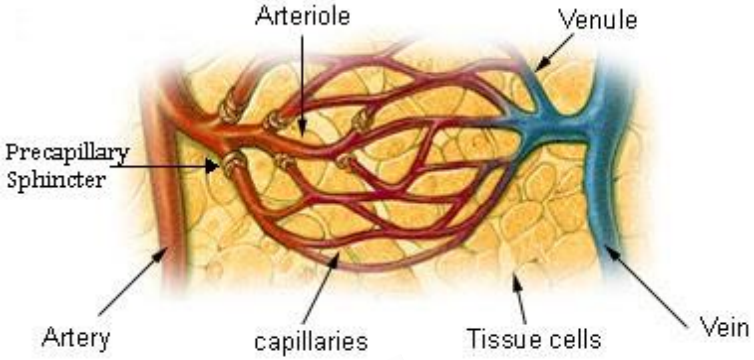
Anatomy and Physiology
Paper 1
Mr Endersbee

TOPIC 1.1:
CARDIOVASCULAR SYSTEM
TRANSITION WORK



TRANSITION WORK

1. Complete handouts 1-6
2. Attempt questions 1abc and 2ab

All work you complete will form 'prep' notes to start the syllabus in September 2020.

You will be given a full version of this workbook and a question bank when you begin the course.

Therefore, any work you do in here is in rough only – you will have the opportunity to copy it up neatly into the full version of the workbook/question bank once we have reviewed these in the opening few lessons.

The information you require can be found through various research methods. Where possible, try to make these AQA A-level PE-specific (e.g. key terms)

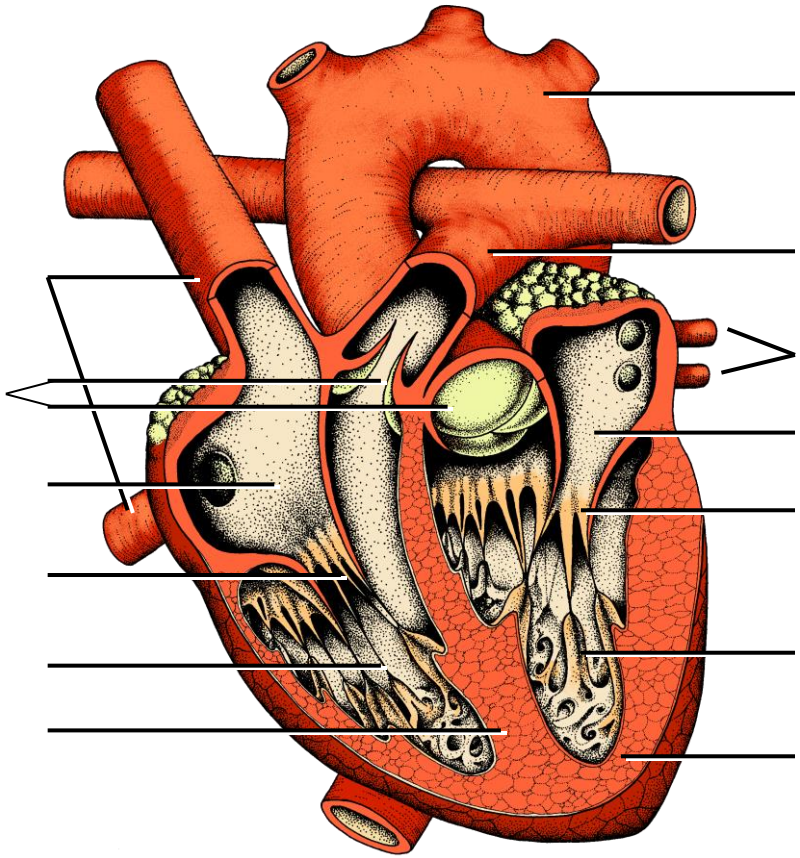
Good luck, and I look forward to starting the A-level course with you in September.

