

Nutrition Action

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HEALTH LETTER®
CENTER FOR SCIENCE IN THE PUBLIC INTEREST

Safe at the Plate

How to keep your food free of harmful bugs

PRUNES
for bones?

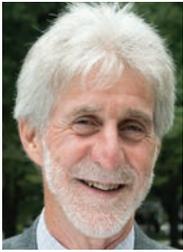
Restaurant
winners & losers

Salad as
supper



M E M O

Two Steps Forward...



A few months ago, we were unsure about the fate of two major advances—the new Nutrition Facts label and calories on menus—that the Trump administration said it would revisit.

I'm happy to report that, although the administration has pushed back the deadlines for both, it looks like neither will be wholly derailed by the food industry or its friends in government.

■ **Nutrition Facts labels.** The updated labels are a huge step forward. They disclose “added sugars.” They display calories in larger, bolder type. And they use more-realistic serving sizes.

In September, the FDA caved in to the food industry's demands for a delay. Large companies will now have until January 2020—3½ years after the rules were finalized—to switch to the new labels. Smaller companies will have until January 2021.

Never mind that, back in 1993, companies managed to put the original Nutrition Facts labels on their packages in just over a year. Never mind that Campbell, Hershey, Panera, Mars, and other major players have promised to meet the original July 2018 deadline. And never mind that more than 8,000 products already carry the new labels.

The good news: the FDA will not go back to the drawing board to redo the rules. Instead, the agency will simply issue further “guidance” on how labels should handle added fibers and sugars. Those are details. The labels are coming.

And we desperately need them. Two out of three adults and one out of three children are overweight or obese.

And obesity rates show no signs of slowing down, even as the FDA dallies.

■ **Menu labeling.** The 2010 Affordable Care Act did more than provide health insurance to millions of Americans. Thanks to CSPI, it also meant that chain restaurants, convenience stores, movie theaters, and super-market deli counters would have to list the calories in their offerings.

The rules were set to take effect on May 5, 2017, a full three years after the FDA finalized them. But on May 4, the FDA gave companies an extra year to comply, and seemed to open the door to weakening the rules.

In June, we and the National Consumers League—represented by the nonprofit law firm Earth-justice—sued the FDA over its illegal delay.

The good news: in September, we reached an agreement with the FDA. Although the new deadline remains

May 2018, the FDA will not redo—and possibly weaken—its rule. That's a major victory.

Menu labeling isn't entirely out of the woods, though. In July, a key House committee passed a bill that would allow retailers to use serving sizes that make their calories look low. (Domino's has spearheaded the lobbying campaign to pass the so-called Common Sense Nutrition Disclosure Act.)

The bill would also let supermarkets hide the calories for their prepared dishes in less-visible locations.

As of this writing, the Senate had yet to act. To weigh in, just go to bit.ly/protectmenulabeling. Americans deserve to know what they're eating.

Peter G. Lurie, MD, MPH, President
Center for Science in the Public Interest



GS SIZZLING CHICKEN & CHEESE cal. 1160
Garlic-marinated all-natural chicken b over melted cheese with onions, pepp
mashed potatoes.

PARMESAN-CRUSTED CHICKEN cal. 1080
All-natural chicken served with cheddar

Some menus already display calories.

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Safe at the Plate

How to keep your food free of harmful bugs

BY DAVID SCHARDT

Salmonella. Campylobacter. Toxoplasma. Vibrio. Listeria. E. coli. The list of microbes that can cause food poisoning—and its possible long-term consequences—is daunting. Here are some things you may not know about safe eating.

1 Should you try to find out what made you sick?

You're at the doctor with a severe case of food poisoning. Is it worth asking for tests to find out which microbe caused it?

"Testing lets you identify specific pathogens where treatment may be of benefit," says Glenn Morris, director of the Emerging Pathogens Institute at the University of Florida.

"There are certain pathogens you want to treat with antibiotics and others you definitely don't," explains Morris. "Two that you don't want to treat are *E. coli* O157:H7 and *Salmonella*."

Treating *E. coli* O157:H7 with antibiotics—or with anti-diarrhea drugs like Imodium—can make you sicker.

"And treating *Salmonella* with antibiotics can prolong the time that you're a carrier," says Morris. A carrier may have no symptoms but can still infect others.

(Antibiotics may make sense, however, if you have a weak immune system or if the doctor suspects that the *Salmonella* has entered your bloodstream.)

What's more, testing for pathogens is

faster and less expensive these days.

"It used to be that when a patient went to a doctor or a clinic with diarrhea that



If you're pregnant, older than 65, a child, or have a weakened immune system, skip all raw sprouts.

was likely caused by food poisoning, a stool culture could be ordered to try to identify the pathogen that was responsible," says Morris.

But it was no slam dunk. If the lab didn't pick the right medium for growing the bacteria, it wouldn't find the culprit.

"Consequently, we always knew that we were significantly under-diagnosing foodborne illness," says Morris.

Rather than trying to grow the bacteria, labs are using tests that look for telltale DNA to identify bacteria and viruses.

"The big hospitals have all pretty well switched over to DNA identification," says Morris. "They use commercial kits that can identify a laundry list of 15 to 25 pathogens from a single stool sample. So all of a sudden we can identify pathogens that we couldn't routinely identify in the past."

That has made it harder to know if food poisoning strikes less or more often than it used to.

"We can't tell whether there's been a real increase or if it's just that we can see more with new technology," says Morris. "Regardless, foodborne illness is still an ongoing problem that hasn't gone away."

2 Which pathogens cause the most damage?

"Americans lose about 112,000 years of healthy life each year because of foodborne illnesses," says epidemiologist

“Is it done yet?”

You can't tell by looking. Use a food thermometer to be sure.

USDA Recommended Safe Minimum Internal Temperatures

145°F	145°F	160°F	160°F	165°F
with a 3-minute rest time				
				
Beef, Pork, Veal, & Lamb (steaks, roasts, & chops)	Fish	Beef, Pork, Veal, & Lamb (ground)	Egg Dishes	Turkey, Chicken, & Duck (whole, pieces, & ground)

Got questions about cooking, thawing, storing, and more? Go to foodsafety.gov.

3 How long can a food-borne illness last?

The misery of a foodborne illness may not end when the vomiting or diarrhea stops. For some people, that's just the start of years of suffering.

Mari Tardiff, for example, may never walk again, thanks to a 2008 bout with Guillain-Barré Syndrome that struck after she drank raw milk contaminated with *Campylobacter*.

