Names _____

Chapter 19 – Blood Vessels

ייייייייייייייייייייייייייייייייייייי	- Thigh	-	Thumb	
F	Forearm		Plantar surface of foot	
Calf Lower jaw			Temple	
			Ankle	
Please match the terms po	ertaining to blood vessels to the	appropriate description.	Some letters may be used more	
than once.				
A. Arteries	C. Capillaries	E. Elastic	H. Venous sinuses	
B. Arterioles	D. Venules	G. Muscular	I. Veins	
Transport blood aw	vay from heart			
Largest arteries, lo	w resistance			
Arteries with thicke	est muscle layer; active in vasoco	nstriction		
Control blood flow	into individual capillary beds			
Lumen is the size o	f one red blood cell			
Vessels formed whe	en capillaries unite			
Vessels with thin w	alls and large lumens that often a	appear collapsed in histolo	ogic preparations (slides)	
Sometimes referred	d to as "conducting" arteries			
Artery type that ac	counts for most of the named art	eries studied in this class		
Please match the descript	ions with the correct term below	V.		
Expansion and recoil of an artery during heart activity			A. Over arteries	
Pressure exerted by the blood against the blood vessel walls			B. Blood pressure	
The product of these factors yields blood pressure			C. Cardiac output	
Event primarily responsible for peripheral resistance			D. Constriction of arterioles	
Blood pressure during heart contraction			E. Diastolic blood pressure	
Blood pressure dur	ing heart relaxation		F. Peripheral resistance	
Site where blood p	ressure determinations are norm	ally made	G. Pressure points	
Points at the body s	surface where the pulse may be f	elt	H. Pulse	
Sounds heard over a blood vessel when the vessel is partially compressed			I. Sounds of Korotkoff	
			J. Systolic blood pressure	
			K. Over veins	
What offects do the follow	ving factors have on blood press	ure? Use an "I" to indicat	a an increase in pressure and a ""	
to indicate a decrease in p	Ving lactors have on blood pless			
Increased diameter	r of the arterioles	Hemorrhage		
Increased blood vis	scosity	Nicotine		
Increased cardiac o	, utout	Artorioscioro	cic	

- ____ Increased cardiac output _____ Increased pulse rate
- Anxiety, fear
- _____ Increased urine output
- _____ Sudden change in position from reclining to
- standing

- **Physical exercise**
- Physical training
- Alcohol

- Arteriosclerosis
- _____ Stimulation of arterial baroreceptors
- _____ Stimulation of carotid body chemoreceptors
- _____ Release of epinephrine from adrenal medulla
- _____ Secretion of antidiuretic hormone
- _____ Secretion of NO
 - _____ Renin/angiotensin mechanism
- Secretion of aldosterone

Period

Please choose the vessel type (arteries, capillaries, veins) with the indicated characteristic. _____ Highest total cross-sectional area Lowest velocity of blood flow _____ Highest velocity of blood flow Lowest blood pressure Please match the arteries to their correct description below. A. Anterior tibial H. Coronary O. Intercostals V. Renal B. Aorta I. Deep artery of thigh P. Internal carotid W. Subclavian C. Brachial J. Dorsalis pedis Q. Internal iliac X. Superior mesenteric K. External carotid Y. Vertebral D. Brachiocephalic R. Fibular Z. Ulnar E. Celiac trunk L. Femoral S. Phrenic F. Common carotid M. Hepatic T. Posterior tibial G. Common iliac N. Inferior mesenteric U. Radial Two arteries formed by the division of the brachiocephalic artery _____ First branches off the ascending aorta; serve the heart _____ Two paired arteries serving the brain Largest artery of the body _____ Arterial network on the dorsum of the foot Serves the posterior thigh _____ Supplies the diaphragm _____ Splits to form the radial and ulnar arteries

- _____ Auscultated to determine blood pressure in the arm
- _____ Supplies the last half of the large intestine
- _____ Serves the pelvis
- _____ External iliac becomes this artery on entering the thigh
- _____ Major artery serving the arm
- _____ Supplies the small intestine and part of the large intestine
- _____ Terminal branches of the dorsal, or descending, aorta
- _____ Arterial trunk that has three major branches, which serve the liver, spleen, and stomach
- _____ Major artery serving the tissues external to the skull
- _____ ____ Three arteries serving the leg
- _____ Artery generally used to feel the pulse at the wrist

Please match the veins to their correct description below.

