Revision 2025

BTEC L3 Sport & Exercise Science Unit 2

Student Notes

spotlight SESSION

Recommended	Essential	Recommended
Before the revision session	**During the revision session**	**After the revision session**
Complete the 2025 National Mock Exam	Complete the notes	Review with your teacher

The EverLearner

Hot Topic 8: Muscle fibre types

Complete this answer during the show:

9. Explain why type IIa muscle fibres are considered the most crucial to a 200m swimmer.

It is because 200m swimming is a _____-distance event and IIa fibres have _____ fatigue resistance, making them ideal. Furthermore, the event is high intensity, although not VERY high intensity and IIa fibres are ideal because they can release high _____ and high _____ allowing the swimmer to maintain power output without fatiguing too much.

Marks: [3]

We anticipate three probable question structures:

1. Give the meaning.
2. Explain the fibre type most important to... (see above)
3. Analyse different fibre types in a performance (extended writing)

8 markers: Analyse how different muscle fibres types are used to support performance in .... **different sports**.

Therefore, these are both potential questions:

1) Analyse how different muscle fibre types are used to support performance in a game of squash. (8)
2) Analyse how different muscle fibre types are used to support performance in a cross-country race. (8)

How might your answers be different?

Let's structure an answer for example 1.

Paragraph 1: (Introduction) Fully name all three fibre types in prose.

The three muscle fibre types are... type I slow oxidative, type IIa fast oxidative glycolytic and type IIx fast glycolytic. All three fibres are used in squash.

Paragraph 2: (Analysis 1) Explain how type I fibres are/aren't relevant to squash. Include what might happen with a lack of these fibres.

Type I fibres play an important role in squash during... the recovery between points and between games. They provide muscular force at low levels and low speed and allow other fibre types to recover for the more explosive elements of the performance of squash. One could also argue that they become important during very long, back-court rallies but this is only a marginal effect.

An absence of type I fibres in squash would mean... IIa and IIx fibres would need to be used during the recovery phasing preventing them from being fully recovered in preparation for the subsequent point. This is why type I fibres, whilst seeming less important, remain relevant in a stop-start sport like squash.

Paragraph 3: (Analysis 2) Explain how type IIa fibres are/aren't relevant to squash. Include what might happen with a lack of these fibres.

Type IIa fibres play an important role in squash during... _____

An absence of type IIa fibres in squash would mean... _____

Paragraph 4: (Analysis 3) Explain how type IIx fibres are/aren't relevant to squash. Include what might happen with a lack of these fibres.

Type IIx fibres play an important role in squash during... _____

An absence of type IIx fibres in squash would mean... _____

Paragraph 5: (Conclusion) Make a judgment of the relative importance of the fibre types.

It is my opinion that type _____ *fibres are most critical in squash because...* _____

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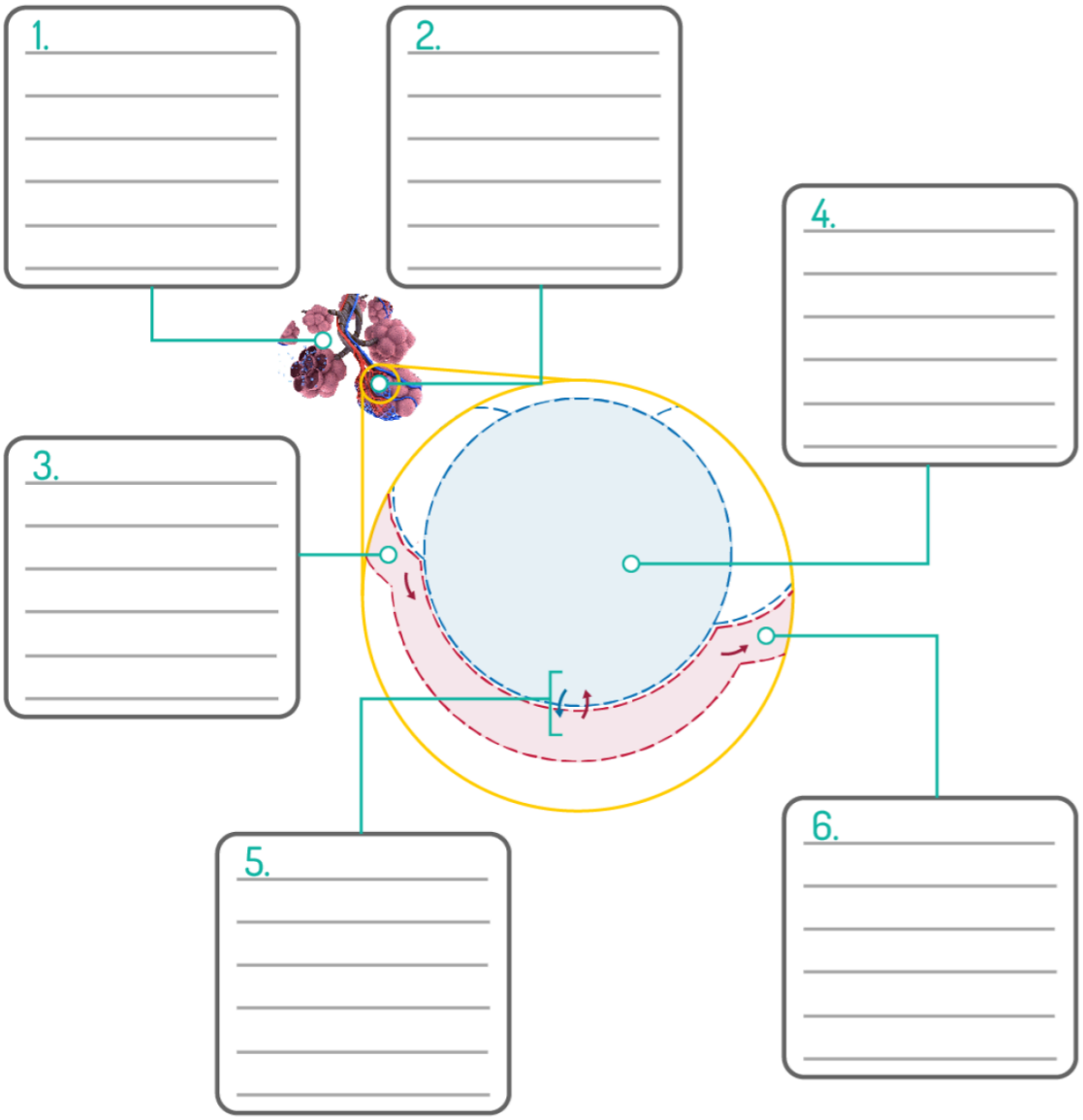
Hot Topic 5: Gaseous exchange

