



Repeated Miscarriages

Most women who have a **miscarriage** go on to have healthy pregnancies. A small number of women (1%) will have repeated miscarriages. **Recurrent pregnancy loss** is defined as having two or more miscarriages. After three miscarriages, a thorough physical exam and testing are recommended. You also may benefit from counseling and support. Even if no cause is found, successful pregnancy is likely for most couples who have had repeated pregnancy losses.

This pamphlet explains

- possible causes of repeated miscarriages
- tests you may need to find out the cause
- treatment
- how to cope

Possible Causes

Repeated miscarriages may occur for many reasons. In addition to known causes, others are currently being investigated. However, for many cases of repeated miscarriages, the cause is not known.

Genetic Problems

Genetic disorders are diseases or defects caused by problems with either **chromosomes** or **genes**. A gene is a small piece of hereditary material that controls some aspect of a person's physical makeup or a process in the body. Genes come in pairs and are carried

on chromosomes. Chromosomes also come in pairs. Most **cells** have 23 pairs of chromosomes for a total of 46 chromosomes. **Sperm** and **egg** cells each have 23 chromosomes. During **fertilization**, when the egg and sperm join, the two sets of chromosomes come together. In this way, one half of a baby's genes come from the mother and one half come from the father.

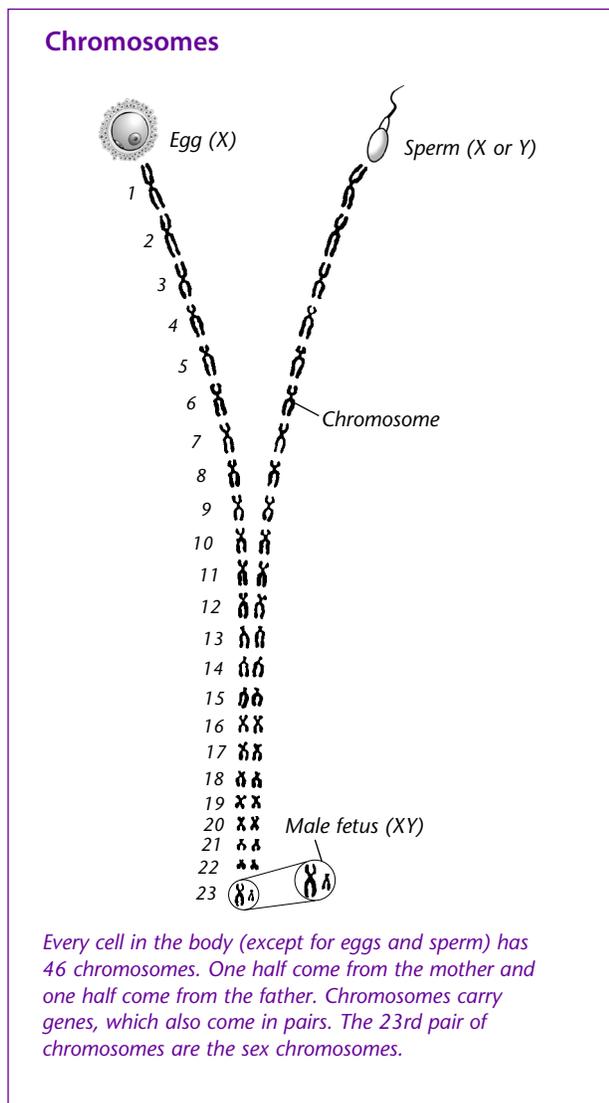
Most miscarriages (about 60%) occur randomly when an **embryo** receives an abnormal number of chromosomes during fertilization. This happens by chance; there is no medical condition that causes it. However, it becomes more common in women of increased reproductive age.

In a small number of couples who have repeated miscarriages, one partner has a chromosome in which a piece is transferred to another chromosome. This is called a **translocation**. People who have a translocation usually do not have any physical signs or symptoms, but some of their eggs or sperm will have abnormal chromosomes. If an embryo gets too much or too little genetic material, it often leads to miscarriage.

Problems With Reproductive Organs

Certain **congenital** problems of the **uterus** are linked to repeated miscarriages. Although there are many such disorders, one of the most common that has been associated with miscarriage is a septate uterus. In this condition, the uterus is partially divided into two sections by a wall of tissue.

Asherman syndrome, in which **adhesions** and scarring form in the uterus, may be associated with repeated miscarriages that often occur before a woman even knows she is pregnant. Fibroids and polyps, which are benign (noncancer) growths of the uterus, also may play a role in recurrent pregnancy loss.



Medical Conditions

Women who have certain medical conditions may have an increased risk of repeated miscarriages. **Antiphospholipid syndrome (APS)** is an **autoimmune disorder** in which a person's immune system mistakenly makes **antibodies** to certain substances involved in normal blood clotting. APS can cause a variety of medical problems. It also is associated with repeated miscarriages and fetal deaths. APS can occur alone or with other autoimmune diseases, such as **lupus**.

