

Nutrition *Action*

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CENTER FOR SCIENCE IN THE PUBLIC INTEREST



ARTHRITIS

What works. What doesn't.

ACRYLAMIDE

What you need
to know

Savvy Swaps
**How to cut
calories in half**

**Deceptive
Ads & Labels**
The latest crop

ARTHRITIS

What works. What doesn't.

More than 30 million Americans have osteoarthritis, which occurs when the cartilage in a joint breaks down. It's most common in the knees, though it can strike the hips, hands, and other joints. Here's the latest on how to protect your joints.

OSTEOARTHRITIS 101

Q: Why is arthritis so difficult to treat?

A: There are two reasons. First, there's a large mechanical component. The amount of load that you put across a joint is a major determinant of whether that joint gets damaged.

And then there's inflammation, which does more damage to the joint. You have to try to deal with both things at once, so it's very challenging to come up with therapies that are effective.

Q: What causes the inflammation?

A: It's probably caused by damage to the joint from a mechanical injury. Inflammation is part of your body's healing process, just like when you get a cut somewhere.

The trouble is that the healing is going on at the same time as mechanical injury, so it's like a repeat injury to the joint.

Q: Is the mechanical injury due to being overweight?

A: That's some of it. It can also be due to an old injury. And some of it is because, as we get older, the mechanisms that prevent joint damage start to fail.

Our muscles get weaker, our joints get more lax. The things we counted on as younger people to keep our joints from getting injured from a minor trauma just don't work as well.

Q: Does poor alignment increase the risk of arthritis?

A: Yes. As you develop arthritis

in the knee, it's in a localized area. And as that area gets damaged, that part of the joint gets narrower. But the other part of the joint doesn't narrow.

It's like you have half a sandwich with meat inside and the other half with no meat, so it's thinner. That means that the whole leg becomes malaligned.

The minute you start to get malalignment, it's a vicious cycle that feeds on itself. When one area is more stressed, you get more pressure in that area, and that causes further damage.

That's why being knock-kneed or bow-legged increases osteoarthritis risk.

Q: Can young people get arthritis?

A: Yes. There are two major ways that people in their 20s and 30s get knee arthritis. One is from having major knee



David Felson is director of the Clinical Epidemiology Research & Training Unit and professor

of Medicine and Epidemiology at the Boston University School of Medicine. Felson, who received the Osteoarthritis Research Society International's Lifetime Achievement Award in 2012, has led more than 100 osteoarthritis studies. He spoke with *Nutrition Action's* Caitlin Dow.

injuries like surgery to repair a torn ACL or meniscus. The other group is young people who are very obese. We've only recently started to see arthritis at such young ages.

Q: Why are people who have a repaired knee injury at risk?

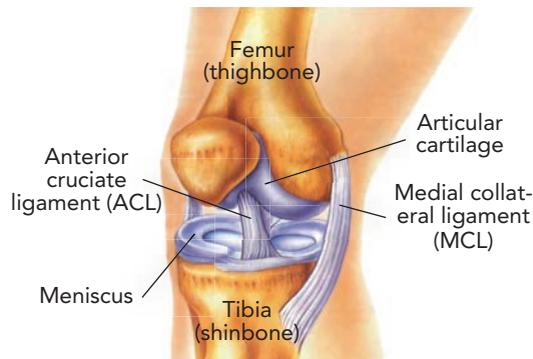
A: Well, the repair isn't really a repair. Again, think of the joint as a sandwich. There are two slices of ham and a slice of cheese in the middle. The meniscus is the cheese, and let's say that it's torn.

A surgeon goes in and removes a big piece of that cheese. You're left with a hole in your sandwich. So the knee is put back together in a way that's vulnerable.

Q: If you've had a knee injury, how can you reduce your risk of arthritis?

A: You can keep your weight down and do exercises that strengthen muscles but don't damage the knee more. The trick is: if an exercise

Take a Knee



Shock absorber. Cartilage acts like a cushion between bones. If the cartilage starts to break down, bone rubs against bone. The result: the pain and stiffness of osteoarthritis.

hurts your knee, find a different exercise.

Q: What can reduce the pain and progression of arthritis?

A: Exercise and physical therapy are effective in many studies. Weight loss is also extremely effective.

Q: Is that true for arthritis of the hip?

A: Osteoarthritis of the hip is less well studied, so we don't know for sure. But it looks as if the same treatments that work—or don't work—for knee arthritis also work or don't work for hip arthritis.

Q: What about osteoarthritis of the spine or hand?

A: It's not clear whether most back pain is caused by osteoarthritis. But obesity has been linked to both back pain and arthritis of the hand, so it would make sense that keeping your weight down would help with both. And exercise is an effective way to prevent back pain. We don't know much about other prevention strategies.

Q: What about diet?

A: We just published a [paper](#) that found that people who consumed the most fiber were less likely to develop arthritis of the knee or to have their knee pain worsen over time. But we need more studies and a clinical trial to know if fiber protects the knee.

Q: Why would fiber matter?

A: It may aid in preventing weight gain or maybe it promotes weight loss. It also might help by reducing inflammation throughout the body or by changing bacteria in the gut. It's too early to say.

SUPPLEMENTS

Q: Can supplements slow arthritis?

A: In rheumatoid arthritis, which is an autoimmune disease, we have a stable of effective treatments that have all gone through rigorous evaluation. With osteoarthritis, we have the Wild West. Many treatments are unregulated, and you don't need strong evidence that a treatment works.

Q: Because they're supplements, not drugs?

A: Yes. This is a situation where the market is millions and millions of people, so anyone who sells a product to those people is going to make lots of money. And it's in their best interest to get people to believe their product works, even if it doesn't.

