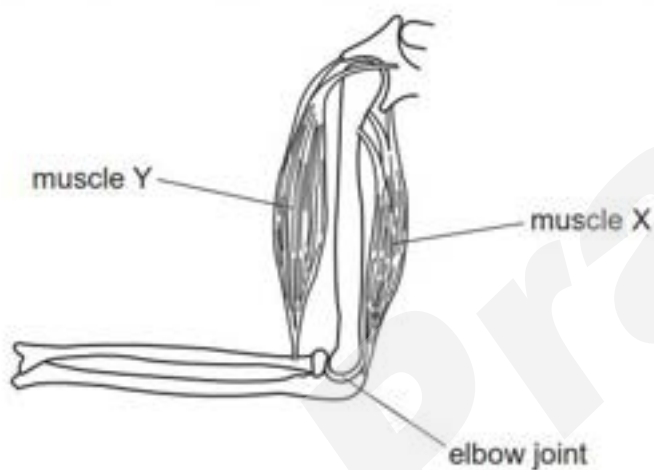


## 14. Coordination and Response

(Past Year Topical Questions 2010-2015)

May/June 2010 (11)

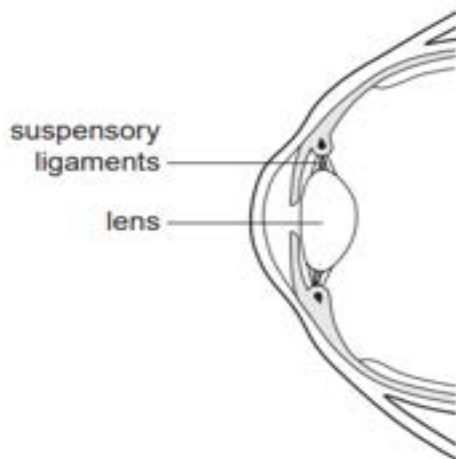
23 The diagram shows some of the muscles and bones of the human arm.



When muscle X contracts, what happens to the arm and what happens to muscle Y?

	arm	muscle Y
<b>A</b>	bends	contracts
<b>B</b>	bends	relaxes
<b>C</b>	straightens	contracts
<b>D</b>	straightens	relaxes

24 The diagram shows a section through part of the human eye.

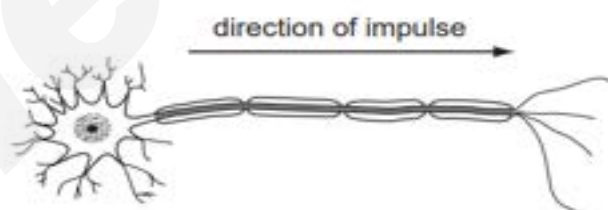


When a person looks at an object which is close to their eye, which of the following takes place?

	suspensory ligaments	lens
<b>A</b>	slacken	becomes fatter
<b>B</b>	slacken	becomes thinner
<b>C</b>	tighten	becomes fatter
<b>D</b>	tighten	becomes thinner

Oct/Nov 2010 (11)

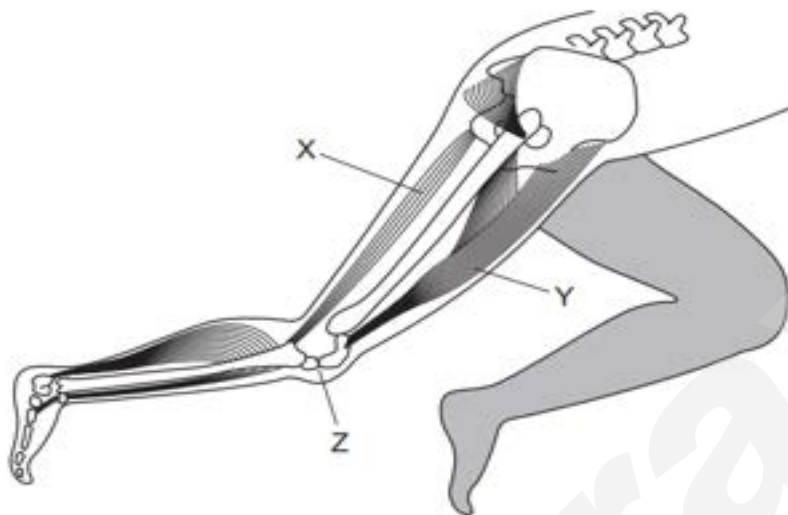
24 The diagram shows a neurone carrying an impulse.



