: an uber-creamy, pudding-like texture. Mmm.

Take your pick of flavors like **Strawberry, Banana,**

**Mixed Berry, Peach, Vanilla,** and **Plain.**

What's more, its "Reb M" stevia leaf extract sweetener—Pro adds no sugar—does an impressive job. Say goodbye to ordinary stevia's occasional bitter aftertaste.

Compared to a typical sugar-sweetened lowfat Greek yogurt like Chobani 2%, Pro packs more protein (20 vs. 11 grams in a 5.3 oz. container), more calcium (15 vs. 10 percent of a day's worth), and a little less saturated fat (0 vs. 1½ grams). That's all for about the same calories (140).

Of course, most of us already get enough protein (see Apr. 2022, p. 3). And only strength training, not extra protein, can build muscle. But if your yogurt is, say, the main event at breakfast or lunch, 20 grams of protein is a good deal.

Looking for a flavored Greek or Icelandic yogurt with little or no added sugar and no extra protein? Try **Oikos Triple Zero, Sigg's 0% or 2%, Chobani Complete or Less Sugar,** or **Two Good.**

Way to go, gurts!

[oikosyogurt.com](http://oikosyogurt.com)—(877) 326-6668

## FOOD FAIL



### Donots



"New caffeinated **Hostess Boost Jumbo Donettes** deliver a boost of energy in every sweet bite," [announced](#) the company in February.

"For adults who are increasingly looking for alternative sources of caffeine, our new Hostess Boost Jumbo Donettes offer a tasty, energy-boosting, grab-and-go way to jumpstart the day."

Is that brilliant, or what?

Why bother with a cup of coffee, when you can get almost as much caffeine (50 to 70 milligrams) in a "hearty" 300-calorie donut made mostly of sugar (6 teaspoons),

white flour, and palm oil, with a dozen or so tasty additives like sodium acid pyrophosphate, artificial flavor, maltodextrin, and gums thrown in?

It's like jumpstarting your day with a cup of coffee plus a McDonald's Hot Fudge Sundae (though the sundae would deliver a decent dose of protein, calcium, and potassium).

And it's not just breakfast. The Donettes are "a perfect pick-me-up throughout the day," [says Hostess.](#)

How nice of the folks who brought us Twinkies, Ding Dongs, and Ho Hos to market one of their sugar-white-flour-palm oil creations as an energy boost.

It's hard to imagine a more perfect pick-me-up...for Hostess, that is.

[hostesscakes.com](http://hostesscakes.com)—(800) 483-7253



## DISH of the month

### Sundried Tomato Aioli

In a blender, purée ½ cup mayo, ¼ cup each sundried and cherry tomatoes, 1 Tbs. lemon juice, 1 clove garlic, and ½ tsp. kosher salt until smooth. Makes ¾ cup. Serve atop beans, lentils, or grains.

Photos: Danone North America (top left), Hostess (top right), Kate Sherwood/CSPI (bottom).

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