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Nutrition Action HEALTH LETTER®
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Mediterranean Mix-Up

What a new study did—and didn't—find

BY BONNIE LIEBMAN

"Mediterranean diet fights heart disease," announced ABC News. "Mediterranean diet cuts risk of stroke," said *USA Today*. "Mediterranean diet over lowfat? Well, at least it's more fun," quipped the *Los Angeles Times*.

A study published in the prestigious *New England Journal of Medicine* set off a media frenzy in February. Its findings were striking, but the press reports may have misled many.

Here's what the study actually found...and how it should (or shouldn't) alter what you eat.

Continued on page 3.

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CENTER FOR Science IN THE Public Interest

Mediterranean Mix-Up

What a new study did—and didn't—find

The new PREDIMED (*Prevención con Dieta Mediterránea*) study was big news. Spanish researchers reported that high-risk people on either of two "Mediterranean" diets had a remarkable 30 percent lower risk of cardiovascular events (mostly strokes) than those on a so-called "low-fat" diet.

But the findings got garbled in the media. "I think the results are being misinterpreted," says Lawrence Appel of Johns Hopkins University. Here's the scoop.

WHAT GOT GARBLED

The PREDIMED study made headlines for two reasons: First, it was the rare kind of study that can prove cause and effect, because it *randomly assigned* nearly 7,500 people to one of three diets for nearly five years. Second, it found surprisingly lower disease rates in people on two of the three.

But beyond that, the story got muddled.

"About 30 percent of heart attacks, strokes and deaths from heart disease can be prevented in people at high risk if they switch to a Mediterranean diet rich in olive oil, nuts, beans, fish, fruits and vegetables, and even drink wine with meals, a large and rigorous new study has found," reported *The New York Times* in February. Well, not exactly.

1. All three diets were Mediterranean.

The study didn't pit a diet "rich in olive oil, nuts, beans, fish, fruits and vegetables," and wine against a non-Mediterranean diet.

It pitted two "Mediterranean" diets against a "low-fat control" diet.[1] The people in one Mediterranean group got home deliveries of extra-virgin olive oil, and those in the other group got a mix of nuts (almonds, hazelnuts, and walnuts). The low-fat-diet group got no free food.

But despite many news reports, *all three diets* were Mediterranean. Although the advice varied somewhat, everyone in the study was told to eat fruits, vegetables, and fish and to cut back on commercial pastries and sweets, "spread fats" (like butter and margarine), and fatty red or processed meats.

"If you want to test the Mediterranean diet versus a crappy American diet, I'd say let's go to Baltimore and feed people either what they usually eat or a Mediterranean diet," suggests Lawrence Appel, director of the Welch Center for Prevention, Epidemiology and Clinical Research at Johns Hopkins University in Baltimore.

In a Mediterranean country like Spain, notes Appel, "everyone is eating a variant of the Mediterranean diet."

High risk. Roughly 80 percent of the PREDIMED participants had high blood pressure, 70 percent had high "bad" or low "good" cholesterol, half had diabetes, and the average waist measured nearly 40 inches, even for women.

2. The study had no low-fat diet.

The "low-fat" group was supposed to eat "nothing...like, lettuce," according to a video on *The New York Times* Web site.

Not true. The low-fat group was allowed red meat (if it wasn't fatty), olive oil (up to two tablespoons a day), and sofrito (a tomato-olive oil sauce), though less often than the other groups.

"I was flabbergasted that some reports didn't point out that the control diet wasn't low fat," says Alice H. Lichtenstein, director of the Cardiovascular Nutrition Laboratory at the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University in Boston. "We're talking about people who got 37 percent of their calories from fat." (That's more than the 33 percent that the average American gets.)

The researchers are partly at fault. "Low fat was an inappropriate label, and it spawned an immense amount of inaccurate communication to the public," notes Lichtenstein.

3. Only oil and nuts changed.

"The participants stayed with the Mediterranean diet, the investigators reported," said *The New York Times*. "But those assigned to a low-fat diet did not lower their fat intake very much."

The *Los Angeles Times* had a similar take: "What this study may have shown us about the difference between Mediterranean and low fat is that the former is easier to follow. There were no big problems getting subjects to ingest olive oil, wine and seafood. Low fat? Not so much."

In fact, none of the three groups changed much of what they ate, with one key exception: people who got free deliveries of olive oil or nuts ate somewhat more of them.

"The conclusion should be that if you provide foods to people, there's a good chance that they'll increase their consumption," says Rena Wing, professor of psychiatry and human behavior at the Alpert Medical School at Brown University in Providence, Rhode Island.

Other than some extra olive oil and nuts, all three groups ended up eating basically the same diet. (The study also reported a slight increase in fish and beans in the two Mediterranean groups: roughly half a dozen extra beans or an extra teaspoon of fish a day.)

Yet some reports made it sound as though the PREDIMED study tested a traditional Mediterranean diet against a

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What a Mediterranean Diet *Isn't*

What researchers call a Mediterranean diet isn't a typical American diet plus extra-virgin olive oil. It's a diet rich in vegetables, fruit, fish, beans, whole grains, unsaturated fats (mostly from oils), and alcohol (in moderation). The diet is also low in saturated fat (mostly from red meat and cheese), added sugars, and refined flour that we get from foods like these:

Americans may think of pizza as a Mediterranean food. Yet its cheese and (often) red meat are high in saturated fat, and its crust is a load of refined flour.

The (healthy) OmniHeart diet has less than two teaspoons of added sugar a day. Americans average about 22 teaspoons (half of it from sugary drinks). We also get added sugar—plus refined flour and saturated fat—from cakes, cookies, doughnuts, pies, and other sweets.

The classic spaghetti, meatballs, and Italian bread dinner has too much white flour, meat, and cheese to be a healthy Mediterranean meal.

typical junk-food diet.

"So the study wound up comparing the usual modern diet, with its regular consumption of red meat, sodas and commercial baked goods, with a diet that shunned all that," said *The New York Times*. Wrong.

Fruits, vegetables, red meat, pastries, sodas, dairy, whole (or refined) grains, wine—all three groups ate the same amounts, according to the best diet data reported by the study.

(While a short, 14-item questionnaire found other differences, it wasn't very precise. "I don't trust the results of that questionnaire," says Appel.)

"Dr. Estruch said he thought the effect of the Mediterranean diet was due to the entire package, not just the olive oil or nuts," said *The New York Times*, referring to lead author Ramón Estruch, professor of medicine at the University of Barcelona. (Estruch, along with several other PREDIMED authors, reported ties to a variety of alcohol, food, and drug companies.)

But the study itself concluded that "extra-virgin olive oil and nuts were probably responsible for most of the observed benefits," notes Wing, who directs the Weight Control & Diabetes Research Center at The Miriam Hospital in Providence.

"Oil and nuts. That's where the action was," says Appel, who wrote an editorial that accompanied the PREDIMED report in the *New England Journal of Medicine*.[2] "A little was related to fish and legumes, but nothing else."

4. You can't eat as much olive oil, nuts, and chocolate as you want and not gain weight.

"I was amazed," said deputy business editor David Gillen to reporter Gina Kolata in a video that *The New York Times* posted on its Web site.

Gillen was surprised that people in the study were told to eat as much olive oil and nuts as they wanted with no worry that they would be "packing on more weight."

The researchers "said that they looked at studies and people who ate all the nuts they wanted and just poured on the olive oil; they didn't gain weight," explained Kolata. "They think it's because these things are so filling. And what they called black chocolate—which I think is dark chocolate at least 50 percent cocoa—all you want."

"Wow! It sounds like a dream diet," replied Gillen. It may, in fact, be a dream.

It's true that the study's two Mediterranean diets didn't limit olive oil, nuts, or dark chocolate and that the Mediterranean groups didn't gain weight. However, the control group—which had no limits on bread, pasta, rice, and potatoes—didn't gain weight either.

"None of the three diets did any harm regarding obesity or weight gain," explained senior author Miguel Angel Martínez-González, who chairs the department of preventive medicine and public health at the University of Navarra Medical School in Spain, in an e-mail.

Why wouldn't unlimited oil or nuts make the participants put on pounds? Clearly, some of them had a tendency to overeat. More than 90 percent were overweight or obese when the study started, and the average waist was nearly 40 inches in both men and women.

"The authors suggested that people who eat oil and nuts are going to feel more full so they eat less of other foods," says Lichtenstein, who is vice chair of the National Heart, Lung, and Blood Institute's Expert Panel on the Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults.

