

# Umbilical Cord: Structure, Function, and Complications

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## DESCRIPTION

The umbilical cord is a vital organ that connects the developing fetus to the placenta in the womb. It serves as a lifeline, supplying the fetus with oxygen and nutrients while also removing waste products. The cord is a flexible, tube-like structure that varies in length, thickness, and color. It plays a crucial role in fetal development and can provide valuable information about the health of both the mother and the baby. In this article, we will explore the anatomy of the umbilical cord, its functions, and the potential complications that can arise during pregnancy. The umbilical cord is formed during the early stages of pregnancy, around the fifth week of gestation. It consists of three main structures:

Two arteries-these are responsible for carrying deoxygenated blood from the fetus to the placenta. The arteries are thick-walled and have a small diameter.

One vein this carries oxygen-rich blood and nutrients from the placenta to the fetus. The vein is thin-walled and has a larger diameter than the arteries.

The arteries and vein are surrounded by a gelatinous substance called Wharton's jelly, which protects the vessels from compression and damage. The length of the umbilical cord varies from pregnancy to pregnancy, but it is typically between 50 centimetres and 60 centimetres long. The thickness of the cord also varies, but it is usually around 1 to 2 centimetres in diameter.

### Umbilical cord

The umbilical cord plays several essential roles in fetal development. Its primary functions are:

• Supplying oxygen and nutrients the umbilical vein carries oxygen and nutrients from the placenta to the fetus. These nutrients include glucose, amino acids,

and essential fatty acids that are necessary for the growth and development of the fetus.

- Removing waste products: The umbilical arteries carry waste products, such as carbon dioxide and urea, from the fetus to the placenta, where they can be removed from the mother's body.
- Regulating temperature: The umbilical cord helps to regulate the temperature of the fetus by transferring heat between the fetus and the placenta.
- Providing stem cells: The umbilical cord contains stem cells that can be used for medical treatments, such as bone marrow transplants.

#### Complications of the umbilical cord

While the umbilical cord is essential for fetal development, it can also be a source of complications during pregnancy. Some potential complications include:

**Umbilical cord prolapse**: this occurs when the cord slips through the cervix and protrudes from the vagina before the baby is born. This can lead to compression or damage to the cord, which can affect the flow of oxygen and nutrients to the baby.

**Umbilical cord compression:** this occurs when the cord is compressed between the fetus and the walls of the uterus. This can also affect the flow of oxygen and nutrients to the baby and can lead to fetal distress.

**Nuchal cord:** this occurs when the umbilical cord becomes wrapped around the baby's neck. This can cause problems with the baby's heart rate and can also lead to fetal distress. A short cord can restrict the movement of the fetus and can lead to complications during delivery. A long cord can become tangled or compressed, which can also cause problems.

Umbilical cord abnormalities include knots in the cord, cysts, or other structural defects that can affect the flow of blood and nutrients to the baby. Umbilical cord complications can be detected through various diagnostic tests, such as ultrasound, fetal monitoring, or Doppler studies.

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