A. Anterior tibial	F. Common iliac	K. Inferior mesenteric	P. Subclavian
B. Posterior tibial	G. Gastric	L. Inferior vena cava	R. Superior mesenteric
C. Brachiocephalic	H. Gonadal	M. Internal jugular	S. Superior vena cava
D. Cardiac	I. Hepatic	N. Radial	T. Ulnar
E. Cephalic	J. Hepatic portal	O. Renal	

Deep veins; drain the forearm	Drains the kidney
Receives blood from the arm via the axillary vein	Drains the ovaries or testes
Drains venous blood from the myocardium of the	Drains the liver
heart into the coronary sinus	Largest vein inferior to thorax

_____ Drain the leg and foot

- Drains the dural sinuses of the brain
- _____ Join to become the superior vena cava (2)
- _____ Carries nutrient-rich blood from the digestive organs to the liver for processing
- _____ Superficial vein that drains the lateral aspect of the arm
 - _____ _____ Three veins that form/empty into the hepatic portal vein
- Formed by the union of the external and internal iliac veins

The figure below illustrates the major systemic arteries of the body. Color the arteries red, and label the arteries indicated by the leader lines.



The figure below illustrates the major systemic veins of the body. Color the veins blue, and label the veins indicated by the leader lines.



Blood flows from high to low pressure. Hence, it flows from the high-pressure arteries through the capillaries and then through the low-pressure veins. Because blood pressure contributes less to blood propulsion in veins, special measures are required to ensure that venous return equals cardiac output. What role do the venous valves play?

Briefly explain why veins are called blood reservoirs and state where in the body venous blood reservoirs are most abundant.

Briefly explain why blood flow in large, thick-walled arteries, such as the aorta and its branches, is fairly continuous and does not stop when the heart relaxes.

The figure below shows the major arteries of the head and neck. Note that the clavicle is omitted and that dashed lines represent deeper vessels. Please color code and color the following vessels.



The figure below shows the venous drainage of the head. Color code and color each of the drainage veins individually. Label each of the dural venous sinuses that has a leader line, but color all the dural sinuses yellow. Note that the clavicle has been omitted.



Clinical Applications – Chapter 19 (Blood Vessels)

- 1) Why shouldn't a pregnant woman sleep on her back late in pregnancy?
- 2) When an entire capillary bed is closed off due to arteriolar vasoconstriction, are the precapillary sphincters open or closed? What is the pattern of blood flow into the capillaries when the arteriole dilates? From this, explain why the face flushes when coming inside on a cold day.
- **3)** Standing up quickly after being in a horizontal position can cause dizziness. Why is this more likely in a warm room than in a cool room?
- 4) Your friend, who knows very little about science, is reading a magazine article about a patient who had an "aneurysm at the base of his brain that suddenly grew much larger." The surgeons' first goal was to "keep it from rupturing" and the second goal was to "relieve the pressure on the brain stem and cranial nerves." The surgeons were able to "replace the aneurysm with a section of plastic tubing," so the patient recovered. Your friend asks you what all this means, and why the condition is life- threatening. What would you tell him?
- **5)** Mr. Brown was distracted while trying to fell a large tree. His power saw whipped around and severed his right arm at the shoulder. Without a limb stump, applying a tourniquet is impossible. Where would you apply pressure to save Mr. Brown from fatal hemorrhage?

- 6) A routine scan on an elderly man reveals partial occlusion of the internal carotid artery, yet blood supply to his cerebrum is unimpaired. What are two possible causes of the occlusion? What compensatory mechanism is maintaining blood supply to the brain?
- 7) A patient with a bone marrow cancer is polycythemic. Will his blood pressure be high or low? Why?
- 8) Mr. Grimaldi was previously diagnosed as having a posterior pituitary tumor that causes hypersecretion of ADH. He comes to the clinic regularly to have his blood pressure checked. Would you expect his BP to be chronically elevated or depressed? Why?
- **9)** Examination of Mr. Cummings, a man in his 60s, reveals a blood pressure of 140/120. What is his pulse pressure? Is it normal, high, or low? What does this indicate about the state of his elastic arteries?
- **10)** A man in his 40s was diagnosed as hypertensive. Dietary changes and exercise have helped, but his blood pressure is still too high. Explain to him why his doctor recommended beta Mocker and diuretic drugs to treat his condition.
- 11) Sidney received a small but deep cut from broken glass in the exact midline of the anterior side of his distal forearm. He worried that he would bleed to death because he had heard stories about people committing suicide by slashing their wrist. Judge if Sid's fear of death is justified and explain your reasoning.