

## Lesson Two – Conception Through Embryonic Development

# LEARN: The Stages of Embryonic Development

90 minutes

### Purpose:

Participants will learn the stages of embryonic development from conception through the first 4 weeks.

### Materials:

- Biology of Prenatal Development DVD (51 min)
- *Stages of Embryonic Development* handout (one per participant)
- Colors, markers, pencils
- Internet access for all students

### Facilitation Steps:

1. Show the DVD and have students pay attention to the stages of embryonic development and key terms.
2. To review, share the following background information with students.

If the corpus luteum does receive signals that there is an actual pregnancy, it will continue to make progesterone. The body will hold the endometrium in place and support the pregnancy. There is no release of the blood and nutrients in the body because they are nourishing the pregnancy. There is no period.

Each milliliter of semen contains millions of sperm, but the majority of the volume consists of secretions of the glands in the male reproductive organs.<sup>1</sup>

During each normal menstrual cycle, one egg (ovum) is usually released from one of the ovaries, about 14 days before the next menstrual period. Release of the egg is called ovulation. The egg is swept into the funnel-shaped end of one of the fallopian tubes.

At ovulation, the mucus in the cervix becomes more fluid and more elastic, allowing sperm to enter the uterus rapidly. Within 5 minutes,

sperm may move from the vagina, through the cervix into the uterus, and to the funnel-shaped end of a fallopian tube—the usual site of fertilization. The cells lining the fallopian tube facilitate fertilization.

If a sperm penetrates the egg, fertilization results. Tiny hair-like cilia lining the fallopian tube propel the fertilized egg (zygote) through the tube toward the uterus. The cells of the zygote divide repeatedly as the zygote moves down the fallopian tube. The zygote enters the uterus in 3 to 5 days. In the uterus, the cells continue to divide, becoming a hollow ball of cells called a blastocyst. If fertilization does not occur, the egg degenerates and passes through the cervix with the next menstrual period.

If more than one egg is released and fertilized, a multiple pregnancy results. It involves more than one fetus, usually two (twins). Such twins are fraternal. Identical twins result when one fertilized egg separates into two embryos after it has begun to divide.

**Development of the Blastocyst:** Between 5 and 8 days after fertilization, the blastocyst attaches to the lining of the uterus, usually near the top. This process, called implantation, is completed by day 9 or 10.<sup>2</sup>

1. Dawson, Chris (2015, May 29). *Semen and sperm quality*. Retrieved from [www.netdoctor.co.uk](http://www.netdoctor.co.uk)

2. Brown, Haywood L. MD (n.d.). *Stages of Development of the Fetus*. Retrieved from <http://www.merckmanuals.com/home/women's-health-issues/normal-pregnancy/stages-of-development-of-the-fetus>

3. Give participants the *Stages of Embryonic Development* handout. Give participants the remainder of the class period to research using a variety of sources from books, posters and the Internet to find what embryonic development

looks like at various stages. Participants should draw what the zygote/embryo looks in the boxes provided.

4. If participants don't complete it in class, it could be finished as homework.

**SAMPLE**

Name: \_\_\_\_\_ Class: \_\_\_\_\_

# Stages of Embryonic Development

In each of the boxes provided, draw the embryonic development at the stage indicated.

Ovum at time of fertilization with male gamete (sperm)	Zygote at 2-cell stage (30 hours after fertilization)	Zygote at 4-cell stage (40-50 hours after fertilization)
Zygote at 8-cell stage (55 hours after fertilization)	Morula	Blastocyst (around 4 days)
<b>SAMPLE</b>		
Blastocyst (around 5 days)	Blastocyst (around 8-9 days)	Germ Cells (around 11 days)
Germ Cells (around 20 days)	Embryo (28 days / 1 month)	Embryo (2 months)