

The ‘uncured’ bacon illusion: It’s actually cured, and it’s not better for you.

By **Tamar Haspel**

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When was the last time you read a story where the villain was celery? Pull up a chair.

Food and agriculture are complicated, and I end up writing a lot of click-proof pieces chock full of eye-glazing detail concluding that there’s no easy answer. So it’s a pleasant change of pace when I encounter an issue that is black and white. Crystal clear. A no-brainer.

It’s “uncured” bacon.

You know the stuff. It populates the shelves at Whole Foods and Trader Joe’s, and there are generally a few choices at supermarkets. It says “uncured” in big letters, and you buy it because you think it’s better for you, being free of nitrates and nitrites.

But guess what? It isn’t better for you. It does have nitrates and nitrites. Sometimes, higher levels than conventionally cured meats.

This is not a secret. Google it, and you’ll find that all kinds of people have written about it. Somehow, though, it hasn’t entered the public consciousness, and I’m going to do my level best to change that.

The issue is that “uncured” bacon is actually cured. It’s cured using exactly the same stuff — nitrite — used in ordinary bacon. It’s just that, in the “uncured” meats, the nitrite is derived from celery or beets or some other vegetable or fruit naturally high in nitrate, which is easily converted to nitrite. In ordinary bacon and cured meats, the nitrite is in the form of man-made sodium nitrite. But the nitrite molecule is the same, no matter its source.

It’s worthwhile to take a moment to understand the difference between nitrate and nitrite. (Besides, without at least some eye-glazing detail, how would you know it was me?) I asked Jeff Sindelar, professor of meat science at the University of Wisconsin at Madison, to explain the process. Nitrate is a molecule consisting of one nitrogen atom with three oxygens. That is easily converted (by an enzyme from bacteria) into nitrite, which has only two oxygens. When nitrite comes into contact with protein, it is converted to nitric oxide, which does the actual curing.

“When you cure products, you change the microflora,” says Sindelar. “Certain bacteria can grow, others are inhibited. The things that make products spoil, you slow them down and add shelf life.” Among the inhibited is the bacterium that causes botulism. Curing slows down fat oxidation, which reduces rancidity. It’s also responsible for the characteristic flavor and nice pink color of bacon, ham and hot dogs.

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Being this with veg-derived nitrite is a relatively new thing. The celery cure was developed in the 1990s in response to the developing interest in natural products,” says Joseph Sebranek, professor of animal science, food science and human nutrition at Iowa State University. When the first products came to market, about 20 years ago, they used nitrate, and manufacturers needed an extra step in the process to convert it to nitrite. Now, though, thanks to the miracle of modern technology, the celery powder contains nitrite, and Sindelar says 98 or 99 percent of veg-cured products on the market use that.

I know I said this already, but nitrite is nitrite, no matter where it comes from. Veg-derived nitrite does the same thing to the meat, and it has the same health implications (more on that later).

There is one difference, though. When the nitrite comes from sodium (or potassium) nitrite, it’s regulated (allowable levels vary by product). There are no limits for nitrite from celery powder. This doesn’t mean you should expect sky-high nitrite levels in “uncured” meats. Most of the tests that have been done find comparable levels, but at least one found veg-cured nitrite levels to be significantly higher.

But wait, there’s more. If you cure your bacon with celery rather than sodium nitrite, you are required by law to label that bacon “uncured.” You also have to include the statement “no nitrates or nitrites added.” That’s right. Required by law.

What the . . .? I asked the USDA why celery powder wasn’t approved as a curing agent when it performs the same function as sodium nitrate. They apparently routed my request to their Tautology Division, as their answer was, “because curing agents are specifically defined in 9 CFR 424.21(c) as limited to sodium or potassium nitrate or sodium or potassium nitrite from synthetic sources.”

Well, okay then.

It’s important to note that there are some bacons and sausages that are genuinely uncured: no sodium nitrite, no celery, no nothing. You’ll know them by their gray color and unappetizing flavor. Those also say “uncured” on the label; the difference is that the celery-cured products are required to say, after the part where no nitrites are added, “except those naturally occurring in [ingredient].” But that part can be in small print.

The rules were made before the celery cure existed, but food technology has an annoying habit of changing. I don’t envy the people whose job it is to keep up with those changes, and I have tremendous respect for the hard-working scientists and regulators at the USDA, but the “uncured” situation has been going on for quite some time now.

Back in 2011, Applegate Farms, a large purveyor of veg-cured meats, petitioned the USDA to add “curing agents made from vegetable juices” to the list of approved agents. Why? Well, because they cure, but also because “having a cured product labeled as ‘uncured’ is contradictory and causes confusion among consumers.”

You can’t talk about that confusion without tackling the question of whether bacon causes cancer, an idea that took root because research done on rats in the 1970s led the FDA to propose a ban on sodium nitrite. It never happened, and subsequent research has cast doubt on that association.

The concern comes because, under certain conditions (like high heat), nitrite can be converted to nitrosamines, compounds that are widely agreed to be carcinogens. Fried bacon can contain nitrosamines, and, according to Sindelar, you can also end up with nitrosamines if you subject nitrate-containing vegetables to high heat in the presence of protein.

Observational studies have found that higher consumption levels of sausage and bacon (many of which are smoked, and have additives besides just the N-ones) correlate with higher levels of colorectal cancer. The [International Agency for Research on Cancer \(IARC\)](#) found that every 50 grams of processed meat per day upped the risk by 18 percent. The IARC is somewhat controversial, and not every scientist takes their findings to the bank, but the ink is still wet [on a study of processed meat with findings that are nearly identical](#). [I don't find observational studies particularly persuasive](#), and people who eat a lot of bacon are different from people who don't in all kinds of ways that are tough to control for, but I think it's safe to say that bacon every day is probably a bad idea.

The Center for Science in the Public Interest believes the risk is significant enough that the group has petitioned the USDA to put warning labels on cured meats. CSPI's policy director, Laura MacCleery, pointed out to me that, given that risk assessment, an "uncured" label that confuses consumers about nitrite content is particularly problematic.

I'm not going to try to adjudicate this dispute, largely because, for purposes of the silliness of the labeling requirements, it's irrelevant. Whether the risk is high or low, it's the same for both kinds of curing.

I tried to get Applegate and Oscar Mayer to share their thoughts on all this, but they didn't seem to want to talk to me. So I'll share my thoughts instead: The only reason to cure meat with celery is to give people the idea that it's in some way better than conventionally cured meat. But it isn't better, and veg-curing is a phony-baloney (if you'll excuse the expression) gambit to confer a health halo on products that most definitely don't earn it. Let's stop. Let bacon be bacon, and let celery go back to being the good guy.

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