



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.

Hair Treatments and Pregnancy

This sheet talks about the risks that exposure to hair treatments 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 are the different types of hair treatments?

Hair treatments include hair coloring, hair curling (permanents), hair bleaching, and hair straightening (relaxers) agents. Hair coloring procedures are divided into several groups determined by the length of time the color stays in the hair. These categories include temporary dyes, semi-permanent dyes, and permanent dyes. Permanent dyes have received the most attention, and they include a variety of chemicals. Hair curling or permanent waves are produced by placing two solutions in the hair. The first solution is a waving fluid and the second is a fixation or neutralization solution. Hair bleaching involves the use of hydrogen peroxide, and hair straighteners or hair relaxers involve a variety of chemicals.

The amount of an exposure, the timing during the pregnancy and frequency of use may be important factors when thinking about hair treatments in pregnancy. Since many different chemicals are used and manufacturers frequently change formulations, these general guidelines are offered based upon small doses, animal data and limited data in pregnant women. Cosmetic products are frequently used, but are not generally evaluated for effects on pregnancy.

Do I absorb hair coloring/dye through my skin?

Low levels of hair dye can be absorbed through the skin after application, and the dye is excreted into the urine. This minimal amount is not thought to be enough to cause a problem for the baby.

Before I was pregnant, I had my hair dyed every couple of months. Is this safe now that I am pregnant?

There are very few studies of hair dye use during human pregnancy. In animal studies, at doses 100 times higher than what would normally be used in human application, no significant changes were seen in fetal development. We know that only a small amount of any product applied to your scalp is actually absorbed into your system and therefore, little would be available to get to the developing baby. In addition, many women have dyed their hair during pregnancy with no known reports of negative outcomes. This information, in combination with the minimal absorption through the skin makes hair treatment in pregnancy unlikely to be of concern.

I would like to have my hair permed and am currently in the first trimester of my pregnancy. Is there any risk for birth defects or miscarriage?

Similar to hair dyes, there is limited information available for the safety of hair permanents in pregnancy. The fixation solution used during the application of the permanent may irritate the scalp, but this has not been associated with any other effects in the body. Very little absorption is likely to occur and it does not seem to cause effects in other parts of the body.

I have my hair straightened every two months. Can I continue this into pregnancy?

A study in humans examined the use of hair straighteners during pregnancy. The use of these products was not found to increase the chance of low birth weight or preterm delivery. The study did not address the chance of other abnormal outcomes (such as birth defects). Again, it is likely that only a small amount of hair straightening products are actually absorbed into your system, so the developing baby would only be exposed to small amounts.

I work full time as a cosmetologist and recently became pregnant. Should I stop working until the baby is born?

A large study looked at the risk of miscarriage in cosmetologists. A slightly increased risk of miscarriage was found for cosmetologists who had specific work activities. Activities that seemed to contribute to the slightly increased risk included working more than 40 hours per week, standing more than 8 hours per day, higher numbers of bleaches and permanents applied per week, and working in salons where nail sculpturing was performed. Part time cosmetologists (less than 35 hours per week) did not seem to have an increased risk of miscarriage during pregnancy.

In another study, miscarriage rates among hairdressers were reviewed, and newer data was compared to older data. The older data (from 1986-1988) showed an increased risk of miscarriage, an extended time trying to get pregnant, and low birth weight. The newer data (from 1991-1993) did not find increased risks. The authors suggest that newer restrictions on some dye formulas and better working conditions have contributed to the better outcomes.

Both studies support the importance of proper working conditions. Working in a well-ventilated area, wearing protective gloves, taking frequent breaks, and avoiding eating or drinking in the workplace are all important factors that can decrease chemical exposures.

Is it safe to have hair treatments while I am breastfeeding?

There is no information on having hair treatments during breastfeeding. It is highly unlikely that a significant amount would enter the breast milk because so little enters the mom's bloodstream. Many women receive hair treatments while breastfeeding, and there are no known reports of negative outcomes.

October 2006.

Copyright by OTIS.

Reproduced by permission.



References:

- Blackmore-Prince C, et al 1999. Chemical hair treatments and adverse pregnancy outcome among Black women in central North Carolina. *Am J Epidemiol* 149:712-716.
- Burnett C, et al. 1976. Teratology and percutaneous toxicity studies on hair dyes. *J Toxicol Environ Health* 1:1027-1040.
- DiNardo JC, et al. 1985. Teratological assessment of five oxidative hair dyes in the rat. *Toxicology and Applied Pharmacology* 78:163-166.
- Inouye M. and Murakami U. 1976. Teratogenicity of 2,5-diaminotoluene, a hair dye component, in mice. *Teratology* 14:241-242.
- John EM, et al. 1994. Spontaneous abortions among cosmetologists. *Epidemiol* 5:147-155.
- Kersemaekers WM, et al. 1996. Reproductive disorders among hairdressers. *Epidemiol* 8:396-401.
- Koren G (ed.) 1994. Maternal-Fetal Toxicology: A Clinician's Guide. New York: Marcel Dekker, Inc.
- Koren G. 1996. Hair care during pregnancy. *Can Fam Physician* 42:625-626.
- Kramer S, et al. 1987. Medical and drug risk factors associated with neuroblastoma: A case-control study. *J Natl Cancer Inst* 78:797-803.
- Maibach HI, et al. 1975. Percutaneous penetration following use of hair dyes. *Arch Dermatol* 111:1444-1445.
- Marks TA, et al. 1979. Teratogenicity of 4-nitro-1,2-dianobenzene (4NDB) and 2-nitro-1,4-diaminobenzene (2NDB) in the mouse. *Teratology* 19:37A-38A.
- Marks TA, et al. 1981. Teratogenic evaluation of 2-nitro-p-phenylenediamine, 4-nitro-o-phenylenediamine, and 2,5-toluenediamine sulfate in the mouse. *Teratology* 24:253-265.
- Paul M (ed.) 1993. Occupational and Environmental Reproductive Hazards: A Guide for Clinicians. Baltimore: Williams and Wilkins.
- Rylander L, et al. 2002. Reproductive outcome among female hairdressers. *Occup Environ Med* 59:517-522.

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