“It’s Russian roulette,” the Californian told the *Washington Post* in 2014. “I lost my career as a public health nurse. I lost relationships...I’ve lost my identity.”

Every year, more than 200,000 Americans develop long-term ailments from a bout of food poisoning, Elaine Scallan and her CDC colleagues estimated.¹

About 164,000 wind up with irritable

bowel syndrome (IBS), a mix of abdominal pain, bloating, cramping, gas, diarrhea, and constipation that’s difficult to treat.

Another estimated 33,000 end up with reactive arthritis after food poisoning with *Salmonella* or *Campylobacter*. Reactive arthritis is pain and swelling in the knees, ankles, or feet that’s triggered by an infection somewhere else in the body.²

“If you know anyone with IBS or reactive arthritis, you know that it can really affect their quality of life and limit their day-to-day activities,” says Barbara Kowalczyk, an assistant professor of food science at Ohio State.

Then there’s the havoc caused by *E. coli* O157:H7, the “hamburger bug” that killed four young children and sickened more than 700 people—most of them under age 10—in 1993.

Most had eaten undercooked burgers at Jack in the Box restaurants or became infected by someone who had.

“If the toxin released by this bacterium gets into the bloodstream, it can attack one or more organs,” says Kowalczyk.

“If it primarily hits your kidney, that can cause hemolytic uremic syndrome, or HUS, which can lead to chronic kidney disease, high blood pressure, or kidney failure.”

If the toxin travels to the brain, it can cause neurological damage.² “I know a young girl who gets seizures because of it,” Kowalczyk notes.

The toxin can also damage the gut. “Another family I know has a child who survived HUS, but she had to have most



Stay cool. Put a thermometer in the fridge.

Elaine Scallan, of the University of Colorado School of Public Health.

That’s what she and researchers at the Centers for Disease Control and Prevention concluded when they converted illness, disability, and premature deaths into lost years of healthy life.¹

Among all the microorganisms that can cause food poisoning, two stood out: *Salmonella* and the parasite *Toxoplasma gondii*. Together, they’re responsible for more than half of those lost years, but for different reasons.

With *Salmonella*, it’s the sheer number of victims and the long-term complications some suffer. Most of the recent multi-state outbreaks of food poisoning—from papaya, sprouts, and cucumbers, for example—were caused by *Salmonella*, which can turn up in almost any food.

Toxoplasma, on the other hand, steals so many years because it often strikes people younger than 65.

The toxoplasma parasite, which lives in the muscles of animals, infects more than 60 million Americans, says the CDC. Most people don’t get sick because their healthy immune system keeps it at bay.

In people with weakened immune systems, a severe infection can cause brain damage, blindness, or worse.

“Consumers can become infected with the parasite by eating undercooked, contaminated meat such as lamb and venison,” the CDC’s Brittany Behm explains. (Beef and pork are no longer likely culprits.)

“People can also get sick by eating food that was cross-contaminated with raw meat, or by not washing their hands thoroughly after handling raw meat,” adds Behm.

Another source of *Toxoplasma*: cats that shed the parasite’s eggs in their feces.

The CDC advises pregnant women to avoid changing cat litter to lower the risk of eye or brain damage in their babies. “If no one else can perform the task, wear disposable gloves and wash your hands with soap and water afterwards,” the CDC recommends.

“And everyone should wear gloves when handling soil in gardens where cats are around,” says Jitender Dubey, of the U.S. Department of Agriculture’s Animal Parasitic Diseases Laboratory.

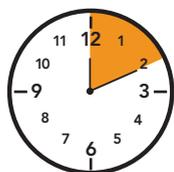
Get a Handle

How you handle food matters. With enough warmth, moisture, and nutrients, one bacterium that divides every half hour can produce 17 million progeny in 12 hours.

Putting food in the refrigerator or freezer stops most bacteria from growing.

Exceptions: *Listeria* (most commonly found in lunch meats, hot dogs, and unpasteurized soft cheese) and *Yersinia enterocolitica* (most often found in undercooked pork and unpasteurized milk) grow at refrigerator temperatures.

Rules for Leftovers 2 Hours — 2 Inches — 4 Days



2 Hours from oven to refrigerator.

Refrigerate or freeze leftovers within 2 hours of cooking. Otherwise throw them away.



2 Inches thick to cool it quick.

Store food at a shallow depth—about 2 inches—to speed chilling.



4 Days in the refrigerator—otherwise freeze it.

Use leftovers from the refrigerator within 4 days. Exception: use stuffing and gravy within 2 days. Reheat solid leftovers to 165°F and liquid leftovers to a rolling boil.

■ Buy **fresh-cut produce** like half a watermelon or bagged salad greens only if it is refrigerated or surrounded by ice.

■ Separate **raw meat, poultry, and seafood** from other foods in your shopping cart and in your refrigerator.

■ Store **perishable fresh fruits and vegetables** (like strawberries, lettuce, herbs, and mushrooms) or **cut or peeled produce** in a clean refrigerator at a temperature of 40°F or below.

■ Wash your hands for 20 seconds with warm water and soap before and after preparing **any food**.

■ Wash **fruits and vegetables** under running water just before eating, cutting, or cooking, even if you plan to peel them. Don't use soap (it leaves a residue). Produce washes are okay, but not necessary.

■ Scrub **firm produce** like melons and cucumbers with a clean produce brush. Let them air dry before cutting.

■ Discard the outer leaves of **heads of leafy vegetables** like cabbage and lettuce.

■ Don't eat **sprouts** unless they're thoroughly cooked. Children, the elderly, pregnant women, and anyone with a weakened immune system should avoid raw sprouts.

■ Cooking **any food** to 160°F will kill any *E. coli* O157:H7.

■ Drink only pasteurized **milk, juice, or cider**.

FOR MORE INFORMATION

Handling produce safely

www.foodsafety.gov/keep/basics/index.html

E. coli O157:H7

www.cdc.gov/ecoli/general/index.html

Sources: Centers for Disease Control and Prevention, U.S. Department of Agriculture, U.S. Food and Drug Administration, Center for Science in the Public Interest.

of her colon removed," says Kowalczyk. "She'll probably have a colostomy bag for the rest of her life, and she's only 16."

The young, the old, the immune-compromised, and pregnant or postpartum women are most vulnerable, she adds.

"We can't predict exactly who is going to develop a long-term illness from food poisoning," says Scallan. "But vulnerable populations and those with more severe illness are at higher risk."

