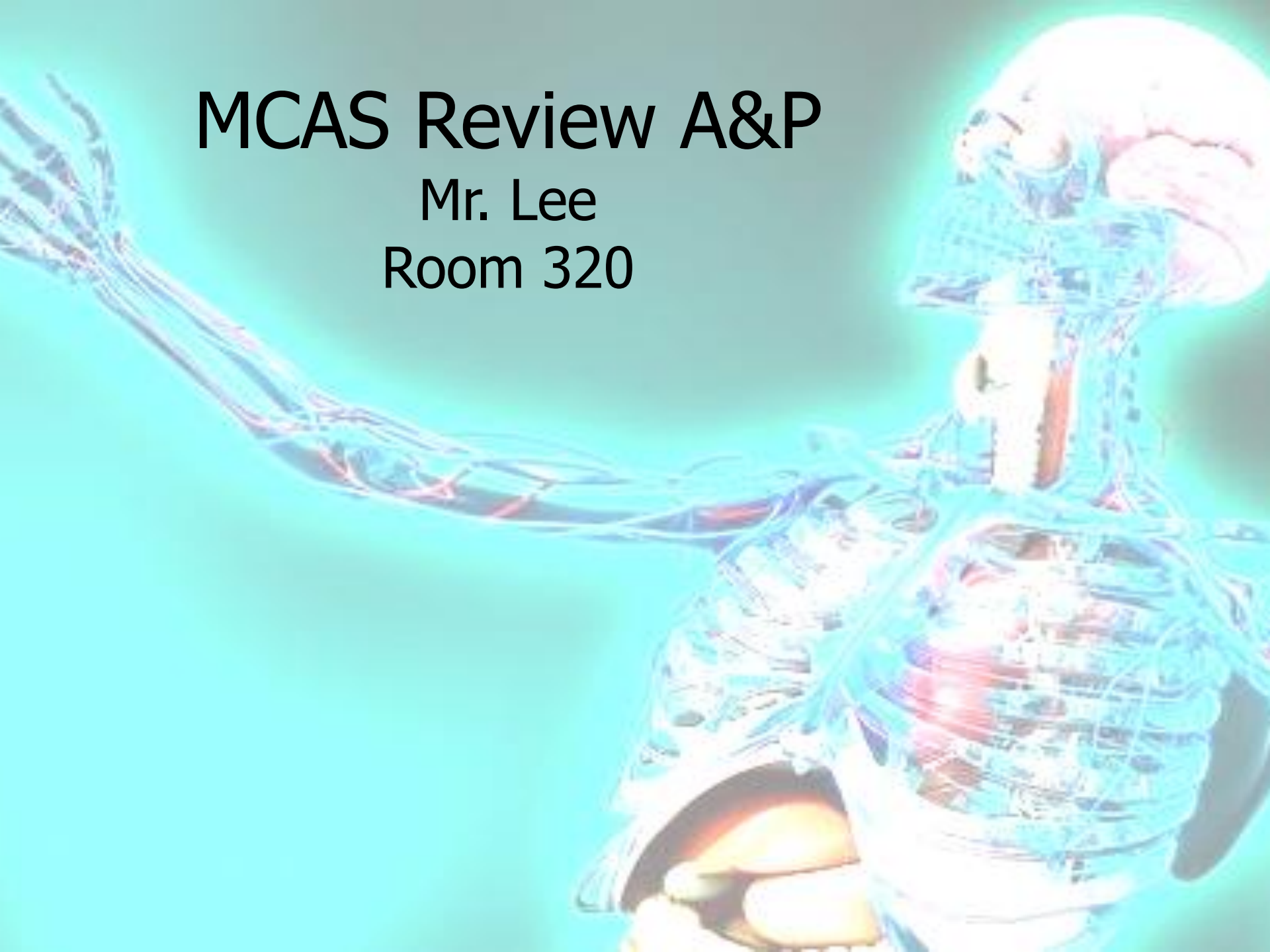
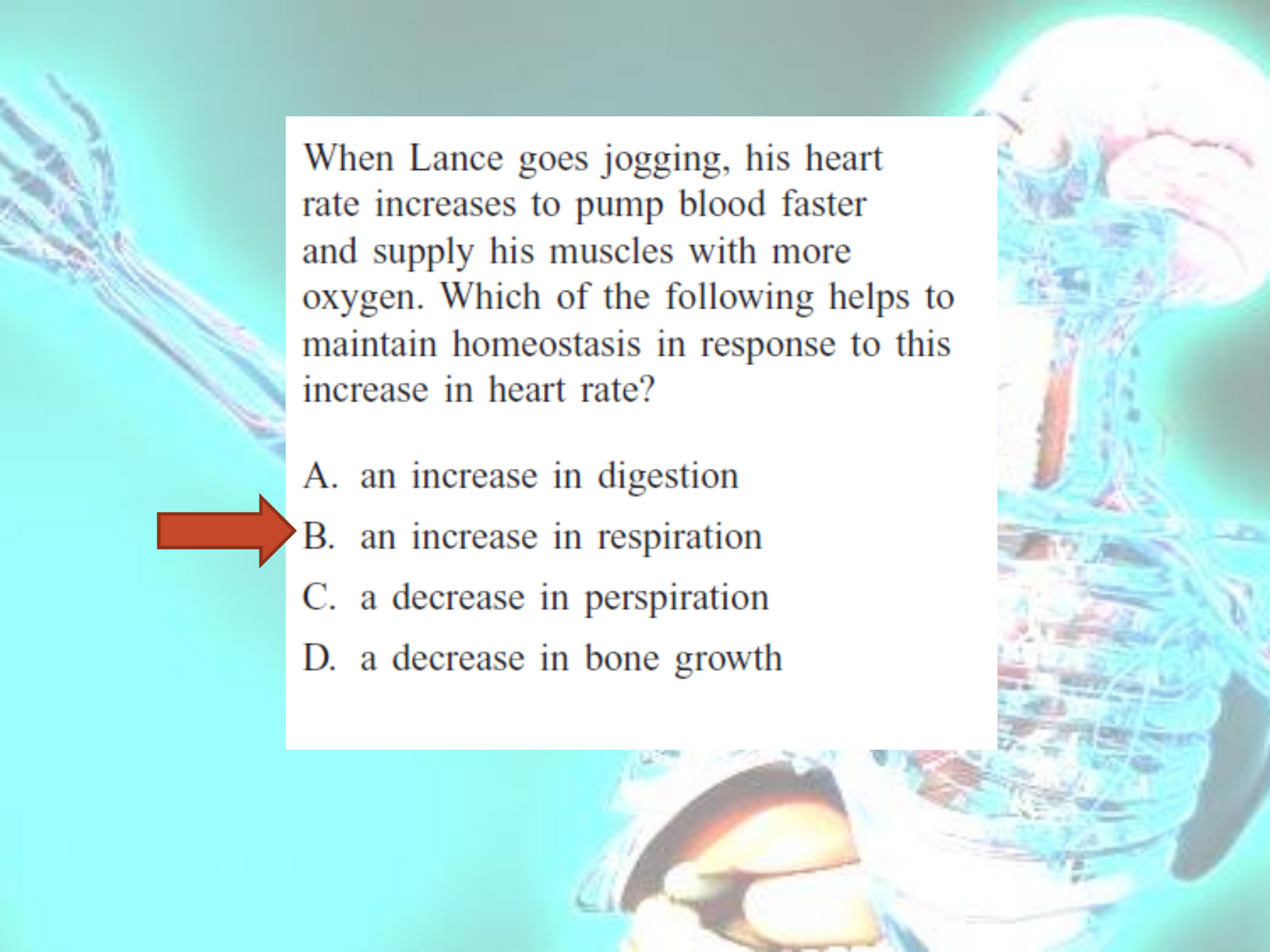


MCAS Review A&P

Mr. Lee

Room 320

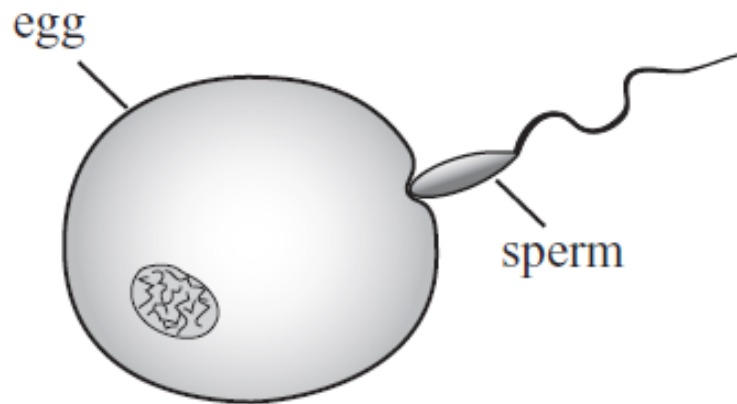




When Lance goes jogging, his heart rate increases to pump blood faster and supply his muscles with more oxygen. Which of the following helps to maintain homeostasis in response to this increase in heart rate?

