

### *Will you be in an area where pests carry disease?*

Some areas have mosquitoes that carry viruses (for example, West Nile Virus or Eastern Equine Encephalitis) or deer ticks that can transmit Lyme disease bacteria. In those areas, you may want to consider the use of an insect repellent, or perhaps one that provides longer protection. With ticks, it is also important to do a full body check each day and remove ticks with tweezers.

### *Do mosquitoes pick you out in a crowd?*

You may consider using a repellent if you get a lot more bites than someone who never seems to get bitten.

## **FOR MORE INFORMATION**

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Albany, New York 12220

World Wide Web  
[www.nyhealth.gov](http://www.nyhealth.gov)

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State of New York  
Department of Health

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## **Tick and Insect Repellents: Deciding on Their Use**



*Repellents can be effective at reducing bites from ticks and 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. Information in this fact sheet will help decide when and if a repellent is right for you.*

## ABOUT DEET AND PERMETHRIN PRODUCTS

DEET (the label may say N,N-diethyl-m-toluamide) 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.

DEET products have been widely used for many years, but have occasionally been associated with health effects. Skin reactions (particularly at concentrations of 50 percent and above) and eye irritation are the most frequently reported health problems. There have been some reports of central nervous system problems, more frequently reported in children than adults, ranging from slurred speech and confusion to seizures and coma.

### CHILDREN, PREGNANT WOMEN AND REPELLENTS

- Children may be at greater risk for adverse reactions to repellents, in part, because their exposure may be greater.
- Keep repellents out of the reach of children.
- Do not allow children to apply repellents to themselves.
- Use only small amounts of repellent on children.
- Do not apply repellents to the hands of young children because this may result in accidental eye contact or ingestion.
- Try to reduce the use of repellents by dressing children in long sleeves and long pants tucked into boots or socks whenever possible. Use netting over strollers, playpens, etc.
- As with chemical exposures in general, pregnant women should take care to avoid exposures to repellents when practical, as the fetus may be vulnerable.

Products containing **permethrin** are for use on **clothing only, not on skin**. Permethrin kills ticks and insects that come in contact with treated clothes. Permethrin products 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 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.

## BOTANICAL PRODUCTS

Insect repellent products containing botanical oils, such as oil of geranium, cedar, lemongrass, soy or citronella, are also available. There is limited information on the effectiveness of botanical oils individually and when combined with other ingredients to make repellent products. That information, however, indicates that compared to the effectiveness of DEET or permethrin, botanical oils generally do not provide the same duration of protection. While two botanical products are reported to provide some protection (one to four hours) from mosquitoes, other products provide less. Limited, unpublished information on botanical products indicates some protection from ticks.

Because many botanical oils are regulated differently than DEET and permethrin, most have not been tested for their potential to cause short- or long-term health effects.

## CONSIDERATIONS

When thinking about using a repellent, consider a combination of things, including where you are, how long you will be outside and how bad the bugs are, and if those bugs carry disease. Every situation is different. Use the following questions to make a “profile” that fits your situation – this may help you decide if you want to use a repellent, and if so, which kind.

### What type of pest are you concerned about?

Ticks may be more difficult to repel than mosquitoes. Repellents provide some protection against ticks, as does wearing light-colored, long-sleeved shirts and long pants, with bottoms tucked into socks and boots.

### When will you be outside? Where will you be?

Some pests are more active at certain times — for example, some mosquitoes are most active between dusk and dawn. Ticks may be active at any time of day. Some places are more likely to have higher activity, too – mosquitoes generally live in areas with brush and trees. Ticks prefer areas with tall grass, brush and trees.

### 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 may need. Some people exposed to high numbers of ticks and mosquitoes for long periods of time use a two-part approach. With this approach, about 33 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 picnic during mid-day when mosquito activity is low and you decide to use an insect repellent, DEET concentrations as low as five percent may provide sufficient protection from mosquito bites for up to about four hours.

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