But there's no good evidence that something about nuts and olive oil kept people from overeating. And in the largest and longest weight-loss studies, which lasted one or two years, people on high-fat diets lost no more weight than those on low-fat diets.[3-5]

"I don't know if olive oil would make you feel full," says Appel. His OmniHeart

study pitted a diet high in unsaturated fats—like olive oil—against diets with either more protein or more carbs.

"People didn't report greater satiety on the diet with more unsaturated fat," he notes.

So why didn't the nut and olive oil Mediterranean groups gain weight?

"They had to eat less of something else," says Wing. But not much less. The participants ate *only 120 calories' worth* of extra oil or nuts per day—just one extra tablespoon of oil or an extra sixth of a cup of nuts. And the study's diet data could easily have missed 120 calories less of something else.

In any case, it's risky to assume that you'll compensate for extra calories by eating less of something else.

"If we did a good job at compensating for calories, two-thirds of us wouldn't be overweight or obese," says Lichtenstein.

WHAT THE STUDY MEANS

Despite the confusion over what PREDIMED found, its results are important.

"PREDIMED is a landmark study that should encourage Americans to improve their diets to prevent cardiovascular disease," says Frank Sacks, professor of cardiovascular disease prevention at the Harvard School of Public Health.

But both Sacks and Appel question the researchers' decision to stop the trial early because the two Mediterranean groups were faring better than the control group. "That tends to inflate benefit," says Appel.

In a recent analysis of more than 500 trials, researchers estimated that completed trials that found no benefit would, on average, have found a 29 percent lower risk of an outcome (like heart attacks) if the trials had been stopped early.[6] That's because what looks like a benefit could be just a random fluctuation.

"I would have preferred that they hadn't stopped the trial early unless there was a safety issue," says Sacks. "When you pull the plug because of too much benefit, trials sometimes get a distorted result."

But PREDIMED's results still matter.

"I do think the benefit is real, but I don't know if the reduction in risk is 30 percent," says Appel. "It's impressive that the reduction is related to diet, so I find it intriguing. But the message is not totally clear."

Another uncertainty: *How* did the olive oil and nuts lower cardiovascular risk?

It's too early to know, because the paper didn't include changes in the participants' blood pressure, cholesterol, triglycerides, blood sugar, or other measurements.

"We are now finishing these manuscripts, and expect to have them published in approximately one year," wrote Martínez-González in an e-mail.

Until then, experts have to speculate.

"The effects occurred very early in the study," notes Appel. "If they were due to less atherosclerosis—thickening of the arteries—that would take years. Here something happened relatively quickly."

He points to a preliminary 2006 report on 772 PREDIMED participants after they were in the study for just three months.[7]

"It looks like the two Mediterranean groups got a substantial blood pressure reduction," says Appel. Their systolic pressure (the higher number) was 7 to 8 points lower than the control group's.

What's more, the final PREDIMED study found a 30 percent lower risk in cardiovascular events—heart attacks, strokes, and cardiovascular deaths combined. But when the researchers delved deeper, only strokes were significantly lower.

"If you look at the blood pressure reductions in the 2006 paper and the stroke reductions in the latest report, I'd say it's a blood pressure effect that's driving the benefit," says Appel. "I can't prove it, but that's how it looks."

Beyond PREDIMED

The bigger question—which PREDIMED alone can't answer—is whether a Mediterranean diet would reduce the risk of heart disease and stroke compared to a typical American diet. Odds are, it would. The evidence:

■ **Observational studies.** "There were great

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What a Mediterranean Diet *Is*

Here's a sampling of dishes that play key roles in a Mediterranean diet, as defined by researchers. (Whether the diet matches what people in the region eat now—or ever ate—is another story.)

This salad gets unsaturated fat from nuts, avocado, and dressing. Typical U.S. restaurant salads have more saturated fat from meat and/or cheese.

This pasta primavera is short on pasta and long on vegetables and salmon. Cutting back on pasta leaves more room for the calories in the oil-based sauce. (Whole-grain pasta would be even healthier.)

Making salad a main dish means more veggies and less bread. This salad includes garbanzo beans, tuna, and dressing made with oil.

Mediterranean Diet Checklist

What researchers call a Mediterranean diet may not match what people in the region typically eat, or what they typically ate. The people of Crete—whose low rates of heart disease in the 1940s were documented in the landmark Seven Countries study—got nearly 40 percent of their calories from bread, pasta, and other "cereals" and 30 percent from oils, leaving little room for fish, vegetables, fruit, or much of anything else.[1]

However, when studies report that people who eat a "Mediterranean diet" have a lower risk of disease, here's how they typically define the diet.[2]

- ☑ High in beans
- ☑ High in whole grains
- ☑ High in fruit
- ☑ High in vegetables
- ☑ High in fish
- ☑ High in nuts
- ☑ Low in red and processed meats
- ☑ Far less saturated than monounsaturated fat (which is found in foods like olive and canola oils)
- ☑ Moderate in alcohol

Note: While Mediterranean diet checklists often look for monounsaturated fat, the polyunsaturated fats in nuts and fish should also protect arteries.

[1] *Am. J. Clin. Nutr. 61 (suppl)*: 1313S, 1995.
[2] *Am. J. Clin. Nutr. 92*: 1189, 2010.

Photo: © mariocigic/fotolia.com.

observational data that a Mediterranean diet was healthy before PREDIMED," says Appel.

Granted, those studies—which observed a lower risk of disease in people who typically ate what researchers call a Mediterranean diet—can't prove cause and effect.[8]

And the studies may have exaggerated the benefit by the way they defined a Mediterranean diet (see "Mediterranean Diet Checklist").

"It seems that scientists project whatever they think is good about a diet to the Mediterranean diet," says Lichtenstein.

"It's amazing how many people have told me that the Mediterranean diet is high in whole grains. I don't know where those whole grains are coming from. If you're eating paella, that's certainly white rice. And what bread or pasta in the Mediterranean region is whole grain?"

Indeed, all three PREDIMED groups averaged just one ounce of whole grains and six ounces of "refined grains and potatoes" a day.

The same goes for nuts. "Besides baklava, I'm not sure which Mediterranean dishes are rich in nuts," notes Lichtenstein. The PREDIMED participants averaged just one-twelfth of a cup of nuts—that's five walnut halves or nine almonds—a day when they entered the study.

That's about how much the average American eats, though it's mostly peanuts. "And the majority are coated with salt," says Lichtenstein.

But regardless of what the residents of Mediterranean countries eat, what scientists *call* a Mediterranean diet is healthy.

■ **Feeding studies.** "A Mediterranean diet is close to a DASH-style or OmniHeart-style diet," notes Appel.

The DASH and OmniHeart studies fed people with high blood pressure or pre-hypertension diets that were rich in fruits and vegetables and low in sweets, red meat, butter, and other saturated fats.[9,10] (See "A Healthy Mediterranean Diet.")

In the OmniHeart study, which tested three diets on blood pressure, cholesterol, and triglycerides, the one that was high in unsaturated fat (a third of it from olive oil) was one of the best at lowering blood pressure and triglycerides.

But more unsaturated fat means less of something else. "You've got to cut back on some source of calories," says Appel. "Sugars and saturated fat are a great start."

And most Americans eat more bread, pasta, rice, cereal, potatoes, muffins, and doughnuts than did people in the OmniHeart study.

"You have to cut back on carbs, or a diet high in unsaturated fat just doesn't work," notes Sacks. He and Appel coauthored both DASH and OmniHeart.

Does the unsaturated fat have to be *extra-virgin* olive oil? It's not clear.

In PREDIMED, "people who ate extra extra-virgin olive oil had the same reduced risk as those who ate extra nuts," notes Lichtenstein. "That suggests that extra-virgin olive oil may not be all that unique."

Until we have more data to settle that and other issues, the good news is that PREDIMED's results fit with current advice for a healthy diet.

"The evidence supports eating more fruits, vegetables, legumes, and nuts, and less saturated fat, just like the Mediterranean diet," says Appel. "So we're back to the same message we've been saying for a long time."

[1] *N. Engl. J. Med. 368*: 1279, 2013.
[2] *N. Engl. J. Med. 368*: 1353, 2013.
[3] *N. Engl. J. Med. 360*: 859, 2009.
[4] *JAMA 293*: 43, 2005.
[5] *Ann. Intern. Med. 153*: 147, 2010.
[6] *JAMA 303*: 1180, 2010.
[7] *Ann. Intern. Med. 145*: 1, 2006.
[8] *Am. J. Clin. Nutr. 92*: 1189, 2010.
[9] *N. Engl. J. Med. 336*: 1117, 1997.
[10] *JAMA 294*: 2455, 2005.

