



**Embryo Donation**  
INTERNATIONAL  
Building Families

## **Smoking: How It Affects Conception & Pregnancy**

### *Patient Information, EDI*

#### **Dangers of Cigarette Smoking to Yourself and Your Developing Pregnancy:**

There are over 2,500 chemicals identified in tobacco including nicotine. The smoke itself is the most dangerous component of the cigarette. It contains nitrogen oxide and carbon monoxide, which are harmful gases. The tar from the tobacco that is inhaled into your lungs includes 4,000 chemicals, some of which are known to cause cancer.

#### **Impact of Smoking on Reproduction in Women:**

For women who smoke, the chances of conceiving are decreased by 30% compared to women who don't smoke. Data has also shown that once a woman stops smoking, her fertility rates are thought to return to normal within one year.

Additional research has shown that women who smoke destroy their eggs more rapidly than women who do not smoke. As a result, women who smoke enter menopause an average of two years earlier than those who do not smoke. Also, the harmful chemicals in cigarettes have been shown to interfere with the ability of cells in the ovary to make estrogen. This is probably why women who smoke are more prone to thinned bone (osteoporosis).

When there are a reduced number of eggs due to smoking, there is always a reduction in the quality of the eggs and an increased risk for genetic abnormalities. Therefore, women who smoke have a greater risk for miscarriage. There may be additional damage to the Fallopian tubes in that women who smoke are at a higher risk of ectopic (tubal) pregnancies.

When it comes to the pregnancy itself, prematurity, low-birth weight infants, and stillbirth are found far more often in women who smoke. Infant mortality rates in pregnant women who smoke are also increased by 33%. Women who quit before pregnant or during the first trimester, however, reduce their risk for low-birth weight infants equal to that of women who never smoked.

#### **Impact of Smoking on Reproduction in Men:**

Multiple studies have shown that smoking by the male partner can impair natural conception rates, as well as fertilization rates with assisted reproductive therapy procedures. The sperm count, motility, and the general structure of the sperm can be affected. A scientific study done at Reuters showed that smoking alters the DNA in sperm and this may also affect the embryo's development. Heavy smoking has also been linked to impotence because it decreases the amount of blood flow to the penis.

### **Impact of Smoking on Assisted Reproductive Therapies:**

In recent scientific studies, women undergoing the in vitro fertilization process who smoked developed fewer quality eggs, had decreased fertilization rates, and had poorer quality embryos. These same women had a 50% reduction in pregnancy and delivery rates.

Once pregnant, women who smoke will have double the chance of miscarriage compared to women who do not smoke.

The effects of smoking worsen as the number of cigarettes smoked increased. Fortunately the study showed that woman who stopped smoking before undergoing in vitro fertilization were more likely to get pregnant than those woman who continued smoking.

### **Impact of Smoking During Pregnancy and Beyond:**

Smoking reduces folate levels, a B vitamin that is important for preventing birth defects. Women who smoke may also pass genetic mutations that increase cancer risks of their unborn child. Smoking also decreases the blood supply, oxygen, and nutrients from the mother to the fetus. This is because the substances, such as nicotine and carbon monoxide, cross the placental barrier.

Some of the complications that can occur to women who smoke with conception include the following:

#### **Placental Complications**

- **Abruption:** A premature separation of the afterbirth from the uterine wall causing bleeding and potential fetal death. Maternal complications are also quite common with this problem.
- **Thrombosis and Calcification:** Obstruction of blood flow through the veins and arteries of the placenta result in a decreased amount of nutrients for the fetus.
- **Placenta Previa:** A condition in which the placenta blocks the birth canal, preventing vaginal delivery of the fetus resulting in severe bleeding during attempted vaginal delivery.

#### **General Complications**

- **Premature Delivery:** Delivery at or before 37 weeks gestational age.
- **Premature Rupture of Membranes:** Where the surrounding “bag of waters” ruptures early resulting in premature delivery and numerous other obstetrical complications.
- **Small Babies:** In smokers, the children are generally about ½ a pound (200 grams) lighter.

#### **Newborn Complications**

- **Perinatal Death:** Death of the fetus shortly before birth or shortly after birth with an increased risk for Sudden Infant Death Syndrome (SID's).
- **Colic:** Colic is more common when the mother smoked during the pregnancy.
- **Childhood Obesity:** The rates of childhood obesity are increased when women smoke during pregnancy.
- **Asthma:** While second-hand smoke may make it worse, it would appear that asthma is more common in children born to smoking mothers.

Studies have shown that children of smoking mothers are more likely to have more motor control problems, perception impairments, attention and hyperactivity disorders, and social problems. Women who breast-fed and smoked pass nicotine byproducts to their infants, which may contribute to the above problems.

Also, literature supports the theory that children who are born to women who smoke will not do as well in school and will actually have lower scores on IQ when compared to children of women who do not smoke.

### **How can I quit prior to pregnancy?**

Nicotine is the only toxin in the gum/patches while cigarette smoke has numerous known toxins. Your physician may elect, therefore, to recommend the gum/patch even when women are trying to conceive. Zyban or Wellbutrin (bupropion), while not containing nicotine, seems to decrease the desire to smoke. While not specifically approved for use during pregnancy, it is a FDA class C so one has to balance the risks and benefits of the medication during pregnancy. It would be ideal for this medication be discontinued prior to pregnancy, but it may be safer to use this medication than smoke during pregnancy.

### **How can I quit if I am smoking while pregnant?**

Nicotine replacement products may be considered when the benefits outweigh the risks. Products such as the nicotine gum or inhaler may be best since intermitted exposure during pregnancy is preferred to continuous exposure. If the patch is used, removal at night may be of some use.

### **Additional Ideas for Quitting:**

1. Try to figure out when you smoke and avoid these situations. Give yourself alternatives to these patterns of behavior.
2. Have a smoke-free space at home should your partner also smoke.
3. Find a “quitting buddy” such as a former smoker or nonsmoker.

### **Additional Support:**

#### **State of Florida:**

Florida Department of Health’s QuitLine: 1-877-822-6669

<http://www.doh.state.fl.us/tobacco/quitline.html>

This is part of The National Partnership to Help Pregnant Smokers Quit organization

<http://www.helppregnant smokersquit.org/quit/default.asp>

#### **American Legacy Foundation:**

A telephone “quitline”: 1-866-66-START

[www.americanlegacy.org](http://www.americanlegacy.org)

#### **National (English and Spanish):**

United States Department of Health & Human Services

<http://www.surgeongeneral.gov/tobacco/>

#### **Misc. Support:**

Smoke-Free Families: [www.smokefreefamilies.org](http://www.smokefreefamilies.org)

Smokefree.gov: [www.smokefree.gov](http://www.smokefree.gov)

If you are interested in quitting, please discuss this with your doctor. Now is the time to consider quitting while you are motivated with the goal of expanding your family.