Q: Glucosamine and chondroitin are popular supplements. Do they work?

A: No. There's a company in Italy that makes glucosamine that is responsible

Q: Didn't that study report less pain in people with moderate or severe arthritis?

A: The study wasn't designed to look at those subgroups, which makes that result questionable. Frankly, it's shocking that it was published. But more importantly, [other studies](#) haven't been able to replicate those results.

Q: Could the Italian company's glucosamine work better because it's paired with sulfate instead of hydrochloride?

A: No. There's a lovely paper by a chemist



Got Noisy Knees?

Ever hear or feel a popping or grinding in your knees? It's called crepitus, and it may mean that your knees are more vulnerable to arthritis.

"For a long time, doctors have told patients not to worry about crepitus if it doesn't hurt," says Grace Lo, an assistant professor at the Baylor College of Medicine. "We wanted to find out if that was good advice."

Lo and her colleagues studied nearly 3,500 adults who were at risk for osteoarthritis based on their age, weight, and other risk factors.¹ Participants were

asked about pain and popping or grinding sounds in their knees when they entered the study.

"The more often people complained of having crepitus, the more likely they were to develop arthritis" over the next four years, says Lo.

If you've got noisy knees, Lo recommends talking to your doctor. "Patients often feel like they have other medical conditions that warrant more attention, but now we have evidence that those sounds matter. Crepitus is a good way to start a conversation about arthritis with your doctor."

¹ [Arthritis Care Res. 2017. doi:10.1002/acr.23246.](#)

for nearly all of the positive studies.

Most other placebo-controlled trials, whether funded by government or industry, show no effect. And there's nothing special about the compound that the Italian company sells.

The National Institutes of Health funded a very large [study](#) looking at the efficacy of glucosamine and chondroitin, taken together or separately. It's the best evidence there is. And it found that neither one works.

that shows that glucosamine hydrochloride and glucosamine sulfate are indistinguishable once they get past the stomach. The sulfate and the hydrochloride come off and you're left with just glucosamine. It's exactly the same chemical.

Q: Do you tell your patients not to take glucosamine and chondroitin?

A: I have patients who have said to me, "Look, that stuff really helps me." If buying it isn't making them poor, then I go with it. Osteoarthritis isn't an easy disease to treat. But the evidence sug-

Wobbling Mass or Muscle?

“Physicians used to tell people with osteoarthritis to sit down and take it easy,” says Stephen Messier, director of the J.B. Snow Biomechanics Laboratory at Wake Forest University. “We’ve moved past that.”

Way past. Messier’s team has shown that regular exercise—by itself or combined with weight loss—improves pain and function in people with osteoarthritis of the knee.¹⁻³

In one study, 365 adults were assigned to either a control group or one of two exercise groups—walking or strength training—that exercised for an hour three times a week. After 18 months, people in both exercise groups reported less knee pain and demonstrated better function than people in the control group.

Since most of the participants were obese, Messier wondered if losing weight would have helped them even more. So his team assigned roughly 400 overweight or obese adults with osteoarthritis of the knee to do 30 minutes of walking plus 20 minutes of strength training three times a week, to cut 800 to 1,000 calories a day, or to do both.³

After 18 months, the diet-and-exercise group had lost an average of 23 pounds. And they had better function and less pain than either the diet-only or exercise-only group.

“Pain was reduced by almost 50 percent in the diet-and-exercise group,” says Messier. “That’s hard to get any other way. You can expect about a 30 percent reduction in pain in about half the people who use non-steroidal anti-inflammatory drugs like Advil or Aleve.”

If weight-bearing exercise is too painful, try taking your exercise to the pool. “The clinical outcomes from aquatic



exercise are pretty close to ours,” says Messier.

Messier is now testing high-intensity strength training. “Thighs with a lot of fat are a wobbling mass, which puts more stress on the knee,” he explains. “We want to change the composition of the thigh.”

And the training goes beyond the quadriceps muscle. “Everyone does the quads, and it works,” says Messier. “But we want to also do the hip, the thigh, and the calf.” He expects results later this year.

Messier’s bottom line: “If you take away nothing else from what we do, just keep moving. Lack of mobility as you age is detrimental to your health, your independence, and your quality of life.”

¹ *JAMA* 310: 1263, 2013.

² *J. Am. Geriatr. Soc.* 48:131, 2000.

³ *Arthritis Rheum.* 50: 1501, 2004.

gests that neither glucosamine nor chondroitin is effective at all.

Q: Does MSM work?

A: I haven’t seen any convincing evidence to support its use.

Q: And vitamin D?

A: Multiple trials [have all shown](#) no benefit.

Q: And capsaicin?

A: There is some evidence that it’s effective as a topical rub. But you have to be careful not to rub your eyes after applying it, because it burns.

Q: And fish oil?

A: Fish oil has omega-3 fatty acids, which are anti-inflammatory, and that’s important for osteoarthritis.

But in one large and well-done [trial](#) from Australia, people who got a low dose of fish oil—450 milligrams of EPA plus DHA a day—reported less pain than those who got a high dose—4,500 mg a day.

Q: What could explain that?

A: The low-dose group also got an oil that was high in oleic acid. And oleic acid may also reduce inflammation.

Would I discourage patients who want to take fish oil because they think it might help their arthritis? No. I think fish oil has substantial promise.

Q: How about ASU, or avocado soy-bean unsaponifiables?

A: There was one big [trial](#) in France years ago, and ASU was approved as a drug there to treat painful arthritis. But the trial didn’t convince the FDA that ASU was effective, so it wasn’t approved as a drug here. It’s available over the counter, but I think that it probably doesn’t work.

OTHER TREATMENTS

Q: Why did an [expert panel](#) recently recommend against arthroscopic surgery for arthritis?

