



DECREASING THE CHANCE OF BIRTH DEFECTS

According to the March of Dimes, of the 4 million infants born annually in the United States, about 3% to 5% are born with birth defects. More than from any other single cause, birth defects account for 20% of all infant deaths in the United States.

Most birth defects occur in the first 3 months of pregnancy, when the organs are forming. During the first few weeks, the embryo is most susceptible to substances that can cause defects. However, some birth defects do occur later in pregnancy, as well.

Despite the benefits of seeing a doctor before conceiving, only 26% of women planning a pregnancy do so, according to the March of Dimes. Furthermore, health experts estimate more than 50% of pregnancies are unplanned. That is why a healthy lifestyle is the best way to minimize the risk of birth defects.

HEALTHY DIET

Studies of women who had endured starvation during World War II illustrate the importance of diet early in pregnancy. One nutrient known to prevent birth defects is folic acid, the B vitamin. Folic acid is the chemical form of folate, which is found in green leafy vegetables, citrus fruits, and legumes. Folate aids in cell division, and taking extra folic acid reduces a woman's chance of having a child with spina bifida and other abnormalities of the spine and brain.

Spina bifida occurs when the vertebrae do not close completely. It is one of several conditions known as neural tube defects because the neural tube is the portion of the embryo that develops into the brain and spinal column. In very mild cases, spina bifida causes few or minor problems. But, in more severe cases, the spinal cord protrudes through the vertebrae into a sac outside the child's body. This impairs the child's mobility and other neurological functions and requires surgery to repair the opening.

To help prevent neural tube defects, the U.S. Public Health Service has recommended that all women of childbearing age, who are capable of becoming pregnant, consume 0.4 milligrams (mg) of folic acid per day. (For pregnant or lactating women, the daily value increases to 0.8 mg per day.) It is especially important that women take in sufficient folate before becoming pregnant.

The Food and Drug Administration recently published regulations requiring manufacturers to add folic acid to enriched grain products such as flour, noodles, bread, rolls, buns, farina, cornmeal, grits, and rice by January 1998.

Although the main challenge in pregnancy is getting enough nutrients, too much is not good for a developing baby. Vitamins A and D are the most notable examples. Both can be toxic at levels higher than the recommended daily allowance. Such levels are rarely reached through food intake; however, women taking dietary supplements need to be aware of this risk and the amount of these vitamins they are taking. Women who take vitamin and mineral supplements should discuss with a health-care professional what vitamins are safe to continue taking during pregnancy.

Only a few foods are completely off-limits during pregnancy. These include raw or undercooked meat, such as "pink-in-the-middle" burgers, and raw or undercooked seafood. Bacteria from these can cause severe food poisoning, which is dangerous to a fetus and very unpleasant for the mother.

Soft drinks, coffee, tea, and other caffeinated drinks can be used in moderation. Although large doses of caffeine have caused skeletal defects in rats, one or two cups of coffee daily are not considered dangerous for developing fetuses. Alcohol should be avoided at all times during pregnancy because it leads to low birth weight and can cause deformities.

According to the March of Dimes, alcohol is the most common known cause of fetal damage in the country and the leading cause of preventable mental retardation. Pregnant women who drink alcohol, especially in large amounts, put their babies at risk for fetal alcohol syndrome, which causes growth retardation, facial deformities such as a small head, thin upper lip, and small jaw bone, an underdeveloped thymus gland, and mental deficiencies or developmental delays.

If a woman has had a glass or two of wine before finding out she was pregnant, she probably has not harmed her child. But since no one knows the exact amount of alcohol that is considered dangerous, it is best to avoid alcohol when pregnancy is possible.

WOMEN WITH MEDICAL PROBLEMS

A pregnant woman who has a serious medical condition may face a greater than normal risk that her child will have a birth defect. Diabetes, for example, can complicate a pregnancy in many ways. Women who must take insulin daily to control their blood sugar are three or four times more likely to have a baby with major birth defects than are other mothers. That is not to say they should abandon insulin, however. Without it, many diabetic women and their babies would not survive pregnancy at all.

Birth defects among diabetics can be greatly reduced if women get their blood sugar levels under control before becoming pregnant and strictly manage their diets throughout pregnancy. Gestational diabetes, which develops during pregnancy, can also be harmful to mother and child. However, it can be controlled through diet or medication.

Epilepsy also increases a woman's chance of having a baby with a birth defect. It is not clear whether the disease itself or the drugs used to control it cause malformations, but in either case, the woman's neurologist and obstetrician should

work together to find the safest course of treatment for the epilepsy and pregnancy.

