



For more information about the Organization of Teratology Information Specialists or to find a service in your area, call (866) 626-6847 or visit us online at: www.OTISpregnancy.org.

DEET (N,N-ethyl-m-toluamide) and Pregnancy

This sheet talks about the risks that exposure to DEET can have during pregnancy. With each pregnancy, all women have a 3% to 5% chance of having a baby with a birth defect. This information should not take the place of medical care and advice from your health care provider.

What is DEET?

DEET (N,N-ethyl-m-toluamide or m-DEET) is the active ingredient in many common brands of insect repellent. Most insect repellents contain 10-25% DEET in the form of a lotion, spray, or oil that is put directly onto skin or clothing.

DEET has been marketed in the United States since 1956. It is the most effective and well-studied insect repellent on the market, and is particularly effective in preventing mosquito bites and tick attachment.

Is DEET safe to use?

DEET is used by approximately 50-100 million people a year, with very few reports of harmful side effects. There have been reports of significant effects to the central nervous system among individuals who are sensitive to DEET (especially small children) or have been overexposed to DEET; however, most people will not have any adverse effects when they use DEET according to the manufacturer's recommendations.

Products containing higher concentrations of DEET do not provide greater protection, they only last longer. For example, a product with 6.65% DEET would give approximately 2 hours of protection, whereas a product with 20% DEET would last almost 4 hours. Concentrations of 50% or higher do not increase the length of protection. To minimize exposure, an individual should use the lowest

concentration to provide protection for the time they will be outdoors.

Is DEET absorbed into my bloodstream if I'm using it on my skin?

DEET is partially absorbed by the skin, which means that some enters the bloodstream when put directly on the skin. However, less than 10% of DEET applied on the skin enters into the bloodstream.

Can using DEET during my pregnancy cause birth defects?

Even at toxic levels, there was no increase in birth defects seen in the majority of animal studies. There have been case reports describing adverse pregnancy outcomes following the mother's use of DEET during pregnancy; however, no connection was made between the adverse outcomes and the exposure to DEET. There have been no human studies regarding first trimester exposure to DEET. Based on the animal studies, it appears that exposure to DEET would not significantly increase the risk for birth defects.

Can using DEET later in my pregnancy cause any problems?

When used as recommended DEET does not appear to cause adverse effects when used later in pregnancy. There has been a study

of 497 women who used recommended doses of DEET daily during the second and third trimesters of pregnancy. There was no increase in birth defects or problems with their babies' survival, growth or development in the first year of life.

Should I stop using DEET during my pregnancy?

No, it is important to consider that the benefits of DEET application during pregnancy may outweigh any possible harm. Application of a 20-30% DEET preparation to the skin or clothing protects against 90% of all mosquito bites and tick attachments. DEET use is therefore the most effective protection against malaria, Lyme disease, dengue fever, yellow fever, and the West Nile virus. Illness caused by any of these diseases during pregnancy can be serious enough to have harmful effects on a developing baby.

If it is not possible to avoid situations where you may be exposed to mosquitoes or ticks, wearing long sleeves and pants, and applying DEET to the clothing rather than skin can help to minimize your exposure.

Can I use DEET while breastfeeding?

Illness from mosquitoes and ticks can have serious health effects for the nursing mother and infant. While there have been no studies of DEET use during breastfeeding, it is important to consider the benefit of using DEET to prevent illness. When applying DEET during breastfeeding follow the same instructions as during pregnancy. In addition, special care should be taken to make sure that the baby does not consume any DEET when breastfeeding.

References:

Centers for Disease Control and Prevention. Insect Repellent Use and Safety. Retrieved June 2003, from: http://www.cdc.gov/ncidod/dvbid/westnile/qa/insect_repellent.htm

Hall JG, et al. 1975. Coarctation of the aorta in male cousins with similar maternal environmental exposure to insect repellent and insecticides. *Pediatrics* 55:425-427.

Kuhlmann RS, et al. 1981. N,N-diethyl-meta-toluamide: Embryonic sensitivity. *Teratology* 23:48a.

McGready R, et al. 2001. Safety of the insect repellent N,N-diethyl-m-toluamide (DEET) in pregnancy. *Am J Trop Med Hyg* 65:285-9.

Schaefer C and Peters PW 1992. Intrauterine diethyltoluamide exposure and fetal outcome. *Reprod Toxicol* 6:175-6.

Schoenig GP, et al. 1994. Teratologic evaluations of N,N-diethyl-m-toluamide (DEET) in rats and rabbits. *Fundam Appl Toxicol* 23:63-9.

Selim S, et al. 1995. Absorption and metabolism of DEET following dermal application to human volunteers. *Fundam Appl Toxicol* 25:95-100.

Snodgrass RL, et al. 1982. Dermal penetration and potential for placental transfer of the insect repellent, N,N-diethyl-m-toluamide. *Am Ind Hyg Assoc J* 43:747-753.

Wright DM, et al. 1992. Reproductive and developmental toxicity of N,N-diethyl-m-toluamide in rats. *Fundam Appl Toxicol* 19:33-42.

*If you have questions about the information on this fact sheet or other exposures during pregnancy, call **OTIS** at 1-866-626-6847.*