

Sniffing out a Snack

By Josephine Ann A. Aparte

Have you ever wondered what makes some people mosquito magnets while others are rarely bitten?

If you answer, “Off” lotion, you could be right, but not quite on the spot.

Scent is the one of the major reasons why mosquitoes are attracted to some people and not others. The unlucky humans who often get bitten give off chemicals that mosquitoes like—lactic acid and carbon dioxide. Lactic acid is present on human skin while carbon dioxide is something all live humans exhale. Now you might be wondering, if all people give off these scents, why are some people a magnet for mosquito bites?

This is because the people who get bitten less produce chemicals that hide the scent of the attractive chemicals. If the mosquitoes can’t smell the scent they like, they won’t zoom in on you and bite you. Makes sense?

The makers of “Off” also think so because this lotion works on the same principle. It does not really



Mosquitos often bite humans who give off lactic acid and carbon dioxide.

“drive away” mosquitoes with a “disgusting scent.” It masks the smells that attract mosquitoes to humans.

The main ingredient in most mosquito-repelling lotions today is a chemical called NN-diethyl-meta-toluamide (DEET). Although effective, DEET can be quite harsh on the skin. Permethrin is another effective mosquito repellent, but it is a neurotoxin--it destroys nerves--and should never be applied on the skin, only on clothing.

Scientists are excited about research on the chemicals that mosquitoes like and those that hide the smells mosquitoes like because it makes it possible to develop safe repellents. They learned about these scents by collecting the sweat of volunteers who did not get bitten a lot. They think that all people produce these “camouflage scents,” but the lucky ones produce more of it.

Although the names of the camouflage chemicals have not yet been made known to the public, the scientists say that in concentrated form, these chemicals have a “fruity smell.”

Identifying the scents that attract mosquitoes will help scientists find ways of controlling them and preventing them from transmitting diseases. 🐝

Fast Facts

- Aside from scent, mosquitoes also use body heat and color of clothing to detect potential “victims.”
- Not all mosquito species are attracted to the same scents. *Aedes aegypti*, the species that causes dengue, likes the smell of lactic acid, while other species do not.
- Only female mosquitoes bite.
- There are about 2,700 species of mosquitoes worldwide; 4 dozen to 6 dozen species can transmit diseases

Sources

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How Attractive Are You? To Mosquitoes, That Is.

<<www.ars.usda.gov/is/AR/archive/feb00/mosq0200.htm?pf=1>>

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The Mosquit-o-Meter

Find out how much of a potential snack you are to mosquitoes with this quiz. Just tick the appropriate box.








1. Do you exhale?
 - Yes
 - No
2. How would you describe your personality type?
 - Extremely laid-back
 - Reasonably relaxed
 - Quite nervous
3. How tall are you?
 - Under 5 feet
 - Between 5 feet and 6 feet
 - Over 6 feet
4. Do you prefer light- or dark-colored clothing?
 - Light
 - Dark
5. Do you most commonly fish in open waters or stagnant, marshy waters?
 - Open water
 - I only fish on my CD-ROM
 - Marshy waters
6. How much do you weigh?
 - Under 150 pounds
 - Between 150 pounds and 199 pounds
 - Over 200 pounds
7. During outdoor excursions, how much do you perspire?
 - Very little
 - Somewhat
 - Heavily
8. What kind of toiletries do you use the most?
 - Unscented
 - Lightly scented
 - Heavily scented
9. Do you generally like to camp deep in the brush or in well-cleared, open areas?
 - Deep in the brush
 - Open areas
 - I never leave my house

Mosquito Challenge

Zach wants to play in the playground. But there are lots of mosquitoes in the playground.

The mosquitoes will only disappear if Zach will win the Mosquito Challenge. Each mosquito carries a box that contains a statement. Some of the statements are wrong.

A mosquito will disappear if Zach would be able to identify which statement is correct and which is wrong. If a statement is correct, color the box; if it's wrong, underline the word or words that make it wrong. Write in the space below the box the word or words that will make the statement right.

1.	 <input type="checkbox"/>	The main ingredient in most mosquito-repelling lotions is an alcohol called NN-diethyl-meta-toluamide (DEET).
2.	 <input type="checkbox"/>	Only female mosquitoes bite.
3.	 <input type="checkbox"/>	The mosquito species <i>Aedes aegypti</i> causes diarrhea.
4.	 <input type="checkbox"/>	Mosquitoes like the smell of carbon monoxide.
5.	 <input type="checkbox"/>	Humans who often get bitten by mosquitoes are those who give off chemicals like lactic acid and carbon dioxide that mosquitoes like.
6.	 <input type="checkbox"/>	Neurotoxin, an ingredient in a type of mosquito repellent, destroys the brain.
7.	 <input type="checkbox"/>	Mosquitoes also use the sun's heat and color of clothing to detect potential "victims."

Answer Key

Mosquit-o-Meter

If you take this quiz online (<http://offprotects.com/meter.aspx>), you will get a numerical rating based on your answers. If you cannot get online or do not have easy access to the Internet, you can roughly gauge how tasty a snack you might be considering these facts:

- Mosquitoes like the smell of carbon dioxide.
- Mosquitoes are attracted to movement. The more you move, the more you perspire and pant, giving off carbon dioxide and lactic acid.
- Larger people tend to give off more carbon dioxide.
- Mosquitoes prefer stagnant water.
- Mosquitoes are attracted to dark colors.

Mosquito Challenge

1. The main ingredient in most mosquito-repelling lotions is an alcohol called NN-diethyl-meta-toluamide (DEET).
Chemical
2. CORRECT
3. The mosquito species *Aedes aegypti* causes diarrhea.
Dengue
4. Mosquitoes like the smell of carbon monoxide.
Dioxide
5. CORRECT
6. Neurotoxin, an ingredient in a type of mosquito repellent, destroys the brain.
Nerves
7. Mosquitoes also use sun's heat and color of clothing to detect potential "victims."
Body