The Bottom Line

- The PREDIMED study found a lower risk of cardiovascular events (mostly strokes) in high-risk people who ate an extra 120 calories' worth of extra-virgin olive oil or nuts every day than in those who didn't eat extra oil or nuts.
- It's too early to know *how* oil or nuts lowered risk or if the results apply to people who aren't at high risk.
- In other studies, people who ate what researchers call a Mediterranean diet had a lower risk of heart disease and stroke.
- Don't eat more of anything without eating less of something else.

A Healthy Mediterranean Diet

Looking for a healthy Mediterranean diet? Try the OmniHeart "Unsaturated Fat" diet (see middle column). It's close to what people in PREDIMED were eating when they entered the study (as far as we can tell, since PREDIMED reported only "key foods"). Not much changed during the study, except that one PREDIMED group ate extra nuts and another ate extra olive oil (see the "NUTS" and "OLIVE OIL" rows). Want more fish or grains or some other food? Add a serving, and drop a tablespoon of OmniHeart's oil. Think of oil as a "wild card" (see *Nutrition Action*, October 2009, p. 1).

FOOD	OMNIHEART *(2,100 calories)*	PREDIMED *(2,200 calories)**
VEGETABLES **1 serving is:** ½ cup cooked vegetables ½ cup raw vegetables 1 cup salad greens	*6 servings a day* 	*4 servings a day* OmniHeart's 6 servings aren't that much. A main dish (4-cup) salad for lunch is 4 servings.
FRUIT **1 serving is:** 1 piece fruit ½ cup fresh fruit ¼ cup dried fruit	*5 servings a day* 	*3½ servings a day* Both studies counted juice as fruit, but you're better off with fresh fruit.
GRAINS **1 serving is:** 1 slice bread ½ cup cereal, pasta, or rice	*4 servings a day* 	*7 servings a day* 6 of the 7 servings were refined grain or potatoes. (Note that the half-cup servings are tiny.)
MEAT & POULTRY **1 serving is:** 4 oz. cooked	*3 oz. a day* 	*4½ oz. a day* The study didn't say how much poultry vs. red meat people ate.
FISH & SEAFOOD **1 serving is:** 4 oz. cooked	*1 oz. a day* 	*3½ oz. a day* The OIL and NUT groups ate an extra 1/10 oz. (roughly a forkful of fish) a day.
LOW-FAT DAIRY **1 serving is:** 1 cup milk or yogurt 1½ oz. cheese	*2 servings a day* 	*2 servings a day* Like OmniHeart, PREDIMED recommended low-fat milk and yogurt instead of full-fat cheese.
DESSERTS & SWEETS **1 serving is:** 1 small cookie 1 tsp. sugar	*2 servings a day* 	*1⅓ servings a day* These are tiny servings. PREDIMED didn't say how much added sugar came from other foods or drinks.
LEGUMES **1 serving is:** ½ cup cooked beans	*⅓ serving a day* 	*⅓ serving a day* The OIL and NUT groups ate an extra 1/10 oz. (roughly a half-dozen beans) a day.
NUTS **1 serving is:** ¼ cup nuts	*1 serving a day* 	*1 serving a day* All PREDIMED groups started the study eating 1/12 cup of nuts a day. The NUT group ended up eating ¼ cup.
OLIVE OIL **1 serving is:** 1 Tbs. oil	*2 servings a day* 	*4 servings a day* All PREDIMED groups started the study eating 3 Tbs. of olive oil a day (half was extra-virgin). The OIL group ended up eating 4 Tbs. (all of it extra-virgin).
OTHER OILS **1 serving is:** 1 Tbs. oil 1 Tbs. margarine or mayo	*2 servings a day* 	*? servings a day* PREDIMED reported only olive oil.

* We converted approximate PREDIMED servings to approximate OmniHeart servings. Sources: *J. Am. Diet. Assoc.* 108: 257, 2008. *N. Engl. J. Med.* 368: 1279, 2013.

Get Off Your Duff

Leave the chair behind.

Sitting for hours on end can hurt more than your back end, say two new studies.

■ British researchers tracked 153 younger and 725 older adults who all had risk factors for diabetes. Each participant wore an accelerometer to measure how much time he or she spent sedentary or engaged in moderate-to-vigorous exercise (like running or brisk walking) for at least a week.

People who were sedentary for roughly 12 hours a day had higher blood sugar levels than those who were sedentary for around 9 hours. Doing less exercise and being overweight also raised the risk of higher blood sugar, but among people with equal levels of exercise or excess weight, those who sat the longest had a higher risk.

■ Among more than 63,000 men aged 45 to 64 who were studied by Australian scientists, those who reported sitting for 6 or 7 hours a day were 15 percent more likely to have diabetes than those who said that they sat for less than 4 hours a day. Men who sat for at least 8 hours a day were 20 percent more likely to have diabetes.

What to do: Get out of that chair whenever possible, even if it's only for a few minutes at a time. Try standing at your desk, during meetings, or during other activities where it's feasible. Walk to the bus or train (or your destination!) to minimize your time behind the wheel. Don't spend all your leisure time *sitting* in front of a TV, computer, or movie screen. And don't forget aerobic exercise (like brisk walking) and strength training.

Diabetologia 2013. doi:10.1007/s00125-013-2845-9. *Int. J. Behav. Nutr. Phys. Act.* 2013. doi:10.1186/1479-5868-10-20.

Vitamin D & Blood Pressure

A new study suggests that taking vitamin D may lower blood pressure in African-Americans, who have higher rates of high blood pressure and lower blood levels of vitamin D than Caucasians.

Researchers randomly assigned 283 black men and women in Boston to take either a daily placebo or 1,000 IU, 2,000 IU, or 4,000 IU of vitamin D during two winters between 2008 and 2010.

After three months, systolic blood pressure (the higher number) dropped by 1.4 points for every 1,000 IU of vitamin D the participants took. What's more, pressure fell the most in those whose vitamin D blood levels increased the most.

What to do: This study doesn't prove that vitamin D lowers blood pressure in African-Americans. Even though the volunteers were randomly assigned to their groups (to try to eliminate any differences between the groups when the study began), those who got the highest dose of vitamin D happened to have the highest blood pressures when they entered the study. That could mean that vitamin D didn't actually help.

No matter what your race, until more studies are done, aim for the recommended levels of vitamin D: 600 IU a day up to age 70 and 800 IU a day over 70. Taking vitamin D is more critical in the winter, when your body makes little or no vitamin D from sunshine (unless you live at or south of the latitude of Los Angeles or Atlanta).

Hypertension 61: 779, 2013.

Belly Fat & Bone

Overweight women have stronger bones, according to the conventional wisdom. But a new study suggests that that's wrong.

Scientists looked at 40 healthy Caucasian premenopausal women aged 18 to 48. Half of them were normal weight and half were overweight or obese. The researchers took bone scans and biopsies and measured the women's "trunk" fat. That's the percent of the torso that's composed of fat tissue (rather than lean tissue, which includes muscle, bone, organs, etc.). Trunk fat is a good indicator of belly fat.

The women with the most trunk fat (average weight: 178 pounds) had poorer bone quality than those with the least trunk fat (average weight: 134 pounds). That is, their bones were more porous and less stiff. And the rate at which they formed new bone was 64 percent lower.

What to do: This study can't prove that belly fat causes weaker bones. Among the reasons: it's possible that the normal-weight women had stronger bones because they did more exercise. Nevertheless, avoiding weaker bones may be one more reason—along with reducing your risk of diabetes and heart disease—to minimize excess belly fat.

J. Clin. Endocrin. Metab. 2013. doi:10.1210/jc.2013-1047.

Bye Bye GERDie?

Being overweight raises the risk of gastroesophageal reflux disease (GERD). Losing weight can make acid reflux disappear.

Researchers assigned 332 overweight or obese adults—a third of them had GERD—to a weight-loss program that included advice to cut calories (to 1,200 to 1,500 a day) and to walk or do other exercise for from 15 minutes a day (at first) to 60 minutes a day (by week 12), five days a week.

After six months, the average participant had lost 29 pounds and four inches off his or her waist. And symptoms completely disappeared in 65 percent—and partially disappeared in 15 percent—of those who initially had GERD.