4 What kitchen gadgets can help keep food safe?

"A good meat thermometer and a good refrigerator thermometer," says Donald Schaffner, an extension specialist in food science and a professor in the School of Environmental and Biological Sciences at Rutgers University.

"Get a tip-sensitive digital thermometer that can tell you the temperature of cooked meat almost instantly. It's a small price to pay to keep you and your family safe, because you can't always tell by looking whether meat or poultry has been cooked to a safe temperature."

You can use the same thermometer to check food that's delivered to your home by cook-your-own meal-kit companies like Blue Apron.

"If it's food that should be kept cold, press the tip of the digital thermometer firmly onto the surface of the package in a couple of different places without puncturing the package," Schaffner suggests.

"It should read no warmer than 40°F or 45°F. If it's 60°F or 70°F, you've got a problem."

Knowing your refrigerator's temperature is also critical. "If you ask some people how cold their refrigerator is, they'll say it's on the number 2 setting, which is useless," says Schaffner.

Your best bet: an inexpensive old-style thermometer. "You don't want something so sensitive that it reacts whenever you open the refrigerator door," says Schaffner.

Your refrigerator's temperature should be no greater than around 40°F to keep food fresh and prevent most pathogens from growing. "Some day all refrigerators will have a thermometer built in," says Schaffner.



5 Do the culprits ever pay?

Food company executives are finally going to prison for selling filthy food that sickens or kills consumers.

Stewart Parnell, the first food executive convicted of a federal felony in connection with a foodborne outbreak, has started serving a 28-year prison sentence while his case is on appeal. His brother, Michael, is serving a 20-year sentence.

Stewart Parnell owned the Peanut Corporation of America (PCA), whose *Salmonella*-contaminated peanut products (including butter and paste) killed at least nine people and sickened thousands in 2008 and 2009.

"I am dumbfounded by what you have found," he wrote to one of PCA's customers, a company that discovered *Salmonella* in PCA's peanut products, according to the indictment.

"We run Certificates of Analysis EVERY DAY with tests for *Salmonella* and have not found any instances of any, even traces, of a *Salmonella* problem."

In fact, PCA often shipped peanuts or peanut paste with phony certificates before even analyzing them. Upon hearing that a shipment would be delayed because *Salmonella* test results weren't yet available,

Parnell wrote "Just ship it. I cannot afford to loose [sic] another customer."

When lab tests later found *Salmonella*, PCA never told its customers.

And two Iowa egg producers were sentenced to three months in prison after pleading guilty to selling eggs contaminated with *Salmonella*. The eggs were distributed nationwide and sickened as many as 56,000 people in 2010.

In July, Peter DeCoster started serving his sentence in Minnesota. His father, Jack, will serve his term at a federal facility in New Hampshire.

"It's great to have penalties for misconduct, but the real solution is to catch these things before they happen," food safety attorney and advocate Bill Marler told the *New Yorker* in 2015.

6 Which cutting boards are best?

"Wood, plastic, and stone cutting boards all have their advantages and their drawbacks," says Ben Chapman, an associate professor and food safety extension specialist at North Carolina State University.

For example, plastic boards are easier to sanitize because you can put them in the dishwasher. But over time, your knife can create grooves where bacteria can hide.

Wood is tougher to sanitize but doesn't scratch as much...if it's a hardwood.

"Hard woods, like maple, are fine-



What's wrong with this picture? Never put raw meat and fresh veggies on the same cutting board.

grained, and the capillary action of those grains pulls down fluid, trapping the bacteria, which are killed off as the board dries after cleaning," says Chapman.

"Bamboo is dense, durable, and resistant to water, so it's also a good choice. Soft woods, like cypress, pose a greater risk because their larger grains allow the wood to split apart more easily, forming grooves where bacteria can thrive."

Chapman suggests plastic for meat, fish, and poultry, and wood for fruit, vegetables, bread, and cheese. But either can work. "As long as you wash your boards with soap and water and dry them, it doesn't matter which you use," he says.

Drying is key. A wet board can be a breeding ground for pathogens.

Another danger zone: washed, pre-

bagged salad greens that you wash again.

"Re-washing bagged salad is not a good idea," Chapman says. "You are more likely to contaminate the lettuce with bugs from your kitchen than you are to make the greens any safer to eat."

7 Has climate change affected foodborne illness?

"We're seeing two foodborne pathogens—*Vibrio* and *Cryptosporidium*—that are probably influenced by global warming," says the University of Florida's Glenn Morris.

Vibrio, which infects shellfish in coastal waters, tends to multiply in the summer. Hence the advice to eat oysters and other shellfish only in months whose names contain the letter "r." That excludes May through August.

"*Vibrio* is exquisitely temperature sensitive," says Morris. "We're seeing steady increases in the number of cases. And we're finding *Vibrio* farther up both the west and east coasts of the United States and even in Alaska."³

While *Vibrio* doesn't infect as many people as most other pathogens, one in four people with certain kinds of

severe *Vibrio* infections die, sometimes only a day or two after they get sick.

"*Cryptosporidium* is also a water organism," says Morris. Heavier rainfall from a warmer climate is expected to flush greater numbers of the parasites out of soil and into waterways and drinking water.

"We're just starting to come to grips with that," says Morris.

Cryptosporidium infections cause watery diarrhea, stomach cramps, nausea, and vomiting. The illness usually lasts a week or two in healthy people but can be serious or even fatal in people with weakened immune systems. 🍌

¹ *Epidemiol. Infect.* 143: 2795, 2015.

² *Infect. Dis. Clin. North Am.* 27: 599, 2013.

³ *Proc. Natl. Acad. Sci.* 2016. doi:10.1073/pnas.1609157113.

What's Bugging You?

