

# The best repellent is the one you will actually use.

Choose and use a repellent containing one of the following active ingredients so you can spend time enjoying the outdoors knowing you are protected from biting insects and the diseases they may transmit.



## Choices

### DEET

#### skin and clothing

DEET-based repellents have provided effective, dependable protection since the 1950s. Repellents containing DEET are available in various concentrations that repel insects equally well for the length of time they are needed. DEET-based products are available in a wide variety of forms, including pump and aerosol sprays, lotions and wipes. DEET is the most effective repellent available.

### Picaridin

#### skin and clothing

Picaridin is an effective alternative to DEET products which provide long-lasting protection against mosquito bites. This relatively new repellent has been used worldwide since 1998. Picaridin is nearly odorless, does not cause skin irritation, and is available in multiple formulations. Picaridin provides long-lasting, effective protection similar to that of products containing the same concentrations of DEET.

### Oil of Lemon Eucalyptus

#### skin and clothing

Oil of Lemon Eucalyptus or PMD (para-Menthane-3,8-diol the synthesized version of oil of lemon eucalyptus). According to the CDC, repellents containing PMD provide protection similar to those which contain lower concentrations of DEET. "Pure" oil of lemon eucalyptus (e.g. essential oil) has not received similar, validated testing for safety and efficacy, is not registered with EPA as an insect repellent, and is not covered by CDC recommendations.

### Permethrin

#### clothing and gear

Certain products containing permethrin are recommended for use on clothing, shoes, bed nets, and camping gear, and are registered with EPA for this use. Permethrin is highly effective as an insecticide and as a repellent. Permethrin-treated clothing repels and kills ticks, mosquitoes, and other arthropods and retains this effect after repeated laundering. The permethrin insecticide should be reapplied following the label instructions. Some commercial products are available pretreated with permethrin.

Repels Mosquitoes	Yes
Repels Ticks	Yes
Hours of Protection (7-50% formulas)	1.5-10
Use on Children	2+mos
CDC recommended	Yes

Repels Mosquitoes	Yes
Repels Ticks	Yes
Hours of Protection (5-50% formulas)	up to 10
Use on Children	2+ mos
CDC recommended	Yes

Repels Mosquitoes	Yes
Repels Ticks	Yes
Hours of Protection (40% formulas)	up to 6
Use on Children	3+ yrs
CDC recommended	Yes

Repels Mosquitoes	Yes
Repels Ticks	Yes
Protection	2 weeks (2-3 washings)
Clothing and gear only	
CDC recommended	Yes

## Repellent Safety

- Read and follow all directions and precautions on product labels
- Do not apply over cuts, wounds, or irritated skin
- Do not apply to hands or near eyes and mouth of young children
- Do not allow young children to apply repellents
- Use just enough repellent to cover exposed skin and/or clothing
- Do not use under clothing
- Avoid over-application of the product
- After returning indoors, wash treated skin with soap and water
- Wash treated clothing before wearing again
- Do not spray in enclosed areas
- Do not spray directly onto face. Spray on hands first and then rub on face.
- Permethrin products are for clothing and gear only, *do not apply to skin*
- Oil of Lemon Eucalyptus or PMD should not be used on children under 3 years of age

Other than those listed above, EPA does not recommend any additional precautions for using registered repellents on children or on pregnant or lactating women.

## Remember...

- In general, higher concentrations of active ingredient provide longer duration of protection
- Concentrations above 50% do not offer a marked increase in protection time
- Products with less than 10% active ingredient may offer only limited protection, often from 1-2 hours.
- Repellents do not protect all users equally. The effectiveness of a repellent depends on the mosquito species that is biting and chemical scents given off by the person using the repellent. Examples of chemical cues may include increased levels of CO<sub>2</sub>, lactic acid and chemicals associated with sweat and body odor.

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

- Wear clothing with long sleeves and long pants while outdoors.
- Wear light colored clothing (mosquitoes are more attracted to dark clothing).
- Use mosquito netting over infant carriers.
- Reduce the number of mosquitoes in your area by getting rid of containers with standing water that provide breeding places for mosquitoes.
- Try to limit outdoor activities between the hours of dusk and dawn.



# Picking the right Repellent



MISSISSIPPI STATE DEPARTMENT OF HEALTH  
www.HealthyMS.com • 1-866-HLTHY4U