



FACT SHEET

What You Need to Know about Mosquito Repellent

Why You Should Use Mosquito Repellent

Insect repellent helps reduce your exposure to mosquito bites that may carry West Nile virus or other diseases, and allows you to continue to play, work, and enjoy the outdoors with a lower risk of disease.

When You Should Use Mosquito Repellent

Use repellent when you go outdoors. You should use repellent even if you're only going outside for a few minutes. Many of the mosquitoes that carry the West Nile virus bite between dusk and dawn. If you're outside during these hours pay special attention to using repellent.

Which Mosquito Repellents Work Best

The most effective repellents contain DEET (N,N-diethyl-m-toluamide) or permethrin. You can use DEET directly on skin and on clothing. You can use permethrin on clothing but not directly on skin. Both have proved to be very effective against a variety of biting insects.

How Often You Should Re-apply Repellents

Follow the directions on the product you are using. Sweating or getting wet may mean that you need to re-apply more frequently. Repellents with a higher concentration of active ingredient (such as DEET) provide longer-lasting protection.

How the Percentage of DEET in a Product Relates to Protection Time

A recent study indicates the following:

- A product containing 23.8% DEET provided an average of 5 hours of protection from mosquito bites.
- A product containing 20% DEET provided almost 4 hours of protection.
- A product with 6.65% DEET provided almost 2 hours of protection.
- Products with 4.75% DEET and 2% soybean oil were both able to provide roughly 90 minutes of protection.

Choose a repellent that provides protection for the amount of time that you will be outdoors. You should use a higher percentage of DEET if you will be outdoors for several hours. You can use a lower percentage of DEET if time outdoors will be limited. You can also re-apply a product if you are outdoors for a longer time than expected and start to be bitten by mosquitoes.

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Choose a repellent that you will be likely to use consistently. Also, choose a product that will provide sufficient protection for the amount of time that you will be spending outdoors. Product labels often indicate the length of time that you can expect protection from a product. If you are concerned about using DEET, you may wish to consult your health care provider for advice.

The National Pesticide Information Center (NPIC) can also provide information through a toll-free number, 1-800-858-7378 or <http://npic.orst.edu>.

General Considerations for Using Products Containing DEET Safely

- Always follow the instructions on the product label.
- Cover exposed skin or clothing. Don't apply repellent under clothing.
- Do not apply repellent to cuts, wounds, or irritated skin.
- Wash treated skin with soap and water after returning indoors.
- Do not spray aerosol or pump products in enclosed areas.
- Do not apply aerosol or pump products directly to your face. Spray your hands and then rub them carefully over the face, avoiding eyes and mouth.

Using Products Containing DEET Safely on Children

DEET products can be used safely on children. The American Academy of Pediatrics (AAP) Committee on Environmental Health has recently cited: "Insect repellents containing DEET with a concentration of 10% appear to be as safe as products with a concentration of 30% when used according to the directions on the product labels."

The AAP and other experts suggest using repellent with low concentrations of DEET on infants over 2 months old. Other guidelines suggest using repellents containing DEET after children are 2 years of age.

Repellent products that do not contain DEET are not likely to offer the same degree of protection from mosquito bites as products containing DEET. Non-DEET repellents have not necessarily been as thoroughly studied as DEET, and may not be safe for use on children.

- Always follow the recommendations appearing on the product label when using repellent.
- When using repellent on a child, apply it to your own hands and then rub them on your child. Avoid children's eyes and mouth and use it sparingly around their ears.
- Do not apply repellent to children's hands. (Children may put their hands in their mouths.)
- Do not allow young children to apply insect repellent to themselves; have an adult do it for them.
- Keep repellents out of reach of children.
- Do not apply repellent to skin under clothing. If repellent is applied to clothing, wash treated clothing before wearing again.

In addition to wearing repellent, you can protect yourself and your family by taking these precautions:

- Wear clothing with long pants and long sleeves while outdoors. Apply DEET or other repellents such as permethrin to clothing, as mosquitoes may bite through thin fabric. (Remember: don't use permethrin on skin.)
- Use mosquito netting over infant carriers.

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- Reduce the number of mosquitoes in your area by getting rid of containers with standing water that provide breeding places for the mosquitoes.

For more information, read [What You Need to Know About West Nile Virus](#).

Using DEET Safely on Pregnant or Nursing Women

There are no reported adverse events following use of repellents containing DEET in pregnant or breastfeeding women.

Risks of Using Repellents Containing DEET

Use of these products may cause skin reactions in rare cases. If you suspect a reaction to this product, discontinue use, wash the treated skin, and call your local poison control center. There is a new national number to reach a Poison Control Center near you: 1-800-222-1222.

If you go to a doctor, take the product with you. Cases of serious reactions to products containing DEET have been related to misuse of the product, such as swallowing, using over broken skin, and using for multiple days without washing skin in between use, for example.

Whenever possible, wash skin between applications of DEET. Always follow the instructions on the product label.

Non-DEET Repellents

Some non-DEET repellent products which are intended to be applied directly to skin may also provide limited protection from mosquito bites. However, because studies have suggested that other products do not offer the same level of protection, or that protection does not last as long as the protection provided by products containing DEET, you should use DEET if possible.

A soybean-oil-based product has been shown to provide protection for a period of time similar to a product with a low concentration of DEET (4.75%) (Fradin and Day, 2002: <http://content.nejm.org/cgi/content/full/347/1/13>).

Use this product instead of DEET if:

- You have had allergic skin reactions in the past to products containing DEET.
- If you have irritated, sunburned, bruised, or broken skin.
- If you have a skin condition such as skin cancer, dermatitis, acne, eczema, or psoriasis.

If you are outdoors for periods longer than 90 minutes, or if you start being bitten by mosquitoes, you will need to re-apply this product to continue to provide protection against mosquito bites.

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More Information about Repellents

For more information about using repellents safely please consult the EPA Web site (www.epa.gov/pesticides/factsheets/alpha_fs.htm) or consult the National Pesticide Information Center (NPIC), which is cooperatively sponsored by Oregon State University and the U.S. EPA. NPIC can be reached at <http://npic.orst.edu> or 1-800-858-7378.

See also [Questions and Answers About Insect Repellent Use and Safety](http://ncidod/dvbid/westnile/qa/insect_repellent.htm) (/ncidod/dvbid/westnile/qa/insect_repellent.htm).

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For more information, visit www.cdc.gov/westnile,
or call CDC at 800-CDC-INFO (English and Spanish) or 888-232-6348 (TTY).