A: Four beautifully conducted trials have randomly assigned people with

knee arthritis to either get arthroscopic surgery or physical therapy.

And in every single study, the arthroscopic surgery group did no better than the physical therapy group on any parameter. So arthroscopic surgery shouldn’t be done, though it is. That could be because it makes orthopedic doctors a good deal of money.

Q: Do other treatments help?

A: There are medical treatments that aren’t curative, but they’re effective. They include non-steroidal anti-inflammatory drugs, or NSAIDs. And shots, especially corticosteroid injections, provide relief to lots of patients for a short period.

Along with exercise and strength training, that’s the preferred regimen. But I think it’s likely that in the next year or two, other medical therapies may be approved.

Q: Like what?

A: One is an injected drug that was developed to basically block the pain sensa-



Tai Chi for the Knee



Tai Chi—the classic Chinese exercises consisting of slow, graceful movements—may help relieve osteoarthritis pain.

In the largest study, researchers assigned roughly 170 people with knee

arthritis to do either Tai Chi or physical therapy. The Tai Chi group had two hour-long sessions a week, and was told to practice for 20 minutes a day at home.

After three months, they had the same improvement in pain and physical function as those who worked with a physical therapist.¹

Bonus: Tai Chi seemed to help lift depression and, in a smaller study, reduced the fear of falling, which can give people the confidence to do other exercise.²

Can yoga also help? A handful of small, short-term studies suggests that it may have some benefit. Stay tuned.

¹ *Ann. Intern. Med.* 165: 77, 2016.

² *J. Altern. Complement. Med.* 3: 227, 2010.

then concentrates it and injects it into the joint. The platelets secrete chemicals that may promote cartilage regeneration. At least that's the theory.

Meta-analyses have shown some benefit, but many of us are skeptical. It's not standardized, and there are no guidelines for its use. So it's part of the cowboy story.

Q: The Wild West?

A: Right. Remember the situation: enormous market, huge potential profit, and a lot of suffering patients who are desperate to find something that might help.

tion. It's quite effective, and I think it will get approved and offer considerable pain relief to patients with osteoarthritis.

And I think that the FDA may also approve a longer-acting cortisone-type shot that you'd get every few months. It looks like it would be helpful.

Q: How about stem cell treatments?

A: That's a huge market in the United States. You can see billboards all over the place advertising the procedure.

You isolate stem cells from a patient's fat or bone marrow. Then you concentrate the stem cells and inject them into the knees of the same patient to try to stimulate cartilage growth.

Q: Do they work?

A: Many orthopedists believe they do, and some trials are positive. But they're tiny, and there's a lot we don't know.

For example, if I take fat from you and inject your stem cells into your joints, I don't know whether I'm injecting all stem cells or other substances as well.

If I give you a drug, I know what the active ingredient is. If I give you a stem cell injection, I've got no idea. And if I give myself my own stem cells, I don't know if I'm getting the same thing that you got. The whole thing is unstandardized.

Q: What about platelet-rich plasma?

A: Another questionable treatment. An orthopedist draws a patient's blood,

Supplements for Sale

"I've been taking Osteo Bi-Flex Ease," says the man in the [TV commercial](#). "It's 80 percent smaller but just as effective at supporting range of motion. It shows



improved joint com-

fort in seven days." Arthritis? It's never mentioned. "Supporting"? That's a clue that the claim hasn't been evaluated by the FDA. (Another clue: the tiny, fleeting disclaimer.)

Osteo Bi-Flex Ease contains three main ingredients: 5-Loxin, UC-II collagen, and

vitamin D. It's a case study of how companies sell supplements using evidence from research funded by industry.

In two studies funded by the makers of 5-Loxin, knee arthritis sufferers who took 100 or 250 mg of 5-Loxin a day for 3 months reported less pain and better function than placebo takers.^{1,2} (Despite the ad's claim, there was no difference after 7 days.)

And in one study funded by UC-II collagen's maker, people with knee arthritis who took 40 mg of UC-II a day for 6 months reported more improvement on a questionnaire asking about pain, stiffness, and function than those who took a placebo.³

But vitamin D is the cautionary tale. Earlier studies had suggested that it could slow arthritis. But when researchers tested vitamin D in large, independently funded trials, they came up empty.⁴⁻⁶ Would that also happen with 5-Loxin and UC-II?

The bottom line: Bigger, better clinical trials on supplements often overturn results from smaller, company-funded studies. 🍌

¹ *Arthritis Res. Ther.* 2008. doi:10.1186/ar2461.

² *Int. J. Med. Sci.* 7: 366, 2010.

³ *Nutr. J.* 2016. doi:10.1186/s12937-016-0130-8.

⁴ *Osteoarthritis Cartilage* 24: 1858, 2016.

⁵ *JAMA* 315: 1005, 2016.

⁶ *JAMA* 309: 155, 2013.

Out with Gout

A healthy diet can lower the risk of gout, a painful inflammation of the joints that strikes eight million U.S. adults. A major risk factor: high blood levels of uric acid.

Researchers randomly assigned 103 people with high blood pressure or prehypertension to either a typical American diet or a DASH diet (rich in fruits, vegetables, nuts, beans, and low-fat dairy, and low in red and processed meats and sugary drinks). Uric acid levels dropped on the DASH diet in those who entered the study with higher levels.



In another study, scientists tracked roughly 44,400 men for 26 years. Those who ate a DASH-like diet had a 32 percent lower risk of gout than those who ate less of the DASH-diet foods. And those who ate a typical Western diet (high

in red and processed meats, french fries, refined grains, sweets, and sugary drinks) had a 42 percent higher risk of gout than those who ate less of those foods.