Food poisoning is no fun. In most cases, **your body will heal itself as long as you drink plenty of fluids until the GI problems clear up.** Sometimes, though, you're going to need medical help, especially if you're older, have a weakened immune system, or have severe or long-lasting symptoms. (Infants and pregnant women are also more likely to have a serious bout.) Here are the bacteria, toxins, viruses, and parasites in food that are most likely to make you sick and the symptoms they typically cause. 🍌

	How soon you typically get sick	How long sickness typically lasts	Diarrhea	Vomiting	Fever	Abdominal pain	Other symptoms	Possible complications	WHAT TO DO
<i>Bacillus cereus</i>	4-16 hours	12-24 hours	✓	✓		✓			Stay hydrated
<i>Campylobacter jejuni</i>	2-5 days	2-10 days	✓ (may be bloody)	Sometimes		✓		Guillain-Barré Syndrome	Stay hydrated
Ciguatera	6-24 hours	1 day-3 weeks	✓	✓			Numbness and tingling in hands and around mouth, pain and weakness in legs	Chronic ciguatera syndrome, which can last for months to years	Get medical help
<i>Clostridium botulinum</i>	2 hours-4 days	Weeks (months in severe cases)	Sometimes	Sometimes			Blurred vision, difficulty swallowing, slurred speech, dry mouth, respiratory failure	Long-term hospitalization in severe cases	Get medical help immediately
<i>Clostridium perfringens</i>	8-24 hours	1-2 days	✓						Stay hydrated
Cyclospora	7-10 days	May come and go for months	✓	Rare	Rare		Loss of appetite, weight loss, bloating, increased gas, fatigue		Get medical help
Enterotoxigenic <i>E. coli</i>	8-44 hours	3-7 days or more	✓	✓					Stay hydrated
<i>E. coli</i> O157:H7	1-9 days	2-9 days	✓ (bloody)	✓		✓		Kidney failure from hemolytic uremic syndrome	Get medical help immediately
<i>Listeria monocytogenes</i> (mild illness)	9-48 hours	Days to weeks	✓	✓	✓		Flu-like symptoms	Spontaneous abortions, stillbirths	Stay hydrated. If pregnant, get medical help immediately
<i>Listeria monocytogenes</i> (severe invasive disease)	3-90 days	Days to weeks			✓		Headache, stiff neck, muscle ache, loss of balance, confusion	Meningitis, sepsis (blood infection)	Get medical help
Noroviruses	24-48 hours	12-72 hours	✓	✓	✓		Malaise		Stay hydrated
<i>Salmonella</i>	12-72 hours	4-5 days	✓	✓	✓	✓	Chills, nausea, pain in the joints, headache, muscle pain, malaise	Reactive arthritis, irritable bowel syndrome	Stay hydrated. Get medical help for severe illness
<i>Shigella</i>	1-4 days	4-7 days	✓ (may be bloody)						Get medical help
<i>Staphylococcus aureus</i>	2-4 hours	Less than 48 hours	✓	✓					Stay hydrated
<i>Vibrio parahaemolyticus</i>	4 hours-4 days	2-6 days	✓	✓		✓			Stay hydrated
<i>Yersinia</i>	24-48 hours	2 days-3 weeks	✓			✓	May mimic appendicitis	Reactive arthritis	Stay hydrated

Quick Studies

A snapshot of the latest research on diet and exercise

Sperm Counts on the Decline



Sperm counts appear to have dropped roughly in half between 1973 and 2011 in men from North America, Europe, Australia, and New Zealand, says a new study, which also found “no evidence of a ‘leveling off’ in recent years.”

Why the decline? “The short answer is that we do not know,” noted an editorial. Among the possible culprits: environmental exposures—via food, water, and skin.

What to do: Avoiding endocrine disruptors may help (see Nov. 2017, p. 3).

[Hum. Reprod. Update 2017. doi:10.1093/humupd/dmx022.](#) [BMJ 2017. doi:10.1136/bmj.j4517.](#)

Dairy: No Magic Diet Food

Heard that dairy foods can boost weight loss? In a study funded, in part, by the Danish dairy industry, 52 people were randomly assigned to a lower-calorie diet high or low in dairy foods. After six months, there was no difference in weight loss or body fat loss.



What to do: Don't expect dairy to supercharge your weight loss.

[Appl. Physiol. Nutr. Metab. 2017. doi:10.1139/apnm-2017-0234.](#)

Magnesium & Diabetes

Could magnesium-rich foods lower the risk of diabetes?

Scientists tracked roughly 200,000 men and women for 28 years. Those who reported getting the most magnesium from their food and supplements had a 15 percent lower risk of type 2 diabetes than those who reported getting the least.

Women in the “most” category typically got about 410 milligrams of magnesium a day. That's well over the Recommended Dietary Allowance for women over 30 (320 mg).

Men got about 470 mg a day, also higher than their RDA (420 mg).

What to do: This study isn't proof that magnesium can lower the risk of diabetes, but it's one more reason to eat more whole grains, leafy greens, nuts, beans, and other magnesium-rich foods.



[Diabetes Care 2017. doi:10.2337/dc17-1143.](#)

Less Protein, Less Mobile?

Eating too little protein may make you less mobile as you age.

Researchers tracked roughly 2,000 participants aged 70 to 79 in the Health ABC study. All were able to walk and climb stairs and lived at home when the study began.

After six years, those who consumed the least protein

were nearly twice as likely to have trouble walking a quarter mile or up 10 stairs than those who ate the most protein.

What to do: Although this study can't prove that protein slows muscle loss and protects mobility, to play it safe, aim for a protein intake (in grams) equal to about half your body weight (in pounds), as some experts recommend (see Nov. 2014, p. 3). That's equal to what the “most” group in this study got. So if you weigh 120 pounds, for example, shoot for getting 60 grams of protein a day. 🍌

[J. Am. Geriatr. Soc. 65: 1705, 2017.](#)





Believe it Or Not

The latest claims:
good science or scams?

BY CAITLIN DOW

When it comes to claims about good and bad foods, it's a jungle out there. Whether it's a "Superfood" or the "#1 Biggest Danger in the American diet," you never know if you're being scammed or informed. That's where we come in.

Alkaline Water for Hydration?

"Ideally, I recommend water that's at least [a pH of] 9.5," writes Robert O. Young in his book *The pH Miracle*.

In June, Young—who charged people thousands of dollars to attend his "pH Miracle" retreats—was [sentenced](#) to nearly four years in prison for practicing medicine without a license. He also admitted to having no college education. (His "Ph.D." apparently came from a diploma mill.)

On the (0 to 14) pH scale, pure water is 7—that is, it's neither acidic nor alkaline. Some companies sell water that is naturally alkaline (with a pH of 8 or 9) because it's higher in potassium, magnesium, or calcium. You can also buy (expensive) machines that "electrolyze-reduce" water to make it alkaline. Or you can pick up an electrolyzed-reduced water—Essentia is a popular brand—at the supermarket.

