Discoveries: Mighty Mouse Bred

Cleveland—U.S. scientists have bred a "Lance Armstrong" mouse. It can't pedal a bike, but it can run on a treadmill for more than six hours before pooping out.

What accounts for the mouse's amazing endurance? For one thing, its muscle cells have 10 times the usual number of mitochondria, according to the scientists, who work at Case Western Reserve University. Mitochondria are the main energy sources in a cell.

The mouse also produces less lactic acid, a byproduct of metabolism that is released in large amounts during physical exercise. If too much lactic acid builds up in the body, the excess can lead to fatigue and a burning sensation in the muscles. The mighty mouse's body is very similar to that of champion cyclist Lance Armstrong, which produces energy without releasing too much lactic acid, keeping Armstrong from tuckering out.

When put through a grueling uphill treadmill test, the mouse ran for 32 minutes, compared with 19 for regular mice. To maintain that pace, the mouse eats 60 percent more food than other mice do yet weighs half as much.

The mighty rodent is called a PEPCK-Cmus mouse after a certain enzyme that is abundant in the mouse's body. An enzyme is a protein that speeds up a chemical reaction in the body.

The scientists have bred 500 PEPCK-Cmus mice, with more on the way. Female mice normally stop reproducing at 1 year of age. The PEPCK-Cmus females reproduce until they are 2½, the equivalent of an 80-year-old woman having a baby!
1. Which of the following does the body release during physical exercise?

   A mitochondria  
   B muscle cells  
   C lactic acid  
   D protein

2. Scientists have bred PEPCK-Cmus mice. All of the following are effects on the mice EXCEPT

   A the mice eat more food, yet weigh less than other mice  
   B the mice have fewer mitochondria than normal mice  
   C the mice have a better than usual endurance  
   D the mice can reproduce until they are 2½ years old

3. After reading the passage, what can you conclude about the PEPCK-Cmus mice?

   A The PEPCK-Cmus mice will one day greatly outnumber regular mice.  
   B All regular mice will soon be bred to become PEPCK-Cmus mice.  
   C Scientists will study PEPCK-Cmus mice to learn more about exercise.  
   D Many people will soon be able to buy PEPCK-Cmus mice as pets.

4. Read this sentence from the passage: “When put through a grueling uphill treadmill test, the mouse ran for 32 minutes, compared with 19 for regular mice.”

   In this sentence, the word grueling means

   A abnormally oversensitive  
   B extremely demanding  
   C relatively easy  
   D similar in nature

5. Which statement best describes the central idea of this passage?

   A U.S. scientists have bred a mouse with amazing endurance.  
   B Mice normally get tired after taking an uphill treadmill test.  
   C Scientists are trying to learn more about Lance Armstrong.  
   D Too much lactic acid in the body can lead to sore muscles.
6. When do female mice normally stop reproducing?

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7. Why might the writer have compared the new breed of mouse to Lance Armstrong? Please cite evidence from the text.

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8. The question below is an incomplete sentence. Choose the word that best completes the sentence.

When put through an uphill treadmill test, the mighty mice ran 13 minutes longer ______ the regular mice.

A and  
B than  
C for  
D but
9. Answer the following questions based on the sentence below.

U.S. scientists at Case Western Reserve University in Cleveland called the new type of mouse they bred PEPCK-Cmus after an enzyme that is abundant in the mouse’s body.

Who? _________________________________________________________________

Where? ________________________________________________________________

(did) What? called the new type of mouse they bred PEPCK-Cmus

Why? _________________________________________________________________


Use the vocabulary word in a sentence: ______________________________________

_______________________________________________________________________

_______________________________________________________________________