What to do: Eat a DASH diet, or an OmniHeart variation that replaces some carbs with unsaturated fat or protein (including plant protein). (See Mar. 2015, p. 7.) DASH stands for Dietary Approaches to Stop Hypertension, so the diet may also lower your risk of stroke, heart attack, and kidney disease.

Clin. Rheumatol. 36: 1413, 2017. *BMJ* 357: j1794, 2017.

Olive Oil for Prediabetes?

A diet rich in olive oil may curb excess liver fat, a risk factor for type 2 diabetes.

Researchers randomly assigned 43 people with prediabetes to eat their usual diet, a diet high in monounsaturated fat (half of it from olive oil), or a high-fiber diet (40 grams per 2,000 calories). None of the diets cut calories.

After three months, people on the high-mono diet had a 17 percent drop in liver fat and an increase in insulin sensitivity—that is, their insulin worked more efficiently. Nothing changed in the high-fiber and usual-diet groups.

People on the high-mono diet

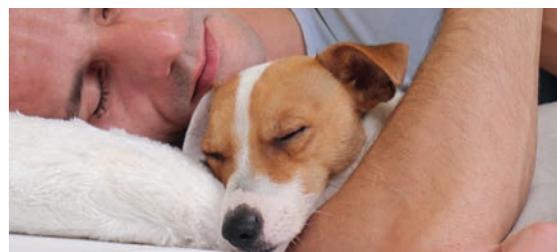
also cut carbs slightly, which might have accounted for some of the drop in liver fat.

What to do: Larger studies are needed to test the impact of olive oil on liver fat. But if you have prediabetes, try replacing some of your carbs (especially sweets) and saturated fat with foods high in mono- or polyunsaturated fats (like salad dressing and mayo). In earlier studies, polys led to less liver fat than sat fats.

Adding oil to pasta, salad, veggies, or other foods? Then eat less pasta, bread, rice, potatoes, and sweets. And replace butter with oils.

J. Clin. Endocrinol. Metab. 102: 1765, 2017.

Sleep & Bones



Too little sleep—and jet lag or shift work—may be bad for bones.

Researchers allowed 10 healthy men (some aged 20 to 27 and some aged 55 to 65) to sleep for only seven hours after every 22 hours they were kept awake. That's like getting 5½ hours of

sleep every 24 hours.

After three weeks, a marker of bone formation dropped by 18 percent in the older men and 28 percent in the younger men.

What to do: Make sleep a priority.

J. Clin. Endocrinol. Metab. 2017. doi:10.1210/je.2017-01147.

5 Steps to Fewer Kidney Stones

If you've ever had a kidney stone, odds are that you won't forget how much it hurt.

After tracking roughly 192,000 people for about 11 years, researchers came up with five factors that account for half the risk of a first stone:

■ **Fluids.** People who drank less than a liter (four cups) a day had a 75 to 86 percent higher risk.

■ **Weight.** The risk was 44 to 80 percent higher in the obese and 26 to 40 percent higher in the overweight.

■ **Sugary drinks.** People who drank at least one drink a day



had a 31 to 51 percent higher risk.

■ **DASH diet.** People who ate the fewest vegetables, fruits, low-fat dairy, nuts, and beans and the most red or processed meat, sweets, sugary drinks, and salt had a 37 to 53 percent higher risk.

■ **Calcium.** People who got the least calcium from their food (not supplements) had an 18 to 27 percent higher risk.

What to do: Keep drinks unsweetened, limit calories, and eat a (calcium-rich) DASH diet. (See Mar. 2015, p. 7.) 🍌

J. Urol. 2017. doi:10.1016/j.juro.2017.03.124.

Not a Latte



“Lattes are my life’s work,” says the older Italian woman in the [ad](#) for **International Delight One Touch Latte Frothing Coffee Creamer**.

“But now, anyone can make a latte...in 5 seconds!”

No, they can’t. A real latte is made with espresso and steamed milk. A One Touch “latte” is creamer—that is, sugar, coconut oil, gums, artificial flavors, etc.—plus your coffee.

As the Nutrition Facts show, to make a latte with just 6 oz. of coffee, you’d need a seventh of a can, which is about 9 tablespoons. That comes with 120 calories, plus 6 grams of saturated fat and 4 teaspoons of added sugar—about a third of day’s worth of each. And you get none of the protein or calcium you’d expect in a latte.

Of course, to get the creamer to froth, you have to submerge the nozzle in the coffee, so good luck carefully measuring out those 9 tablespoons. And if you’re drinking more than 6 oz. of coffee, don’t forget to multiply.

Nothing like a nice hot cup of coffee, sugar, oil, and gums... in 5 seconds!

NOTHING BU

BY LINDSAY MOYER

Food companies can’t seem to help themselves. It must be so-o-o tempting to stretch the truth...even just a tad. So what if consumers are misled? The clues are (almost always) there, *if* people

The information for this article was compiled by Leah Ettman.



Nothing But the What?

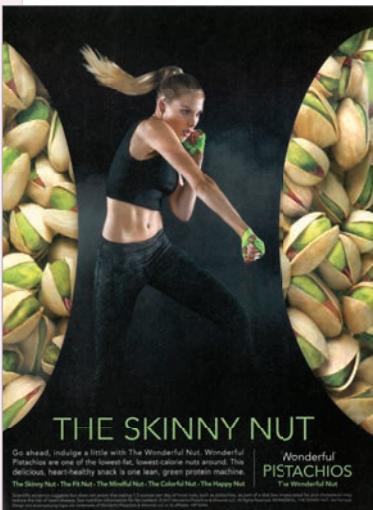
“Real pressed fruit,” say the **Nothing But The Fruit** boxes. “Picked, puréed and pressed.”