Which row describes the type of neurone and the direction of impulse?

	type of neurone	direction of impulse
<b>A</b>	motor	towards the spinal cord
<b>B</b>	motor	away from the spinal cord
<b>C</b>	sensory	towards the spinal cord
<b>D</b>	sensory	away from the spinal cord

25 The diagram shows some bones and muscles in a leg of a human.

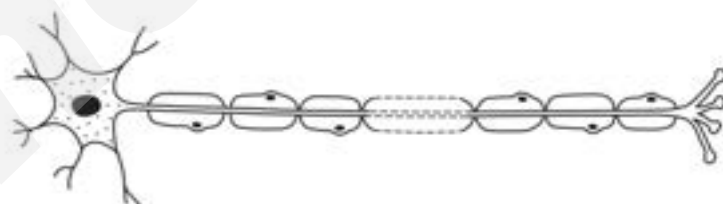


What happens to muscle Y and to the leg at joint Z, when muscle X contracts?

	muscle Y	leg at joint Z
<b>A</b>	contracts	bends
<b>B</b>	contracts	straightens
<b>C</b>	relaxes	bends
<b>D</b>	relaxes	straightens

May/June 2011 (11)

24 The diagram shows a cell.



What type of cell is shown?

- A** ciliated cell
- B** motor neurone
- C** relay neurone
- D** sensory neurone

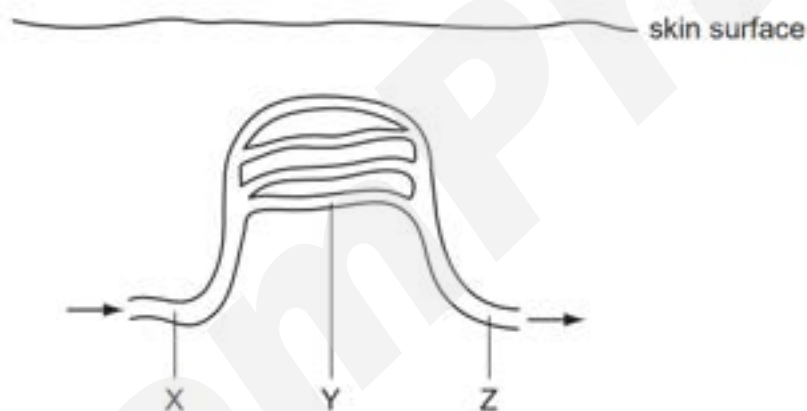
25 When a bright light is shone into the eye, the diameter of the pupil decreases.

What is this an example of?

- A accommodation
- B a simple reflex
- C photosynthesis
- D voluntary response

Oct/Nov 2011 (11)

23 The diagram shows some blood vessels near the surface of the skin.



If vasoconstriction occurs at X, what happens to the blood flow at Y and Z?

	Y	Z
A	decreases	decreases
B	decreases	stays constant
C	increases	increases
D	increases	stays constant

25 Which type of cells do **all** sense organs contain?

- A ciliated
- B effector
- C mesophyll
- D receptor

May/June 2012 (11)

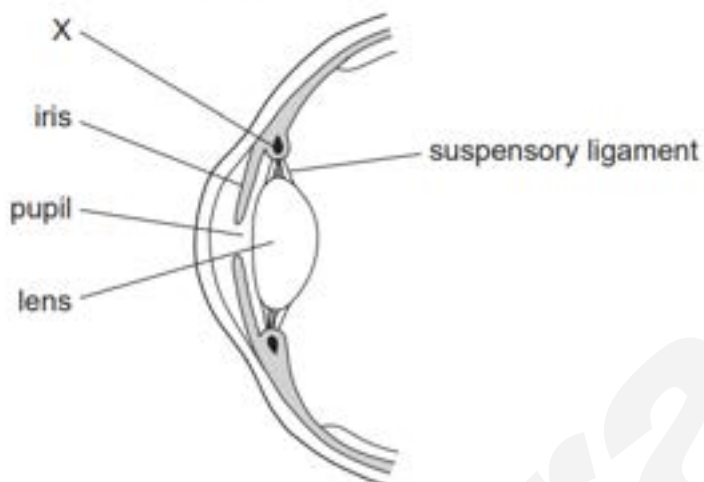
27 The diagram shows a neurone.



Which structures could be found at X and Y?