What to do: This study had no control group, so it's possible that just being in a study ended or curbed the GERD. Nevertheless, you can't lose by losing excess weight.

Obesity 21: 284, 2013.

Antibiotic Resistance

Wasting a precious life saver

BY DAVID SCHARDT

The Director-General of the World Health Organization was blunt. The world is facing "an end to modern medicine as we know it," Margaret Chan warned last year. Strep throats could once again kill people, and hip replacements, organ transplants, and cancer chemotherapy "would become far more difficult or even too dangerous to undertake."

That's because we're losing our first-line antimicrobial drugs to antibiotic resistance, Chan noted. As for new antibiotics to replace them, Chan wasn't optimistic: "The pipeline is virtually dry. The cupboard is nearly bare."

HAPPY HALLOWEEN

On the evening before Halloween in 2011, Danielle Wadsworth, a healthy 31-year-old insurance agent, shared a dinner of beef tacos with friends at her home in Lewiston, Maine.

"Then, seemingly out of nowhere, I started feeling like I had the flu," she told the Web site keepantibioticsworking.com. By the next day, "I just wanted to be left alone."

But Wadsworth got worse. When her persistent bloody diarrhea wouldn't stop, she went to the emergency room, where intravenous fluids brought temporary relief. But when the bloody diarrhea returned, she ended up back in the hospital.

Danielle Wadsworth: "I love life, but was beginning to wonder if fighting was worth it."

For the next four days, as she suffered intense pain and alternating pangs of hunger and thirst, Wadsworth was treated with morphine every few hours while her doctors tried to figure out what was wrong.

"I love life, but was beginning to wonder if fighting was worth it," she recalled. "It never crossed my mind that it could be something I'd eaten."

Nor did that occur to the hospital staff until the stool cultures came back positive for *Salmonella typhimurium*, one of the leading causes of food poisoning in the United States.

Wadsworth was one of 20 known victims infected with a new strain of *S. typhimurium*, one that was resistant to at least eight antibiotics, including streptomycin and tetracycline. The Centers for Disease Control and Prevention (CDC) eventually traced the resistant *S. typhimurium* to contaminated ground beef sold by a supermarket chain, but the CDC couldn't identify the meat supplier because the chain hadn't kept good records.

Fortunately, the bug was still susceptible to the antibiotic ciprofloxacin. Cipro helped cure Wadsworth's infection, but it couldn't heal the anxiety that she says she still feels about what can happen from eating tainted food.

Or what could happen to her loved ones. "I am the legal guardian for my grandfather. Considering that I cook for him, I hate to even think about the outcome had he eaten the same meat that made me sick."

BUGS GALORE

The seven-state outbreak that sickened Danielle Wadsworth was one of 55 food poisoning outbreaks since 1973 that were caused by antibiotic-resistant bacteria, according to a new report by the Center for Science in the Public Interest (publisher of *Nutrition Action Healthletter*).[1]

More than two-thirds of the bacteria fingered in those outbreaks were resistant to antibiotics that the World Health Organization considers "critically important" for treating humans or that the Food and Drug Administration (FDA) regards as "highly important."

Of the 55 outbreaks, 14 involved dairy foods (usually raw milk or raw-milk cheese), while 10 came from ground beef, 7 from poultry, 4 from produce, 2 from seafood, 1 each from pork and eggs, and 3 from multiple ingredients. (In 13 of the outbreaks, no specific food could be identified.) Antibiotic-resistant *Salmonella typhimurium*, the bug that made Danielle Wadsworth so sick, was the bacterium found most often.

COURSE OF *MOST* RESISTANCE

"There's this huge population of antibiotic resistance genes in bacteria in nature and nobody quite knows why they're there," says microbiologist Julian Davies of the University of British Columbia in Vancouver. "You can even find them in caves where no human has ever been."

"What we do know," explains Lance Price, an environmental health scientist at George Washington University in Washington, D.C., "is that when you use antibiotics, it's very clear and undisputable that you promote the development of drug-resistant bacteria. It's one of the strongest evolutionary forces in nature."

Handle with Care

If you cook meat, poultry, and fish thoroughly, you'll kill any harmful bacteria they may contain. Beyond that, here's some good advice about how to help prevent the spread of antibiotic-resistant bacteria:

- **Don't expect antibiotics to treat** colds, flu, most coughs, bronchitis, sore throats not caused by strep, or runny noses. They're caused by viruses, which antibiotics don't kill.
- **Don't stop taking prescribed antibiotics** early because you start feeling better.
- **Alcohol-based hand sanitizers** like Purell don't increase antibiotic resistance. The jury is still out on whether antibacterial soaps and dish detergents that contain triclosan do.

Sources: CDC, CSPI.

Illustration: Jorge Bach/CSPI. Photo: John Ewing/*Portland Press Herald*.

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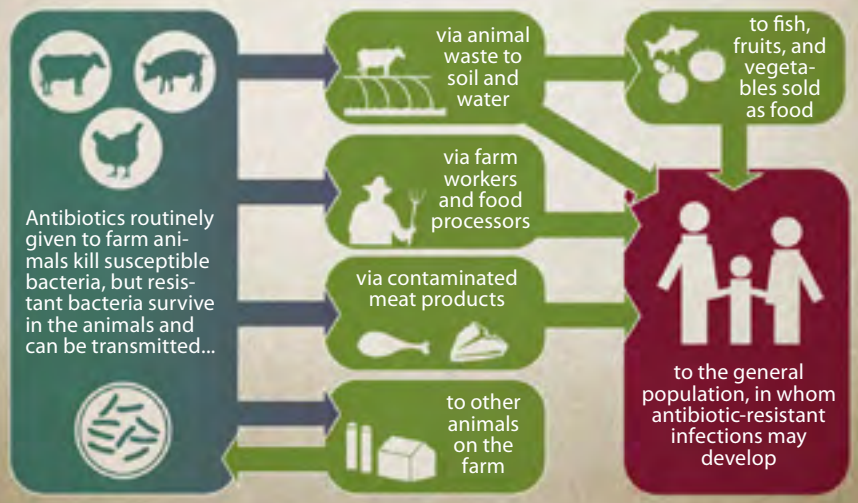
Simply Irresistible

When antibiotics are routinely given to animals to speed up their growth, there are many ways for the antibiotic-resistant bacteria that survive to spread through the environment and end up in humans.



Source: Natural Resources Defense Council.

Antibiotics stop bacteria by killing them or halting their growth. Resistant bacteria have genes that enable them to survive certain antibiotics by neutralizing the drugs, by pumping the drugs out of their cells, or by altering the cell structure that the antibiotic attacks so that it's no longer vulnerable.

To make matters worse, bacteria can swap their resistance genes with each other, so that the instructions for resistance are passed on to other bacteria that have yet to be exposed to the antibiotic.

Every time an antibiotic is used, susceptible bacteria are killed, paving the way for resistant bugs to grow and multiply.

The consequences can be deadly.

"People sickened by antibiotic-resistant bacteria are more likely to have longer and more expensive hospital stays, and may be more likely to die as a result of the infection," Price notes. And these aren't obscure bacteria, he adds. "They're the same kind of *E. coli*, for instance, that cause urinary tract infections and sepsis, or blood infections."

When the first-choice antibiotics are useless, physicians have to resort to drugs that may be less effective, more toxic, and more expensive, according to the CDC.

Unfortunately, much of the damage to the effectiveness of antibiotics has already occurred.

"There's no doubt that antibiotic resistance is now widespread throughout the world," says Davies.

A major cause: the chronic misuse of antibiotics in hospitals, physicians' offices, and homes. Some doctors, for example, still prescribe—and some patients still demand—antibiotics to treat colds or the flu, even though both are caused by viruses, not bacteria. (Antibiotics don't attack viruses.)

"Humans are to blame in large part for creating this huge problem," says George Zhanel, a microbiologist at the University of Manitoba and director of the Canadian Antimicrobial Resistance Alliance.

But reducing the inappropriate use of antibiotics in human medicine alone won't be enough, concluded a 2003 report from the National Academy of Sciences.[2] "Substantial efforts must be made to decrease inappropriate overuse of antimicrobials in animals and agriculture as well."

That's because three-quarters of the antibiotics that are used in the United States are given to animals, not people.

ANTIBIOTICS TO GROW ON

Most meat and poultry farms rely on antibiotics to treat sick animals and to prevent healthy animals from becoming sick. Modern facilities crowd many animals together, which makes it easier for disease to spread throughout the herds or flocks. (Antibiotics are also widely used in fish farming.)

