

## WELL INFORMED

## The Truth About Bug Sprays

Here's how to make smarter choices in the fight against ticks and mosquitoes.

By | **Barbara Brody**, writer



Photo credit: **Trunk Archive**

Summer brings with it all kinds of fun—pool parties, backyard barbeques, kids skipping through sprinklers—as well as some risks and nuisances. In the downer category: tick and mosquito bites, which have the potential to transmit illnesses like Lyme disease and West Nile virus.

Although these kinds of bug-borne infections are on the rise, according to the Centers for Disease Control and Prevention (<https://www.cdc.gov/vitalsigns/vector-borne/index.html>) (CDC), there's no reason to stay indoors or allow yourself to be feasted on. Instead, arm yourself with a good insect repellent, especially at dusk, near the water, and when traipsing through woodsy areas. Not sure what really works and what's a waste of money? We have the facts you need to stay safe all summer long.

## DEET isn't that scary.

Around since the 1940s, DEET, or diethyltoluamide, remains the gold standard for protection against mosquito-borne illnesses like West Nile virus, Zika or malaria and tick-borne illnesses like Lyme disease and Rocky Mountain spotted fever. "As a general rule, I'd say there's DEET and then there's everything else," says Bruce Farber, MD, an infectious disease specialist with Northwell Health. "It's the tried-and-true option."

DEET is now found in more than 500 products (<https://www.epa.gov/insect-repellents/skin-applied-repellent-ingredients>). Although it's possible to buy up to 100 percent DEET, that's not necessary and could cause skin irritation. A formula that contains 25 to 30 percent will provide eight hours of protection against both mosquitoes and ticks, says entomologist Joseph Conlon, technical advisor for the American Mosquito Control Association.

The downside is that this chemical makes some people uneasy because it's been associated with neurological problems. That sounds scary—until you hear the details: "While there have been isolated reports of neurological damage and brain toxicity in rats, these reports have not translated to any real dangers in humans," says Robert Glatter, MD, assistant professor of emergency medicine at Northwell Health. In other words, if you don't use it on rats and you use it as directed—by spraying it on your body, not drinking it as some people have actually done—you should be just fine.

"I recommend the use of DEET for my family and my patients," says Dr. Glatter. "The CDC and the Environmental Protection Agency both agree that products containing DEET are safe to use in anyone over two months old."

## Picaridin and IR 3535 are almost as good.

If DEET still makes you nervous—or if you just hate the smell or feel of DEET-containing products or have had a skin reaction to them—then picaridin or IR 3535 are your best options. Both ingredients are also synthetic chemicals, but they have a somewhat natural pedigree that might make chemical-wary folks feel more at ease, says Conlon: Picaridin is synthesized from pepper plants; IR 3535 is a derivative of a naturally occurring amino acid.

IR 3535 comes in only one strength (20 percent). If you choose picaridin, then look for 15 to 20 percent of this active ingredient to protect against both ticks and mosquitoes.

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Bruce Farber, MD, Chief of Infectious Diseases at Northwell Health

## Natural isn't always safer—or better.

Don't bother with bracelets and citronella candles, because there's no great proof that they work, says Conlon. (Consumer Reports (<https://www.consumerreports.org/insect-repellent/do-natural-insect-repellents-work/>) has tested them and agrees.) If you want a natural repellent that's effective, choose oil of lemon eucalyptus, which is approved by the EPA. Conlon confirms it will prevent tick and mosquito bites (provided a product contains 30 to 40 percent of the active ingredient). But there's one caveat...

While you might assume that a plant-based product is better for kids, that's not the case: You shouldn't use oil of lemon eucalyptus in kids under age 3. Their skin is more permeable, so they could absorb too much of the oil, says Dr. Glatter. Wipes with DEET, picaridin, or IR 3535 are good options for kids, says Conlon. Help them apply it so they don't get the chemicals near eyes, mouths and other sensitive spots.

## Going camping or hiking? Consider clothing with permethrin.

This chemical goes on clothing, not your body, and items that have been pretreated with it "work wonders for both ticks and mosquitoes," says Conlon, who says it's safe. (The EPA agrees, noting that nothing bad has happened even when toddlers put their mouths on permethrin-treated items (<https://www.epa.gov/insect-repellents/repellent-treated-clothing>).)

You have the option to buy clothing that's been infused with permethrin during the manufacturing process, or you can buy a spray to treat clothes yourself. The catch is that insects have to get pretty close to this chemical, so wearing shorts with permethrin while leaving your lower legs exposed doesn't make a lot of sense. But if you're going to be spending some time in a highly buggy area you might want to use it on pants, socks and shoes—though you'll still need to apply topical repellent to exposed skin.

## Don't bother with yard sprays.

Whether you opt for the "natural" package or a chemical option, you're likely wasting your money.

"Spraying your yard is like peeing in the ocean," says Dr. Farber. "You simply can't eliminate mosquitoes from your yard; they're too omnipresent." Conlon agrees, noting that even if a spray is somewhat effective it will get washed away as soon as it rains.

What you can do, however, is minimize mosquitoes by being vigilant about standing water. Dr. Farber says that dumping out the kiddie pool is just part of it. "Make sure your yard doesn't contain any areas of dead water space—bottle caps, buckets, garbage pails. Mosquitoes reproduce in water very quickly," he says. Meanwhile, mowing your lawn regularly will help cut down on the number of ticks that can hide out there.

## Use coils, lanterns and clip-ons with caution.

Conlon says sprays and lotions designed to be applied to your skin are far less toxic than any of these devices, which release chemicals like allethrin, metofluthrin, and pyrethrin into the air. Also worth noting: If the wind blows the fumes away from your body, you're still going to get bitten.

That said, as with many things in life, you have to weigh the pros and cons. While most people in the U.S. are better off sticking with sprays and lotions, if you're someone who's especially prone to mosquito bites—sorry, it's largely genetic—and you live in an area where West Nile is running rampant, then it might make sense to take your chance with a coil or lantern. But in such high-stakes cases, you may also want to apply DEET. "It's the most well-studied repellent on the planet," says Conlon. "It's saved thousands of people from mosquito-borne illnesses."

## Next Steps and Useful Resources

Meet Dr. Bruce Farber, MD ([https://www.northwell.edu/find-care/find-a-doctor/infectious-disease/dr-bruce-frederick-farber-md-11307862?](https://www.northwell.edu/find-care/find-a-doctor/infectious-disease/dr-bruce-frederick-farber-md-11307862?utm_medium=next_steps_link&utm_source=the_well&utm_campaign=the_well&utm_content=thewell)

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Dr. Robert Gattler, MD ([https://www.northwell.edu/find-care/find-a-doctor/emergency-medicine/dr-robert-glatter-md-11353725?](https://www.northwell.edu/find-care/find-a-doctor/emergency-medicine/dr-robert-glatter-md-11353725?utm_medium=next_steps_link&utm_source=the_well&utm_campaign=the_well&utm_content=thewell)

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