	X	Y
<b>A</b>	brain	intestine
<b>B</b>	brain	leg
<b>C</b>	eye	hand
<b>D</b>	skin	spinal cord

23 The diagram shows a section through part of the eye.



X is a circular muscle.

What effect does it have when it contracts?

- A decreases the size of the pupil
- B increases the size of the pupil
- C pulls on the lens, decreasing its curvature
- D reduces the pull on the lens, increasing its curvature

24 Read the following sentence.

In order to prevent the human body from losing heat, the arterioles supplying the skin become narrow.

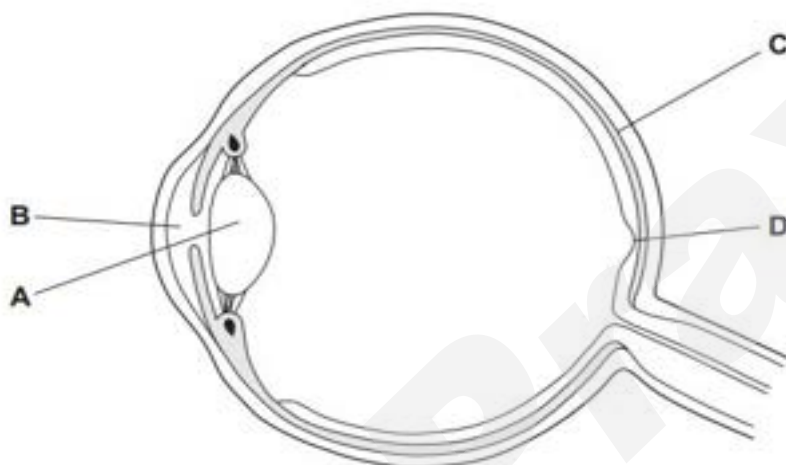
Which process does this sentence describe?

- A constriction
- B shivering
- C sweating
- D vasodilation

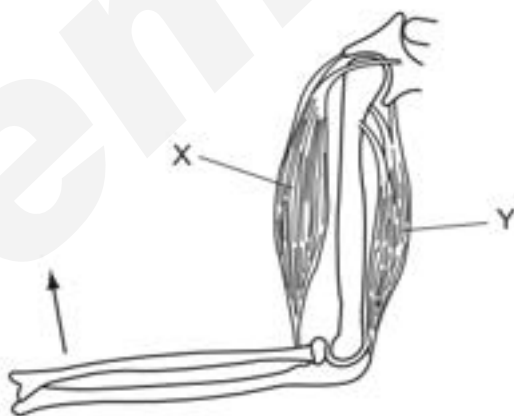
May/June 2012 (12)

**24** The diagram shows a section through the human eye.

Which labelled part prevents the internal reflection of light in the eye?



**25** The diagram shows the bones and muscles of the upper arm.



What must happen for the bones in the lower arm to move in the direction of the arrow?

- A** Muscle X contracts and muscle Y contracts.
- B** Muscle X contracts and muscle Y relaxes.
- C** Muscle X relaxes and muscle Y contracts.
- D** Muscle X relaxes and muscle Y relaxes.

Oct/Nov 2012 (11)

**25** A man injures his arm in an accident. Afterwards, he can feel objects touching his hand, but he cannot move his hand away from them.

What could cause this?

- A** Receptors in his hand are damaged.
- B** The nerve connection is cut only between the receptors in his hand and his central nervous system.
- C** The nerve connection is cut only between his central nervous system and the effectors in his arm.
- D** Both of these nerve connections are cut.

**26** During a long race, an athlete's skin temperature rises.

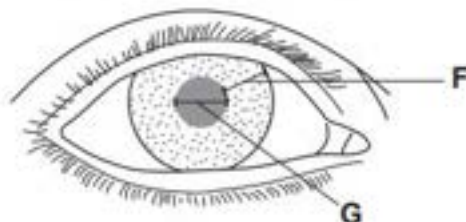
What causes this?

- A** increased sweating
- B** opening of the pores in the skin
- C** vasoconstriction of the blood vessels in the skin
- D** vasodilation of the blood vessels in the skin



May/June 2013 (11)

25 The diagram shows the eye of a person in a brightly-lit room.



What happens to distance **F** and distance **G** when this person moves into a dimly-lit room?

	distance <b>F</b>	distance <b>G</b>
<b>A</b>	becomes larger	becomes smaller
<b>B</b>	becomes smaller	stays the same
<b>C</b>	becomes smaller	becomes larger
<b>D</b>	stays the same	becomes smaller

26 A boy accidentally touches a very hot object and immediately takes his hand away.

In this reflex action, what is the effector?