- A. an increase in digestion
- B. an increase in respiration
- C. a decrease in perspiration
- D. a decrease in bone growth

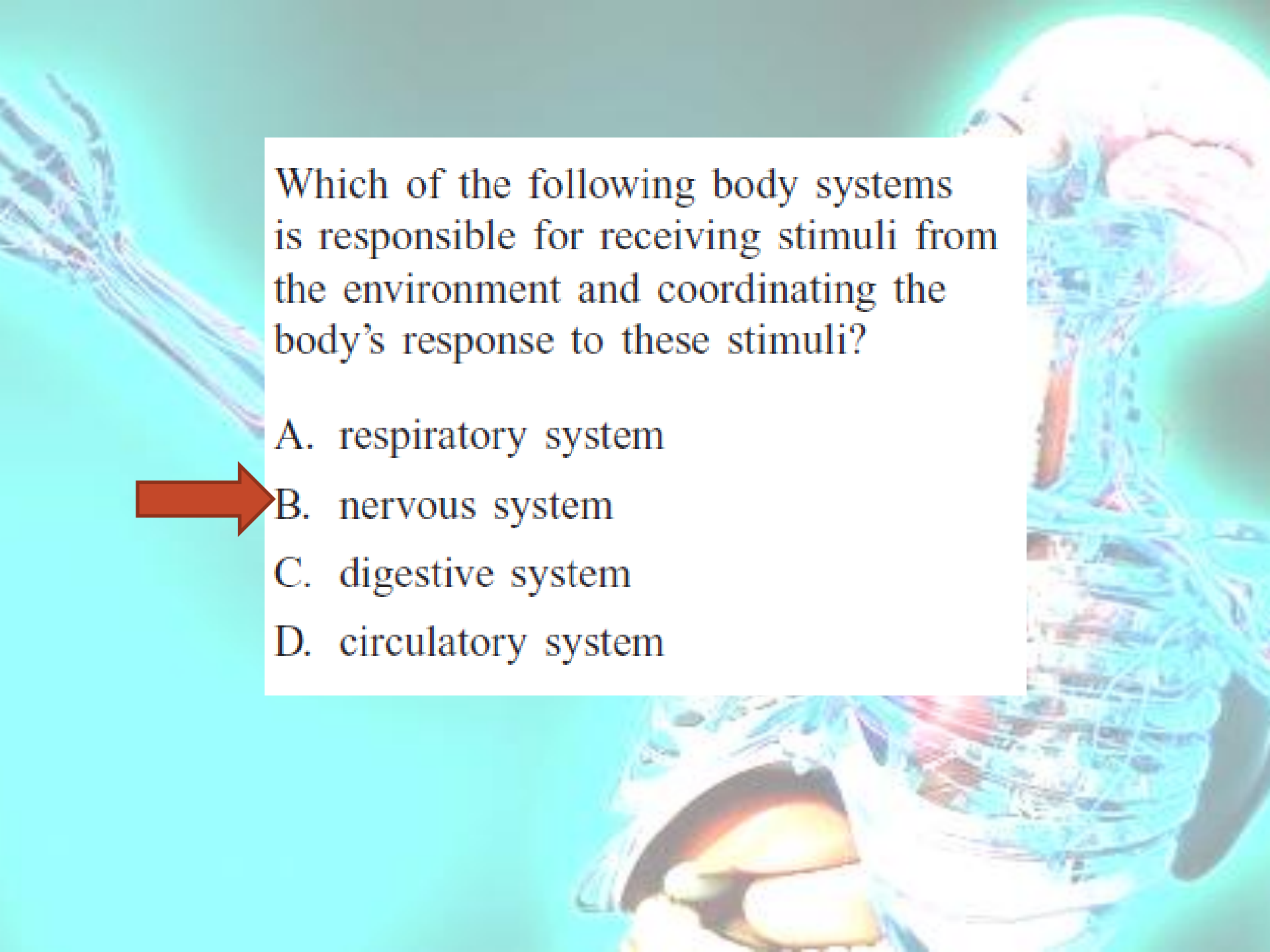
The figure below shows an egg cell and a sperm cell.



Which of the following is represented by this figure?

- A. the formation of a zygote
- B. mitotic division of nuclei
- C. the production of gametes
- D. translation of genetic information





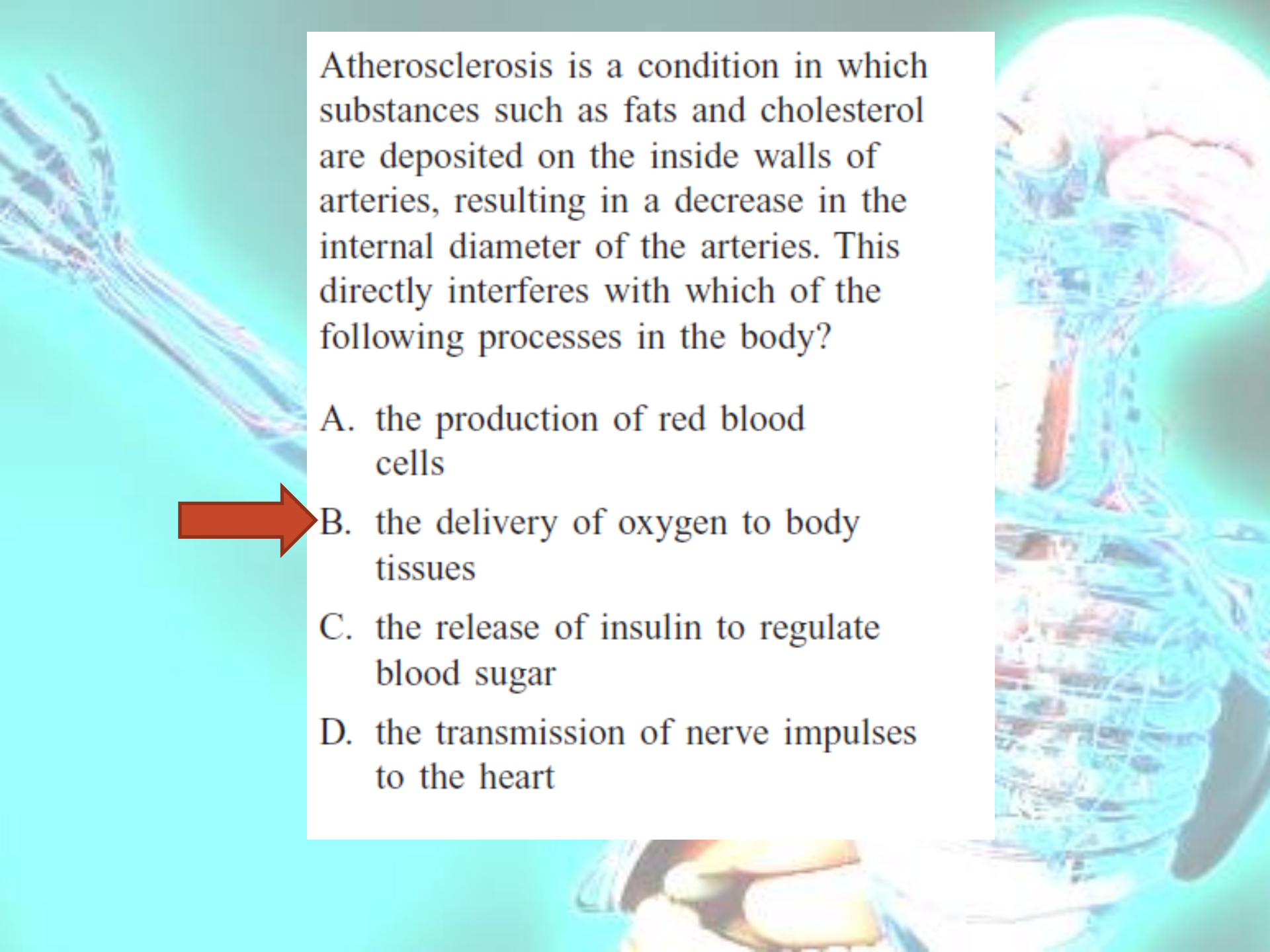
Which of the following body systems is responsible for receiving stimuli from the environment and coordinating the body's response to these stimuli?

A. respiratory system


 B. nervous system

C. digestive system

D. circulatory system




Atherosclerosis is a condition in which substances such as fats and cholesterol are deposited on the inside walls of arteries, resulting in a decrease in the internal diameter of the arteries. This directly interferes with which of the following processes in the body?

- A. the production of red blood cells
-  B. the delivery of oxygen to body tissues
- C. the release of insulin to regulate blood sugar
- D. the transmission of nerve impulses to the heart

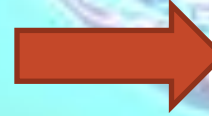
The hormones glucagon and insulin are produced by the pancreas and regulate the amount of glucose in the blood. Glucagon stimulates liver cells to release glucose into the blood, whereas insulin stimulates body cells to absorb glucose from the blood.

- a. Describe and explain what will happen in the body to regulate the amount of glucose in the blood shortly after a person eats a sugary snack.
- b. Describe and explain what will happen in the body to regulate the amount of glucose in the blood after a person has not eaten for several hours.
- c. Discuss how your answers to parts (a) and (b) relate to the concept of homeostasis.



A microscopic view of a bundle of cilia, showing their characteristic hair-like structure and how they are anchored to a common base.

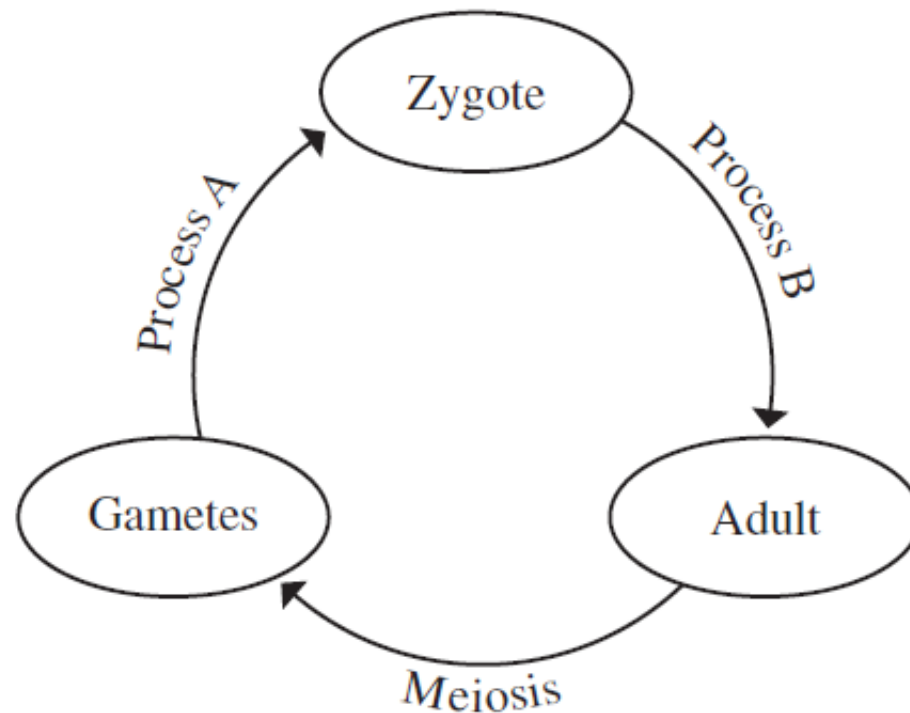
The cells of the nasal cavity and the trachea are lined with cilia. Which of the following describes a purpose of the cilia?