"The antibiotics approved by the FDA for use in animals represent nearly every class of antibiotic important for treating humans," says Price.

Much of the antibiotics that are given to animals, however, are not to treat or prevent disease, but to stimulate growth.

In the 1950s, scientists discovered that animals fed small, "sub-therapeutic" doses of antibiotics grew more quickly on the same amount of food. And farmers need no prescription for those low doses.

"It's a big economic advantage because the animals are larger and healthier, and their time to slaughter is shorter," explains Zhanel. "The drawback is that this use of antibiotics selects out antibiotic-resistant bacteria for survival."

For example, fluoroquinolone antibiotics (which include the Cipro that helped Danielle Wadsworth) can kill a wide range of disease-causing bacteria. After the FDA approved their use in poultry in 1995, resistance to fluoroquinolones among *Campylobacter* bacteria on chickens tested at slaughter houses and supermarkets rose so sharply that in 2000, the FDA reversed its decision and tried to ban the use of fluoroquinolones in poultry. (The ban was delayed for five years while Bayer, which manufactures fluoroquinolones, fought it unsuccessfully in court.)

RESISTANT BACTERIA SPREAD

Antibiotic-resistant bacteria usually reside in an animal's intestines and are excreted in its waste. From there, they can be spread by polluted water, farm workers, the wind, birds, and even flies.

In North Carolina, for example, swine waste is commonly stored in open pits before being sprayed onto nearby fields. "Many of these waste pits are located in flood plains and can overflow, while the fields sprayed with waste can contaminate groundwater," says epidemiologist Steve Wing of the University of North Carolina.

"This clearly is a potential source for human exposure to antibiotic-resistant bacteria."

BUGS ON FOOD

Some antibiotic-resistant bacteria wind up on the meat and poultry in the refrigerator case at the supermarket.

"Our food supply is tainted with disease-causing bacteria that are often resistant to many different antibiotics," says George Washington University's Lance Price, who serves on a U.S. Department of Agriculture advisory panel on food safety.

The National Antimicrobial Resistance Monitoring System (NARMS), which consists of the FDA, the CDC, and about a dozen state public-health laboratories, buys chicken, ground turkey, ground beef, and pork chops at retail stores nationwide every year and tests them for antibiotic-resistant bacteria. It has no trouble finding them.

In 2011, the latest year available, NARMS detected *Salmonella* in 12 percent of the chicken samples that it tested. About three-quarters of the bugs were resistant to at least one antibiotic, and more than a quarter were resistant to at least five classes of antibiotics. That's eight times the level of multiple resistance found in 2002.[3]

Salmonella also turned up in 12 percent of the ground turkey samples. About three-quarters of the bacteria were resistant to at least one antibiotic, and 19 percent—double the percentage found in 2002—were resistant to at least five classes of antibiotics.

E. coli was detected in two-thirds of the beef and around 40 percent of the pork samples. Roughly half of the *E. coli* on pork and a fifth of the *E. coli* on beef were resistant to at least one antibiotic. About 1 percent of the *E. coli* on each meat was resistant to at least five classes of antibiotics. For beef, that's triple the percentage found in 2002, and for pork, it's one-third the level.

"The evidence is unequivocal that drug-resistant pathogens have contaminated meat and other animal foods and infected people with drug-resistant infections," says Price. "What we don't know is the full extent of it."

ENDING DRUG ABUSE

How practical would it be to end the routine use of antibiotics to promote growth in animals that are raised for food? Very practical, says Price, because it's already been done.

In the late 1990s, Denmark, the world's largest exporter of pork, banned the use of antibiotics on farms except to treat sick animals.

"Nothing bad happened as a result," Price notes. Ending the use of antibiotics for growth promotion caused no sustained harm to animal survival, production rates, or feed efficiency, a World Health Organization expert panel found.[4]

"And these are industrial farms," adds Price. "They're cleaner, the density of animals is lower, and the quality of life is a little better than in the U.S., but these are still highly efficient industrial farms."

Most importantly, ending the routine use of antibiotics helped slash rates of resistance.

According to the Danish Veterinary and Food Administration, the percentage of *Campylobacter* bacteria in pigs that was resistant to antibiotics like erythromycin dropped from 80 percent before the ban to less than 20 percent. And the percentage of vancomycin-resistant *E. coli* in broiler chickens plummeted from 75 percent to less than 5 percent.[5]

The ban also led to a decline in resistant bacteria isolated from the intestines of healthy Danes.

WHAT TO DO

How can you lower your odds of getting food poisoning from resistant bacteria?

It may help to buy meat or poultry that comes from animals that were never given antibiotics (see "How to Decode the Claims"). According to a 2012 Stanford University meta-analysis, conventionally produced chicken and pork were 33 percent more likely than organic chicken and pork to be contaminated with bacteria that were resistant to at least three antibiotics.[6]

But that won't guarantee that you—or your child or parent—won't get a bout of antibiotic-resistant food poisoning like the one that hit Danielle Wadsworth.

"As a society, we have to say that antibiotics are too valuable for treating sick people and that we cannot afford to squander them as production tools for raising animals," says Price.

"We're talking about the future of medicine. We don't have new drugs coming up through the pipeline. And even if we did, if we abuse them the same way, they're going to be useless again very quickly."

How to Decode the Claims

Want to find meat and poultry grown without antibiotics? It's tricky.

➤ What these terms on food labels mean:

Antibiotic free: Term not permitted by the U.S. Department of Agriculture because *all* foods should be free of antibiotic residues.

No antibiotics administered or **Raised without antibiotics**: Animal never received antibiotics. Not independently verified, so claim depends on the honesty of the company making it.

USDA Certified Organic or **American Grassfed Certified**: Use of antibiotics prohibited. Verified by independent audits.

Certified Humane or **Animal Welfare Approved**: Antibiotics permitted only to treat sick animals. Verified by independent audits.

➤ Companies that told us that they use or sell meat from animals that were *never* treated with antibiotics:

Supermarkets: Whole Foods

Restaurants: Chipotle Mexican Grill

Brands: Applegate, Bell & Evans, Coleman Natural Foods, Murray's Chicken, Niman Ranch, Heritage Acres, Laura's Lean Beef, Harvestland

➤ Companies that told us that they use or sell meat from animals that were treated with antibiotics *only* if they were sick:

Restaurants: Burger King, In-N-Out Burger, Panera (only items marked on the menu)

Brands: Perdue

To find stores, farmers' markets, farms, and restaurants near you that sell meat and poultry raised without the routine use of antibiotics, go to realtimefarms.com/fixantibiotics. The information is "crowd sourced," which means that anyone can add to it. So be sure to verify with the company before you buy.

Sources: 2012 survey by Rep. Louise Slaughter of New York, companies.

Photo: Stephen Schmidt/CSPI.

1 www.cspinet.org/foodsafety.
2 www.nap.edu/openbook.php?isbn=030908864X.
3 www.fda.gov/AnimalVeterinary/SafetyHealth/AntimicrobialResistance/NationalAntimicrobialResistanceMonitoringSystem/ucm334828.htm.
4 www.who.int/gfn/en/Expertsreportgrowthpromoterdenmark.pdf.
5 democrats.energycommerce.house.gov/index.php?q=hearing/hearing-on-antibiotic-resistance-and-the-use-of-antibiotics-in-animal-agriculture-subcommitt.
6 *Ann. Intern. Med.* 157: 348, 2012.

GO FISH

BY KATE SHERWOOD

If you're a seafood fan, give the planet a break by sticking with species that are sustainably caught or raised. Look for the blue Marine Stewardship Council label when you shop (or check www.msc.org). Or consult the Monterey Bay Aquarium database (www.seafoodwatch.org).

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

Tuna with Avocado-Parsley-Lemon Salsa

Serves: 4 | **Total Time:** 15 minutes

- 2 Tbs. lemon juice
- 1 Tbs. capers
- 1 clove garlic, optional
- ½ cup flat-leaf parsley leaves
- 2 Tbs. extra-virgin olive oil
- ¼ tsp. kosher salt
- 1 avocado, diced
- 1 lb. tuna steak, ¾-inch thick
- 1 tsp. coarsely ground black pepper

Tuna is meaty but lean, so we paired it with a bold, rich sauce. No grill? You can sauté the fish instead.