- A** a heat receptor in his hand
- B** a motor neurone
- C** a muscle in his arm
- D** the spinal cord

Oct/Nov 2013 (13)

24 At night, a man looks at the stars and then begins to read a map using a bright lamp.

How do the shape of his lenses and the size of his pupils change?

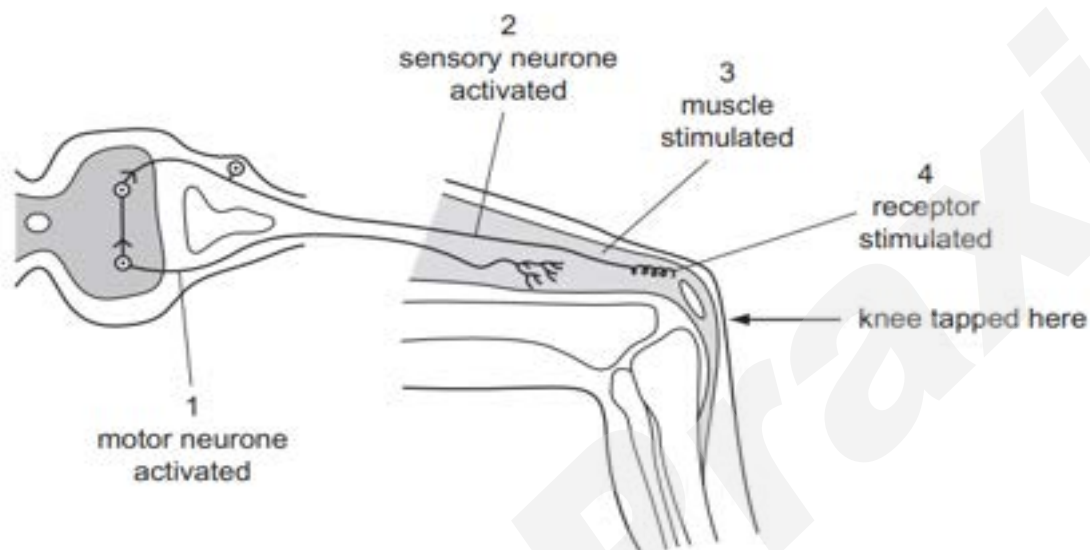
	lenses	pupils
A	fatter	larger
B	fatter	smaller
C	thinner	larger
D	thinner	smaller

25 What is the main function of sweating?

- A to excrete urea
- B to remove excess salts
- C to clean the pores
- D to cool the body

May/June 2014 (11)

**22** The diagram shows a simple reflex arc.



What is the correct order of events after the knee is tapped?

- A** 1 → 2 → 3 → 4
- B** 1 → 4 → 2 → 3
- C** 4 → 2 → 1 → 3
- D** 4 → 3 → 2 → 1

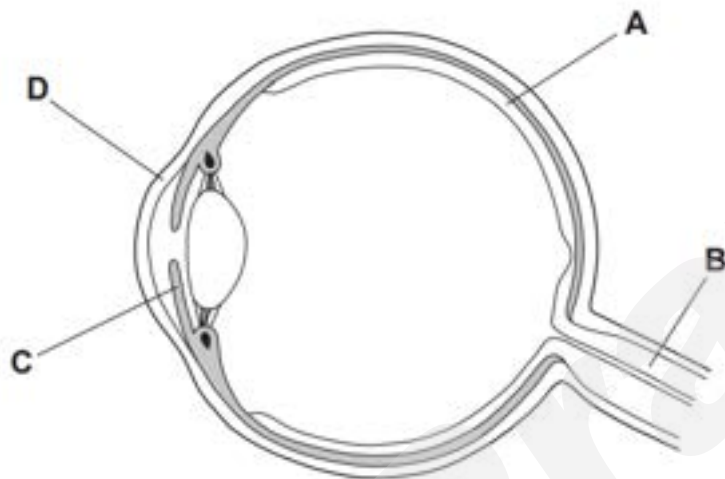
Oct/Nov 2014 (11)

**23** Which actions straighten the arm at the elbow joint?

	biceps	triceps
<b>A</b>	contracts	contracts
<b>B</b>	contracts	relaxes
<b>C</b>	relaxes	contracts
<b>D</b>	relaxes	relaxes