So there’s only pressed raspberry in the Raspberry Chia and pressed strawberry in the Strawberry Real Fruit Bites?

Umm... Turns out they’re mostly apple purée concentrate and grape juice concentrate. That’s why the small print says “naturally flavored with other natural flavors.”

Nothing but the *truth*? Well, sorta.

The Skinny Nut?



“Wonderful Pistachios are one of the lowest-fat, lowest-calorie nuts around,” boasts the ad from **Wonderful Pistachios**.

“This delicious, heart-healthy snack is one lean, green protein machine.”

Huh? An ounce of pistachios (about 50) has 160 calories and 14 grams of fat. Ounce for ounce, they’re in the same ballpark as almonds and peanuts, and only slightly lower than walnuts. And no nuts are high in protein.

The head scratcher: Why does Wonderful want to brag that its pistachios are low fat? Lower-fat snacks like pretzels or fat-free ice cream or baked chips aren’t the key to staying skinny. Low-calorie fresh fruits and vegetables may help. But pistachios can’t hold a candle to them.

Cookie Con



“16 g protein per cookie,” brags **Lenny & Larry’s The Complete Cookie**.

Whether you go with Chocolate Chip, Peanut Butter, or another flavor, you get “baked nutrition,” says the label. “8 g fiber per cookie. No eggs. No dairy. No soy. Non GMO. Vegan.”

Since when does adding protein (pea isolate, brown rice, and wheat gluten) and processed fiber make a cookie nutritious.

Never mind that each 4 oz. cookie has 360 to 400 calories (the labels list 180 to 200...but that’s for half). And they’re mostly white flour, sugar, and margarine. That’s not “baked nutrition.” It’s a “give people an excuse to eat a giant cookie” marketing ploy.

THE TRUTH?

& BONNIE LIEBMAN

study the fine print or the ingredients list. Corporate lawyers don't get paid for nothing. Here's a sampling of labels and ads that use clever tricks and marketing ploys to make foods sound healthier than they are.

Smart Marketing?



"Supports healthy cholesterol levels," says the **Smart Balance Original** label.

Yes, but see the tiny "already in the normal range" below? That's a clue that Smart Balance can't promise to lower high cholesterol.

And hidden on the bottom of the tub is this: "The right blend of fats may improve your cholesterol ratio when at least 2/3 of your

fat intake comes from this product or a properly balanced diet." Who gets two-thirds of their fat from a spread?

Smart Balance is better for your heart than butter. But it's got slightly more sat fat (2.5 grams per tablespoon) than some other spreads. Its sat fat is "plant-based"—it comes from palm oil—but that's true for most spreads. And the "400 mg Omega-3 ALA" isn't the long-chain omega-3s you'd get from fish oil.

Bottom line: Smart Balance isn't the best spread. It just has the best marketing.

Spinach Flavor Wraps

"No artificial flavors," says the bag of **Mission Garden Spinach Herb Wraps**. No spinach to speak of, either.

There is some spinach powder (after the white flour and shortening). It's part of the "seasoning," along with onion powder, garlic powder, spices, oil, natural flavor, and blue and yellow dyes (that's why the wraps are green).

People buy green wraps to get greens, not green-dyed food. Is Mission on a mission to fool us?



2 Percent?

"Good source of antioxidants*," claims **Special K Blueberry with Lemon Clusters**.

Surely, Kellogg isn't misleading consumers to think that those antioxidants it's bragging about come from the blueberries. Nah.

In fact, the cereal is less than 2 percent

blueberries. (Blueberries are part of the "blueberry oat clusters.") And there's no lemon. That's why the barely legible blue print on blue box reads "naturally flavored with other natural flavors."

And that's why the * refers to "vitamins C & E" and "beta-carotene," the same vitamins Kellogg also adds to some of its other cereals.

Sigh. Not-so-Special K strikes again.

Ensure Me Not



"Where does she get all that strength and energy?" asks a tired young staffer on the set of "Good Morning America" in the **Ensure ad**.

"My days get going here!" says his energetic colleague, as she tosses bottles of Ensure to him and a co-worker. "Love this stuff," mumbles a passing colleague as she swipes a bottle.

Ensure already spends much of its ad budget tricking older people into thinking that they need Ensure to stay healthy and active. Now it's trying to convince younger people that it will fight fatigue?

No one, young or old, needs Ensure unless they're unable to eat enough ordinary food. For the rest of us, a 220-calorie bottle of maltodextrin, sugar, oil, and milk and soy proteins—plus a fraction of the vitamin levels you'd get in a multi—is a waste of money and calories. 🍌

ACRYLAMIDE

Avoiding a likely carcinogen

In 2002, Swedish scientists made a stunning discovery. Lab tests found acrylamide—a chemical known to cause cancer in animals—in a variety of popular foods, from bread to french fries.

Acrylamide typically forms in foods when a naturally occurring amino acid (asparagine) combines with (natural or added) sugars at high temperatures.

Does acrylamide cause cancer in

humans? So far, studies in people haven't found a clear link.

Still, the [International Agency for Research on Cancer](#), the [National Toxicology Program](#), and the U.S. [Environmental Protection Agency](#) all say that acrylamide is likely to be a human carcinogen. So it makes sense to consume as little as possible.

Acrylamide levels would be far lower if the FDA had set limits on the

amount in foods instead of simply issuing voluntary guidelines on how to lower levels in 2016.¹

For example, the FDA says that companies can lower acrylamide by adding asparaginase (an enzyme that breaks down asparagine), calcium, or other safe additives, or by processing at lower temperatures.

¹ www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/ucm374524.htm.

