

# THE RESPIRATORY SYSTEM

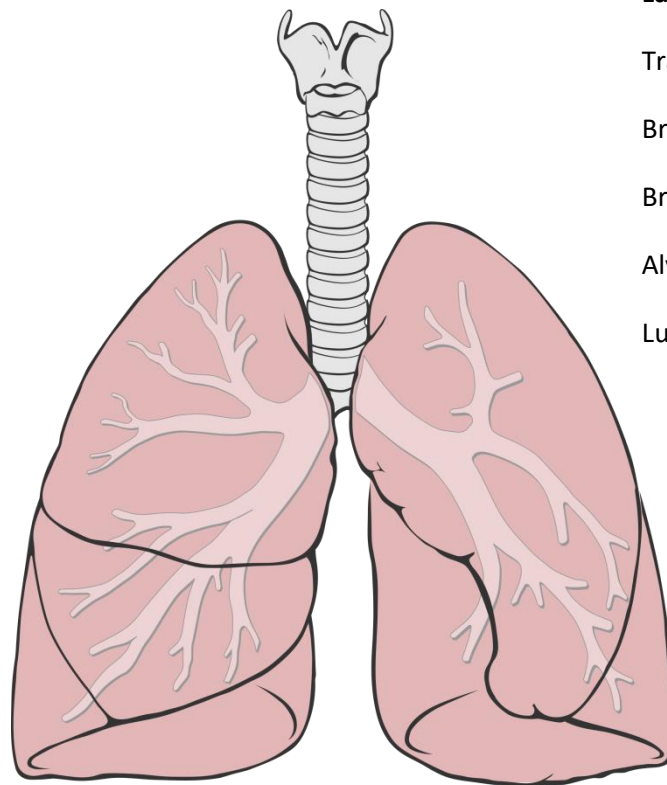


Name.....

**Do not confuse the respiratory system with the cardiovascular system or respiration!!**

**It involves moving oxygen and carbon dioxide from the air to the blood stream and cells**

Structure of the respiratory system



**Label the following:**

Trachea

Bronchus

Bronchioles

Alveoli

Lung

Why do we need to breathe?

.....  
.....  
.....  
..... (2 marks)

Why do we need oxygen in our body?

..... (1 mark)

What are the 2 equations for respiration?

1.....

2..... (2marks)

How is oxygen involved in the anaerobic process?

.....  
..... (2 marks)

Sporting situations may be considered to be aerobic or anaerobic.

(i) What is meant by the term 'aerobic'?

.....  
.....(1 mark)

(ii) Describe a situation in which a performer would be working aerobically.

.....  
.....  
.....  
.....(2 marks)

(iii) What is meant by the term 'anaerobic'?

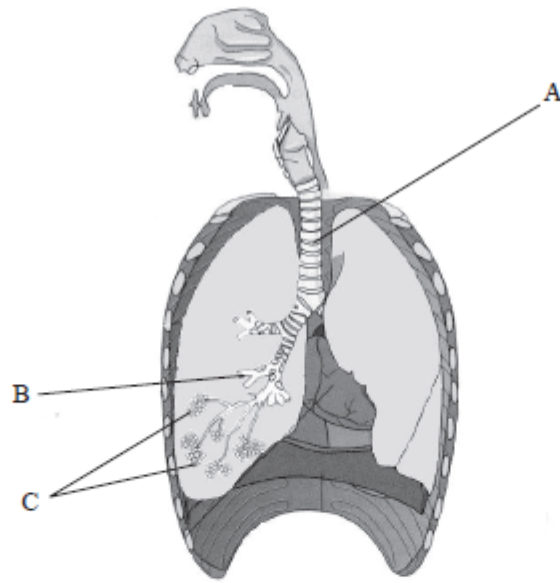
.....  
.....(1 mark)

(iv) Describe a situation in which a performer would be working anaerobically.

.....  
.....  
.....  
.....(2 marks)



Figure 8 is a diagram of the respiratory system.



**Figure 8**

(ii) Give the anatomical names of the parts labelled A, B and C.

A .....

B .....

C .....

(3)

(b) (i) In order to get oxygen into the lungs the player breathes in. Describe the movement of the ribs and diaphragm during inspiration.

Ribs .....

Diaphragm .....

(2)

(ii) Why do the ribs and diaphragm move in this way?

.....  
.....  
.....

(1)

Which two muscles are involved in the mechanics of breathing?

1.....

2.....

Explain the difference between oxygenated and deoxygenated blood

.....  
.....  
.....  
.....

Explain what air pressure has to do with inspiration and expiration

.....  
.....  
.....  
.....  
.....

What is the name of the tiny air sacs found in the lungs?

.....

What is tidal volume?

.....  
..... (1 mark)

What is vital capacity?

.....  
..... (1 mark)

Define the Oxygen debt

.....  
..... (1 mark)

Give a sporting example of when we are likely to experience it

..... (1 mark)



Give 5 long term effects of exercise on the respiratory system

1.....

2.....

3.....

4.....

5.....

Identify a benefit of long-term participation in physical activity to the respiratory system.

- A Muscle atrophy.
- B Vital capacity.
- C Faster recovery rate.
- D Stroke volume.

**(Total 1 mark)**

2. Which of the following is **not** an immediate effect that exercise and physical activity can have on the respiratory system?

- A Increased breathing rate.
- B Increased depth of breathing.
- C Increased lung capacity.
- D Oxygen debt.

**(Total 1 mark)**

3. An increase in breathing rate is an example of:

- A a long term benefit of exercise
- B a poor level of fitness
- C an immediate effect of exercise
- D an effect of regular training.

**(Total 1 mark)**



A, B, C or D is correct.

- A** statement true, example true
- B** statement true, example false
- C** statement false and example true
- D** statement false and example false

	<b>Statement</b>	<b>Example</b>
(a)	Regular training has an effect on the circulatory system	An increase in heart rate
(b)	An immediate effect of exercise is an increase in heart rate	Heart rate increases from 65 bpm to 75 bpm
(c)	Exercise does not have any long-term benefits for the respiratory system	An increase in the number of capillaries

**(Total 3 marks)**

**8.** The following statements all relate to the effects of exercise on the cardiovascular and respiratory systems.

- A** A drop in resting heart rate.
- B** An increase in heart rate.
- C** An increase in breathing rate.
- D** An increase in lung volumes.

- (a) Which of the statements is an **immediate** effect of exercise on the respiratory system?
- (b) Which of the statements is a **long-term** effect of exercise on the cardiovascular system?

**(Total 2 marks)**

(ii) If a player has built up an oxygen debt will she have been working aerobically or anaerobically?

.....

**(1)**

(iii) What by-product is associated with an oxygen debt?

.....

**(1)**

(iv) State **TWO** ways in which the performer could help remove this bi-product.

1. ....

**(1)**

2. ....

**(1)**

**(Total 5 marks)**

It is important that Lucy does not over exercise as this may lead to injury.

State **four** other ways that Lucy may avoid injury during exercise.

1 .....

2 .....

3 .....

4 .....

**(4)**

At what percentage of your maximum heart rate would you need to be working to improve your aerobic capacity?

.....

What would be improving if you worked above this?

.....

What long term effect would exercise have on your resting heart rate and why?

.....  
.....  
.....

What effect would exercise have on your recovery rate?

.....

Would there be a change in your working heart rate after undergoing two months of training? Why?

.....  
.....  
.....  
.....  
.....  
.....