- A. to cool air that is entering the respiratory system
-  B. to help move trapped particles out of the respiratory system
- C. to help produce sound as air moves out of the respiratory system
- D. to increase the surface area for gas exchange in the respiratory system



1

The diagram below shows a generalized cycle in sexually reproducing animals.

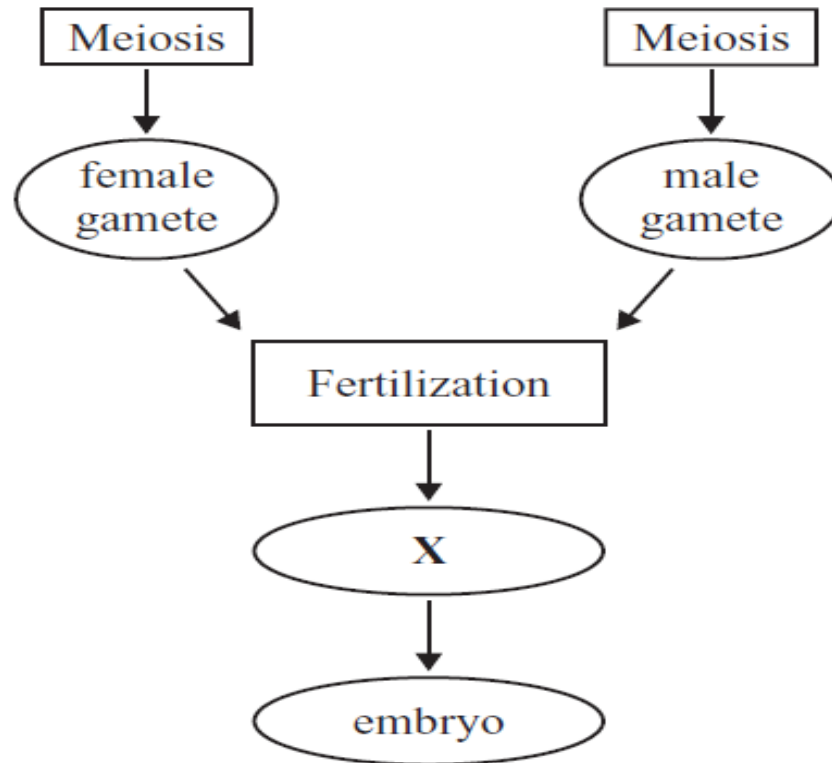


What is Process A in this cycle?

- A. fertilization
- B. mitosis
- C. osmosis
- D. replication

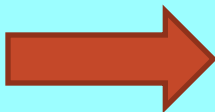


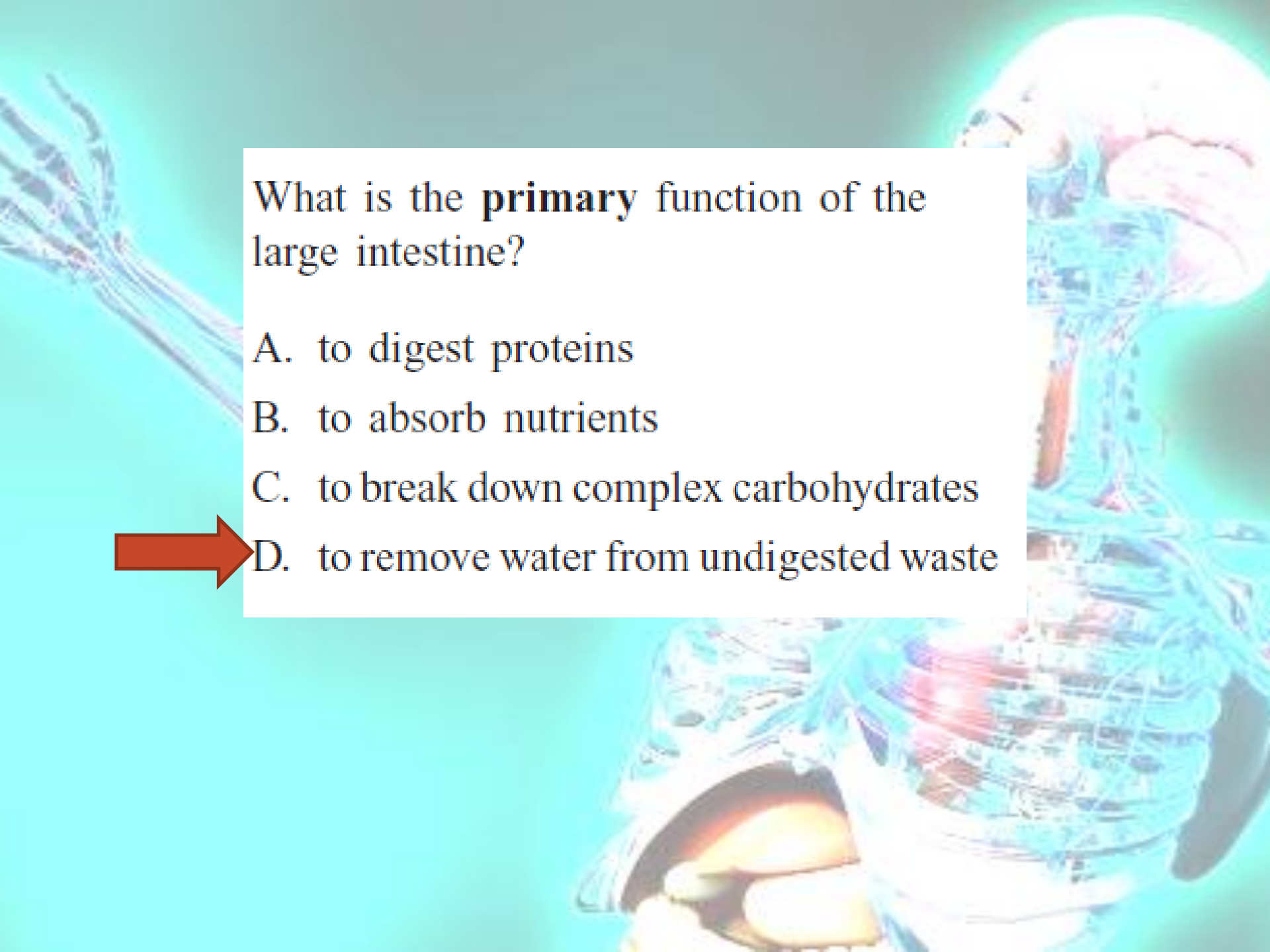
A partial diagram of a reproductive process is shown below.



Which of the following labels belongs in the oval marked X?

- A. egg
- B. fetus
- C. sperm
- D. zygote





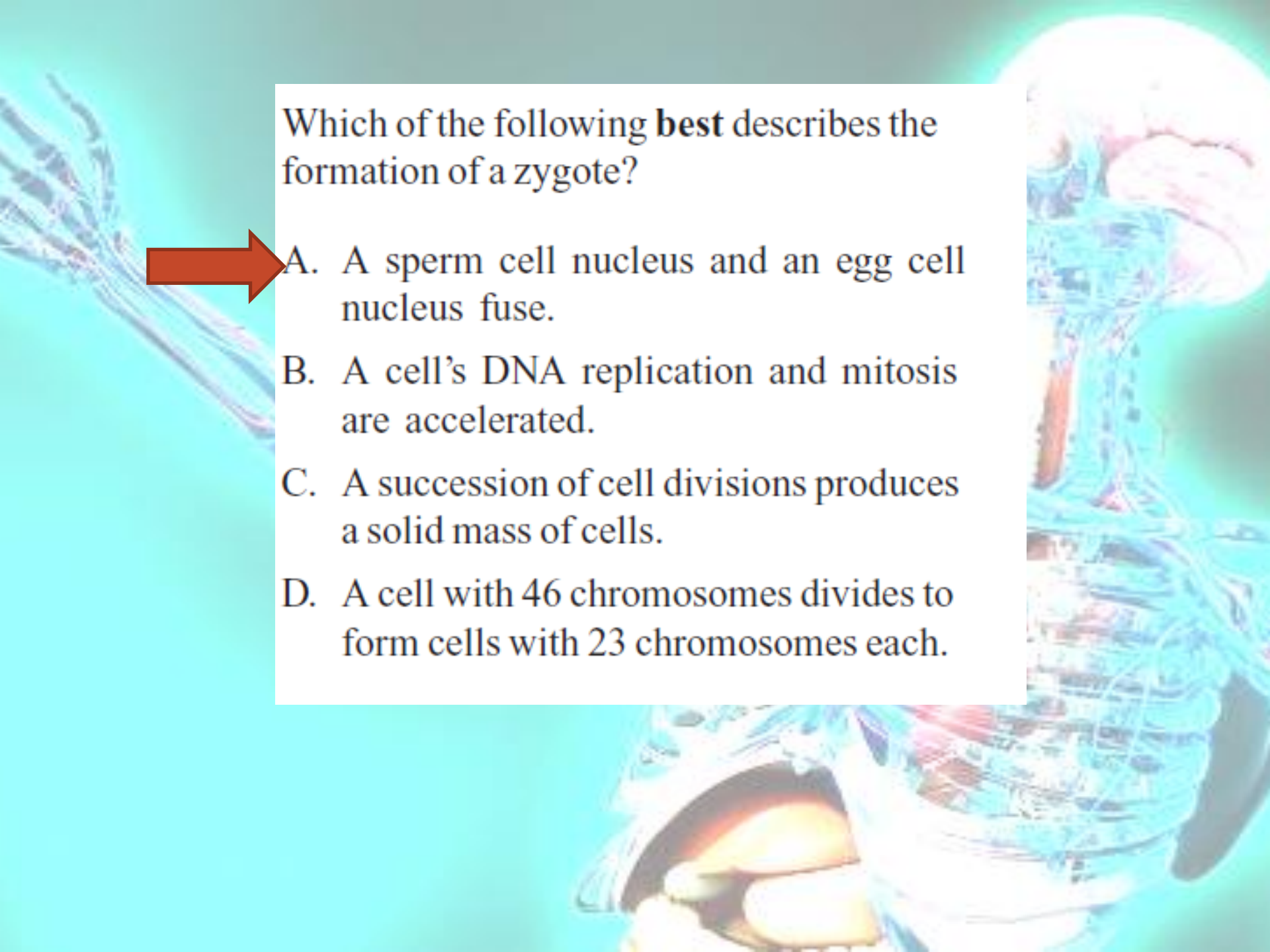
What is the **primary** function of the large intestine?