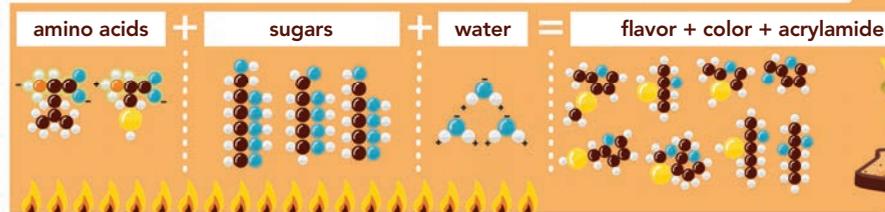
HOW ACRYLAMIDE FORMS IN FOOD

Acrylamide is a chemical compound that typically forms in **starchy foods** when they are baked, fried, or roasted.

The main chemical reaction is known as the **Maillard reaction**

When the sugars and amino acids that are naturally present in starchy foods are heated, they combine to form substances that provide new flavors and aromas. That also causes the browning of the food and produces acrylamide.

Maillard reaction (browning)

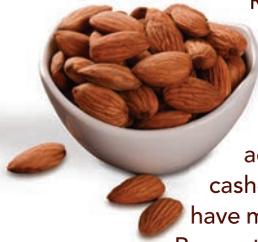


HOW TO CUT DOWN ON ACRYLAMIDE

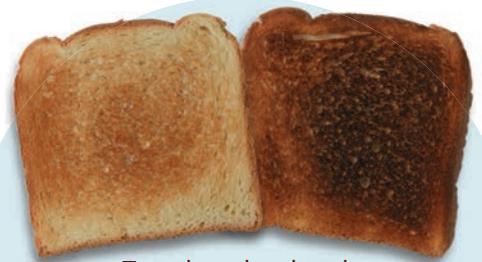
The last time the Food and Drug Administration tested foods for acrylamide, potato chips and french fries had some of the highest levels. That was in 2004. Since then, some companies have taken steps to reduce acrylamide, while others likely have done little or nothing. [How much acrylamide](#) is in any given brand of chips, fries, or other food? Unless the company replies when you ask—don't hold your breath—there's no way to tell.

Here are some tips to help you cut down on acrylamide. Don't worry about acrylamide in fish, poultry, meat, dairy, or most fruits or vegetables.

Fried potatoes have the most acrylamide. Roasted have less, and baked are even lower. Microwaved and boiled potatoes have none.



Roasting, especially at higher temperatures, turns the asparagine in almonds into acrylamide. Roasted cashews and peanuts have much less acrylamide. Raw nuts have none.



Toast bread and cook potatoes until they're golden yellow, not dark brown.



Sweet potato chips are higher in acrylamide than regular potato chips. And sweet potato chips and fries are higher than baked sweet potatoes.



Canned California-style black olives are higher in acrylamide than other olives (thanks, in part, to the heat used in canning). You'll find them on pizzas and nachos.



"Veggie" chips and sticks that are made from dehydrated potatoes may have more acrylamide than potato chips.



Choose *thicker* fries (acrylamide forms near the surface, and an order of thicker fries has less surface area than an order of thinner fries) and *thinner* potato chips (they require less heat to cook).

Store potatoes in a cool, dark place like a pantry or closet, not in the refrigerator. Cold temperatures turn some of the spuds' starch into sugars.



Plums have more asparagine than most other fruits. Low levels of acrylamide form when they're dried to make prunes. Higher levels are created when the prunes are made into juice.



Dark roast coffee has less acrylamide than light roast. (Acrylamide is created early during the roasting process, but levels decline as roasting proceeds.)

It's Bean Great



BY KATE SHERWOOD

These two bean dishes are quick, easy, eat-with-a-spoon good, and designed to fill you up before you fill out. 🍴

Got a question or suggestion? Write to Kate at healthycook@cspinet.org.

Black Beans & Quinoa with Roasted Peppers SERVES 4

- 2 red or yellow bell peppers
- 1 poblano or green bell pepper
- 3 Tbs. extra-virgin olive oil
- 1 Tbs. lemon juice
- ½ tsp. kosher salt
- ¼ tsp. dried oregano
- 1 scallion, minced
- 1 cup cooked quinoa
- 1 15 oz. can no-salt-added black beans, drained and rinsed

1. Cut the peppers in half lengthwise. Place them skin side up on a lined baking sheet. Broil until blistered and charred in places, 10-12 minutes. When cool enough to handle, peel off the skin and dice the peppers.
2. In a large bowl, whisk together the oil, lemon juice, salt, and oregano. Mix in the peppers and all the remaining ingredients.



Per Serving (1 cup): calories 270 | total fat 12 g | sat fat 1.5 g | carbs 31 g | fiber 8 g | protein 9 g | sodium 260 mg

Chickpeas with Cherry Tomatoes SERVES 4

- 2 Tbs. extra-virgin olive oil
- 5 cloves garlic, thinly sliced
- 1 pint cherry tomatoes, chopped
- 1 15 oz. can no-salt-added chickpeas, drained
- ½ tsp. kosher salt

1. In a large pan, heat the oil and garlic over medium-high heat until the garlic starts to sizzle. Cook, stirring constantly, until the garlic just starts to color, about 1 minute.
2. Stir in the tomatoes. Cook, stirring often, until the tomatoes start to break down, 2-3 minutes.
3. Stir in the chickpeas and heat through. Season with the salt.

Per Serving (¾ cup): calories 180 | total fat 8 g | sat fat 1 g | carbs 21 g | fiber 5 g | protein 7 g | sodium 270 mg



Looking for heart-healthy recipes that are quick and delicious? Kate delivers, with a collection of dishes that help you follow the top-rated DASH diet.

