

Preparing for a Healthy Pregnancy

Many women become pregnant without planning for their pregnancies. However, there are steps that a woman can take before she becomes pregnant to protect her health and increase her chances of giving birth to a healthy child. For starters, there are Internet sites and publications devoted to the subject.

The best approach for a woman who is thinking about pregnancy, however, may be to first talk to a physician—a gynecologist or a family practitioner. The doctor may advise the patient to arrange a *preconception visit*. During this visit, the physician will ask about personal and family medical histories, personal habits, and diet. A preconception visit is also an opportunity for prospective parents to ask any questions or discuss their concerns.

MEDICAL HISTORY

By learning about a woman's medical history, a doctor can assess whether a pregnancy might entail any special risks. A pregnancy might be considered high-risk for a variety of reasons:

- **Age.** If a woman is over age 35 or under age 17, there is a higher risk of complications during pregnancy. For example, older women are more likely to develop gestational diabetes and have children with birth defects. Teen mothers have a higher risk of premature labor and having underweight babies.
- **Weight.** Women who are extremely overweight or underweight are considered at higher risk.
- **Medical conditions.** Expectant mothers with serious medical conditions, such as asthma, epilepsy, heart problems, or diabetes, require special care during their pregnancies. All prescription and over-the-counter medications a woman takes need to be reviewed. Many can cause problems for a developing baby.

- **Family history of inherited conditions.** If one or both of the parents have a history of birth defects or other inherited conditions in their families, they may be referred to a genetic counselor.
- **Problems with previous pregnancies.** A history of miscarriages, stillbirths, or premature delivery increases the risk of complications during pregnancy.

Having one of these risk factors does not rule out the possibility of pregnancy, but special care and monitoring may be needed. With proper prenatal care, 90 to 95 percent of high-risk pregnancies result in healthy babies.

During the preconception visit, the doctor will also check to make sure that the woman's immunizations are up-to-date. She may be tested for immunity to chicken pox and rubella. If a patient needs to have any immunizations or boosters, there may be a waiting period before she should become pregnant.

The possibility of sexually transmitted infections should be discussed frankly. The doctor may test for HIV and other STIs.

PERSONAL HABITS

The doctor will also discuss personal habits that the woman may need to change in order to have a healthy child. Drinking alcohol, smoking, and using illegal drugs are dangerous to both the fetus and the mother. Drugs and alcohol have been linked to mental retardation and birth defects. Smoking, including secondhand smoke, can cause premature birth and low birth weight.

It is essential that women not postpone changing these habits until they know they are pregnant. Women who become pregnant usually do not know that they are pregnant for at least a few weeks, but these initial weeks of pregnancy are a critical time of development for the baby.

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DIET

A nutritious diet is vital before and during pregnancy. The doctor will discuss the importance of getting enough of certain nutrients. The doctor may recommend that the woman make improvements in her diet before becoming pregnant. She should concentrate on foods from all major food groups, while cutting back on caffeine and sugar. If she waits until after she becomes pregnant, it may be more difficult to change poor eating habits. It is also important that the woman maintains a healthy weight before becoming pregnant. If she is overweight, underweight, or has an eating disorder, conception may be more difficult.

Women usually can get most of the nutrients they need from eating a variety of nutritious foods daily. However, most doctors recommend that patients take a vitamin-mineral supplement to make sure that patients are getting all of the nutrients that they need. In particular, women who

plan to become, or who are, pregnant need higher intakes of folic acid, calcium, and iron. Taking 400 micrograms of folic acid daily reduces the risk of brain and spinal cord birth defects. Research has shown that taking certain vitamins before pregnancy may even reduce vomiting and nausea early in pregnancy.

As a final part of the preconception visit, the doctor will answer any questions that the couple may have about ovulation and conception. If the woman wishes to get pregnant as soon as possible, the doctor may recommend that she chart her menstrual cycle to predict the time of ovulation. The process includes taking her temperature every morning with a basal thermometer. The physician may suggest that she use an ovulation detection kit. These are usually sold in drugstores. They test for a surge in hormone level.

Taking Action

Use the Internet or other resources to learn about why teen pregnancies are considered high risk and what special care may be needed. What are the possible consequences if a pregnant teen does not receive good prenatal care? Write a report summarizing what you learn.