A. to digest proteins

B. to absorb nutrients


C. to break down complex carbohydrates

 D. to remove water from undigested waste



Which of the following **best** describes the formation of a zygote?

- A. A sperm cell nucleus and an egg cell nucleus fuse.
- B. A cell's DNA replication and mitosis are accelerated.
- C. A succession of cell divisions produces a solid mass of cells.
- D. A cell with 46 chromosomes divides to form cells with 23 chromosomes each.



Capillaries are part of which body system?

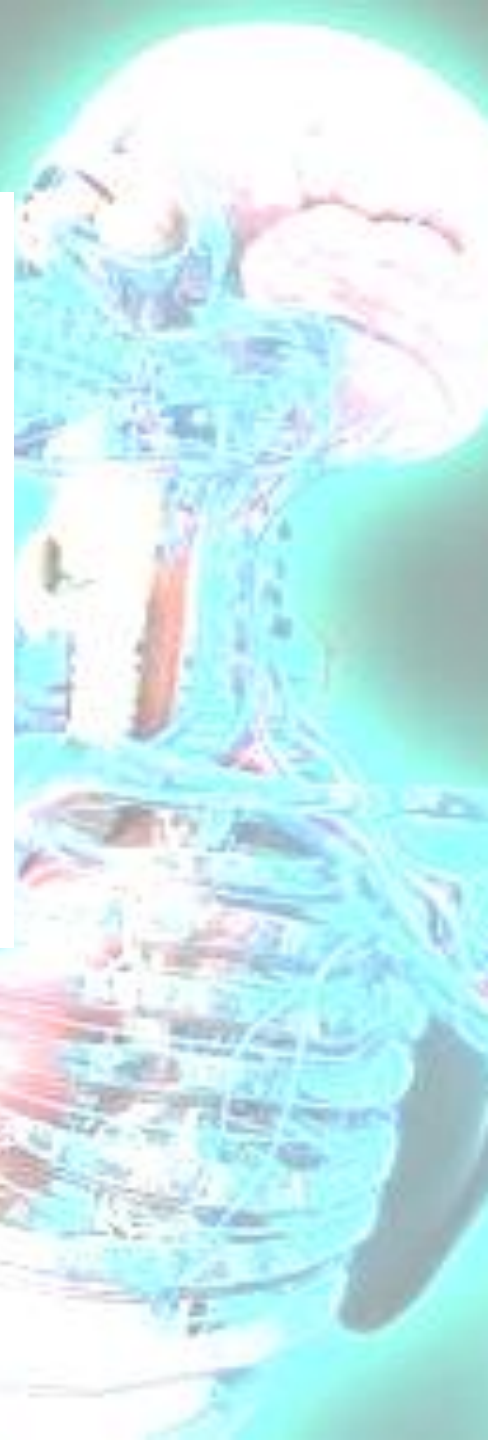
A. skeletal system

B. nervous system

C. digestive system



D. circulatory system



20 Human blood types are genetically determined. The table below shows the symbols used to represent two of the alleles for blood types and gives a description of each allele.

Two Alleles Controlling Human Blood Type

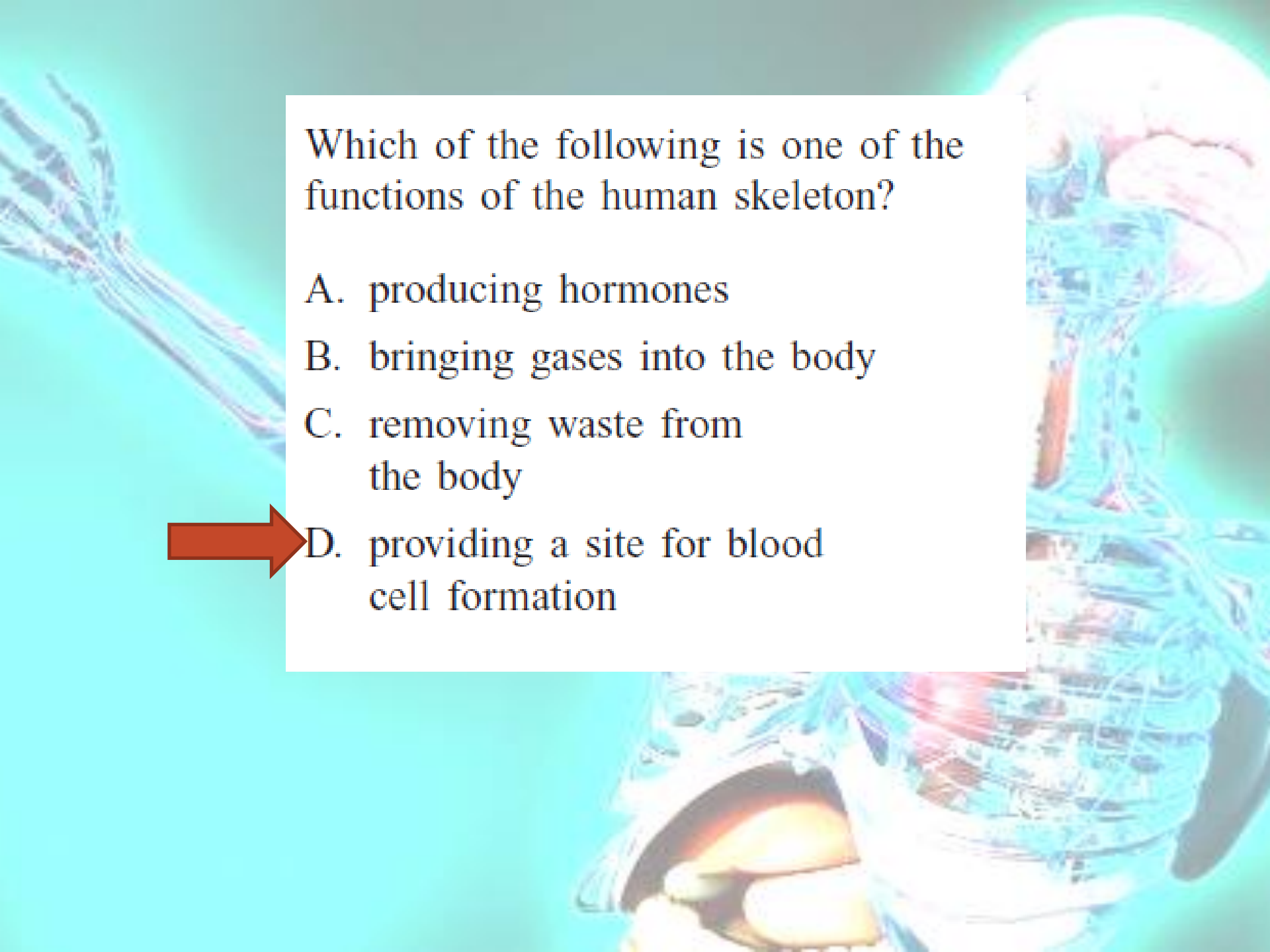
Symbol	Allele Description
I^A	produces antigen A on red blood cells
I^B	produces antigen B on red blood cells



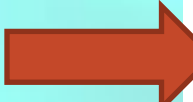
In homozygous individuals, two I^A alleles result in blood type A and two I^B alleles result in blood type B. The I^A and I^B alleles are codominant, resulting in blood type AB in individuals heterozygous for the two alleles.