Proponents claim that alkaline water kills cancer cells, banishes belly fat, lubricates joints, and more. Two of the most common and best-studied claims: it reduces acid reflux and improves hydration. But the evidence is skimpy:

■ **Reflux.** The claim largely rests on one test-tube study in which alkaline water with a pH of 8.8 inactivated pepsin, a stomach enzyme that the study authors claim is responsible for the tissue damage caused by reflux.¹

"You can get a petri dish to a pH of 8.8, but that's going to be pretty hard to do in the stomach, which is so acidic that it has a pH of 1.5 to 3.5," says gastroenterologist Scott Gabbard, of the Cleveland Clinic. "It would probably take many liters of alkaline water to do so."

What's more, says Gabbard, "pepsin helps digest pro-

WHAT MAKES ESSENTIA BETTER?

We make supercharged ionized alkaline water that's better at rehydration.*

FIND US



Better at rehydration? Essentia's study is full of holes.

teins. Inactivating it would be a bad thing."

■ **Hydration.** "We make supercharged ionized alkaline water that's better at rehydration," claims Essentia's [website](#).

Its evidence: after company-funded researchers had 100 adults exercise until they were dehydrated, only one of several measures of hydration that the researchers used—blood viscosity, or blood thickness—fell more in those who drank Essentia than in those who drank ordinary water.²

"I've never heard of anyone measuring hydration using the method used in this study in my 30 years of research," says Lawrence Armstrong, a professor of kinesiology at the University of Connecticut.

"This study used only one good way to measure hydration, and it didn't find any difference between groups. I have multiple concerns about this research. I would have rejected this paper, had I been one of the peer reviewers."

Bottom Line: Don't waste your money on alkaline water.

¹ *Ann. Otol. Rhinol. Laryngol.* 121: 431, 2012.

² *J. Int. Soc. Sports Nutr.* 13: 45, 2016.

Prunes for Bones?

“Can prunes reverse bone loss?” asked [Scientific American](#) earlier this year. As it turns out, prunes may have benefits beyond the bathroom.

“There’s preliminary data from test-tube and animal studies that the polyphenols in prunes are beneficial to bone,” says Mary Jane De Souza, a professor of kinesiology and physiology at Penn State University.

What about evidence in people? Two studies—one supported by the California Dried Plum Board—have looked. Both reported that postmenopausal women who were given about 6 or 12 prunes a day lost less bone after six months or a year than those who got dried apple or no fruit at all.^{1,2}

“But the studies were small, and some of the bone data was presented in a non-traditional way,” says De Souza. For example, the papers reported the *ratio of change* in the partic-



Are prunes good for “bone health”? Stay tuned.

ipants’ bone density, which is unusual, but not the *actual* density. That makes the data difficult to interpret.

“But the data look promising because the women who were eating prunes lost less bone than the other groups,” she says.

De Souza is doing a one-year study on

200 postmenopausal women, also funded by the California Dried Plum Board.

“We’re looking at bone mineral density, structure, and strength,” she says. “Density tells you how much bone is there, but structure and strength tell you how good it is.”

Bottom Line: Ongoing research will shed more light on whether prunes benefit bones. While you’re waiting, keep in mind that 6 to 12 prunes means about 120 to 240 calories.

¹ [Br. J. Nutr. 106: 923, 2011.](#) ² [Osteoporos. Int. 27: 2271, 2016.](#)

Lectins: Diet Danger?

“Most people have never even heard of them, but I believe lectins are the #1 Biggest Danger in the American Diet,” says the [website](#) of cardiologist (and “Lectin-Shield” supplement salesman) Steven Gundry, author of *The Plant Paradox*.

Lectins are proteins that are found in most plants. Beans and whole grains typically have more than other plants.

“Plants don’t exist solely for us to eat them,” explains David Jenkins, a professor of nutrition at the University of Toronto. “Their goal is to survive and reproduce. Lectins are just one of a whole group of compounds that act as a defense system against invaders.”

To protect the plant, says Gundry’s book jacket, lectins “incite a kind of chemical warfare in our bodies,” causing everything from digestive problems, weight gain, and high cholesterol to arthritis, brain fog, and adult acne.

“I’ve never seen anything in the major medical journals to support that,” says Jenkins. “If there were a problem, we’d know about it. Big time.”

Lectins do damage the gut in studies that feed animals raw beans or pure lectin.^{1,2} But we cook, ferment, or sprout our beans and grains, which deactivates most lectins.³

The exception: some slow cookers and some casseroles may not reach temperatures high enough to break down all the lectins in raw beans. That can lead to lectin toxicity,



FOODS TO AVOID COMPLETELY

Cook your beans. Ignore Gundry’s advice (above) to avoid them.

especially with red kidney beans. The resulting nausea, vomiting, and diarrhea can last for several hours.

To be safe, soak dry beans in water for at least five hours, pour off the water, and boil briskly in fresh water for at least 10 minutes. Then finish cooking them on the stove or in a slow cooker. Canned beans are already cooked.

Don’t let lectins scare you away. “Some of the healthiest populations around the world eat the most beans and whole grains,” says Jenkins.

Bottom Line: Cook, don’t avoid, beans and whole grains.

¹ [Gastroenterology 82: 838, 1982.](#)

² [J. Agric. Food Chem. 39: 1627, 1991.](#)

³ [J. Agric. Food Chem. 50: 6592, 2002.](#)

Is Beet Juice a “Circulation Superfood”?

“SuperBeets helps boost your body’s nitric oxide levels, and that helps increase your energy and stamina,” claims a TV ad for the concentrated dried beet powder. “It helps support healthy blood pressure levels, too.”

Beets—like spinach, lettuce, arugula, and some other vegetables—are rich in nitrates. Nitrates? Aren’t bacon, sausage, and other processed meats considered human carcinogens in part because they contain nitrites and nitrates?

Yes, but the nitrates in vegetables may be beneficial.

“When you eat nitrates, they are converted to nitrites by bacteria in your mouth,” says Gunter Kuhnle, a professor of food and nutritional sciences at the University of Reading in England. Once the nitrites reach the stomach’s acid, they can turn into either nitric oxide or N-nitroso compounds.

“N-nitroso compounds like nitrosamines are carcinogenic,” explains Kuhnle. “What makes processed meats so ideal for forming N-nitroso compounds is that they have a combination of nitrite and proteins from the meat. And the meat’s heme seems to help convert them into N-nitroso compounds.”

But the vitamin C and polyphenols in vegetables make it harder for nitrosamines to form. You’re more likely to get nitric oxide, which helps blood vessels relax.

Even so, the evidence that beets, beet powder, or beet juice is a “circulation superfood” isn’t quite ready for prime time.

