

SC.912.L.18.9 – Photosynthesis and Cellular Respiration – Example 3 Answer

A weightlifter is using heavy weights in short bursts for a competition. Because his muscle cells are not able to take in enough oxygen to make very much ATP the weightlifter begins to get fatigue in his muscles. Which of the following processes is most likely going on in the muscles of the weightlifter as he competes in his event?

- A. As the cells run out of oxygen they switch to anaerobic respiration, which allows the cell to make small amounts of ATP in the absence of oxygen.**
- B. As the cells run out of oxygen, they die off gradually and the weightlifter's muscles have fewer contracting muscle cells.**
- C. The cells will never run out of oxygen if the weightlifter is breathing.**
- D. As the cells run out of oxygen, they will continue to make the same amount of ATP, since oxygen is not required to make ATP.**

Answer

A. As the cells run out of oxygen they switch to anaerobic respiration, which allows the cell to make small amounts of ATP in the absence of oxygen.

Anaerobic respiration is used by cells in the absence of ATP. This process converts sugars to alcohol and only creates a small amount of ATP compared to aerobic respiration.