

Myogenic control of heart rate

Name:

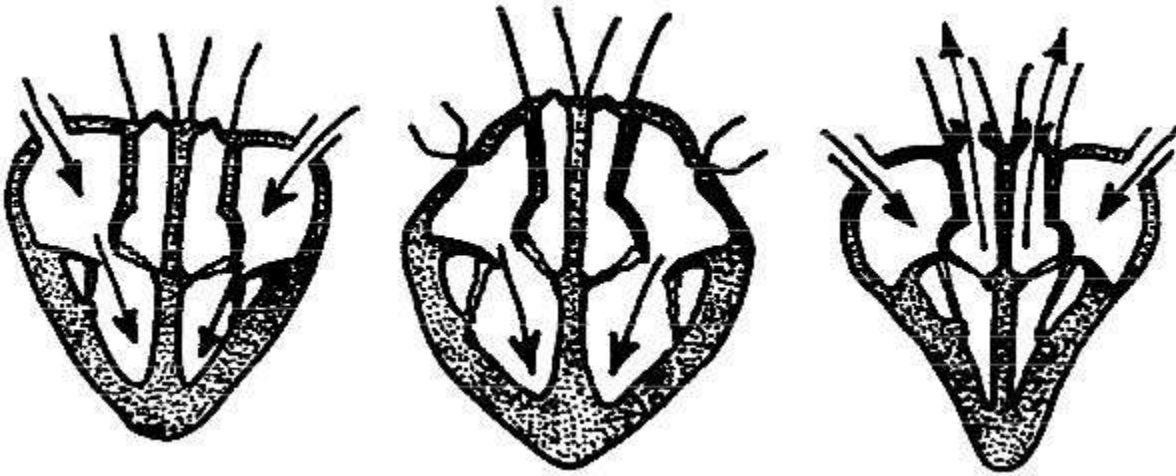
DEFINE:

Key word	Definition
Myocyte	
Sino-atrial node	
Atrioventricular node	
Indefatigable	
Action potential	
Purkinje fibres	
Autonomic nervous system	
Myocardial contraction	

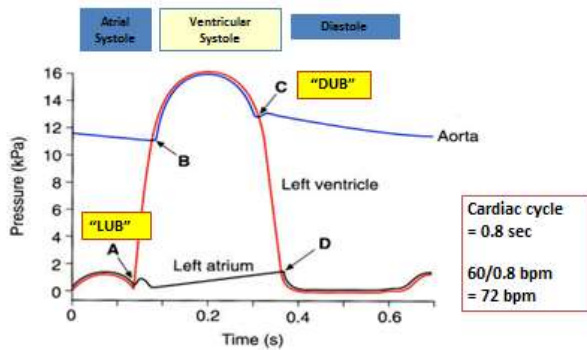
EXPLAIN control of heart rate

1. Increases rate of...	
2. As a result CO ₂ levels in blood...	
3. This is detected by	
4. The medulla oblongata said a signal to secrete the hormone.....	
5. The hormone travels through the bloodstream to the	
6. The effect of this hormone is to	
7. As a result the CO ₂ levels in the blood	
8. This is again detected by	
9. This time a hormone called acetylcholine is secreted from the brain which affects the.....	
10. Eventually the heart rate will.....	

ANNOTATE this diagram of the cardiac cycle:



FURTHER READING:



Electrocardiogram (ECG)

Electrodes are placed on the skin over opposite sides of the heart, and the electrical potentials generated recorded with time. The result is an ECG.

- P wave = electrical activity during atrial systole
- QRS complex = electrical activity during ventricular systole
- T wave = ventricular repolarisation (recovery of ventricular walls)
- Q-T interval – contraction time (ventricles contracting)
- T-P interval – filling time – ventricles relaxed and filling with blood



- A Atrioventricular (bicuspid/ mitral) valve(s) closes ("snaps shut" – makes 1st louder heart sound "LUB"
- B Semilunar valve(s) (aortic valve) opens
- C Semilunar valve(s) closes – makes second softer heart sound "DUB" – shut due to blood accumulating in their pockets
- D Atrioventricular (bicuspid) valve(s) opens

Patterns are studied in different conditions and compared to the standard ECG in order to diagnose heart conditions, such as arrhythmias and fibrillation. Fibrillation is stopped by passing a strong electric current through the chest wall – the heart stops for up to 5 seconds after which it begins to beat in a controlled way

SKETCH the following graphs:

- ECG of a patient with a cardiac arrhythmia
- ECG of a patient whose AV node isn't working
- ECG of a patient whose heartbeat is too fast (tachycardia)