Inherited Traits

“Who did you get your red hair from, your mother or your father?” People often ask questions like this because they are aware that hair color and other physical traits are passed on from parents to children. But what about other traits, such as personality and talents? Are those traits inherited too?

PHYSICAL TRAITS

There is no question that children inherit many of their physical traits from their parents. Some of these traits include:

- Blood type
- Eye color and shape
- Hair texture and color
- Skin color
- Freckles
- Dimples
- Shape and size of ears, hands, and feet

Although it is known that these traits are inherited, it is not always easy to tell why people have the specific traits that they do. This is because of the way genetics work. At conception, each person inherits two genes for each specific inherited trait. One gene comes from the mother and the other one from the father. However, the mother and father also have two genes for each trait, but can pass on only one, randomly determined. That is why the specific genes a baby will receive cannot be predicted.

Some genes are stronger than others. They are called *dominant genes*. If a baby receives one gene for blue eyes from one parent and one for brown eyes from the other, the child will have brown eyes because the gene for brown eyes is dominant.

The gene for red hair is an example of how a *recessive gene* works. A person must inherit two recessive red-hair genes—one from each parent—in order to have red hair. If the person only inherits one red-hair gene, his or her hair color will not be red. However, that person with one gene can still pass on that recessive red-hair gene when he or she has children. That is why a child can have red hair, even if neither parent does.

Not all physical traits are determined solely by heredity. For example, a person’s physical build and height are determined by environmental factors as well as heredity. Although genes may place limits on how tall a person can become, factors such as nutrition, exercise, and health ultimately affect the person’s adult height.

OTHER TRAITS

Research indicates that other nonphysical traits are also influenced by a person’s genes. For example, children can inherit a predisposition for talents, such as musical or athletic ability, from their parents. Revealing studies of twins seem to indicate that even some personality traits may be inherited.

Many twins not only look alike, but also have similar personalities and interests. If the twins were raised together, it could be argued that the similarities were largely because of their shared environment. However, researchers have found that these similarities often exist even if identical twins were raised apart. In fact, it is not unusual for twins who meet each other after being raised apart to discover that they have much in common. They often share the same hobbies, wear similar clothes, like the same colors, and may even have had many of the same life experiences, including divorce, illnesses, and accidents.

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However, it is clear that environment also plays an important role in the development of talents and personality traits. If environment did not play a role, then identical twins would be exactly the

same in every way, even if they were raised apart. However, no two people are exactly alike, not even identical twins.

Taking Action

The chart below lists some common physical traits that are inherited. For each trait, circle the phrase that best describes *you*. Then write a paragraph, summarizing what dominant and recessive genes you have.

Inherited Physical Traits		
Trait	Dominant	Recessive
Earlobes	Your earlobes are not attached at the bottom, but hang free.	Your earlobes are attached to your head at the bottom.
Dimples	You have dimples.	You do not have dimples.
Freckles	You have freckles.	You do not have freckles.
Widow's peak	Your hairline is shaped in a downward "v" above your forehead.	Your hairline is not shaped in a downward "v" above your forehead.
Tongue rolling	You can roll your tongue into a U-shape.	You cannot roll your tongue into a U-shape.
Little fingers	Your little finger bends toward your ring finger.	Your little finger does not bend toward your ring finger.
Hand clasping	When you clasp your hands together by interlocking your fingers, your left thumb is on top.	When you clasp your hands together by interlocking your fingers, your right thumb is on top.

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Problems in Prenatal Development**Section 4–2**

Fragile X Syndrome

Fragile X syndrome is the most commonly known inherited cause of mental retardation. It is also the most commonly known cause of autism. This genetic disorder runs in families. It is estimated that about 1 in 4,000 males and 1 in 6,000 females are affected by the syndrome.

THE CAUSE

Fragile X is caused by a *mutation*, or change, in a single gene, the Fragile X Mental Retardation 1 (*FMR1*) gene. This gene is located on the X chromosome. Fragile X gets its name from the fact that part of the X chromosome looks “fragile” in people who have the syndrome. Symptoms of Fragile X occur because the *FMR1* gene cannot make enough of a protein that cells need to function normally.