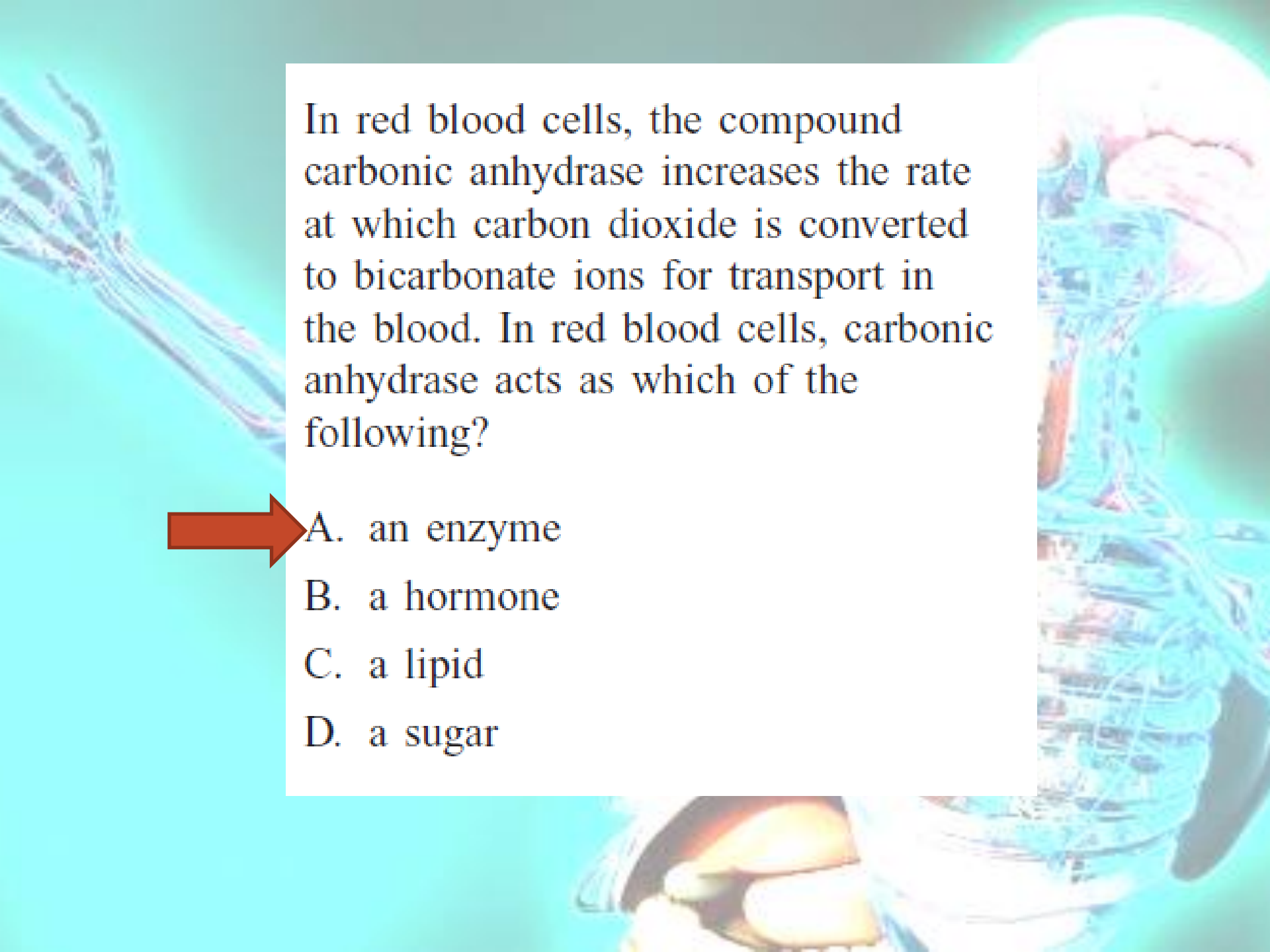
A male and a female both have blood type AB. If they have a child, what is the probability that the child will also have blood type AB?

- A. $\frac{1}{4}$
- B. $\frac{1}{2}$
- C. $\frac{3}{4}$
- D. $\frac{1}{1}$




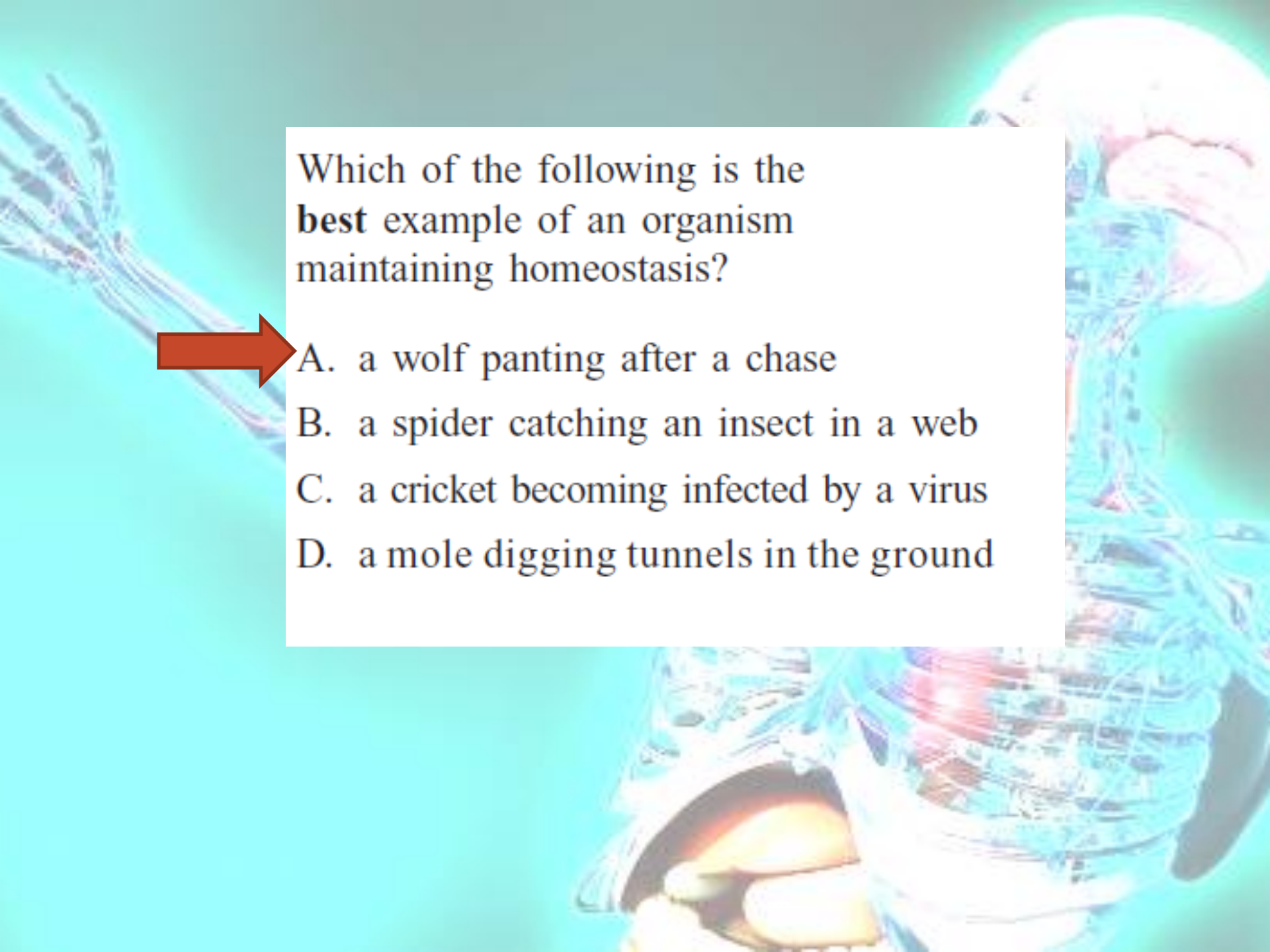
Which of the following is one of the functions of the human skeleton?

- A. producing hormones
- B. bringing gases into the body
- C. removing waste from the body
-  D. providing a site for blood cell formation

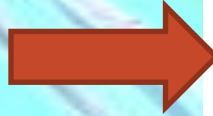


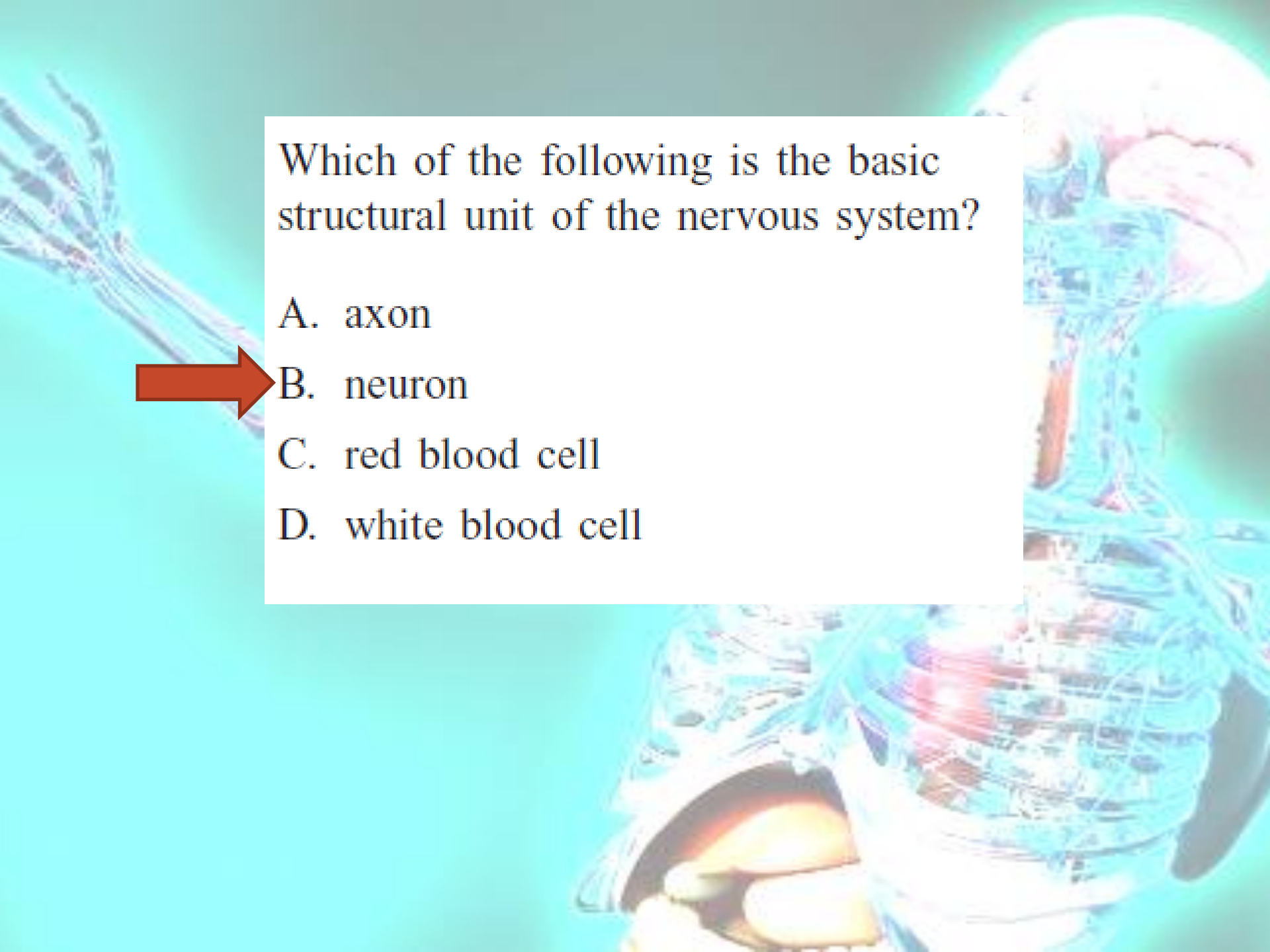
In red blood cells, the compound carbonic anhydrase increases the rate at which carbon dioxide is converted to bicarbonate ions for transport in the blood. In red blood cells, carbonic anhydrase acts as which of the following?

