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## Chapter 9 Maret

- One general type of teratogen is alcohol. Alcohol can cross the placenta and affect the baby in the mother's womb, leading to different defects such as physical, behavioral, and cognitive deficits known as fetal alcohol spectrum disorders. The mechanisms behind the teratogenic effects of alcohol are not fully understood, but it is believed that alcohol disrupts the normal development of the nervous system by interfering with the formation and migration of neurons, synapse formation, and myelination. The timing and amount of alcohol consumption during pregnancy can also impact the severity of these disorders, with heavy and frequent alcohol consumption posing alarming risks.
- Another general type of teratogen is medication. Some medications, such as thalidomide, diethylstilbestrol (DES), and valproic acid, have been linked to birth defects when taken during pregnancy. The mechanisms behind the teratogenic effects of medication vary depending on the specific medication, but it is generally believed that they interfere with normal fetal development by disrupting processes such as cell division, differentiation, and migration. The timing and dose of medication during pregnancy can also impact the risk and severity of birth defects.
- A third general type of teratogen is environmental toxins. Exposure to environmental toxins, such as lead, mercury, and pesticides, can affect fetal development and lead to a range of birth defects and developmental disabilities. The mechanisms behind the teratogenic effects of environmental toxins vary depending on the specific toxin, but it is generally believed that they interfere with normal fetal development by disrupting processes such as cell division, differentiation, and migration. The timing and duration of exposure to environmental toxins during pregnancy can also impact the risk and severity of birth defects. Environmental toxins can also have long-term effects on the health and development of children beyond the prenatal period.

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- Prenatal sensory capabilities refer to the ability of the developing fetus to sense and perceive different stimuli in the environment. While in the womb, the fetus is exposed to various sensory inputs, including sounds, smells, and touch. Studies have shown that the fetus can detect external sounds as early as 16 weeks gestation, and they can differentiate between different types of sounds, such as music and speech. The fetus can also detect different tastes and odors through the amniotic fluid.
- Prenatal capacities for learning refer to the ability of the developing fetus to acquire and retain information in the womb. While it was previously believed that the fetus did not have any capacity for learning, recent research has shown that the fetus can indeed learn from its environment in utero. For example, studies have shown that fetuses can become familiar with and remember specific melodies or stories that are repeatedly played or read to them in the womb and even to identify their mother's voice. This suggests that prenatal learning can have a lasting impact on the developing fetus and can influence their postnatal behavior and cognition.
- Prenatal emotional capabilities refer to the ability of the developing fetus to experience emotions in the womb. While it is unclear exactly when and to what extent the fetus begins to experience emotions, there is evidence to suggest that they can feel basic emotions such as pleasure, pain, and arousal. For example, research has shown that the fetus can respond to stimuli that elicit a startle reflex or changes in heart rate, suggesting that they are capable of experiencing some form of emotional response. However, the exact nature and extent of prenatal emotions are still not fully understood, and more research is needed to better understand this area of fetal development.