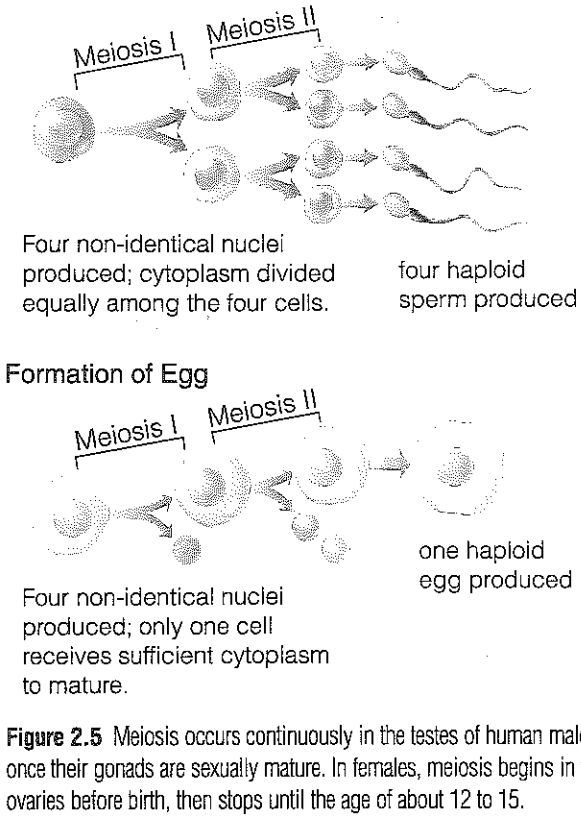

Figure 2.5 Meiosis occurs continuously in the testes of human males once their gonads are sexually mature. In females, meiosis begins in the ovaries before birth, then stops until the age of about 12 to 15.

The Formation of Sperm and Eggs

Sexually reproducing animals produce gametes in reproductive organs called **gonads**. Male gonads are called **testes** and female gonads are called **ovaries**.

The diagram of meiosis you studied in Investigation 2-A shows the formation of gametes, or **sperm**, in the testes of a male animal. The gametes, or **eggs**, of female animals are produced by meiosis in the ovaries. However, the way in which male and female gametes are finally formed differs. Study Figure 2.5 carefully. What is the final outcome of meiosis for male gametes? For female gametes?

In this section, you have seen how gametes are produced. During the process of fertilization, they come together to produce a zygote, which then starts to divide through mitosis to develop all the cells of a new organism. In the remainder of this chapter, you will learn about sexual reproduction and development in a variety of organisms.

Check Your Understanding

1. For each pair of the following terms, explain how they are related or how they are different.
   (a) asexual reproduction and sexual reproduction
   (b) body cells and gametes
   (c) haploid and diploid
2. How are zygotes produced?
3. What are homologous pairs and why are they important?
4. What is the main difference between mitosis and meiosis?
5. **Apply** Are cells in your muscles haploid or diploid? Explain why.
6. **Apply** An organism has five pairs of chromosomes. Answer the following questions.
   (a) One of the organism's body cells undergoes mitosis. How many cells are formed? How many chromosomes does each new cell have?
   (b) How many chromosomes are in each sperm cell?
7. **Thinking Critically** Explain why all organisms that reproduce sexually have even diploid numbers.
8. **Thinking Critically** Based on what you now know about meiosis, explain the differences among the family members in Figure 2.1.