

Why Are Some People Tastier to Mosquitoes Than Others?

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Do mosquitoes prefer a certain blood type? Maybe—but it's not just one factor that influences why these winged pests are attracted to us and researchers can't seem to agree on a definitive answer.^{1,2}

There are two kinds of people in the world: those who return from time in the outdoors covered in itchy mosquito bites and those who can spend hours in the same space and avoid getting bitten at all. Let's face it, mosquitoes are not equal opportunity feasters.

So, what exactly makes some people more attractive to mosquitoes than others?

Science reveals that a variety of factors might make you more palatable to mosquitoes, from your skin microbiota and carbon dioxide emitted in your breath to the color of clothing you're wearing (with colors like red, orange, and black being the most attractive to mosquitoes). But in the end, much of the variation in mosquito preference comes down to two factors: our natural body odor and genetics.^{1,3}

The Rules of Mosquito Attraction

Mosquitoes feast on us for practical reasons. Only the females bite humans and they do it to get a “blood meal,” deriving proteins from our blood to produce their eggs.^{4,5} To help locate their prey, female mosquitoes use their antennae and palps, the organs between their antennae, to detect carbon dioxide and odor. That means people who have a high metabolic rate and emit more carbon dioxide, including those who are pregnant, working out, or drinking alcohol tend to be more attractive to mosquitoes.⁶

The question of whether mosquitos prefer a certain blood type is controversial. One theory suggests that blood type may also help determine mosquito preference. If that’s the case, what blood type do mosquitos like? A 2019 study found that the major mosquito vector of dengue virus preferred people with type O blood to those with other blood types.² However, separate research notes that experimental and laboratory data evaluating whether blood type makes one person more (or less) attractive to mosquitoes has fueled a lot of speculation, but the science is contradictory. Instead, the researchers report that the likelihood of being a “mosquito magnet” has more to do with skin odors and microbiota than blood type.⁷



A pair of twins recreate the mosquito experiment (credit: London School of Hygiene and Tropical Medicine)

The Mosquito Twin Test

If you have the misfortune of being a mosquito magnet, it may just come down to your genetic makeup. A 2015 twins study published in the journal PLOS One found that DNA may account for nearly 67% of mosquito attraction—similar to the levels at which height and IQ are considered genetically linked.⁸

The study took two groups of female twins—one group of identical and the other fraternal—and had them stick their hands in Y-shaped acrylic containers that allowed mosquitoes to detect their odor. Researchers found that the identical twins, who shared the same exact genes, had more similar levels of mosquito attraction compared with the fraternal twin group. Building from an earlier study that had concluded that identical twins share more similar body odors than non-identical twins, the researchers concluded that genes do play a role in body odor and mosquito attraction.⁹

Mosquitoes Can Be More Than a Nuisance

A mosquito bite might not seem like a big deal, but these tiny insects can be a [deadly menace](#). Mosquitoes are vectors that can transmit infectious pathogens, including mosquito-borne diseases like dengue, Zika, chikungunya and West Nile fever. The World Health Organization (WHO) estimates that these kinds of vector-borne diseases are linked to more than 700,000 deaths annually, making mosquitoes among the deadliest animals on Earth.^{10,11}



Common Sense Mosquito Advice

You might not be able to change the genetic factors that make you more attractive to mosquitoes, but you can still take steps to reduce your risk of mosquito bites.

Whether you are a mosquito magnet or just suffer the occasional bite, the [Centers for Disease Control and Prevention](#) recommends wearing shirts and long pants, especially fabrics treated with the insect repellant 0.5% permethrin, and applying insect repellants that contain ingredients like DEET or oil of lemon eucalyptus (OLE) and reapplying as directed.³

You can also take steps to control mosquitoes indoor and outside by installing window screens and keeping doors closed, using air conditioning during the warmer months, and eliminating standing water in birdbaths, pools, buckets, and flower pots.¹²

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