- 
- A. an enzyme
 - B. a hormone
 - C. a lipid
 - D. a sugar

Anatomical illustration of a human arm and head, showing muscles, bones, and internal organs. The background is a light blue color.

Which of the following is the **best** example of an organism maintaining homeostasis?

- 
- A red arrow pointing from the left towards option A.
- A. a wolf panting after a chase
 - B. a spider catching an insect in a web
 - C. a cricket becoming infected by a virus
 - D. a mole digging tunnels in the ground



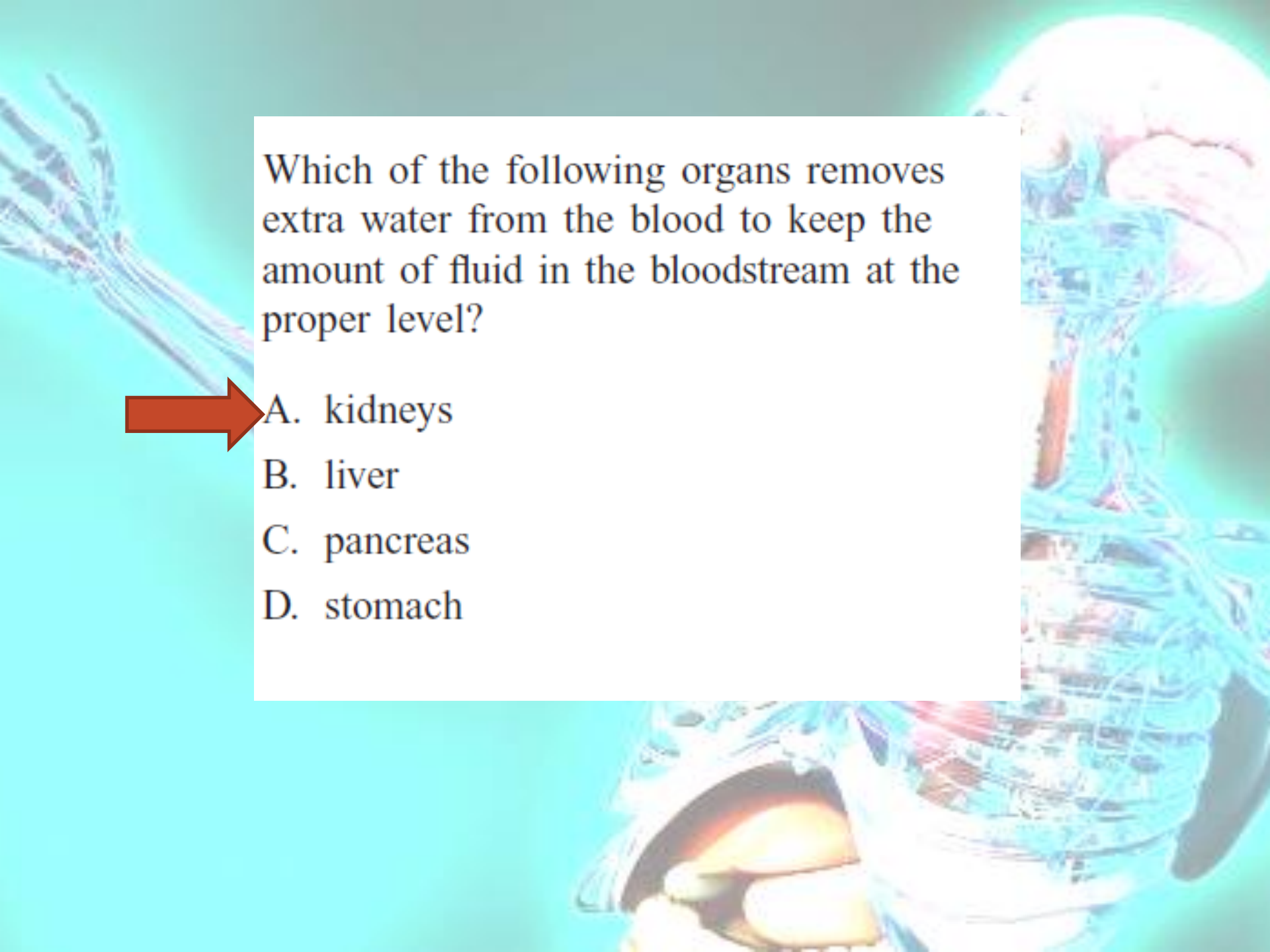
Which of the following is the basic structural unit of the nervous system?

A. axon

B. neuron

C. red blood cell

D. white blood cell

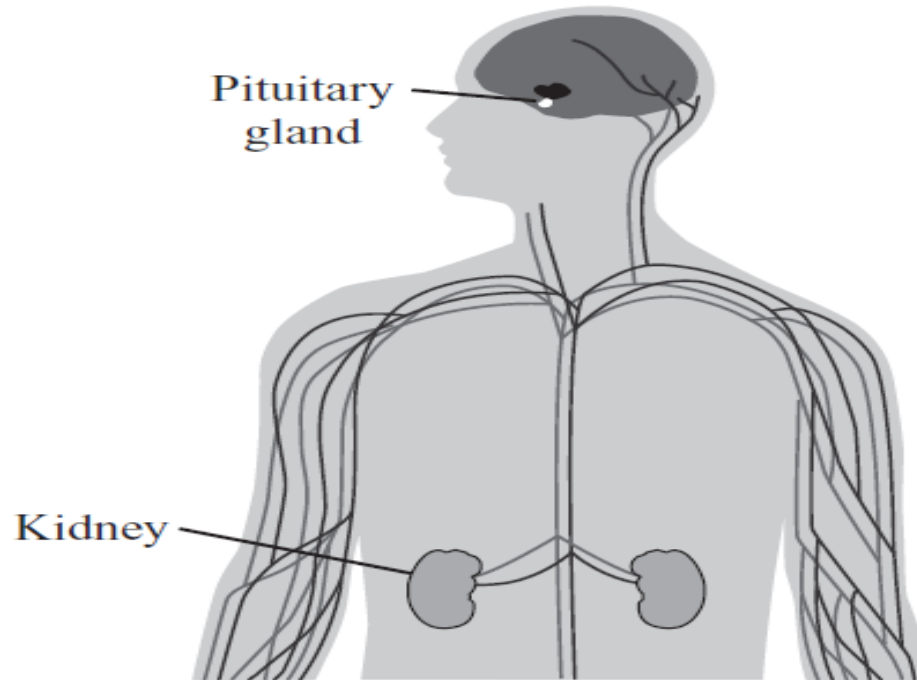
An anatomical illustration of the human torso, showing internal organs such as the lungs, liver, stomach, and intestines. The illustration is semi-transparent, revealing the underlying structures. A white rectangular box is overlaid on the upper part of the image, containing a question and four multiple-choice options. A red arrow points from the left side of the box towards the first option, 'A. kidneys'.

Which of the following organs removes extra water from the blood to keep the amount of fluid in the bloodstream at the proper level?

- A. kidneys
- B. liver
- C. pancreas
- D. stomach

27

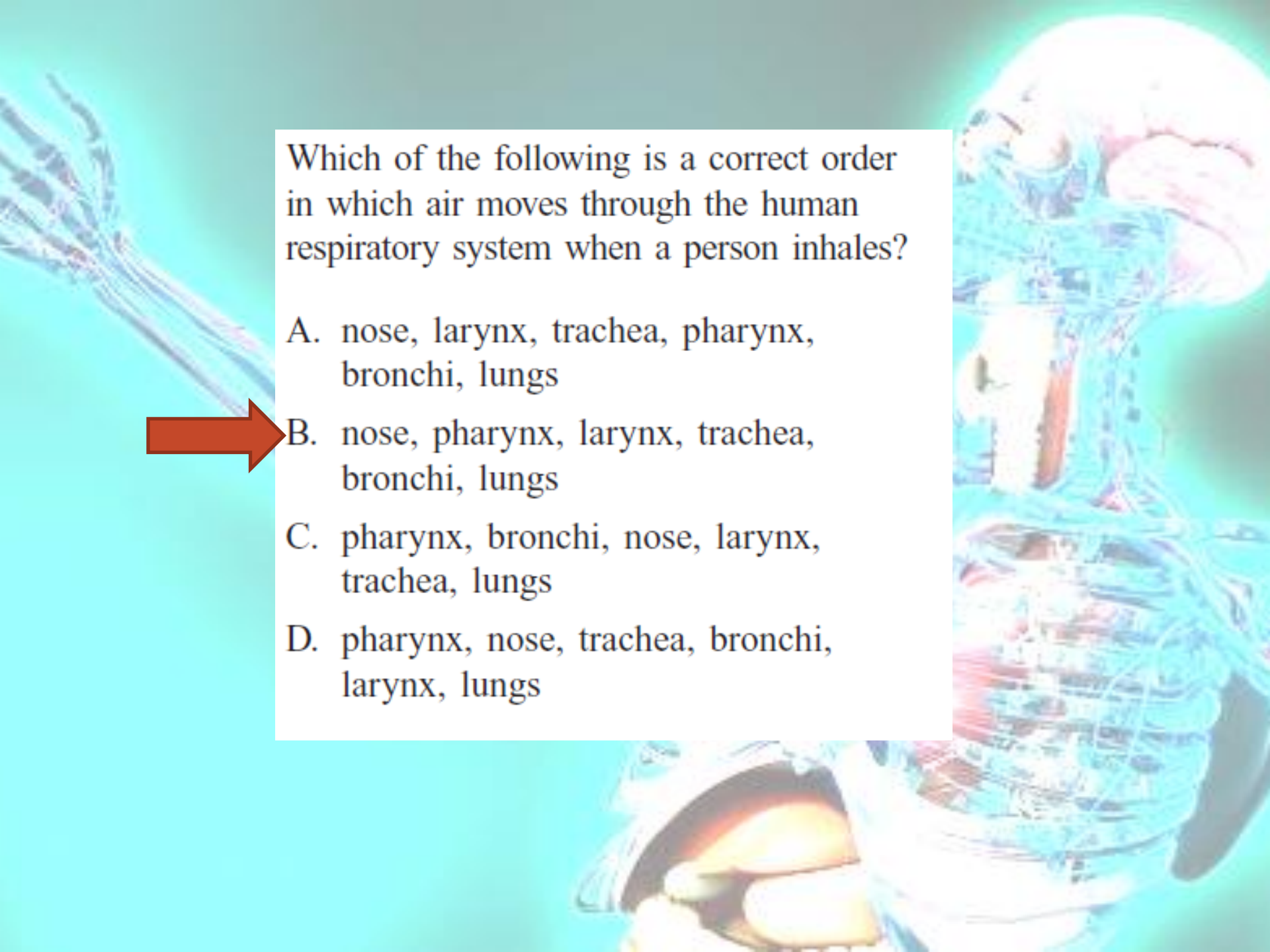
The diagram below shows the locations of the pituitary gland and the kidneys in the human body.