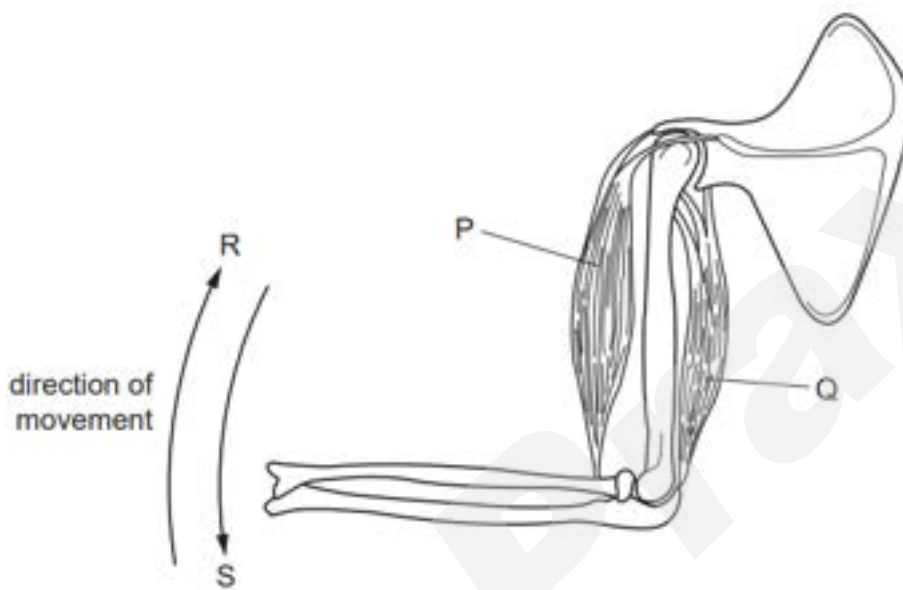
May/June 2015 (11)

26 Which labelled part of the eye contains muscle?



May/June 2015 (12)

**25** The diagram shows two antagonistic muscles and the directions of movement that they produce.

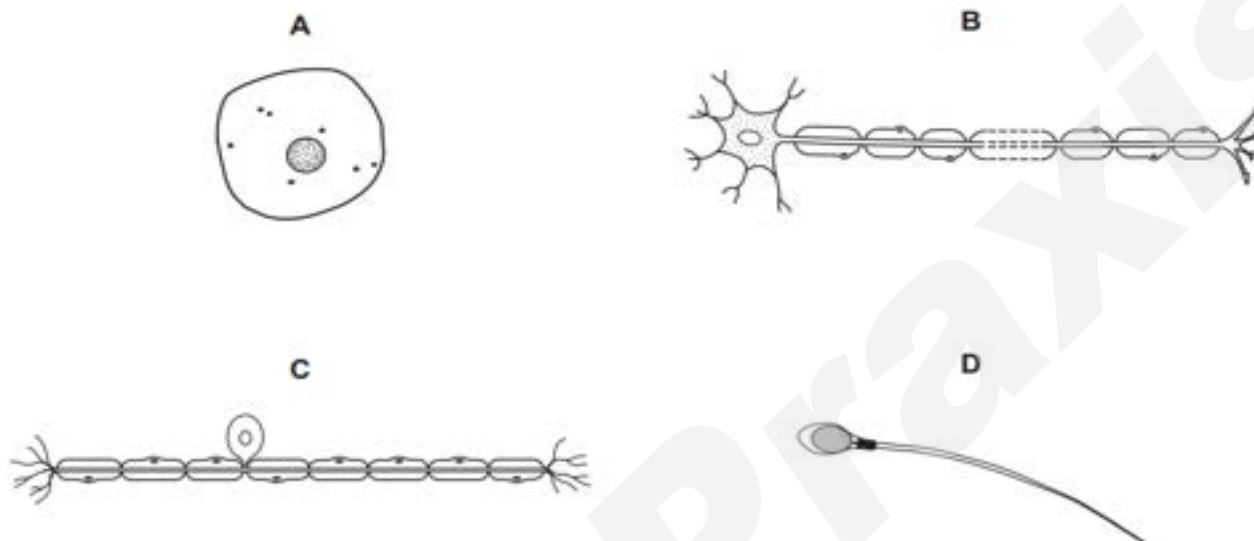


Which row correctly identifies these muscles and the directions of movement they produce on contraction?