Make the salsa: Blend 1 Tbs. of water with the lemon juice, capers, garlic, parsley, oil, and salt in a small food processor or blender until a sauce forms. In a bowl, toss the sauce with the avocado. • Season the tuna with the pepper and grill on a clean, oiled grate over medium-high heat until marked, about 2 minutes. Lift and pivot the tuna 90 degrees and grill for another 2 minutes on the same side. Turn the fish over and cook to desired temperature, another 3-5 minutes for medium. Serve with the salsa.

Per serving: calories 270 | sodium 240 mg | total fat 15 g
sat fat 2.5 g | carbs 6 g | protein 29 g | fiber 4 g

Salmon Cakes

Serves: 4 | **Total Time:** 20 minutes

- 1 lb. skinless salmon filet (or 1 14.75 oz. can no-salt-added salmon, drained)
- ½ cup diced red onion
- 2 Tbs. lemon juice
- 10 oz. frozen chopped spinach, thawed
- ¼ cup low-fat sour cream
- 2 Tbs. dijon mustard
- ½ cup whole wheat bread crumbs
- 2 Tbs. canola oil

The recipe for the dill-yogurt sauce in the picture is on this month's back cover.

Cut the salmon into 1-inch pieces. Pulse in a food processor until minced. • In a large bowl, mix the onion, lemon juice, spinach, sour cream, mustard, and bread crumbs. Add the salmon and mix to combine. Form into 3-inch cakes that are ½-inch thick. • In a large non-stick sauté pan, heat 1 Tbs. of the oil over medium heat. Sauté half the cakes until lightly browned, 1-2 minutes per side. Heat the remaining 1 Tbs. of oil and sauté the remaining cakes.

Per serving: calories 330 | sodium 370 mg | total fat 15 g
sat fat 2 g | carbs 20 g | protein 29 g | fiber 5 g

Sweet & Sour Sesame Tilapia

Serves: 4 | **Total Time:** 15 minutes

Photos: Stephen Schmidt/CSPI.

- 1 cup apple juice
- 2 Tbs. reduced-sodium soy sauce
- 2 Tbs. balsamic vinegar
- ½ tsp. cornstarch
- 1 tsp. toasted sesame oil
- 4 Tbs. sesame seeds
- 4 small tilapia filets
- 2 Tbs. canola oil

Almost any white fish will work. But remember: overcooked fish will be dry no matter what type you're using.

Make the sauce: In a small pot, boil the apple juice until reduced by half. In a small bowl, mix the soy sauce, vinegar, and cornstarch, then stir into the apple juice. Simmer until thickened, about 1 minute. Whisk in the sesame oil. • Gently press 1 Tbs. of sesame seeds onto one side of each filet. Heat the oil in a large non-stick sauté pan over medium heat. When the oil is hot enough so the tilapia sizzles when it goes into the pan, sauté the fish, seed-side down, until the seeds are golden, about 2 minutes. Turn and sauté until the tilapia flakes easily, 1-3 minutes. • Pour the sauce over the fish.

Per serving: calories 310 | sodium 350 mg | total fat 16 g
sat fat 2.5 g | carbs 10 g | protein 31 g | fiber 1 g

Coffee Quake

EXPLOSION IN THE JAVA AISLE

BY JAYNE HURLEY & BONNIE LIEBMAN

In 2012, two out of three adults drank coffee daily. That's one reason why the creamer aisle is hot. From caramel macchiato, crème brûlée, and white chocolate caramel latte to Almond Joy, Cinnabon, and Hershey's, it's no longer just a question of "Cream or sugar?"

And it's not just creamer. Starbucks, Silk, International Delight, and others now sell ready-to-drink coffee in bottles, cartons, or cans. It's a whole new Joe out there.

Here's a quick cruise through the creamer and coffee aisles.

Information compiled by Emily Caras and Paige Einstein.

One teaspoon? It won't be as creamy as the label.

One Teenyspoon?

Every day, millions of Americans pick up a canister of Nestlé Original Fat Free Coffee-mate and pour it into their coffee. Why hold back? It's fat free and has a mere 10 calories per serving.

The catch: it's only "fat free" (that means it has less than 0.5 grams of fat per serving, according to labeling rules) if you use *one non-heaping teaspoon*. But that won't get you the oh-so-creamy cup of coffee that's on the label, even if your cup holds just 8 ounces of coffee (that's a "short" at Starbucks).

If you pour, say, 6 teaspoons—2 tablespoons—into your 16 oz. mug, you're up to 50 calories and 1.5 grams of fat, 1.4 of them saturated. That's because Coffee-mate is mostly corn syrup and partially hydrogenated coconut or palm kernel or hydrogenated soybean oil. But you'd never know that, because if you multiply the "0 grams" of fat or sat fat on the label by 6, you get zero. (We only know the numbers because we sent a sample to a lab to have it analyzed.)

Instead of the label's ridiculous one-*teaspoon* serving, our chart (p. 15) uses the still-modest one-*tablespoon* serving you'll see on liquid creamers.

Warning: the worst powdered creamers, like unflavored N'Joy, still use partially hydrogenated soybean oil. The label says "0 grams" of fat, but we estimate that every tablespoon has about 1 gram of trans fat. That's half the absolute max you should eat in a day. (In contrast, Coffee-mate uses oils that are so saturated that partially hydrogenating them adds very little trans.) Not much to N'Joy there.

Only 10 calories...and low in saturated fat.

Creamer vs. Creamer

Creamer, creamer, on the wall, who's the healthiest of them all?

■ **Real dairy.** Try Land O'Lakes (or any other brand of) Fat-Free Half and Half. It's mostly skim milk and cream, so it's about equal to 2% milk. Whole Foods 365 Organic Original Coffee Creamer, a mix of skim milk and soybean oil, is also a good bet.

We gave no Best Bites to flavored creamers because all have more than 15 calories per tablespoon. (The calorie limit eliminates creamers with more than a trivial amount of added sugar.) But if you use them, Nestlé Coffee-mate Low Fat Natural Bliss is the best of the bunch. It's got just 20 calories per tablespoon. Baileys Fat Free, with 25 calories, is a close second. Others range from 35 to 40 calories—double what you'd get in half and half. And 1 tablespoon may not be enough for a 16 oz. coffee (a "grande" at Starbucks).

■ **Soy or coconut milk.** Many people assume that soy creamers are heart-healthy. Not necessarily. Silk creamers, for example, have enough palm oil to deliver an estimated 0.5 grams of saturated fat per tablespoon (though the labels show the sat fat as "0 grams"). Organic Valley and Trader Joe's soy creamers use healthier oils like canola.

So Delicious Coconut Milk Creamer is the new kid on the block. The tasty Original (unflavored) variety gets a Best Bite because each tablespoon has just 10 calories and 0.2 grams of sat fat. (Surprised? Tablespoon for tablespoon, a coconut *milk* creamer has roughly one-tenth the saturated fat of a coconut *oil* creamer.)

■ **Sugar & oil creamers.** That's what International Delight and Nestlé Coffee-mate liquids should call themselves.

International Delight uses palm oil, so it's got 1 gram of saturated fat per tablespoon (as much as half and half). What's more, the fat-free varieties contain added sugar and the sugar-free varieties contain (possibly harmful) acesulfame potassium.

Coffee-mate's multi-serve liquids are even worse. They're made with partially hydrogenated soybean and/or cottonseed oil. The labels show "0 grams" of trans fat, but based on the samples we sent to a lab for analysis, each tablespoon of the French Vanilla actually contains 0.5 grams of trans (plus 0.3 grams of saturated fat). That's not trivial, when 2 grams is the daily trans fat limit and many people use more than a tablespoon at a time.

> > > > >

Upscale Instant

More sugar than coffee.

Starbucks VIA Ready Brew "will change the way people drink coffee," said Starbucks president and CEO Howard Schultz when the instant coffee was launched in 2009. He got that right.

VIA transformed downscale instant coffee into gourmet, good-as-brewed "microground" coffee. It also spawned a generation of instants with added sugar and/or powdered Coffee-mate-like creamers. (So much for gourmet.)

VIA's flavored packets, for example, add 60 calories and 3 teaspoons of sugar to an 8 oz. cup. VIA Iced Coffee packets sweeten a 16 oz. glass with 100 calories and 5½ teaspoons of added sugar. (The Nutrition Facts are for only half a packet. Oh, please!)

Keurig Café Escapes coffee K-Cups average 60 calories plus 2 grams of saturated fat from the creamer's hydrogenated coconut oil. (How upscale.) At least Keurig uses (safe) sucralose along with its 1½ teaspoons of added sugar.

