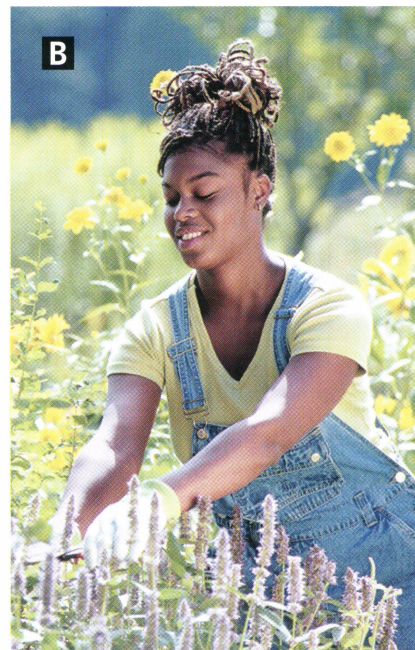


**Figure 19** Products of cellular respiration are reactants during photosynthesis. **A** Cellular respiration and photosynthesis are two parts of the same cycle. **B** Plants can survive without people, but people cannot survive without plants.



## Cellular Respiration

What does your body need energy for, besides maintaining a constant body temperature? Everything! It takes energy to laugh or cry, to heal a bone or a paper cut, to climb a rope or a staircase, or even to sleep.

**During cellular respiration, the energy stored in the products of photosynthesis is released.** Like photosynthesis, cellular respiration is a complex series of reactions. This equation is a summary of the overall process.



Figure 19 summarizes the relationship between photosynthesis and cellular respiration. Each process produces the reactants for the other process. Carbon dioxide and water are reactants in photosynthesis and products of cellular respiration. Carbohydrates and oxygen are reactants in cellular respiration and products of photosynthesis.

In the equation for cellular respiration, glucose is reacting with oxygen. The glucose can come from simple sugars or from starches, because starch is a polymer of glucose. During digestion, starch breaks down into glucose. This process is an example of depolymerization. Fats are also a good source of energy. One gram of fat produces twice the energy of one gram of a carbohydrate.



**Reading  
Checkpoint**

*Which produces more energy per gram, a carbohydrate or a fat?*

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