

# Control and Movement

- 13.1 [Hormones](#)
- 13.2 [Reproduction](#)
- 13.3 **Development**
- 13.4 [The Skeleton](#)
- 13.5 [Muscles](#)



Photo Credit: Anne-Marie Keppel

## 13.3 Development

After an egg is fertilized, it begins to divide through the process of cell division, or mitosis. By the time implantation occurs in the uterus, about 6 days after fertilization, the developing egg has become a hollow ball of cells called a *blastocyst*. Part of the blastocyst forms the embryo, the future baby. The rest of the blastocyst forms structures that protect and nourish the embryo, such as the amnion and the embryonic portion of the placenta.

The **amnion** is a membrane that surrounds the embryo. It is filled with amniotic fluid, a liquid that cushions and protects the developing embryo. The amnion is what ruptures when a pregnant woman's "water breaks" during labor. The **placenta** provides oxygen and nutrients to the developing embryo and carries away wastes. The placenta consists of both embryonic and maternal tissues. Maternal blood and embryonic blood do not come into direct contact in the placenta; however, they are close enough to allow for the exchange of nutrients and wastes. The placenta also produces estrogen and progesterone (a progestin). These hormones prevent further ovulation and maintain the uterus in its nurturing condition throughout pregnancy.

The 9 months of pregnancy are divided into three 3-month trimesters. During the first trimester, all of the embryo's major organs and body parts develop. Further development, as well as most of the fetus's growth, occurs in the second and third trimesters. Three stages in human development are shown in Figure 13.8.



**FIGURE 13.8**

(a) This is a human embryo at 5 weeks. (b) This is a human embryo at 14 weeks. By the end of the first trimester, all the major organs and body parts have developed. (c) This is a human embryo at 20 weeks.



## READING CHECK

**What is the function of the placenta?**

## CHECK YOUR ANSWER

The placenta consists of embryonic and maternal tissues found in close proximity to one another. It allows for oxygen and nutrients to pass from the mother to the developing embryo, and for wastes to be removed.

You can find additional information on human development here:

[https://embryology.med.unsw.edu.au/embryology/index.php/Embryonic\\_Development?source=post\\_page](https://embryology.med.unsw.edu.au/embryology/index.php/Embryonic_Development?source=post_page)