Both men and women can be carriers of the Fragile X gene. (Remember that females have two X chromosomes and males have one X and one Y chromosome.) Men who are carriers pass on the gene to all of their daughters, but to none of their sons. The daughters will usually have no symptoms, but they are carriers of the gene. Women can pass on the gene to both sons and daughters. Children of a woman who has the mutation have a 50 percent chance of inheriting the defective gene.

WHAT ARE THE SYMPTOMS?

People who have Fragile X syndrome may have mental retardation, learning disabilities, and/or behavioral problems. About one-third of children who have Fragile X also have autism. In some people, the symptoms are severe, while in others they

are so mild that they may never be diagnosed. Some children who have Fragile X, especially boys, also have specific physical symptoms. These include large ears and a long, narrow face.

Females are normally less affected than males. This is because females have two X chromosomes, only one of which has the defective gene. Most males have mental retardation or serious learning disabilities, while less than half of females do.

DIAGNOSIS AND TREATMENT

A blood test can identify people who have Fragile X syndrome, as well as people who are carriers of the defective gene. This testing is normally done if a child has mental retardation or autism, especially if the child has physical or other symptoms of the syndrome. Testing may also be recommended if there is family history of Fragile X or mental retardation.

There is no known cure for Fragile X syndrome. However, there are treatments that can lessen the symptoms and help children improve their abilities and skills. These include special education, behavioral therapy, and medication. It is important that children be diagnosed and treated as early as possible to improve their chances of reaching their full potential.

Taking Action

Fragile X syndrome is not the same as Down syndrome, another genetic cause of mental retardation. Compare and contrast the two syndromes, especially their causes and symptoms. In what ways are they similar? In what ways are they different?

Fetal Alcohol Syndrome and Effects

The leading known cause of mental retardation is completely preventable. If a female does not drink alcohol when she might get pregnant or is pregnant, her baby will not be born with an alcohol-related birth defect. Health experts have warned about the dangers of alcohol consumption during pregnancy for centuries, yet as many as 40,000 babies are born each year with some kind of alcohol-related problem.

DEFINING FAS AND FAE

FAS, fetal alcohol syndrome, is a medical diagnosis that describes a set of birth defects. The child's mental ability, facial structure, and overall size are affected.

The mental retardation caused by FAS can range from very severe to a low normal IQ. Other nervous system problems, such as attention deficit hyperactivity disorder (ADHD), learning disabilities, and motor skill problems (both small and large), are common.

A newborn with FAS typically has a small head with distinctive facial features such as small eyes. Many have a *cleft palate*—a gap in the upper lip or roof of the mouth.

FAS babies are small. Newborns tend to be thin as they grow. Heart defects are more common. Joints in the hands, feet, fingers, and toes may be abnormal. Children with FAS remain shorter than average throughout life.

When alcohol-related conditions do not meet the specific requirements for a diagnosis of FAS, it is often determined that children have FAE, fetal alcohol effects. Behavior problems exhibited by children with FAE can be as serious as those of FAS children. Sleep problems and a weak sucking response are other characteristics of babies who were exposed to alcohol before birth.

IS THERE A SAFE AMOUNT?

Some people know an expectant mother who drank alcohol during her pregnancy and gave birth to a perfectly normal newborn. Does that mean there must be a safe amount of alcohol to consume or a safe time to drink during pregnancy? Absolutely not, say the experts. Alcohol consumed by the mother crosses the placenta to the developing baby. The brain is sensitive to alcohol during each of the three trimesters of pregnancy. Any damage to the brain is irreversible. The mother of a child with an alcohol-related birth defect must live with the knowledge that her drinking during pregnancy was the cause.

THE PERSONAL TRAGEDIES

Fetal alcohol syndrome and fetal alcohol effects occur in babies of all races. They are born to mothers of all ages, wealthy and poor.

Imagine the life-long challenges that a child with alcohol-related birth defects faces. The child's family must also learn to accept and deal with this difficult condition.

As young people suffering from FAE reach adulthood, many are unable to live on their own. Most experience problems with employment and with mental health issues. More than half will have alcohol and drug problems of their own.

THE FINANCIAL COSTS

The cost to society is enormous. Costs for one person suffering from FAS can approach \$2 million over his or her lifetime. Families need the help of government and social service programs to provide appropriate care and support.

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