Another disease that can lead to miscarriage is **diabetes mellitus**. In this disease, high levels of a sugar called **glucose** are present in the blood. This happens because the body does not make enough **insulin** or the body's cells resist its effects (which is called insulin resistance). Insulin is a **hormone** that helps move glucose from the bloodstream into the body's cells for the energy the body needs. Women with diabetes, especially those in whom the disease is poorly controlled, have an increased risk of pregnancy loss. Maintaining blood sugar levels in the normal range before pregnancy and throughout pregnancy can decrease the risk of miscarriage.

Insulin resistance may play a role in why women who are obese are at an increased risk of repeated miscarriages. Women with a condition called **polycystic ovary syndrome** also have an increased risk of miscarriage. Up to 80% of women with this condition are obese.

Unexplained Repeated Miscarriages

In 50–75% of women with repeated miscarriages, health care professionals can find no cause for the pregnancy loss. There may be clues about what the problem is, but no sure answer is found.

Tests That May Be Needed

To help find the cause of repeated miscarriages, your health care professional will ask about your medical history and past pregnancies. A complete physical exam, including a **pelvic exam**, may be done. You may have blood tests to detect problems with the immune system, including APS.

Imaging tests may be considered to find out if a uterine problem is causing repeated miscarriages. The following tests may be used to diagnose uterine problems:

- **Ultrasound exam**—This test uses sound waves to create images of the internal organs.
- **Hysterosalpingography**—An X-ray of the uterus and **fallopian tubes** is taken after the organs are injected with a small amount of dye.
- **Hysteroscopy**—An instrument called a hysteroscope is inserted into the uterus through the **cervix** to view the inside of the uterus. Surgery also can be performed through the hysteroscope.
- **Sonohysterography**—Vaginal ultrasound is used to view the uterus. A saline solution is injected into the uterus to help expand the uterus for better viewing.

- **Magnetic resonance imaging**—This imaging test uses magnets to produce images of internal organs.

A special test called a **karyotype** of your and your partner's chromosomes may be done. For this test, a sample of blood is sent to a lab. Cells are grown in a special culture. Growth of the cells is stopped at a certain point when the chromosomes are particularly visible. The chromosomes are magnified, photographed, and then arranged in order of size. Karyotyping can detect whether the following problems are present:

- There are an abnormal number of chromosomes.
- The shape of one or more chromosomes is abnormal.
- A chromosome is broken.

Microarray testing also can be used to study chromosome abnormalities. This type of testing can give faster and more complete results than karyotyping. These tests also can be done on the miscarriage tissue.

Treatment

Even if no cause is found for repeated miscarriages, the chances of having a successful pregnancy without special treatment are good. About 65% of women with unexplained recurrent pregnancy loss have a successful next pregnancy.

If a specific cause can be identified, your health care professional may suggest certain treatments:

- If you have a chromosome translocation, genetic counseling may be recommended. Results of genetic testing can help clarify your options. **In vitro fertilization** with genetic testing called **preimplantation genetic diagnosis** may be done to select unaffected embryos. Depending on which parent is found to be affected, in vitro fertilization with donor eggs or **intrauterine insemination** with donor sperm may be recommended for future pregnancies.
- For problems with the reproductive organs, corrective surgery may be able to increase the chances for a successful pregnancy. For example, a septum in the uterus can be removed during hysteroscopy.
- For APS, use of a medication that prevents blood clots, such as heparin, sometimes combined with low-dose aspirin, may be prescribed throughout pregnancy and for a few weeks afterward. This treatment can increase the rates of successful pregnancy in women with this condition.

Coping

It is normal to feel grief after the loss of a pregnancy. In most cases, physical recovery from miscarriage takes only a few hours to a couple of days, but the grieving process takes much longer. When you have had multiple miscarriages, it is easy to feel discouraged. You may feel like you did something to make the miscarriages

happen. However, miscarriages are almost never caused by anything the woman did or did not do.

Your feelings of grief may differ from those of your partner. Your partner may not express grief in the same way you do. This may create tensions between the two of you when you need each other the most. Partners also may feel that they need to be strong for the both of you and not show their grief.

Reach out to those closest to you and ask for their comfort and support. When you visit your health care professional for follow-up care, do not be afraid to talk about how you are feeling and other issues related to the repeated pregnancy losses. Sometimes, further counseling or referral to a support group in your area can help you and your partner cope.

What You Can Do

If you decide to become pregnant again, it is a good idea to be as healthy as possible beforehand. The following is standard advice given to all women planning a pregnancy:

- See your health care professional for a preconception care checkup.
- Take 400 micrograms of **folic acid** as a daily dietary supplement.
- Follow a healthy diet and get 30 minutes of exercise on most days of the week.
- Reach a normal weight for your height. Lose weight if you are overweight or gain weight if you are underweight.
- Do not drink alcohol.
- Do not smoke.
- If you have a medical condition, work with your health care team to get your condition under control before trying to become pregnant.