Mr Endersbee

Name	

1

THE HEART - STRUCTURE



TASK:

1) *Label the heart with the components. <u>Colour code</u> your components to show different categories: CHAMBER, BLOOD VESSEL, VALVE, OTHER*
2) *Add arrows to show the direction of blood flow.*

Revision – use this space to draw a SIMPLIFIED MODEL of the heart that you could quickly sketch in an exam to plan an answer

Remember – you will not be examined on the components of the heart, but need to know the structure to understand other processes.

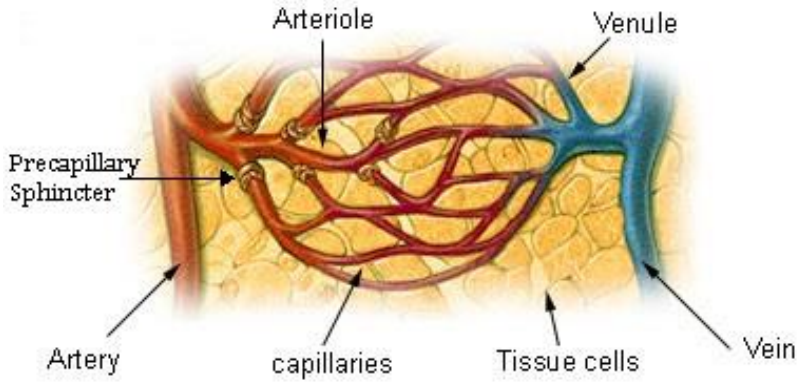
Key Terms

SYSTOLE

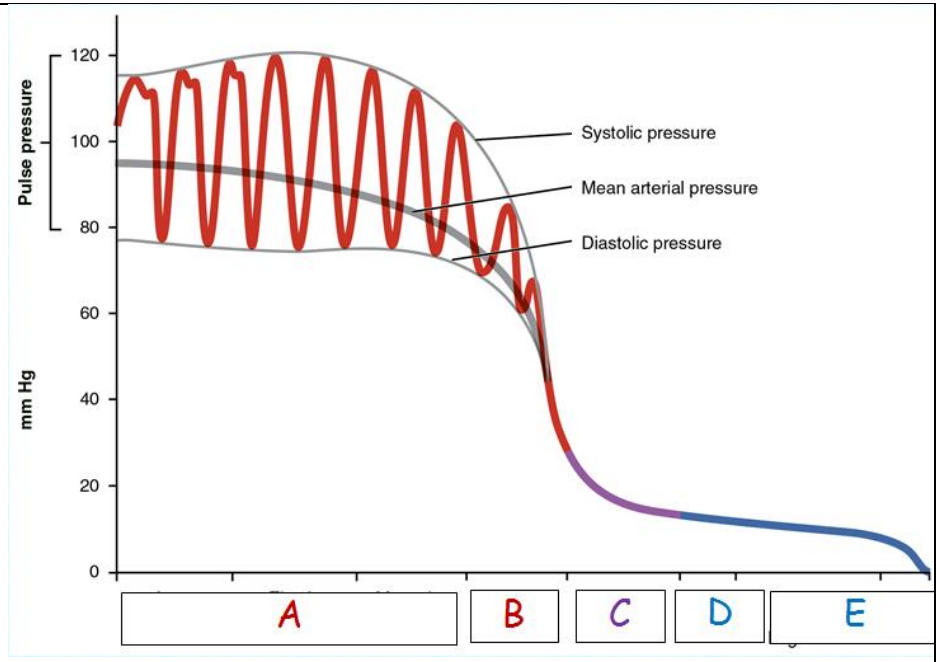
DIASTOLE

2

BLOOD VESSELS



Vessel	Characteristics	Functions
Artery		
Arteriole		
Capillary		
Venule		
Vein		



1. When involved in physical activity, a performer's blood velocity and pressure is similar to the graph shown in the figure.

a) Using the graph, identify blood vessels A-E (3 marks)

b) Explain the variation in **blood pressure** occurring from A-E (3 marks)

CARDIOVASCULAR SYSTEM

DEFINITIONS & CHANGES DURING EXERCISE

Key Term	*Definition*	*Changes During Exercise*
Heart Rate		
Stroke Volume		
Cardiac Output		
Ejection Fraction		

Table 1 shows the readings of two performers at rest and during exercise.