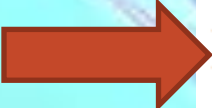
The pituitary gland can release a substance into the bloodstream that signals target cells in the kidneys to reabsorb more water. The released substance is an example of

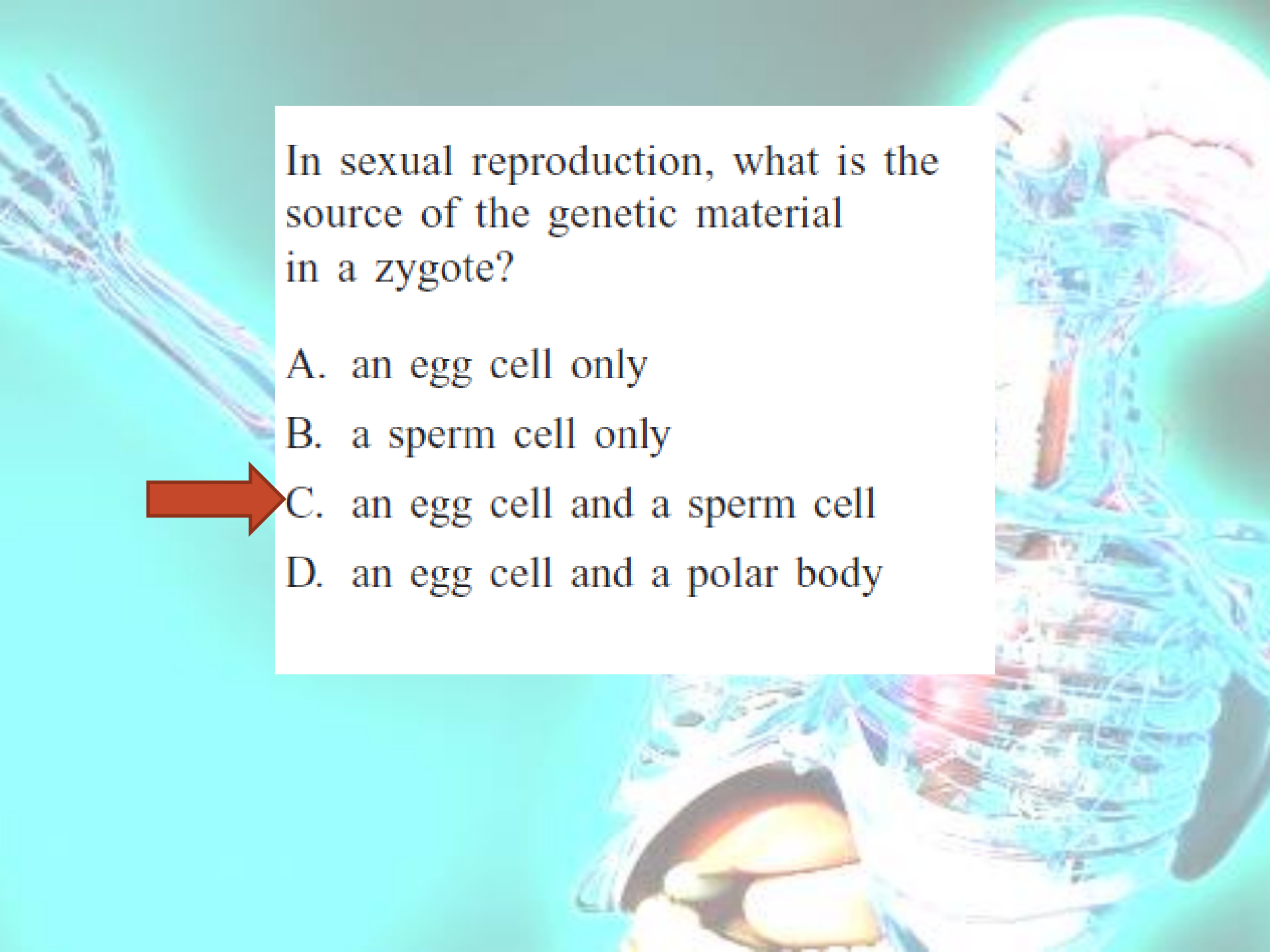
- A. an enzyme.
- B. a hormone.
- C. a neurotransmitter.
- D. a vitamin.





Which of the following is a correct order in which air moves through the human respiratory system when a person inhales?

- A. nose, larynx, trachea, pharynx, bronchi, lungs
-  B. nose, pharynx, larynx, trachea, bronchi, lungs
- C. pharynx, bronchi, nose, larynx, trachea, lungs
- D. pharynx, nose, trachea, bronchi, larynx, lungs



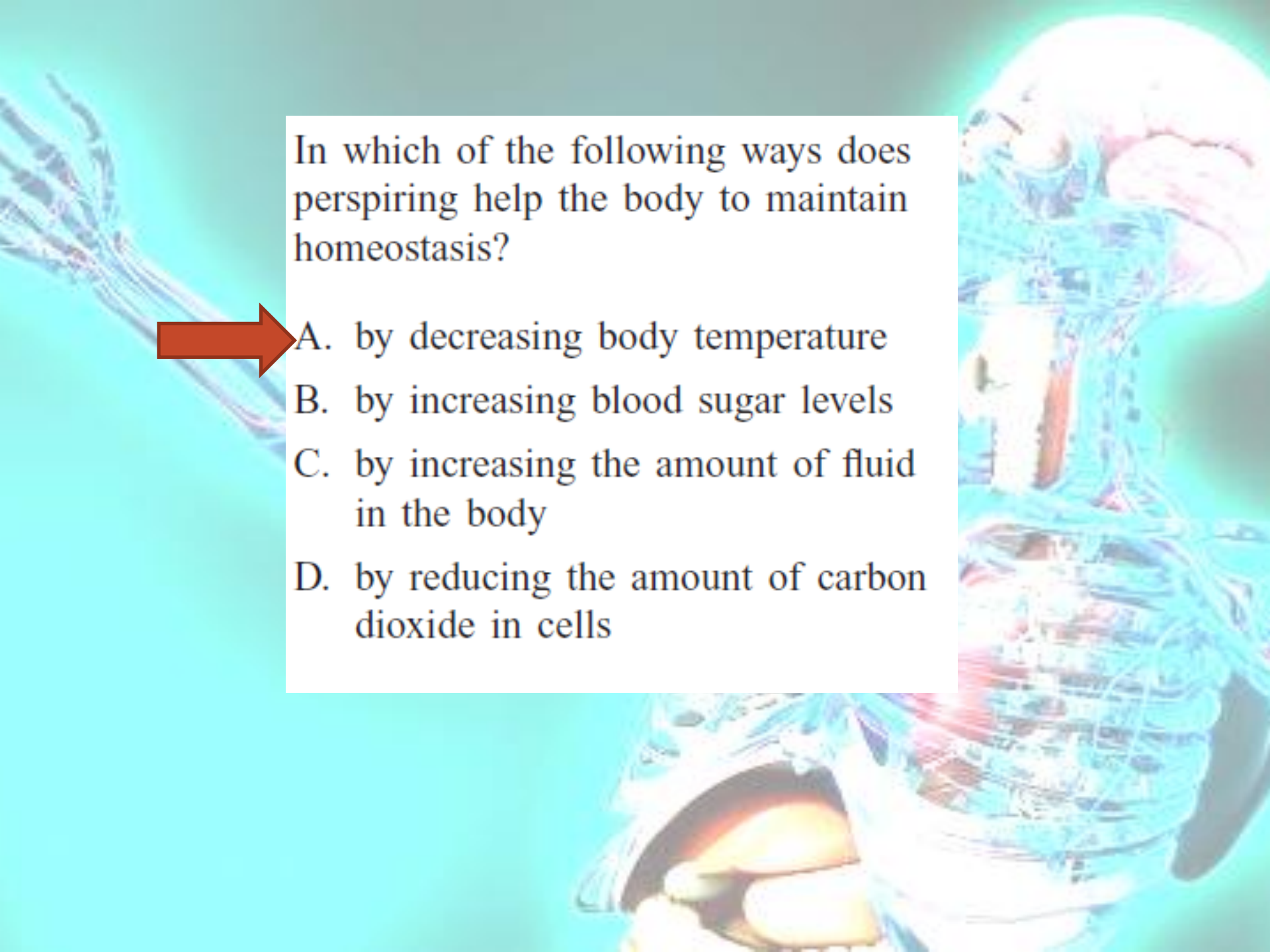
In sexual reproduction, what is the source of the genetic material in a zygote?