■ **Blood pressure.** In short-term studies in healthy adults with normal blood pressure, nitrate-rich vegetable juice made from spinach, arugula, or beets lowered blood pressure by about 5 points after a few hours or after people took it daily for a few days or two weeks.¹⁻³

“Some researchers find quite a dramatic reduction in healthy volunteers,” says Mark Gilchrist, a clinical senior lecturer at the University of Exeter Medical School in England.

But evidence in people with high blood pressure isn’t consistent. In one study on 64 people, those assigned to drink 8 oz. of beet juice every day for a month had blood pressures that were nearly 8 points lower than those assigned a placebo drink.⁴ And pressure started dropping within a week. But a similar study on 27 people found no difference in blood pressure after one week.⁵

Also disappointing: “In our trials on people with type 2 diabetes, we haven’t seen any effect of beet juice on blood pressure,” says Gilchrist.^{6,7} He’s not sure why.

“Maybe their blood vessels are simply less responsive to the nitric oxide. Or maybe the studies weren’t big enough

to detect a difference.”

■ **Stamina.** “The headline finding has been that beet juice reduces the oxygen cost of exercise for a given workload,” says Gilchrist.

“Usually, fitter people use less oxygen to do the same thing as unfit people,” he explains. “That can translate into being able to sustain your exercise for longer or run faster.”

That’s what you see in small studies in healthy, young adults.^{2,8,9} The evidence is murkier for others.

For example, after three days of drinking beet juice twice a day, 12 healthy older adults didn’t walk farther or use less oxygen than when they drank a placebo.³ And that’s the only study in healthy older adults.

“The results seem to be variable,” says Gilchrist, whose

studies on people with type 2 diabetes and COPD (chronic obstructive pulmonary disease) also came up empty.^{7,10}

Until more research is done, why not try beet juice or a beet powder like SuperBeets?

When people drank beet juice for six weeks, “we couldn’t find any nitrosamines in their urine,” says Kuhnle.¹¹ “But we don’t know if beet juice or

nitrate supplements increases the risk of cancer. We simply don’t know.”

That doesn’t mean you should avoid beets or other nitrate-rich vegetables.

On the contrary, says Gilchrist. “Vegetables contain multiple components, including nitrates, that help lower blood pressure and have other beneficial health effects.”

Just don’t think of beet juice as a panacea.

“You can’t drink beet juice or take other vegetable-based supplements and think that it’s going to make up for eating burgers and fries the rest of the time,” says Gilchrist.

Bottom Line: “We need a long-term study on the potential cardiovascular benefits versus the cancer risk,” says Kuhnle. In the meantime, eat your veggies, but hold off on nitrate and beet supplements. 🍷



Is dried beet powder a safe superfood? Maybe, maybe not.

¹ *J. Nutr.* 146: 986, 2016.

² *Am. J. Physiol. Regul. Integr. Comp. Physiol.* 299: R1121, 2010.

³ *Am. J. Physiol. Regul. Integr. Comp. Physiol.* 304: R73, 2013.

⁴ *Hypertension* 65: 320, 2015.

⁵ *Am. J. Clin. Nutr.* 102: 368, 2015.

⁶ *Free Radic. Biol. Med.* 60: 89, 2013.

⁷ *Free Radic. Biol. Med.* 86: 200, 2015.

⁸ *J. Appl. Physiol.* 107: 1144, 2009.

⁹ *J. Appl. Physiol.* 115: 325, 2013.

¹⁰ *Nitric Oxide* 48: 31, 2015.

¹¹ *Am. J. Clin. Nutr.* 103: 25, 2016.

The Healthy Cook

Salad for Supper

BY KATE SHERWOOD



A hearty salad can make the perfect lunch or dinner. Here's one of my favorites. It's from my upcoming cookbook, *Salad Days!* 🍴

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

Lentil Salad with Mustard Vinaigrette



For more color, use a combination of red and golden beets.

- ½ cup dry French lentils
- 1 bay leaf
- Mustard Vinaigrette
- 1 cup cooked quinoa
- 4 cups salad greens
- 1 cup cooked diced beets
- ½ cup cooked diced butternut squash
- ¼ cup roasted, salted sunflower seeds

1. Simmer the lentils with the bay leaf in enough water to cover by ½ inch until just tender, 12-15 minutes. Drain and cool.
2. Make the Mustard Vinaigrette dressing.
3. Toss the lentils, quinoa, and salad greens in the dressing. Top with the beets, squash, and sunflower seeds.

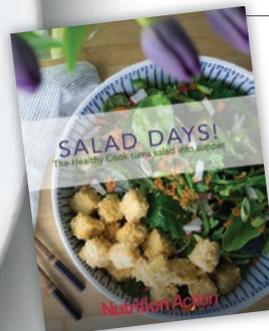
Mustard Vinaigrette

MAKES 4½ TBS.

- 1 Tbs. red wine or sherry vinegar
- 1 Tbs. whole-grain mustard
- ½ tsp. dijon mustard
- ¼ tsp. honey
- ½ tsp. kosher salt
- ¼ tsp. freshly ground black pepper
- 2 Tbs. extra-virgin olive oil

In a large bowl, whisk together all the ingredients.

PER SERVING (3 cups salad with 2¼ Tbs. dressing): calories 580
total fat 25 g | sat fat 3 g | carbs 70 g | fiber 17 g | total sugar 13 g
added sugar 1 g | protein 23 g | sodium 630 mg



Salad Days!

Salads that make a meal.

Visit NutritionAction.com/SaladDays
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name & address to CSPI—Salad
Days, Suite 300, 1220 L St. NW,
Washington DC 20005.

Winners & Losers

What to order when you eat out

BY LINDSAY MOYER & BONNIE LIEBMAN

Soup or salad? Bagel or muffin? Pancakes or omelet? Here's what to consider when you eat out. Our examples are from chain restaurants, but the winners and losers should hold up elsewhere.

The information for this article was compiled by Jennifer Urban.

Pancakes or Omelet?



LOSER: Pancakes

A stack of five IHOP Original Buttermilk Pancakes with butter brings 670 calories and a pile of white flour to your table. With a quarter cup of syrup, you're looking at 890 calories and about a day's added sugar.

The Harvest Grain 'N Nut Pancakes may look better, but even if they're 100% whole grain—IHOP won't say—a buttered four-stack without syrup has 990 calories and about half a day's added sugar.



WINNER: Omelet

Build your own. Fill it with veggies (not steak, bacon, ham, or ground beef). Nix the cheese. And ask for one whole egg plus whites (or just whites).