1) Calculate the cardiac output (empty boxes) for both performers at rest and during exercise (4 marks)
2) Identify which performer would be regarded as 'the fittest', and explain your answer (3 marks)

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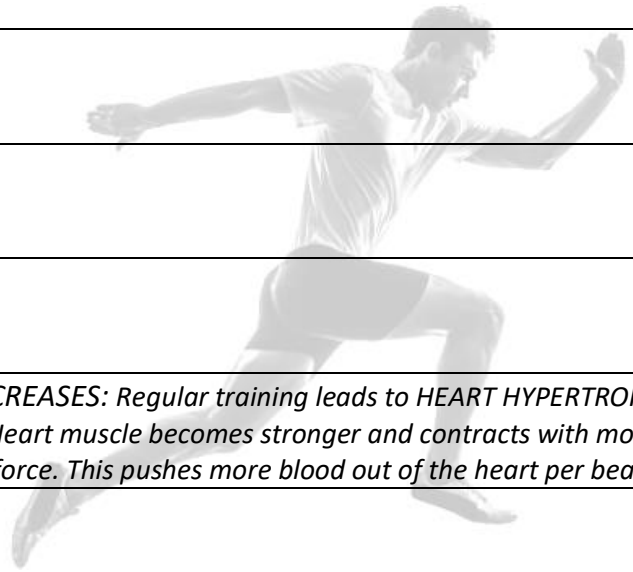
	Performer A		*Performer B*	
	Rest	*Exercise*	*Rest*	*Exercise*
Heart Rate	*65 bpm*	*200 bpm*	*50 bpm*	*190 bpm*
Stroke Volume	*75 ml*	*150 ml*	*90 ml*	*180 ml*
Cardiac Output				

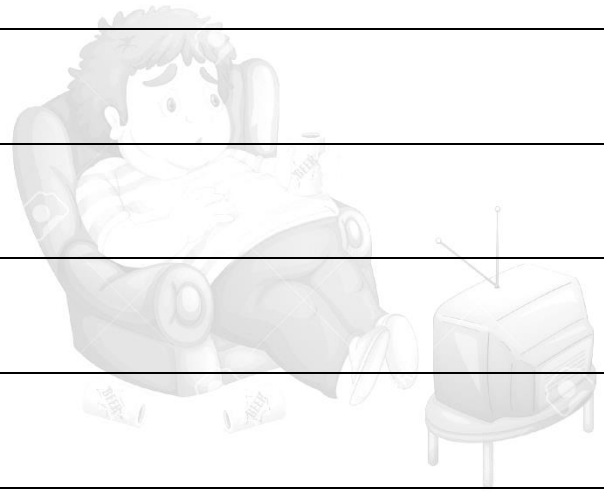
CARDIOVASCULAR SYSTEM

DIFFERENCES BETWEEN A TRAINED AND UNTRAINED INDIVIDUAL

Complete the table with as much information as possible. Try to include as many key terms as possible.

Trained Individual – exercises regularly		***Unhealthy Individual – never exercises***
	Heart	
	Blood Vessels	
	Blood Pressure	
	Heart Rate (Resting, Maximal)	
INCREASES: Regular training leads to HEART HYPERTROPHY. Heart muscle becomes stronger and contracts with more force. This pushes more blood out of the heart per beat.	***Stroke Volume***	
	Cardiac Output	