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Savvy Swaps

How to
cut calories
in half

BY LINDSAY MOYER & BONNIE LIEBMAN

What you put in or on your burrito, sub, smoothie, latte, pizza, bagel, or plate of fast-Chinese food matters. Here's how to slash the calories and boost the nutrients. Talk about a win-win.

The information for this article was compiled by Jennifer Urban.

Panera

At Panera, a (partly) **Whole Grain Bagel and cream cheese** (520 calories) plus a 16 oz. **Caramel Latte** with *no* whip or caramel drizzle (320) means 840 calories for breakfast.

Instead, order an **Avocado, Egg White & Spinach Breakfast Sandwich** on a (partly whole grain) **Sprouted Grain Bagel Flat** (320 calories without cheese) plus a **Latte with skim milk** (100).

Voilà! You jettison half the calories, three-quarters of a day's saturated fat, an estimated 6½ teaspoons of added sugar, and 340 milligrams of sodium. And you gain a few leafy greens and some healthy (unsaturated) fat in the avocado.

TIPS

■ **Get the app.** Panera lets you customize your order—and see how that changes calories, etc.—on your smart-



phone or at kiosks in most stores.

■ **Salad up.** Salads beat sandwiches because you trade bread for veggies. You'll cut the amount of dressing in half if you order it "light." Or try the reduced-fat balsamic vinaigrette or another lower-calorie dressing.

■ **Stick to the right side.** The apple (80 calories) easily beats the chips (150) or baguette or roll (170 to 190).



Jamba Juice

Think smoothies are healthy? At Jamba Juice, a medium (22 oz.) **Amazing Greens Smoothie** packs 500 calories, thanks, in part, to the sugary liquids—lemonade and peach juice—that Jamba adds to the greens, peaches, bananas, and pumpkin seeds.

A few of Jamba's smoothies skip those liquids. That lets you halve the calories with, say, a small (16 oz.) **Green Up 'N Go Smoothie** (apple, nonfat greek yogurt, cucumber, baby spinach, grapes, pumpkin seeds, and lemon juice).

TIPS

■ **Downsize.** A small is around 200 to 400 calories. A medium typically is 300 to 500. Most larges run 400 to 600.

■ **Skip the juice & sugar.** Jamba lets you replace the fruit juice with 2% milk, and the frozen yogurt or sherbet with nonfat greek yogurt (to bump up the protein). Smoothie King and Tropical Smoothie Cafe add turbinado sugar to many of their smoothies. It's no better than any other sugar.

Panda Express

900
calories



440
calories



At fast-casual Chinese places like **Panda Express**, you can fill a bowl with one entrée (like chicken or beef) and one side (like rice, veggies, or chow mein). If you make it **Orange Chicken** over **Fried Rice** at Panda, you're talking 900 calories.

An unbattered stir-fried entrée—like beef & broccoli, mushroom chicken, or sautéed tofu—can save 100, 200, or even 300 calories.

Instead, switch to **String Bean Chicken Breast** and replace the fried rice with half **Steamed Brown Rice**, half **Mixed Vegetables**. Now you're down to 440 calories.

Or replace all the rice or noodles (400 to 500 calories) with veggies (80 calories), and your bowl has just 270 calories.

TIPS

■ **Get just one entrée.** At Panda Express, a “plate” has two—and a “bigger plate” has three—entrées and one side. You've got your best chance of staying under 1,000 calories if you stick to a single entrée.

■ **Don't get fried.** Skip chicken, beef, or shrimp entrées—like General Tso's chicken or crispy beef—that are deep-fried and (often) battered or tossed in a sugary

Pieology

1,050
calories



460
calories



Pieology, MOD Pizza, Blaze Pizza, and other assembly-line places let you pick one of the restaurant's combos or choose your own crust, sauce, and as many toppings as you like (typically all for one price).

At Pieology, a **Mad to Meat You** pizza (pepperoni, sausage, meatballs, mozzarella, red sauce) will set you back 1,050 calories.

But you can get down below 500 by eating half of the right **Custom** pie. Ours had red sauce, mozzarella, mushrooms, green bell peppers, red onions, and fresh basil on a whole wheat crust (Pieology won't say what percentage is whole).

TIPS

- **Eat just half (or go mini).** At Pieology, the (11.5") crust alone—whole wheat or white flour—delivers 460 calories, much like Blaze's (400) and MOD's (490). But MOD's mini (6") crust has just 210 calories. For a gluten-free crust, add roughly 50 to 150 calories to your full-size pie.
- **Pile on the veggies.** Raw veggies are freebies. (Skip the salty olives and pickled jalapeños.) Add a roasted veggie or two (if you find any), plus a handful of fresh basil after baking.

■ **One cheese, please.** It takes about 300 calories' worth of mozzarella to cover a full-size crust. That's plenty.

■ **Think red.** Tomato sauce has fewer calories than pesto or (artery-clogging) alfredo sauce.

■ **Try a side salad.** Skip the salad's cheese. (There's cheese on your pizza.) Or split a pizza and a larger salad with a friend.

Subway

If you take Subway's advice to "Make it a Meal" with a **6" Chicken & Bacon Ranch Melt** sub on an **Italian roll** (590 calories) plus a bag of **SunChips** (210) and a 21 oz. fountain **Fuze iced (sweetened) green tea** (140), you're up to 940 calories.

Instead, try a **6" Rotisserie-Style Chicken** on a **Multigrain Flatbread** with provolone and mustard (410 calories) with a bag of **apple slices** (40) and a 21 oz. fountain **Fuze unsweetened iced tea** (0).

