Cheatography

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circulatory system

this system ensures the exchange of substances between the cells of the body and external environment and transports them throughout our body.

the three main parts are -

1.circulatory medium-blood, lymph, tissue fluid

2.blood vessels- vein, arteries, capillaries

3.pumping organ-heart

White blood cells

they are rounded to irregular shaped, 1.granulocytes colorless as they lack haemoglobin annd are 2.agranulocytes produced in bone marrow

they are of 2 types

Granulocytes-spherical in shape have lobes nucleous and contain granules in their cytoplasm

there are 3 types of granulocytes (neutrophils , basophils, eosinophils)

Agranulocytes - nucleous is spherical or kidney shaped and they don't have granules in their cytoplasm .

there are 2 types(lymphocytes and monocytes)

Diapedesis

it is the process of wbcs squeezing out of cappilaries.

blood group				
blood	anitigens	antibodies	can donate	can receive
group			to	from
А	А	b	A , AB	A, O
В	В	а	B , AB	В, О
AB	А, В	none	AB	A,AB,B,O
0	none	a ,b	A,B,AB,O	0

valves	
tricuspid valve	guards the opening between the right atrium and the right ventricle
bicuspid valves	guard the opening between between the left atrium and the left ventricle
semilunar valve	present at the opening of the right and left ventricles and allow the entry of blood into pulmonary artery and the aorta respectively. they prevent the backflow of blood

heart sounds		
lubb	closure of the tricuspid and bicuspid valve at the beginning of a systole	
dubb	closure of the semilunar valves at the beginning of a diastole	
cardiac cycle	it is the sequence of the events that takes place in the heart during one heartbeat (0.8s)	

blood

blood moves from the heart through arteries and back to the heart by veins.

it is a red coloured viscous tissue fluid which contains

1.plasma 2.blood corpuscles(RBC'S, WBC's and platelets)

Red blood corpuscles

are biconcave and enucleated and due to lack of organelles it can carry more oxygen as it increases surface area.

they contain a pigment composed of iron and a proteincalled Haemoglobin

they have a life span of 120 days and are produced in the bone marrow

blood vessels (blood flows through the	m)	
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arteries	veins	capillaries
carry blood from	carry blood from	are microscopic
the heart to the	body parts to the	vessels that carry
body	heart	blood from arterioles to
arteries carry	veins carry deoxyg-	small veins or venules
oxygenated blood	enated blood	wall is very thin
they have thick	they have thin walls	they have a wide
walls because	as the blood flows	lumen with valves
blood with high	with low speed and	
speed and	low pressure	
pressure	valves are present	
valves are absent		
lumen is very		
narrow and walls		
are elastic		



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blood vessels leaving the heart		
1.pulm- onary artery	arise from the right ventricle and carry deoxygenated blood back to the lungs for purification	
2.systemic aorta	arises from the left ventricles and supplies oxygenated to the body parts except the lungs	

heart beat

heart beat originat	es at the sino atrial node (pacemaker)
it occurs in 3	1.auricular systole (auricles contract)
main phases	2.ventriclar systole (ventricles contract)
	3.joint diastole(all chambers relax)
heart is myogenic	(normal activities of the heart are auto-regulated
by the nodal tissues)	

nodal tissues	1.sino-atrial node
are-	(in the wall of right upper corner of the right
	atrium)
	2.atrioventricular node
	(in the lower corner of the right atrium close to
	the atrioventricular septum)

thrombocytes/platelets

they are colorless ,oval, formed by the bone marrow. these cells help in blood clotting.

clotting of blood

blood does not clot inside our blood vessels because of the presence an anticoagulant called **heparin**

step 1-when the blood comes out of an injury blood platelets release thromboplastin which inactivates heparin and converts **prothrombin** into **thrombin**

step 2- thrombin acts as an enzyme and converts soluble fibrinogen into insoluble fibrin monomers

step 3- **the fibrin monomers** polymerize and form long threads with form a **network** over the wound and prevents the blood corpuscles from coming out.



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heart

the heart has 4 chambers(right auricle, left auricle, right ventricle and left ventricle) , great blood vessels, apertures and valves)

great blood vessels entering the heart		
1. superior vena cava	it brings the deoxygenated blood from the head and upper region of the body into the right auricle	
2.inferior vena cava	brings deoxygenated blood from the lower region of the body in the r.a	
3.coronary sinus	brings deoxygenated blood from the heats wall itself . these supply the heart muscles with blood	

ouble circulation

it is the proce heart during	ess by which the blood passes through twice through the one cardiac cycle
systemic circulation	circulation of oxygenated blood between the heart and he various body parts through the aorta that carries deoxygenated blood into the heart through the vena cava
pulmonary circulation	it involves the circulation of the blood between the heart and the lings . deoxygenated blood is collected from the pulmonary artery and returns oxygenated blood to the heart by the pulmonary vein.

hepatic portal vein

the veins collecting blood from the stomach and intestine join to form a singe large vein called the hepatic portal vein which enters the liver.

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