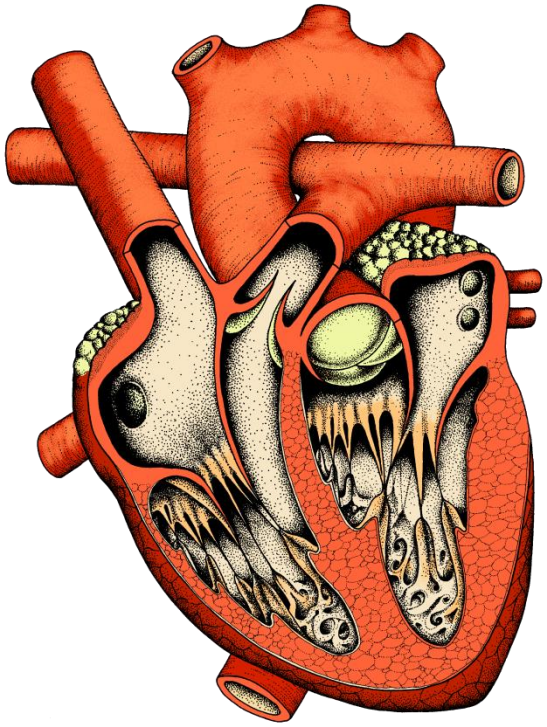
Heart Disease	**Cholesterol Levels**	**Strokes**
• Atherosclerosis: • Atheroma: • Angina:		

5 CONTROL OF THE HEART – 'AUTOMATIC' CONDUCTION SYSTEM

Define the Key Terms:

Intrinsic Heartbeat

Myogenic



Task 1: Label the following components of the 'conduction system' and explain what each one does:
SAN / AVN / Bundle of His / Purkinje Fibres

SAN creates intrinsic rhythm of heartbeat

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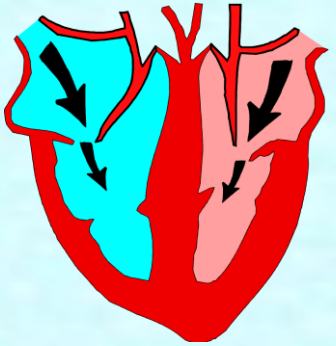
Ventricles contract

Task 2: Complete the flow chart to show the sequence of conduction

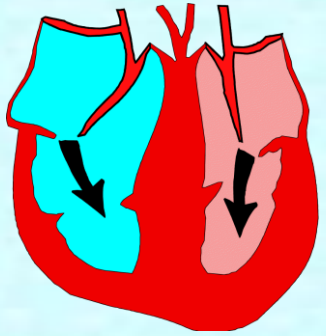
The Cardiac Cycle - How the Heart Beats

Every time the heart beats it goes through a **3-part** cycle:

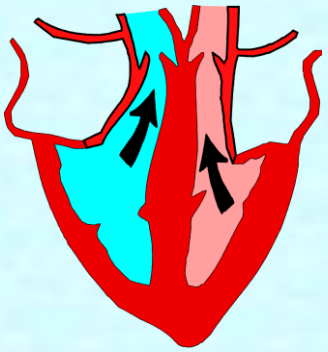
Stage 1



Stage 2



Stage 3



1. The cardiovascular system comprises of the heart and blood vessels.

a) Define the terms ‘systole’ and ‘diastole’ (2 marks)

b) Using the table, identify blood vessels A, B and C (3 marks)

c) Describe the variation in blood pressure between arteries, capillaries and veins (3 marks)

Vessel	Characteristic	Function
A	Fairly large lumen	Transports blood from capillary to vein
B	Contains sphincters	Redistributes blood to priority areas
C	Walls one cell thick	Enables gaseous exchange
D	Muscular walls	Pumps blood out of heart
E	Contains valves	Returns blood to the heart

Highlight key words in question - link command word to relevant AO - then use this space to plan

Answer the question in full here:

2. The cardiovascular measures of trained athletes can differ significantly to those of untrained individuals.

a) Complete the table, showing the definitions of each measure (4 marks)

b) Compare the maximal cardiovascular measures of an elite marathon runner to a sedentary individual (4 marks)

Highlight key words in question - link command word to relevant AO - then use this space to plan

Answer the question in full here:

Measure	Definition
Ejection fraction	
	Total amount of blood ejected from the heart per minute
Stroke volume	
Heart rate	