

The heart, ventilation and exercise

What does myogenic mean?

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What is the role of the sinoatrial node?

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Why does the AVN delay the wave of excitation?

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Put in order: AVN, SAN, Purkyne fibres, bundle of His.

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What do the P wave, QRS complex and T wave show?

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Name four abnormal heart rhythms an ECG can show.

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Cardiac output equation?

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Where are the cardiovascular control centre and ventilation centre?

It is the pacemaker: it initiates the wave of excitation that spreads across the atria.

Cardiac muscle contracts and relaxes rhythmically without nervous stimulation.

SAN, AVN, bundle of His, Purkyne fibres.

So the atria finish contracting and the ventricles fill before the ventricles contract.

Tachycardia, bradycardia, ectopic heartbeat and atrial fibrillation.

P: atrial depolarisation; QRS: ventricular depolarisation; T: ventricular repolarisation.

In the medulla oblongata of the brain.

Cardiac output = stroke volume $\times$ heart rate.

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What do chemoreceptors detect in exercise?

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Which nerve decreases heart rate and which increases it?

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Where is adrenaline made and what is its role?

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Effect of adrenaline on the liver?

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Respiratory minute ventilation equation?

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How is oxygen consumption found from a spirometer trace?

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What is tidal volume?

The vagus (parasympathetic) decreases it;
the sympathetic nerve increases it.

A rise in CO₂ concentration and a fall in
blood pH.

It stimulates the conversion of glycogen to
glucose, raising blood glucose.

In the adrenal glands; it prepares the body
for fight or flight.

From the gradient of the trace, because
soda lime removes the CO₂ so the falling
volume is oxygen used.

Minute ventilation = tidal volume ×
breathing rate (dm³ min⁻¹).

The volume of air breathed in (or out) in one
breath. It is about 0.5 dm³ at rest and
increases during exercise.