You and your partner also may decide not to try to become pregnant again. No choice is right or wrong. You need to decide what is best for you and your partner.

Finally...

It is important to take care of yourself physically as well as emotionally if you have had repeated pregnancy losses. If you have had three or more miscarriages, it is recommended that you have a thorough evaluation. Treatment is available for some problems linked to repeated miscarriages. Even if no cause for your miscarriages is found, you still have a good chance of having a successful pregnancy.

Glossary

Adhesions: Scarring that binds together the surfaces of tissues.

Antibodies: Proteins in the blood produced in reaction to foreign substances, such as bacteria and viruses that cause infection.

Antiphospholipid Syndrome (APS): A disorder in which proteins called antibodies are mistakenly made against certain substances in the blood involved in normal blood clotting. It can lead to abnormal blood clotting and pregnancy complications, including pregnancy loss.

Autoimmune Disorder: A condition in which the body attacks its own tissues.

Cells: The smallest units of a structure in the body; the building blocks for all parts of the body.

Cervix: The lower, narrow end of the uterus at the top of the vagina.

Chromosomes: Structures that are located inside each cell in the body and contain the genes that determine a person's physical makeup.

Congenital: A condition that is present in a person from birth.

Diabetes Mellitus: A condition in which the levels of sugar in the blood are too high.

Egg: The female reproductive cell produced in and released from the ovaries; also called the ovum.

Embryo: The developing organism from the time it implants in the uterus up to 8 completed weeks of pregnancy.

Fallopian Tubes: Tubes through which an egg travels from the ovary to the uterus.

Fertilization: Joining of the egg and sperm.

Folic Acid: A vitamin that has been shown to reduce the risk of certain birth defects when taken in sufficient amounts before and during pregnancy.

Genes: Segments of DNA that contain instructions for the development of a person's physical traits and control of the processes in the body. They are the basic units of heredity and can be passed down from parent to offspring.

Glucose: A sugar that is present in the blood and is the body's main source of fuel.

Hormone: A substance made in the body by cells or organs that controls the function of cells or organs. An example is estrogen, which controls the function of female reproductive organs.

Hysterosalpingography: A special X-ray procedure in which a small amount of fluid is placed into the uterus and fallopian tubes to detect abnormal changes in their size and shape or to determine whether the tubes are blocked.

Hysteroscopy: A procedure in which a device called a hysteroscope is inserted into the uterus through the cervix to view the inside of the uterus or perform surgery.

Insulin: A hormone that lowers the levels of glucose (sugar) in the blood.

Intrauterine Insemination: A procedure in which a man's semen is placed into a woman's vagina, cervix, or uterus.

In Vitro Fertilization: A procedure in which an egg is removed from a woman's ovary, fertilized in a dish in a laboratory with the man's sperm, and then transferred to the woman's uterus to achieve a pregnancy.

Karyotype: An image of a person's chromosomes, arranged in order of size.

Lupus: An autoimmune disorder that causes changes in the joints, skin, kidneys, lungs, heart, or brain.

Magnetic Resonance Imaging: A method of viewing internal organs and structures by using a strong magnetic field and sound waves.

Microarray: A technology that examines all of a person's genes to look for certain genetic disorders or abnormalities. Microarray technology can find very small genetic variation that have gone undetected by conventional genetic tests.

Miscarriage: Loss of a pregnancy that occurs in the first 13 weeks of pregnancy.

Pelvic Exam: A physical examination of a woman's reproductive organs.

Polycystic Ovary Syndrome: A condition characterized by two or three of the following criteria: the presence of growths called cysts on the ovaries, irregular menstrual periods, and an increase in the levels of certain hormones.

Preimplantation Genetic Diagnosis: A type of genetic testing that can be done during in vitro fertilization. Tests are performed on the fertilized egg before it is transferred to the uterus.

Recurrent Pregnancy Loss: Two or more pregnancy losses.

Sonohysterography: A procedure in which sterile fluid is injected into the uterus through the cervix while ultrasound images are taken of the inside of the uterus.

Sperm: The male sex cell produced in the testes that can fertilize a female egg.

Translocation: An error in chromosome structure in which one part of a chromosome is transferred to another chromosome.

Ultrasound Exam: A test in which sound waves are used to examine internal structures. During pregnancy, it can be used to examine the fetus.

Uterus: A muscular organ located in the female pelvis that contains and nourishes the developing fetus during pregnancy.

This Patient Education Pamphlet was developed by the American College of Obstetricians and Gynecologists. Designed as an aid to patients, it sets forth current information and opinions on subjects related to women's health. The average readability level of the series, based on the Fry formula, is grade 6–8. The Suitability Assessment of Materials (SAM) instrument rates the pamphlets as “superior.” To ensure the information is current and accurate, the pamphlets are reviewed every 18 months. The information in this pamphlet does not dictate an exclusive course of treatment or procedure to be followed and should not be construed as excluding other acceptable methods of practice. Variations, taking into account the needs of the individual patient, resources, and limitations unique to the institution or type of practice, may be appropriate.

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