

Blood type, metabolism, exercise, shirt color and even drinking beer can make individuals especially delicious to mosquitoes

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You come in from a summer hike covered with itchy red mosquito bites, only to have your friends innocently proclaim that they don't have any. Or you wake up from a night of camping to find your ankles and wrists aflame with bites, while your tentmates are unscathed.

You're not alone. An [estimated 20 percent of people](#), it turns out, are especially delicious for mosquitoes, and get bit more often on a consistent basis. And while scientists don't yet have a cure for the ailment, other than preventing bites with insect repellent (which, we've recently discovered, [some mosquitoes can become immune to](#) over time), they do have a number of ideas regarding why some of us are more prone to bites than others. Here are some of the factors that could play a role:

Blood Type

Not surprisingly—since, after all, mosquitoes bite us to harvest proteins from our blood—research shows that they find certain blood types more appetizing than others. [One study found](#) that in a controlled setting, mosquitoes landed on people with Type O blood nearly twice as often as those with Type A. People with Type B blood fell somewhere in the middle of this itchy spectrum. Additionally, based on other genes, about 85 percent of people secrete a chemical signal through their skin that indicates which blood type they have, while 15 percent do not, and mosquitoes are also more attracted to secretors than nonsecretors regardless of which type they are.

Carbon Dioxide

One of the key ways mosquitoes locate their targets is by smelling the carbon dioxide emitted in their breath—they use an organ called a [maxillary palp](#) to do this, and can detect carbon dioxide from as far as 164 feet away. As a result, people who simply exhale more of the gas over time—generally, larger people—have been shown to attract more mosquitoes than others. This is one of the reasons why children get bit less often than adults, on the whole.

Exercise and Metabolism

In addition to carbon dioxide, mosquitoes find victims at closer range by smelling the lactic acid, uric acid, ammonia and other substances expelled via their sweat, and are also attracted to people with higher body temperatures. Because strenuous exercise increases the buildup of lactic acid and heat in your body, it likely makes you stand out to the insects. Meanwhile, genetic factors influence the amount of uric acid and other substances naturally emitted by each person, making some people more easily found by mosquitos than others.

Skin Bacteria

Other research has suggested that the particular types and volume of bacteria that naturally live on human skin affect our attractiveness to mosquitoes. In [a 2011 study](#), scientists found that having large amounts of a few types of bacteria made skin more appealing to mosquitoes. Surprisingly, though, having lots of bacteria but spread among a greater diversity of different species of bacteria seemed to make skin less attractive. This also might be why mosquitoes are especially prone to biting our ankles and feet—they naturally have more robust bacteria colonies.

Beer

Just a single 12-ounce bottle of beer can make you more attractive to the insects, [one study found](#). But even though researchers had suspected this was because drinking increases the amount of ethanol excreted in sweat, or because it increases body temperature, neither of these factors were found to correlate with mosquito landings, making their affinity for drinkers something of a mystery.

Pregnancy

In several [different studies](#), pregnant women have been found to attract roughly twice as many mosquito bites as others, likely a result of the fact the unfortunate confluence of two factors: They exhale [about 21 percent more carbon dioxide](#) and are on average about 1.26 degrees Fahrenheit warmer than others.

Clothing Color

This one might seem absurd, but mosquitoes use vision (along with scent) to locate humans, so wearing colors that stand out (black, dark blue or red) may make you easier to find, at least according to James Day, a medical entomologist at the University of Florida, [in commentary he gave to NBC](#).

Genetics

As a whole, underlying genetic factors are [estimated to account for 85 percent](#) of the variability between people in their attractiveness to mosquitoes—regardless of whether it's expressed through blood type, metabolism, or other factors. Unfortunately, we don't (yet) have a way of modifying these genes, but...

Natural Repellants

Some researchers have started looking at the reasons why a minority of people seem to rarely attract mosquitoes in the hopes of creating the next generation of insect repellants. Using [chromatography](#) to isolate the particular chemicals these people emit, scientists at [the UK's Rothamsted Research lab](#) have found that [these natural repellents tend to excrete a handful of substances](#) that mosquitoes don't seem to find appealing. Eventually, incorporating these molecules into advanced bug spray could make it possible for even a Type O, exercising, pregnant woman in a black shirt to ward off mosquitoes for good.