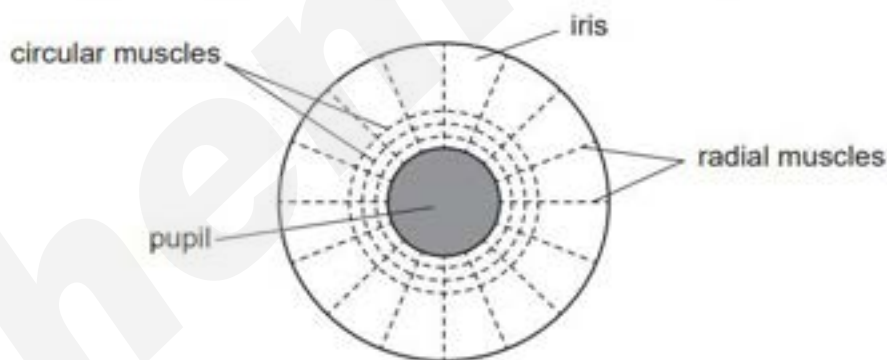
	muscle P		muscle Q	
	name	movement	name	movement
<b>A</b>	biceps	R	triceps	S
<b>B</b>	biceps	S	triceps	R
<b>C</b>	triceps	R	biceps	S
<b>D</b>	triceps	S	biceps	R

May/June 2015 (13)

24 Which diagram shows a sensory neurone?



25 The diagram shows the muscles that control the size of the pupil in an eye.

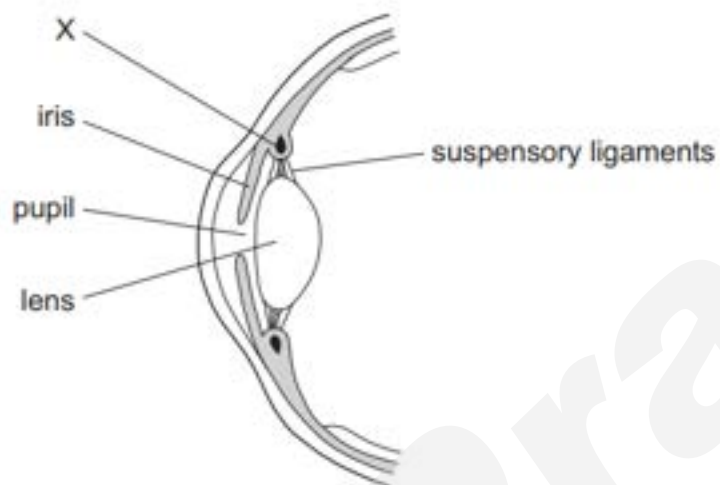


How do the muscles make the pupil smaller?

	circular muscles	radial muscles
<b>A</b>	contract	contract
<b>B</b>	contract	relax
<b>C</b>	relax	contract
<b>D</b>	relax	relax

Oct/Nov 2015 (12)

24 The diagram shows a section through part of the eye.



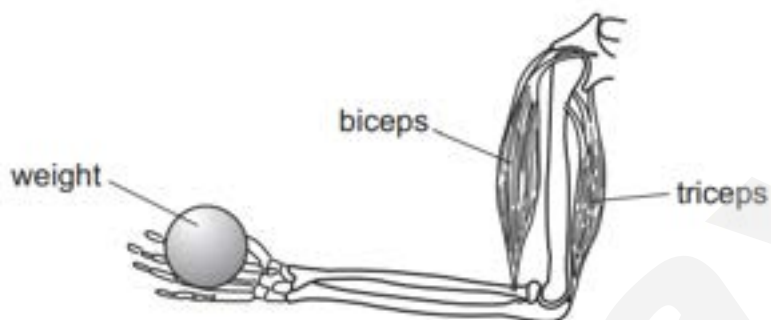
X is a contracted ciliary muscle.

What will happen when it relaxes?

- A The lens will decrease its curvature.
- B The lens will increase its curvature.
- C The size of the pupil will decrease.
- D The size of the pupil will increase.

Oct/Nov 2015 (13)

**23** The diagram shows muscles and bones in a person's arm.



What happens to the muscles as the weight is lowered?

	biceps	triceps
<b>A</b>	lengthens	lengthens
<b>B</b>	lengthens	shortens
<b>C</b>	shortens	lengthens
<b>D</b>	shortens	shortens