

Developmental Disorders

by Sophia



WHAT'S COVERED

In this lesson, you will learn about the causes and effects of various developmental disorders. Specifically, this lesson will cover:

1. Birth Defects

A **teratogen** is an agent that can cause birth defects. Teratogens can be things like drugs, infections, deficiency of nutrients, viruses, et cetera.



TERM TO KNOW

Teratogen

Anything that can cause or contribute to the development of a birth defect.

1a. Nutrition

Spina bifida is a birth defect that is caused by a deficiency of nutrients. The teratogen, in this case, would be insufficient nutrition.

Spina bifida is when the neural tube doesn't close, and part of the spinal cord may be exposed on the baby.



TERM TO KNOW

Spina Bifida

A condition in which lack of folic acid intake by the mother; this lack of folic acid can lead to the neural tube not closing and a portion of the spinal cord being exposed on the child.

1b. Infections

Rubella and **toxoplasmosis** are two disorders that can be caused by infections. The teratogen in these cases would be an infection.

Rubella is specifically a virus that inhibits the proper development of organs of the baby if the mother contracts the virus while pregnant.

Toxoplasmosis is caused specifically by a parasitic cyst. These parasitic cysts can affect the fetus and cause birth defects or miscarriage. This is caused through exposure to cat feces.

When mothers are pregnant, they're warned to stay away from any cat feces. If they have a cat in the house,

they're supposed to stay away from the litter box because this parasitic cyst is spread through cat feces.



TERMS TO KNOW

Rubella

A virus that can be contracted by a pregnant mother and lead to improper organ development of the baby; also known as German measles.

Toxoplasmosis

A condition in which parasitic cysts from exposure to cat feces can infect the mother and fetus, causing birth defects or miscarriage.

1c. Drugs

Fetal alcohol syndrome, or FAS, is a disorder that causes mental retardation if a mother drinks alcohol while pregnant.

If a mother drinks alcohol while pregnant, it can cause mental retardation, which can vary a little bit depending on the severity. Some cases of fetal alcohol syndrome are more severe than others.



TERM TO KNOW

Fetal Alcohol Syndrome

A birth defect that leads to mental retardation due to the consumption of alcohol by the mother while pregnant.

2. Detecting and Preventing Birth Defects

These days there are many types of technologies that help to detect birth defects in an unborn fetus. You will learn about three today.

- **Chorionic villus sampling (CVS):** Chorionic villus sampling is a sampling that can be used to detect birth defects as early as the eighth week of pregnancy. With this type of sampling, a tube that has a suction end is inserted through the vagina up into the uterus and suck out a small sampling of chorionic villus cells. These cells are part of the placenta, which will then be tested for any birth defects at that time.
- **Amniocentesis:** Amniocentesis is a type of technology that can be used between the 14th and the 16th weeks of pregnancy if there is some reason to be concerned about the health of the fetus. Amniocentesis tests the amniotic fluid the fetus is in. Amniotic fluid contains sloughed off cells of the fetus, and if you take a sample of it, certain genetic birth defects can be detected. A needle is inserted into the mother's belly from which amniotic fluid to be drawn out.
- **Preimplantation diagnosis:** Preimplantation diagnosis is another way you can test for birth defects and is involved with in vitro fertilization. This is the screening of an embryo that has not yet been implanted into the uterus, hence the term preimplantation. This occurs around the eight-cell stage of development. One of the cells will be removed and tested for any birth defects, and if it comes out clear, they will then implant that embryo into the mother's uterus.

Each method of detecting birth defects has both benefits and risks. For one, they can help expecting parents prepare for potential complications. But some methods of birth defect detection, especially amniocentesis, can cause infections and other complications.



TERMS TO KNOW

Chorionic Villus Sampling

A procedure done in the first 10-12 weeks to check for genetic disorders of the child; a tube with a suction cup at the end is inserted into the vagina toward the cervix to remove a sample of the chorion.

Amniocentesis

The insertion of a needle into the amnion; an amniocentesis is done in the 14-16th week of pregnancy if testing for genetic abnormalities is warranted.

Preimplantation Diagnosis

The screening of embryos before in vitro fertilization to ensure they are genetically fine before they are implanted into the mother.



SUMMARY

This lesson has been an overview of various types of developmental disorders and their causes. Specifically, this lesson focused on **birth defects** caused by teratogens such as spina bifida, rubella, toxoplasmosis, and fetal alcohol syndrome. You also learned about three methods of **detecting birth defects**: Chorionic villus sampling, amniocentesis, and preimplantation diagnosis. Keep up the learning and have a great day!

Source: THIS WORK IS ADAPTED FROM SOPHIA AUTHOR AMANDA SODERLIND



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