With a side of fruit, you're talking roughly 300 calories, 30 grams of protein, and no white flour or added sugar. Not too shabby!

Soup, Salad, Sandwich?

Chains like Panera let "You Pick Two." Which one should you skip: the soup, the half salad, or the half sandwich?



LOSER: Soup

Salt assault! At Panera, each cup of soup has more sodium (roughly 650 to 950 milligrams) than almost any half salad or many half sandwiches.

And cream and butter means about a quarter of a day's saturated fat (and 200 calories) in the Vegetarian Creamy Tomato and three-quarters of a day's sat fat (and 370 calories) in the New England Clam Chowder.

Exceptions: bean soups and chili. Panera's Turkey Chili delivers a nice 10 grams of fiber and 11 grams of protein (from turkey, chickpeas, kidney beans, and edamame). Balance its sodium (810 mg) with half a Seasonal Greens Salad (75 mg).



WINNERS: Salad & Sandwich

Salads have the whole package: nutrient-rich veggies, healthy unsaturated fat (from the dressing), and more.

The best salads are topped with nuts or seeds or avocado (not cheese) and whole grains (not fried wontons or croutons).

Panera's Ancient Grain & Arugula with Chicken, for example, adds apple-cabbage slaw, grapes, a sprinkle of farro and freekeh, and pumpkin seeds. Yum!

For your half sandwich, look for one—like Panera's Tuna Salad, Turkey, Napa Almond Chicken Salad, or Mediterranean Veggie—that's mostly tuna, turkey, chicken, or hummus and veggies (not cheese, steak, bacon, or ham). Ask for the (partly) whole-grain bread.

Tip: Pick the apple, not the chips or bread, for your side.

Wine or Cocktail?



LOSER: Cocktail

Most mojitos, Moscow mules, and margaritas deliver 200 to 300 calories. Chili's Strawberry or Mango Patrón Margarita hits 360. (A classic margarita—tequila, lime, triple sec—in a small glass cuts most of the sugar and hovers around 200 calories.)

Frozen blended drinks like piña colodas typically range

from 500 to 900 calories. That's what alcohol, sugar, and ice cream or coconut cream will do. A TGI Fridays mudslide (760 calories) or Cheesecake Factory Strawberry Creamsicle spiked milkshake (930) packs more than a day's sat fat and an estimated 10 (mudslide) or 13 (creamsicle) teaspoons of added sugar.

A few cocktails—a classic martini or Manhattan, for example—aren't likely to do more damage than a 6 oz. glass of wine.



WINNER: Wine or Beer

Alcohol is empty calories. Wine or beer beats a cocktail because you typically get fewer calories from them.

Expect around 150 in a 6 oz. glass of red or white wine. A 9 oz. pour has 220. And sangria can hit 200 to 300 calories, thanks to the fruit, juice, liquor, or sugar.

Beer also starts at 150 calories for a 12 oz. can or bottle (100 calories for a light beer). But the calories climb to 200 to 250 in a 16-to-20 oz. draft pour.

Higher-alcohol beers, like Lagunitas IPA or Samuel Adams Rebel IPA, start at around 200 calories for just 12 oz. Ditto for many hard ciders, like Angry Orchard Crisp Apple.

Carbonara or Marinara?



LOSER: Carbonara

Carbonara means that the pasta comes coated with bacon or pancetta, cheese, and egg yolks or cream. No wonder Olive Garden's Chicken & Shrimp Carbonara (1,590 calories and three days' worth of sat

fat) makes its Shrimp Alfredo (1,150 calories and two days' sat fat) look light. Bonus: the carbonara packs a day's sodium (2,410 mg). That's bacon for you.



WINNER: Marinara or Pomodoro

The sauce is largely tomatoes and olive oil, so you can kiss nearly all of the artery-clogging sat fat goodbye. It's still pasta, though, so you're looking at 500 to 1,000 calories. Take home half?

Tip: Linguine di mare is a mix of seafood like shrimp, mussels, scallops, and clams in a tomato sauce without all the butter in shrimp scampi or the cheese in almost any other Italian dish. Olive Garden's version—with whole-grain linguine—has just 570 calories and 2 grams of sat fat.

Fajitas or Tacos?



LOSER: Fajitas

At a Mexican restaurant, fajitas beat cheese-laden, carb-heavy dishes like burritos or enchiladas. But they're no health food.

Take Chili's Chicken Fajitas (chicken, veggies, flour tortillas, cheese, guacamole, sour cream). They add up to 1,200 calories, nearly 1½ days' worth of saturated fat (27 grams), and a two-day supply of sodium (4,800 milligrams). Why all the sat fat? The butter that Chili's adds doesn't help. The side of rice and beans tacks on another 250 calories and 1,240 mg of sodium.

You can do better. Lose the butter, cheese, sour cream, and rice. That's how On The Border's lightened-up Border Smart Chicken Fajitas get down to 610 calories, 2½ grams of sat fat, and 1,370 mg of sodium.



WINNER: Tacos

Unless your fajitas are "light" or "smart," you may be better off with a few tacos. Three Chipotle Chicken Tacos (with crispy corn tortillas, salsa, lettuce, and cheese), for example, have 520 calories, 9 grams of sat fat (4 grams if you get them sans cheese), and 1,050 mg of sodium.

Tip: Three crispy or soft corn tortillas typically have 50 fewer calories than three soft flour tortillas. Who knew?

Thai Curry or Stir-Fry?



LOSER: Coconut curry

Most Thai curries—green, yellow, or red—are swimming in calories and saturated fat, thanks to their coconut milk. At Pei Wei, the Supergreen Thai Coconut Curry bowls range from roughly 600 calories (shrimp) to 800 calories (steak) and from 22 to

26 grams of sat fat. That's before you add the side of rice (another 350 calories).

At P.F. Chang's, the Coconut Curry Vegetables—yellow curry sauce, crispy (fried) tofu, mushrooms, peanuts, rice—pack 1,490 calories and 36 grams of sat fat, spiked with 2,800 milligrams of sodium. Mayday!



WINNER: Stir-fried veggies

Try a stir-fry like pad pak (mixed vegetables), pad king (ginger, mushrooms, onion), or pad prik king (green beans, curry paste). And get it with sautéed chicken, shrimp, or tofu. Our estimate: your plate will contain roughly 500 calories without the rice (200 calories per cup).

Tip: If you order a stir-fried *noodle* dish like pad thai, drunken noodles (pad kee mao), or pad see ew, you'll end up with a pile of oil-soaked white-rice-flour noodles, fewer veggies, and about 1,000 to 1,500 calories.