940
calories



450
calories

TIPS

- **Get better breads.** The Multigrain Flatbread has no fewer calories, but it's all whole grain. The 9-Grain Wheat and 9-Grain Honey Oat are only part whole.
- **Make the cheese optional.** Cut it to save about 50 calories. Or, for an extra 75¢, switch to a healthier fat (avocado, 60 calories).
- **Make it a salad.** For around \$2 extra, you can swap the bread for salad. You save about 170 calories and get some potassium from the veggies to help counter the high-salt meats. Ask for just a light drizzle of Subway Vinaigrette or oil & vinegar.

Chipotle

Whether you're at Chipotle, Qdoba, Moe's, or another fast-casual Mexican chain, "the usual" piles some 1,000 calories on your plate.

Exhibit A: a 1,140-calorie **Chipotle Chicken Burrito** (flour tortilla, chicken, white rice, black beans, roasted chili-corn salsa, sour cream, cheese).

You can get down to 570 by switching to a **Chicken Burrito Bowl** (half brown rice, half romaine topped with chicken, black beans, fajita veggies, tomatillo green-chili salsa, and cheese).

TIPS

- **Skip the burrito tortilla.** Who needs 300 calories of white flour, when you can have a bowl or salad?
- **Get cheese OR sour cream (or neither).** Every quarter cup of cheese or sour cream adds about 100 calories and

1,140
calories



570
calories



a quarter of a day's saturated fat.

- **Lose the rice.** Swapping all the rice for romaine saves 200 calories.
- **Dress wisely.** A four-tablespoon serving of Chipotle-Honey Vinaigrette packs 220 calories. Use half or simply dress your salad with salsa.
- **Watch the guac.** If you don't want the 230 calories in a half-cup serving,

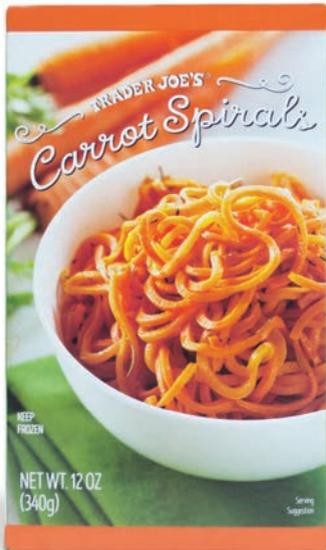
get it on the side and use half. Or, if you don't mind losing some protein, get it *instead* of chicken or sofritas (tofu).

- **Speak up.** Some servers have a heavy hand with the cheese, rice, etc. Ask for a half-scoop instead of a heaping one.
- **Skip the chips.** They're 540 calories *sans* salsa (20 to 80) or guac (230). 🌮



RIGHT STUFF

Newdles



"Make your next noodle dish noodle free with these perfectly al dente spirals of bright orange carrots," says the box.

Maybe a bowl of carrot noodles can't compete with the *pasta pomodoro* at your local trattoria, but the next time you make pasta at home, grab a box of **Trader Joe's Carrot Spirals** from the freezer.

Cook up enough to replace half—or all—of the spaghetti, linguine, or fettuccine you were going to make. The frozen spirals—they're nothing but carrot and just enough salt to provide 160 milligrams of sodium per half cup—are ready for your favorite sauce after a 6-to-8-minute detour through a hot skillet with a touch of oil.

(It's not hard to find veggie spirals these days in your supermarket's produce section, but these are the first frozen ones we've seen.)

For each half cup of cooked white pasta you swap for a half cup of carrot spirals, you lose about 60 calories and gain a gram of fiber, 2½ days' worth of vitamin A, and some vitamin K. You also replace some refined carbs with veggies and give the flavor a boost.

But why not think outside the bolognese? Toss some carrot spirals into a veggie stir-fry. Or just sauté them with olive oil and garlic. Presto. Instant side.

Potatoes? Rice? Those are *so* 20th century.

traderjoes.com—(626) 599-3700

Photos: Leah Ettman/CSPi (top), Jen Urban/CSPi (avocado toast), © panya99/fotolia.com (beans).



FOOD PORN

Cookie Monster

Pop quiz: Which **Panera** cookie has more calories—a Triple Chocolate with Walnuts or an Oatmeal Raisin with Berries?

Surprise! It's the Oatmeal Raisin. At 340 calories, it just edges out the Chocolate with Walnuts (320).

Surprise Number 2: *Two* Oatmeal Raisins can't match a single **Kitchen Sink Cookie** (800 calories). Nor can a Double Fudge Brownie (520), a Bear Claw (540), a Cinnamon Roll (670), or a Pecan Roll (720).

It's not easy to stuff 800 calories into a cookie, even one that measures—by our ruler—5½ inches across. (Note to headquarters: Saying on your website that it's "big enough to share" doesn't let you off the hook.)

Adding two kinds of chocolate helps, as do the caramel pieces...and the embedded pretzel bits...and the load of white flour...and the butter.

Voilà! Each Kitchen Sink packs 27 grams of saturated fat—nearly 1½ days' worth—and 13½ teaspoons of sugar (most of it added).

Surprise Number 3: The sodium hits a cool 760 milligrams, thanks, in part, to the "flake salt" that Panera thoughtfully adds. A third of a day's worth of sodium from a cookie? Really?

If you need something sweet to go with your coffee, try a Petite Chocolate Chipper.

It's got 100 calories, 3 grams of sat fat, and 2 teaspoons of sugar. In a restaurant, that's about as "petite" as it gets.

panerabread.com—(855) 372-6372



DISH of the month

Avocado Toast

Top whole-grain toast with avocado, a few drops of lemon juice, a pinch of salt, and a grind of black pepper. Add sliced radish or tomato, a few arugula or watercress leaves, or a poached or boiled egg.

quick tip

Dried beans never spoil, but after about two years they become almost impossible to rehydrate. So if that big bag of black beans has been living in your pantry for too long, toss it...or use it to do biceps curls.