Hills Bros.' larger (three-tablespoon) serving is worse. It brings 120 calories—mostly from 3½ grams of sat fat and 3 teaspoons of added sugar—to your cup.

Want coffeehouse-style from an instant? Buy a plain one and add a decent creamer (see p. 13) and, if you want some sweetness, a little Splenda or Starbucks Sugar Free Syrup.

Safe & Sweet

Sweetened with (safe) sucralose.

Looking for a little Starbucks flavor at home?

Skip the sugary syrups by Starbucks, Torani, and others, and ignore the sugar-free Enfuse My Flavor Creation Coffee Flavoring and Torani flavors that are sweetened with acesulfame potassium.

Instead, try Starbucks Sugar Free Syrups or Splenda Flavors for Coffee flavor sticks. Both sweeten with (safe) sucralose only.

Hello, Hazelnut!

Drinks or Drugs?

The caffeine of 2½ Starbucks espresso shots.

Most studies show no higher risk of heart problems in people who drink coffee. But last fall, the parents of a 14-year-old Maryland girl sued the makers of Monster Energy drink after she drank two 24 oz. cans with a total of 480 milligrams of caffeine and died of cardiac arrest (see Dec. 2012, p. 7).

That—and a jump in ER visits involving energy drinks since 2005—has raised red flags about high doses of caffeine. Yet labels don't have to disclose how much you're getting.

■ **Starbucks Doubleshot Energy.** The can lists levels of B vitamins, ginseng, guarana, inositol, maltodextrin, and taurine, but not caffeine. (A 15 oz. can has 145 milligrams, according to the Starbucks Web site.) Yet it's only the caffeine—from the coffee and guarana—that makes you feel more energetic.

■ **Blue Sky Café Energy.** The label says "natural energy + coffee," but the "energy" comes from added caffeine as well as the caffeine in the coffee and guarana. The Vanilla Sky can says "100 mg caffeine per serving," but that's for about half a 15 oz. can. Most people will miss that subtlety. Shameful.

■ **Java Monster Coffee + Energy.** "Half the caffeine of regular coffee. Twice the Buzz!" says the label. The caffeine (150 mg in a 15 oz. can) may be half what's in a (caffeine-heavy) 16 oz. grande coffee at Starbucks, but it's more than a McDonald's 16 oz. large coffee (133 mg) and only slightly less than a Dunkin' Donuts 14 oz. medium (178 mg). "Max 1 can every 4 hours, with limit 3 cans per day," says the tiny print. Was that the lawyers' idea?

Ready-to-Drink

Coffee + (Not Much) Milk.

Coffee has virtually no calories. But good luck finding a calorie-free ready-to-drink brew.

■ **Starbucks Iced Coffee.** The Vanilla, Caramel, and Coffee + Milk flavors average 110 calories per (11 oz.) bottle, but it's mostly from added sugar, since they don't have much milk. The Low Calorie Coffee + Milk has just 50 calories. Starbucks uses (possibly harmful) acesulfame potassium to cut most of the sugar. Pity.

■ **Starbucks Frappuccinos.** A small (9.5 oz.) bottle has 200 calories and 5½ teaspoons of added sugar. Its 6 grams of protein come from reduced-fat milk, not quite the 8 grams you'd get in an 8 oz. cup of milk. The Frappuccino Lights cut the calories to 100 by replacing most of their sugar with acesulfame potassium.

It has milk, but also a possibly unsafe sweetener.

■ **International Delight Iced Coffee.** Open the fridge and reach for that carton of...iced coffee? Each cup has 150 calories, most of them from a half cup's worth of skim milk plus four teaspoons of added sugar. The Light versions cut the calories to 100 by replacing some sugar with acesulfame potassium. At least they've got milk instead of the powdered coffee creamer that's added to instant coffee mixes.

■ **Silk Iced Lattés.** Each cup has 100 calories and 4½ teaspoons of added sugar along with coffee and soy milk. But don't expect much protein (2 grams) from the soy.

■ **Illy Issimo.** Coffee, milk, and 3 teaspoons of added sugar come to around 100 calories per (8.45 oz.) can. The Caffè flavor drops to 50 calories by losing the milk and cutting the can size to 6.8 oz. Your best bet: Illy's Caffè No Sugar ("go yet purer!") is just coffee. What a concept!

Nothing but coffee.

Photos: Stephen Schmidt/CSPI (Starbucks Iced Coffee), Emily Caras/CSPI (all others).

Cream of the Crop

Best Bites (✔✔) have no trans fat, no more than 0.2 grams of saturated fat, no more than 15 calories (which means no more than a trivial amount of added sugar), and are free of acesulfame potassium and aspartame. **Honorable Mentions** (✔) can have up to 0.5 grams of sat fat. Items are ranked from least to most trans fat (where listed), then sat fat, then calories, then added sugar. Our numbers may not match labels because we adjusted some unrealistically small serving sizes.

	Dairy Liquid Creamers *(1 Tbs.)*	Calories	Sat Fat (g)	Trans Fat (g)	Added Sugar (tsp.)*
✔✔	Fat-free milk	5	0	0	0
✔✔	1% milk	5	0.1	0	0
✔✔	2% milk	10	0.2	0	0
✔✔	Land O'Lakes Fat-Free Half and Half	10	0.2*	0	0
✔✔	Whole Foods 365 Organic Original	10	0.2*	0	0
	Baileys Fat Free[1]	25	0.2	0	1
	Whole Foods 365 Organic flavored[1]	35	0.2*	0	1
✔	Whole milk	10	0.3	0	0
✔	Land O'Lakes Lowfat Half & Half	15	0.5	0	0
	Coffee-mate Natural Bliss Low Fat[1]	20	0.5	0	0.5
	Coffee-mate Natural Bliss[1]	35	1	0	1
	Baileys flavored[1]	40	1	0	1
	Half and half	20	1.1	0	0
	Coconut or Soy Liquid Creamers *(1 Tbs.)*				
✔✔	Trader Joe's Soy Milk	15	0.1*	0	0
✔✔	So Delicious Coconut Milk Original	10	0.2*	0	0
✔✔	Organic Valley Soy Original	15	0.2*	0	0
	So Delicious Coconut Milk flavored[1]	20	0.2*	0	1
✔	Silk Original	15	0.5*	0	0
	Silk flavored[1]	20	0.5*	0	0.5
	Sugar & Oil Liquid Creamers *(1 Tbs.)*				
	International Delight Fat Free[1]	30	0.2*	0	1
✔	Coffee Rich Fat Free	15	0.4*	0	0
	International Delight Sugar Free[1A]	20	1	0	0
	International Delight flavored[1]	35	1	0	1.5
	Coffee Rich Original	20	1.5	0	0
	Coffee-mate Fat Free The Original	10	0.1	0.1	0
	Coffee-mate Fat Free flavored[1]	25	0.1*	0.1*	1
	Coffee-mate Low Fat The Original	10	0.2*	0.2*	0.5
	Coffee-mate The Original	15	0.3	0.4	0.5
	Coffee-mate Sugar Free[1A]	15	0.3*	0.5*	0
	Coffee-mate flavored[1]	35	0.3*	0.5*	1
	Powdered Creamers *(1 Tbs. unless noted)*				
	Coffee-mate Fat Free French Vanilla *(4 tsp.)*	50	0.5*	0	2.5
	Coffee-mate Fat Free The Original	25	0.7	0	1
	Coffee-mate Lite The Original	25	0.9*	0	1.5
	Coffee-mate The Original	30	1.8	0	0.5
	Coffee-mate flavored *(4 tsp.)*[1]	60	2.3	0	2
	Coffee-mate Sugar Free[1A]	35	2.4	0	0
	N'Joy or Walmart Great Value unflavored[1]	30	0.2*	0.9*	0.5
	Sweeteners *(2 Tbs. unless noted)*				
	Enfuse My Flavor Creation Coffee Flavoring French Vanilla (½ tsp.)[A]	0	0	0	0
✔✔	Splenda Flavors for Coffee *(1 stick, 1 g)*[1]	0	0	0	0
✔✔	Starbucks Sugar Free Syrup[1]	0	0	0	0
	Torani Sugar Free Syrup[1A]	0	0	0	0
	Starbucks or Torani Syrup[1]	80	0	0	4.5

