



West Nile Virus

Insect Repellents and DEET Tips: Deciding on Their Use

Chemical repellents are effective at reducing bites from insects that can transmit disease. But their use is not without risk of health effects, especially if repellents are applied in large amounts or improperly. This information will help you decide when and if a repellent is right for you.

ABOUT REPELLENTS

Two active ingredients found in repellents are **DEET** (the label might say *N,N-diethyl-m-toluamide*) and **permethrin**. Most insect repellents contain one of these active ingredients. **DEET** comes in many different concentrations, with percentages as low as five percent or as high as 100 percent. In general, the higher the concentration, the higher the protection, but the risk of negative health effects goes up, too. Use the lowest concentration that you think will provide the protection you need.

Products with up to 30 percent **DEET** will provide adequate protection under most conditions. The American Academy of Pediatrics recommends that repellents used on children two years -12 years of age contain no more than 10 percent **DEET**.

DEET has been widely used for many years. Skin reactions (particularly at *concentrations of 50 percent and above*) and eye irritation are the most frequently reported health problems. Some reports of central nervous system problems, more frequently reported in children than adults, range from slurred speech and confusion to seizures and coma. Cases of serious reactions to products containing **DEET** have been related to misuse of the product, such as swallowing, applying over broken skin, and using for multiple days without washing skin in between.

Unlike **DEET**, **permethrin** repellents are for use on clothing only, not on skin. **Permethrin** kills insects that come in contact with treated clothes. **Permethrin** repellents can cause eye irritation, particularly if label directions have not been followed. Animal studies indicate that **permethrin** may have some cancer-causing potential. **Permethrin** is effective for two weeks or more if the clothing is not washed. Keep treated clothing in a plastic bag when not in use.

If you decide to use any kind of chemical repellent, carefully **read and follow all label directions before each use**. On the labels, you will find important information about how to apply the repellent, whether it can be applied to skin and/or clothing, special instructions for children, hazards to humans, physical or chemical hazards and first aid.

Considerations

Deciding whether you want to use a repellent depends on a combination of things, including where you are, how long you will be outside and how bad the bugs are. Every situation is different. Use the following questions to make a "profile" that fits your situation – this might help you decide if you want to use a repellent, and if so, which kind.

- **When will you be outside? Where will you be?**

Some pests are more active at certain times – for example, many mosquitoes are most active between dusk and dawn. In addition, some places are more likely to have higher mosquito numbers.

- **How long will you be outside?**

Are you doing some gardening, going on a hike, camping for a week? The longer you are out, the more protection you need. Some people exposed to high numbers of mosquitoes for long periods of time use a two-part approach. With this approach, about 30 percent **DEET** in a controlled release formula is applied on exposed skin, and clothing is treated with **permethrin**. If, on the other hand, you are going to do some yard work or have a mid-day picnic when mosquito activity is low and you decide to use an insect repellent, even lower concentrations can provide sufficient protection from mosquito bites for a few hours.

The more **DEET** a repellent contains the longer time it can protect you from mosquito bites. A higher percentage of **DEET** in a repellent does not mean that your protection is better—just that it will last longer. **DEET** concentrates higher than 50% do not increase the length of protection.

A general guide for **DEET** product use based on a recent study is as follows:

- 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 1 1/2 hours of protection.

Remember: If you decide to use a repellent, use only what and how much you need for your situation.

APPLYING INSECT REPELLENTS TO CHILDREN

Applying insect repellent to children requires special precautions. For example, repellent should never be applied to children's hands because they put their hands in their mouths. The American Academy of Pediatrics recommends that repellents appropriate for use on children from 2 years to 12 years of age should contain no more than 10 percent **DEET**. In addition, provide a physical barrier on children such as long sleeves and long pants.

According to CDC, the Centers for Disease Control and Prevention, most guidelines cite that it is acceptable to use repellents containing **DEET** on children over two years of age. Other experts suggest that it is acceptable to apply repellent with low concentrations of **DEET** to infants over two months old. For children less than two years of age, parents should consult their pediatrician.

Keep repellents out of the reach of children and read all instructions on the label before applying.

DO MOSQUITOES PICK YOU OUT IN A CROWD?

You may consider using a repellent if you get a lot more bites than people around you do.

DEET TIPS

The Mississippi State Department Of Health recommends taking these precautions when using repellents that contain **DEET**:

- Products with up to 30 percent **DEET** will provide adequate protection under most conditions.
- *Do Not* allow children to apply **DEET** themselves.
- *Do Not* apply **DEET** directly to children. Apply to your own hands and then put it on the child.
- When applying **DEET**, avoid the child's eyes, lips, and hands.

- Avoid prolonged and excessive use of DEET. Use sparingly to cover exposed skin only.
- *Do Not* apply repellents in enclosed areas.
- *Do Not* apply directly on your face, especially near the eyes, nose or mouth.
- *Do Not* use on skin that is damaged by sunburn, cuts, bruises or skin conditions, such as psoriasis.
- DEET may be applied to clothing but can damage some synthetic fabrics and plastics.
- Wash treated skin and clothing after returning indoors.
- There are no reports of adverse events following use of repellents containing DEET in pregnant or breastfeeding women.
- If you believe you or a child is having an adverse reaction to a repellent containing DEET, wash the treated area immediately and contact your health care provider or local poison control center.

National Poison Control Center: 1-800-222-1222

Remember that the use of DEET is only one way to reduce the risk of mosquito bites. The State Health Department also encourages other precautions — such as wearing long pants and long-sleeved shirts when in areas of high mosquito activity. Also, eliminate items on your property in which standing water can collect and serve as a breeding ground for mosquitoes.



MISSISSIPPI STATE DEPARTMENT OF HEALTH

Fight The Bite

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Environmental Protection Agency (EPA): epa.gov/pesticides/factsheets/alpha_fs.htm
National Pesticide Information Center (NPIC): npic.orst.edu