Rubella, toxoplasmosis, cytomegalovirus, and syphilis can cause birth defects in the infants of women who have these infectious diseases. Rubella infection during early pregnancy can cause abnormalities of the heart, eyes, and ears. Any woman planning a pregnancy should be tested for rubella immunity and vaccinated, if necessary. She must wait 3 months after vaccination before becoming pregnant, however, because the vaccine itself can endanger a developing fetus.

Toxoplasmosis is transmitted only through raw meat and cat feces, both of which pregnant women should try to avoid. If a fetus becomes infected in the first trimester, the disease causes malformations of the brain, liver, and spleen.

If a woman has syphilis, she should be treated with antibiotics before pregnancy. If not treated by at least the fourth month, syphilis can cause bone and tooth deformities in the baby, as well as nervous system and brain damage.

Cytomegalovirus (CMV) is a herpes virus that causes no real problems--and sometimes not even symptoms--for adults and children. In pregnancy, however, it can damage the fetus' brain, eyes, or ears. The infection's symptoms are very much like a cold's. Because most people contract the infection when they are children, most adults are immune to it. Pregnant women who do not know if they have had CMV and who work with large groups of young children should discuss the situation with their health-care providers.

Sometimes it is not a disease that causes birth defects, but the medication used to treat it. To be on the safe side, a pregnant woman should not take any drug unless it is absolutely necessary and not until she has checked with her health-care provider.

ENVIRONMENTAL HAZARDS

Common chemicals such as paint or exhaust fumes have long been suspected of causing birth defects. It is important for pregnant women to realize that most birth defects are not caused by a single factor, nor are they usually caused by faint traces of toxins. Scientists believe it takes a combination of factors to trigger a congenital malformation. If a pregnant woman must work around fumes or chemicals (such as in a dry-cleaning business, art studio, or factory), she should use gloves, masks, and adequate ventilation.

Some environmental toxins such as lead are best avoided at any time and especially during pregnancy. Scraping leaded paint off an old house window, drinking water from a pipe soldered with lead, or drinking out of decorative pottery containing lead can all potentially cause lead poisoning and mental retardation in a fetus.

Radiation is also dangerous to developing babies. A pregnant woman who works in an x-ray department of a hospital must take precautions to avoid exposure. Elective dental x-rays should be postponed until delivery, and any non-pregnant woman who has an x-ray should have her reproductive organs shielded with a lead apron. Taking hot baths, using saunas, or exercising in hot, humid weather can raise a

woman's core temperature and have the potential to cause birth defects, especially in the first trimester. Lukewarm baths and moderate exercise are fine, however.

Of all the environmental harms, smoking undoubtedly is the most harmful. Smoking deprives the fetus of oxygen and leads to a number of problems. If all pregnant women avoided smoking, the United States would see a 5% reduction in miscarriages, a 20% reduction in low-birth-weight births, and an 8% reduction in premature deliveries in this country, according to the March of Dimes.

FAMILY HISTORY

A number of birth defects are inherited. They are usually triggered when the child inherits a matching pair of disease-causing genes, one from each parent. This is most often an issue for couples of similar ethnic or geographic origins.

For example, African-American couples are most at risk for having a child with sickle cell anemia. According to the March of Dimes, couples of Ashkenazic Jewish or French Canadian descent may be carriers of Tay-Sachs disease. People who know of genetic disorders in their families, or those who have already had one child with a disorder are also at a greater risk, as are couples who are closely related, such as first cousins. Genetic testing is available to determine the risk of passing some genetic disorders to an unborn child. Once a pregnancy begins, prenatal testing is available to detect a number of disorders, as well.

Some genetic abnormalities, such as Down syndrome (a genetic abnormality that causes mental retardation, short stature, and flattened features), increase with the parents' ages. Women over age 35 are at higher risk of having a child with Down syndrome--about 1 in 100 for a 40-year-old, compared to 1 in 10,000 for a 20-year-old mother or 3 in 1,000 for a 35-year-old mother. And, it is not always just the mother's age that matters. An estimated 25% of Down syndrome cases can be attributed to increased age of the father.

It is important to remember that for most healthy women, the incidence of birth defects is very low--less than 3%. And, of the malformations that do occur, the most common are also the most treatable. Cleft palate and clubbed foot, two of the more common birth defects, can be surgically repaired. Many heart malformations can be repaired with surgery so that children live normal lives.

Some of this content was revised from work by Rebecca D. Williams.

THOMAS G. STOVALL, M.D.

Dr. Stovall is a Clinical Professor of Obstetrics and Gynecology at the University of Tennessee Health Science Center in Memphis, Tennessee and Partner of Women's Health Specialists, Inc.

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Health Information Provided by Women's Health Specialists

7800 Wolf Trail Cove, Germantown, TN 38138, (901) 682-9222, www.whsobgyn.com

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