2. Identify **three** features of the alveoli that make them suitable for gaseous exchange.

Feature 1: *Surrounded by* _____

Feature 2: _____, *which provides a short diffusion path*

Marks: [3]



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Let's mark this answer together:

Describe the process of diffusion of **oxygen** at the **alveoli**.

It occurs through the process of diffusion, which is the net movement of oxygen from the high concentration in the alveolus to lower concentration in the capillary. This net movement occurs at a rate proportional to the concentration gradient. The steeper the gradient, the more diffusion occurs.

Marks: [4]

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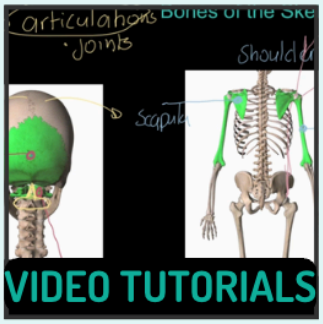
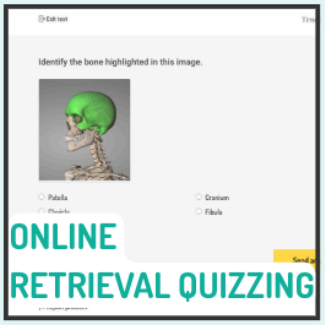
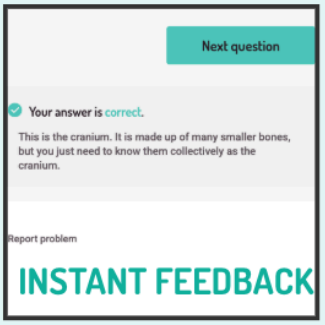
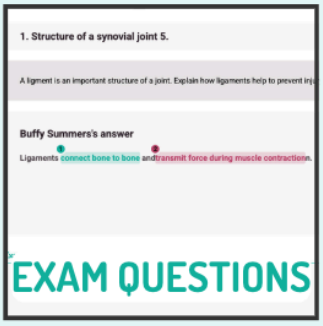
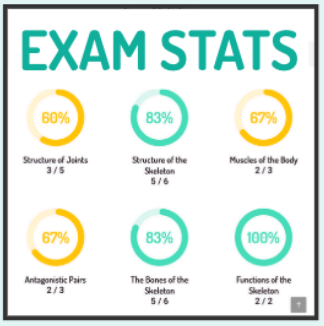
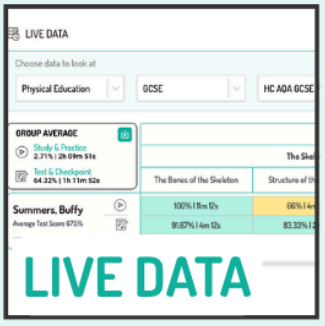