Which Milk in your Latte?



LOSER: Whole or Coconut milk

Getting your Starbucks grande (16 oz.) latte with whole milk means 230 calories and 7 grams of saturated fat. Coconut milk has only 140 calories, but 8 grams of sat fat and just 1 gram of protein.



WINNER: Nonfat milk, Soy milk, or Almond milk

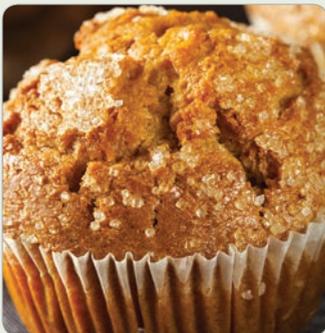
A Starbucks grande latte with nonfat milk clocks in at 130 calories and no sat fat, and about the same protein (13 grams) and calcium as whole milk. Don't like nonfat? Ask for 1% (or half nonfat and half 2%) milk.

Non-dairy milks have pros and cons. A Starbucks grande latte with soy milk (190 calories) has 10 grams of protein, but 4 teaspoons of added sugar. Get your latte with almond milk (100 calories), and you're down to just 1 teaspoon of added sugar, but only 3 grams of protein.

Panera's almond milk is unsweetened, but a medium (16 oz.) almond milk latte at Dunkin' Donuts will set you back 4 teaspoons of added sugar.

Tip: Skip the syrup. A Starbucks grande vanilla or mocha latte has 4 pumps of syrup. That's about 4 teaspoons of added sugar. If you can't live without syrup, ask for a single pump.

Bagel or Muffin?



LOSER: Muffin

At Panera or Dunkin' Donuts, almost any muffin delivers roughly 500 calories (most of them from the white flour and 10-or-so teaspoons of sugar).

And some uber-muffins at Whole Foods can rack up 700 (Vegan Double Chocolate), 790 (Good

Morning), or even 920 (Chocolate Chip) calories. Think of them all as unfrosted cupcakes.

At least Au Bon Pain's 430-calorie Bran Muffin is whole grain. (Dunkin' Donuts' mostly white-flour Honey Bran Raisin Muffin has 440 calories.)



WINNER: Bagel (maybe)

Most bagels hover around 300 calories, though each two-tablespoon schmear of cream cheese tacks on another 100. It's essentially white flour and saturated fat for breakfast. (Cream cheese is low in protein.)

Instead, ask for peanut butter, egg whites, or (if you don't need the protein) avocado or hummus on half a whole-grain bagel. (Eat the other half tomorrow.) Just keep in mind that "whole grain" or "multi-grain" often means "part whole grain." Better than none!

Tip: For more whole grains, get oatmeal instead. 🌾



RIGHT STUFF

When in Brussels...



Brussels sprouts—two words that strike fear in the hearts of generations of Americans.

Sulfurous. Bitter. Their only saving grace: you could slip them to the dog under the table without making a mess.

Of course, the problem wasn't the veggie; it was the overboiling.

Want to see what you were missing for all those years? Toss halved brussels sprouts with olive oil to coat, roast at 450°F until browned and tender (25-30 minutes), and sprinkle with a dash of salt and freshly ground pepper.

Don't have a half hour? Pick up a bag of **shredded brussels sprouts**. Among the national brands: **Trader Joe's**, **Ocean Mist Farms**, and **Mann's Culinary Cuts**.

Stir-fry in a large hot pan with olive oil until crisp-tender and browned in places (2-3 minutes). Season with a pinch of salt, freshly squeezed lemon juice, and a little shaved parmesan. Unbelievably good.

Or forget the heat and toss a bag right into your salad. (Need a recipe? Check out our Dish of the Month.)

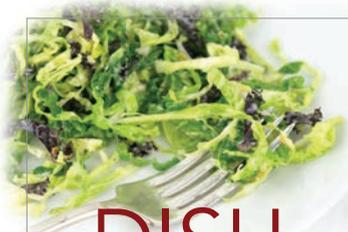
Brussels sprouts have it all: lutein, vitamins C and K, fiber, filling you up without a load of calories.

Bonus: they'll put you ahead of the cruciferous curve. Turns out brussels sprouts are "the new cauliflower" (which used to be "the new kale") on trendy restaurant menus. Yay you!

oceanmist.com—(831) 633-2144

traderjoes.com—(626) 599-3700

veggiesmadeeasy.com—(800) 285-1002



DISH of the month

Winter Greens Salad

Whisk the zest and juice of ½ lemon and ½ orange with 1 Tbs. minced shallot, ¼ tsp. salt, 2 Tbs. olive oil, 2 Tbs. mayonnaise, and 1 tsp. dijon mustard. Toss with 8 cups finely shredded winter greens like kale, cabbage, and/or brussels sprouts.

FOOD PORN



Shake It Off

"Sweetening the bottom line with milkshakes," ran the headline in *Nation's Restaurant News* in 2016.

"While classic milkshake flavors never go out of style, there continues to be the rise of a full dessert you can sip through a straw," said the director of marketing for Roy Rogers.

Dessert through a straw. Just what America needs.

Burger King was quick to jump on the shakewagon, with a 720-calorie Froot Loops Shake and a 740-calorie Lucky Charms Shake.

Not to be outdone, **Denny's** now offers a **Cake Batter Milk Shake**—"vanilla ice cream blended with cake batter and confetti sprinkles. Topped with whipped cream and more confetti sprinkles."



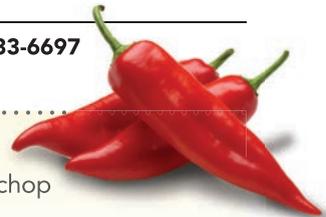
What better way to top off your (1,500-calorie) Slamburger and fries. Now you can have your cake and...um...drink it, too.

Denny's shake lumbers in at 1,090 calories and 37 grams of saturated fat (a two-day supply). Its estimated 100 grams of added sugar—about 24 teaspoons' worth—is almost what you'd get in a liter of Coke.

You'd be better off blending a Twinkie with an entire (14 oz.) container of Häagen-Dazs vanilla ice cream. Heck, you'd be better off ordering *two* slices of Denny's New York Style Cheesecake.

Whatever you do, don't drink to *that*.

dennys.com—(800) 733-6697



quick tip

Nervous about handling hot peppers? Use disposable gloves to avoid irritating your skin or eyes when you remove the seeds and chop the peppers.