A. an egg cell only

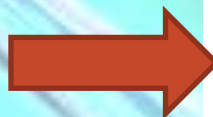
B. a sperm cell only

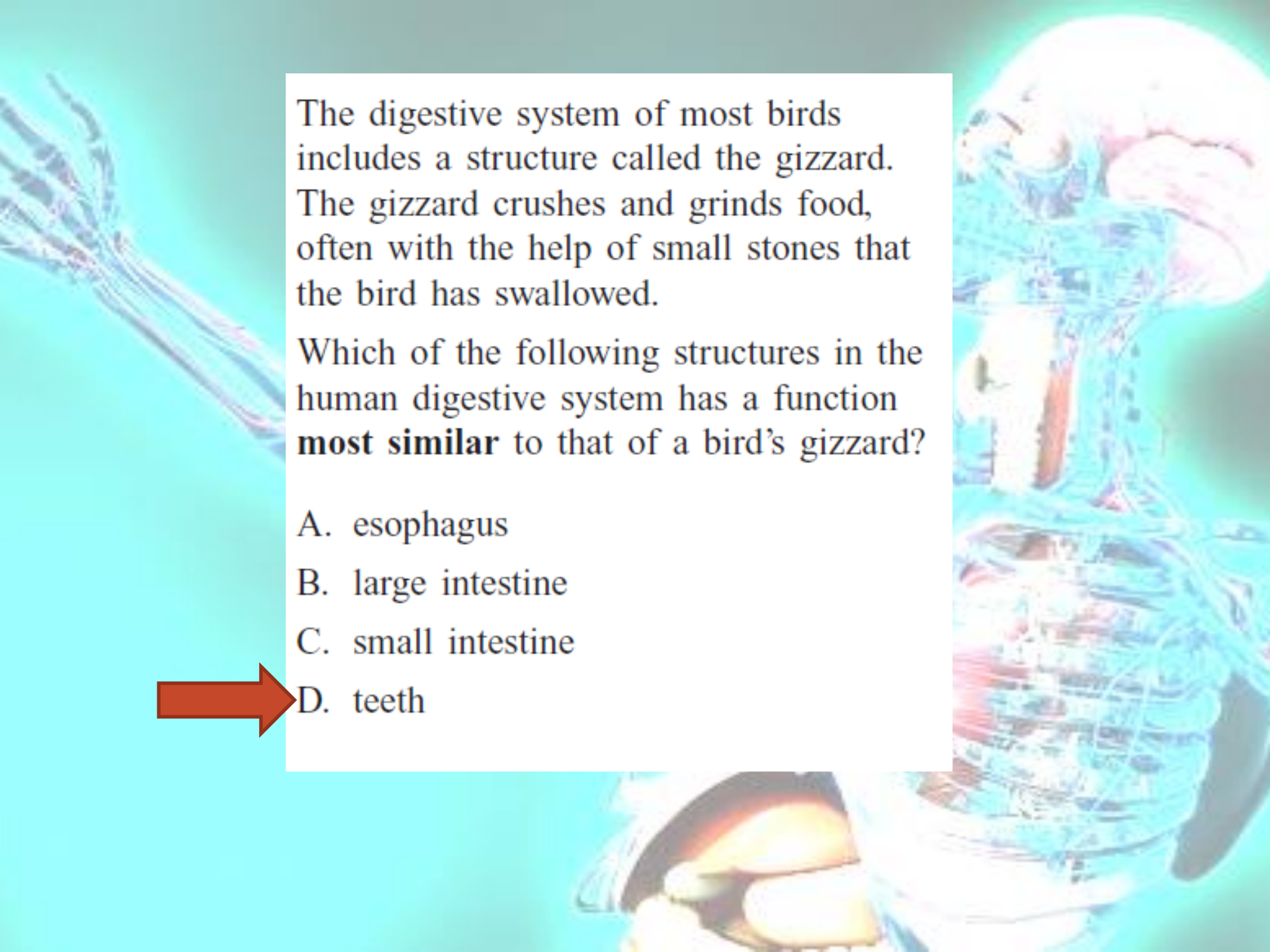
C. an egg cell and a sperm cell

D. an egg cell and a polar body



In which of the following ways does perspiring help the body to maintain homeostasis?

- 
- A. by decreasing body temperature
 - B. by increasing blood sugar levels
 - C. by increasing the amount of fluid in the body
 - D. by reducing the amount of carbon dioxide in cells

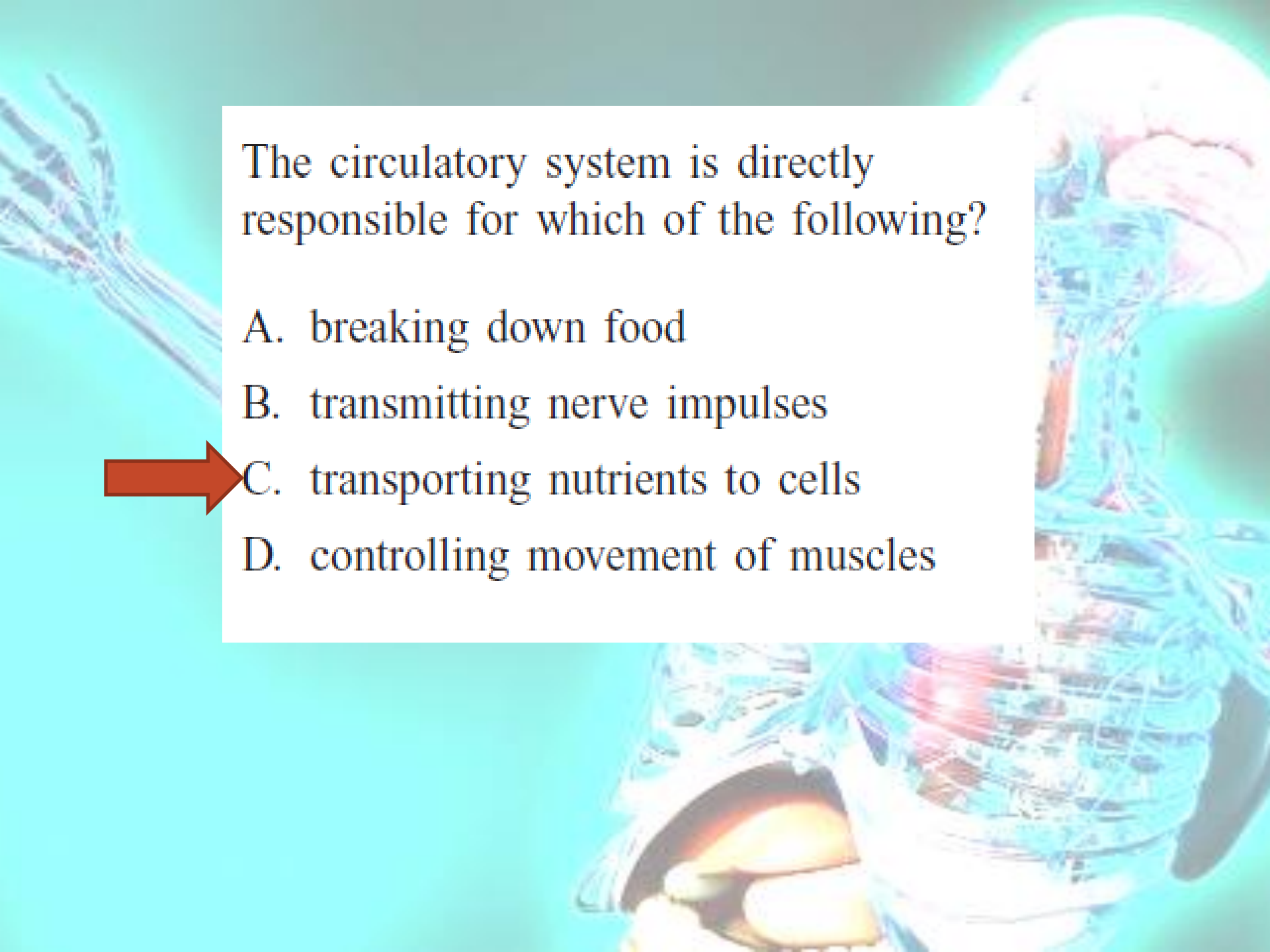


The digestive system of most birds includes a structure called the gizzard. The gizzard crushes and grinds food, often with the help of small stones that the bird has swallowed.

Which of the following structures in the human digestive system has a function **most similar** to that of a bird's gizzard?

- A. esophagus
- B. large intestine
- C. small intestine
- D. teeth





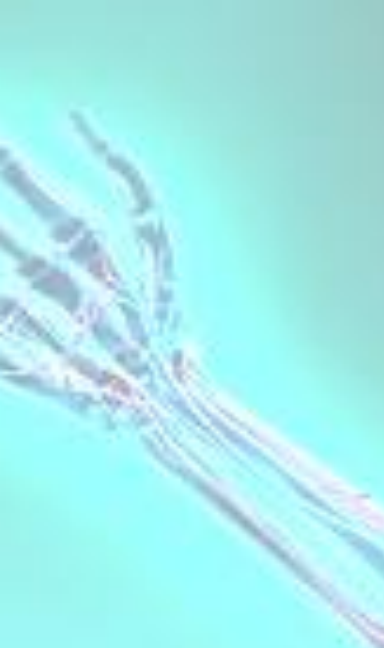
The circulatory system is directly responsible for which of the following?

A. breaking down food

B. transmitting nerve impulses

 C. transporting nutrients to cells

D. controlling movement of muscles



What is the name of the connective tissue that joins skeletal muscle to bones?

- A. cartilage
- B. ligaments
- C. neurons
- D. tendons

