

# Prenatal Development

Chapter 9  
Life Span Development I



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**TRUE OR FALSE...**  
The study of development begins at birth.



**FALSE!**

The study of development begins at the moment of conception

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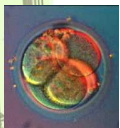
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**CLASS OBJECTIVE:** We will examine the biological process of human development.



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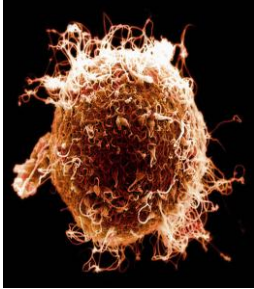
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## The real “Amazing Race”

- Every human begins very simply with the meeting of one sperm and one ovum (egg).



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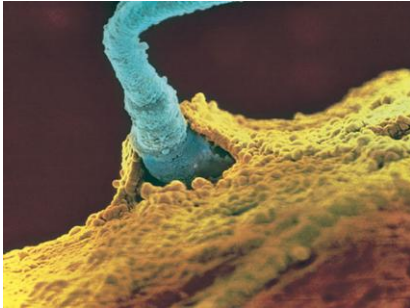
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The sperm “fight” to be the only one that can successfully fertilize the egg.



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## The first form of life



- At conception the genetic material from each parent is fused.
- A living cell called the zygote is formed within hours.

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True or false?

50% of fertilized eggs are lost before a woman finds out she's pregnant.

**TRUE!**



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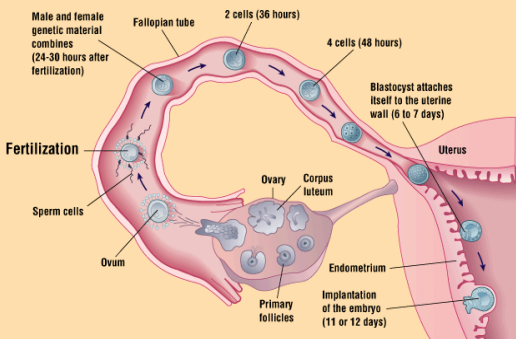
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**The Journey of the Ovum Toward the Uterus**



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From Zygote to human??

- The Zygote will become transformed through a process of three stages:
- Germinal period- The first two weeks after conception
- Embryonic period- The 3<sup>rd</sup> to the 8<sup>th</sup> week after conception
- Fetal period- The ninth week after conception to birth

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## Hello Embryo!

During the Embryonic stage, it is still not recognizable as a human.

The neural tube forms (at 22 days), which becomes central nervous system



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## 4 Week Embryo



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From 4 to 6 weeks...  
Look at the difference!



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## 6 Week-Old Embryo



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## TRUE OR FALSE?

- Approximately 20% of all embryos are aborted spontaneously
- **TRUE!** This is most often due to chromosomal abnormalities

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## 7 Weeks...Now what do you see?



- Legs, feet and webbed toes have begun to develop
- A blood vessel that will become heart begins pulsating around this time.
- The embryo is 2 ½ centimeters long

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## 8 Weeks

- The embryo is now recognizable as a human
- The embryo now weighs 1 gram and is 1 inch long
- All the basic organs and body parts of a human being (except sex organs)
- The "tail" is no longer visible and is now incorporated into the lower spine



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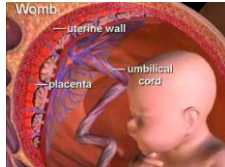
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## The placenta also forms during this early period

- The placenta is a mass of tissue attached to the uterine wall that acts as a life-support system for the fetus
- Connects its circulatory system with the mother
- The embryo and placenta are connected by the umbilical cord



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## The Fetus: Week 9-Birth

- The Brain grows dramatically (6 times in size) and becomes responsive during this time.
- At 22 weeks the fetus reaches the "Age of viability", which is the age a preterm baby can survive.
- There is only a 50% survival rate at 26 weeks



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## The Brain MUST be able to sustain the body for survival

Without proper brain development, the most advanced technology cannot keep the body alive

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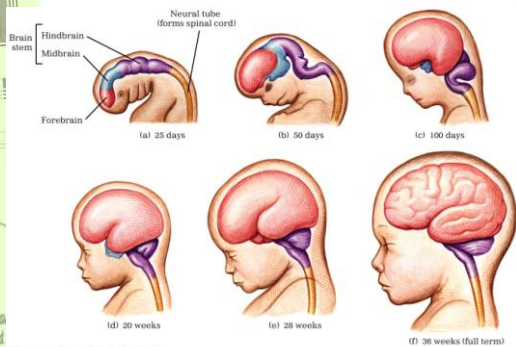
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## It's All About the Brain!



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Research shows that fetuses can develop sight very early in the womb.

**FALSE!**



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Fetuses spend roughly 90% of their time in the womb asleep.

**TRUE!**



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14-16 Weeks



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24-28 Weeks



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36-38 Weeks



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It was previously thought that emotions were only expressed after birth



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## Next Class...

- What factors can influence prenatal development?

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