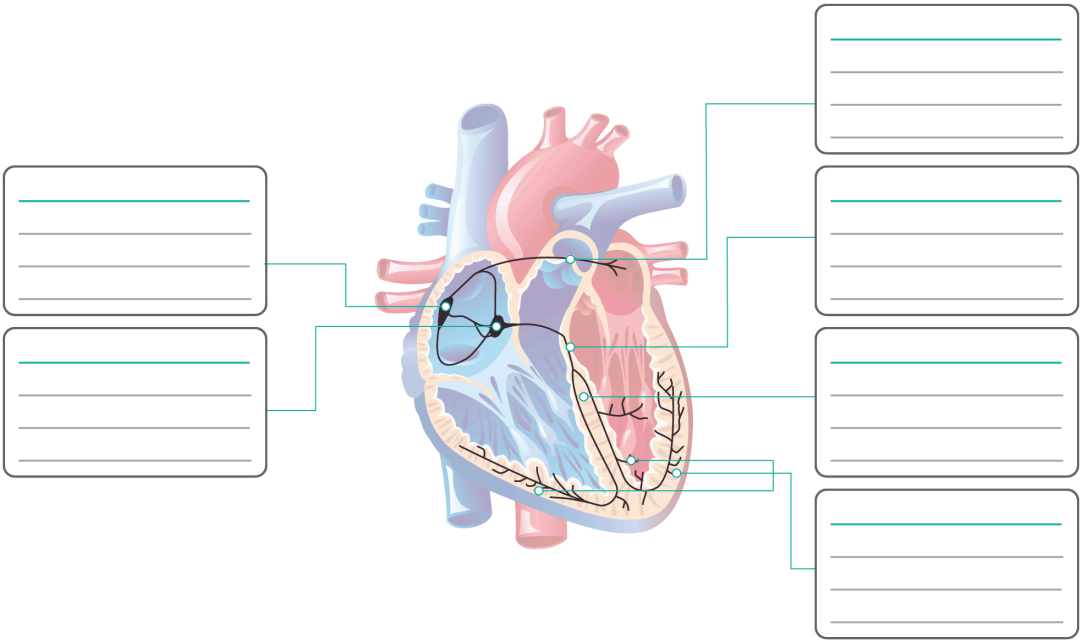


Hot Topic 4: Cardiac cycle

8. Describe neural control of the cardiac cycle.

The impulse is _____ by the sinoatrial node sat the upper right of the heart above the _____. The signal spreads across the _____ causing _____. The signal is then passed to the atrioventricular node, which passes the signal _____. The Bundle of His _____ and it passes down, under and then around the ventricles, _____ causing _____.

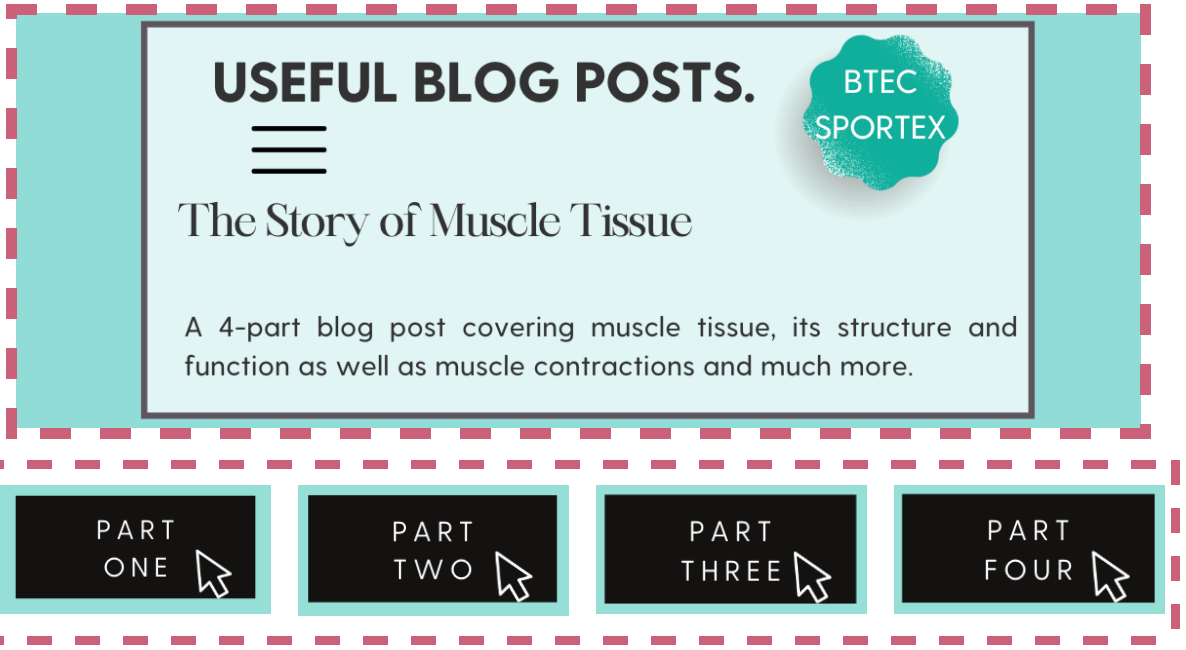
Marks: [4]



11. Describe the diastolic phase of the cardiac cycle.

Marks: [3]

Phase		Role and timing
Systole	Atrial	
	Ventricular	
Diastole	Atrial	Relaxation of the atria. The atria refill with blood returning from the veins (vena cava and pulmonary). The increasing internal space actually provides a slight suction on the blood.
	Ventricular	Relaxation of the atria. The atria refill with blood returning from the veins (vena cava and pulmonary). The increasing internal space actually provides a slight suction on the blood.



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