	Single-Serve Coffee Drinks *(1 container)*	Calories	Sat Fat (g)	Added Sugar (tsp.)*	Protein (g)	Caffeine (mg)
✔✔	Illy Issimo Caffè No Sugar *(6.8 fl. oz.)*	10	0	0	1	152
	Starbucks Iced Coffee Low Calorie Coffee + Milk *(11 fl. oz.)*[A]	50	0	0	1	110
	Illy Issimo Caffè *(6.8 fl. oz.)*	50	0	2.5	1	155
	Starbucks Iced Coffee, except Low Calorie Coffee + Milk *(11 fl. oz.)*[1]	110	0	4	1	115
	Illy Issimo Mochaccino *(8.45 fl. oz.)*	100	1	3	4	43
	RealBeanz Iced Coffee Diet Cappuccino *(9.5 fl. oz.)*	60	1.5	0.5	3	NA
	Illy Issimo—Cappuccino or Latte Macchiato *(8.45 fl. oz.)*[1]	110	1.5	3	4	81
	Starbucks Doubleshot Energy Vanilla Light *(15 fl. oz.)*[A]	130	1.5	2	9	145
	RealBeanz Iced Coffee—Cappuccino, Caramel, or Mocha *(9.5 fl. oz.)*[1]	140	1.5	5	3	NA
	Blue Sky Café Energy *(15 fl. oz.)*[1]	180	1.5	5	9	185
	Starbucks Doubleshot Energy *(15 fl. oz.)*[1]	210	1.5	4	12	145
	Java Monster Coffee + Energy Vanilla Light *(15 fl. oz.)*	90	2	1	4	150
	Starbucks Frappuccino Light *(9.5 fl. oz.)*[1A]	100	2	0.5	6	65
	Java Monster Coffee + Energy *(15 fl. oz.)*[1]	180	2	3.5	9	150
	Starbucks Frappuccino *(9.5 fl. oz.)*[1]	200	2	5.5	6	84
	Starbucks Doubleshot Espresso Light *(6.5 fl. oz.)*[A]	70	2.5	0	3	130
	Starbucks Doubleshot Espresso *(6.5 fl. oz.)*	140	3.5	2.5	4	130
	Multi-Serve Coffee Drinks *(1 cup)*					
	Silk Iced Latté[1]	100	0	4.5	2	64
	International Delight Iced Coffee Light[1A]	100	1.5	2.5	4	56
	International Delight Iced Coffee[1]	150	1.5	4	4	58
	Single-Serve Coffee Mixes *(1 packet, K-Cup, etc.)*					
	Nescafé Taster's Choice flavored *(2 g)*[1A]	10	0	0	0	28
	Starbucks VIA flavored *(17 g)*[1]	60	0	3	1	136
	Maxwell House International Latte Iced *(16.4 g)*[1]	60	0	3.5	0	88
	Starbucks VIA Iced *(27 g)*[1]	100	0	5.5	0	272
	Keurig Café Escapes *(15 g)*[1]	60	2	1.5	1	NA
	Maxwell House International Latte *(19.5 g)*[1]	90	2	3	0	45
	Nescafé Memento *(23 g)*[1]	100	2	2.5	2	80
	Multi-Serve Coffee Mixes					
	Hills Bros. Skinny Latte *(3 Tbs., 27 g)*[1]	100	0	3	2	40
	Maxwell House International Latte *(1⅓ Tbs., 14 g)*[1]	60	1.5	2	0	24
	Maxwell House International Café Sugar Free *(1⅓ Tbs., 6 g)*[1A]	30	2	0	0	35
	Hills Bros. Cappuccino Sugar Free *(2 Tbs., 12 g)*[1A]	50	2	0	0	40
	Maxwell House International Café *(1⅓ Tbs., 15 g)*[1]	60	2	2	0	56
	Maxwell House International Cappuccino *(1⅓ Tbs., 16 g)*[1]	70	2	2	0	41
	Folgers Cappuccino *(2 Tbs., 20 g)*[1]	90	2	2.5	1	70
	Hills Bros. Cappuccino *(3 Tbs., 27 g)*[1]	120	3.5	3	2	40

✔✔ Best Bite. ✔ Honorable Mention. * Estimate. [A] Contains acesulfame potassium and/or aspartame. [1] Average. NA Number not available.

Daily Limits (for a 2,000-calorie diet): ***Saturated + Trans Fat:*** 20 grams (no more than 2 of them trans). ***Added Sugar:*** 25 grams (6 teaspoons) for women, 38 grams (9 teaspoons) for men. (Note: To convert teaspoons of sugar to grams, multiply by 4.2.) ***Protein daily target:*** 50 grams.

About CSPI, publisher of Nutrition Action Healthletter

CENTER FOR Science IN THE Public Interest

The Center for Science in the Public Interest (CSPI), founded in 1971, is an independent nonprofit consumer health group. CSPI advocates safer, more nutritious, and honestly marketed foods. CSPI's work is supported by *Nutrition Action Healthletter* subscribers and foundation grants. CSPI accepts no government or industry funding. *Nutrition Action Healthletter*, which was first published in 1974, accepts no advertising.

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RIGHT STUFF

A LENTIL TO LOVE

Some lentils get all the attention. Don't get us wrong. We love brown lentils, and the lentil soup, lentil soup, and lentil soup that are pretty much the only places most people encounter them.

But brown lentils aren't the only legumes on the block. **Red lentils**, their less-famous cousins, are worth getting to know.

Their main claim to fame: speed. Reds cook up—simmered in three times as much water or broth as lentils—in as little as 10 minutes. Cook them for 15 to 20 minutes and they turn to a stick-to-the-ribs coarse purée. (Brown lentils typically take 30 minutes or more.)

Then the fun begins. Add some curry powder, garlic, onion, fresh ginger, and fresh cilantro and you've got a dish that would be at home in New Delhi. Make it garlic, onion, red pepper flakes, and crushed tomato and you're in Rome. Athens? No sweat. Mix in sautéed green pepper, dill, oregano, and sliced scallions.

Wait. There's more. Looking to pump up your protein or fiber? Add some unseasoned cooked red lentils to your spaghetti sauce or chili or stew, or your puréed sweet potato, butternut squash, or carrots.

Each ¼ cup of dry red lentils (which makes ¾ cup when cooked) packs 9 grams of fiber and 13 grams of protein, plus roughly 25 percent of a day's folate, 15 percent of a day's iron, 14 percent of a day's zinc, 9 percent of a day's magnesium, and 6 percent of a day's potassium. Not bad for 180 calories, zero sodium, and around 25 cents per serving.

Sometimes it's good to be overlooked.

Photos: © miro/fotolia.com (left), Paige Einstein/CSPI (right).

dish OF THE MONTH

Yogurt-Dill Dressing

This Greek-inspired topping for grilled or roasted salmon or other fish also doubles as a delightfully tangy salad dressing.

Combine 6 oz. of fat-free greek yogurt with 1 cup of fresh dill sprigs, 1 Tbs. of lemon juice, 1 Tbs. of dijon mustard, 1 small shallot, and ¼ tsp. of salt in a food processor. Process until smooth.

FOOD PORN

SO CHEESY

"BIG BOLD FLAVOR," says **Chili's** Web site. "House-Baked Crust. Freshly Made 9-inch Pizza. Perfectly Sized Just For You."

Each of Chili's four new "freshly made" pizzas may look "perfectly sized" to some people. But only if they're in the market for an entrée that has three-quarters of a day's calories.

Take the **Southwestern Chicken Pizza**. It's "topped with chile-rubbed grilled chicken, chipotle pesto, cheddar, mozzarella, Monterey and pepper Jack, green & red bell peppers, red onion and house-made pico de gallo."

Don't blame the grilled chicken for the Southwestern's 1,550 calories and 32 grams of saturated fat—more than any Pizza Hut Personal Pan or California Pizza Kitchen pizza. It's like eating a Chili's 10 oz. Classic Sirloin steak dinner (with Loaded Mashed Potatoes and Steamed Broccoli), with a 10 oz. Classic Sirloin *on the side*.

The **Five Cheese**, **Taco**, and **Pepperoni** Pizzas are in the same ballpark. Each is loaded with three to five different cheeses (like cheddar, Monterey Jack, and Pepper Jack), not just mozzarella.

And each comes on a thick, white-flour crust that accounts for 630 of the pizza's calories. (It may be "house-baked," but it looks like no one in the house knows how to make a decent crust.) Judging by the pizzas' sodium (2,400 to 3,500 milligrams), the house *does* know how to wield a salt shaker, though.

"Perfectly sized just for you"? Only if you want to be a size XXL.

Chili's: (800) 983-4637