

BI 121 Lecture 8



... *Welcome back – let's get to work!!*

I. Announcements Tomorrow HR & BP Lab 4 + **Required Notebook Check**. Turn in today? Thurs Blood Chemistry Lab 5. Please read Lab 5 twice prior to Thursday. Thanks!

II. Cardiovascular System LS 2012 ch 9, Torstar Books 1984, DC 2013 Module 4, Guyton & Hall (G&H) 2011 +...

A. Circulatory vs Cardiovascular (CV)? cf + parts
LS pp 229, CV vs Lymphatic, DC pp 23, 31

B. CV Pulmonary & Systemic circuits
DC fig 4-1 p 24, LS fig 9-2b p 231

C. Arteries, capillaries, veins G&H +Torstar

D. Varicose veins? Phlebitis? DC

E. ♥ layers, box, chambers, valves, inlets, outlets
LS fig 9-4 p 233, fig 9-2a p 231; DC pp 23-6

F. Normal vs abnormal blood flow thru ♥ & CV system
Billy has a hole in his ♥ SI Fox 2009 fig 13.16, 13.17



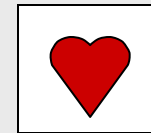
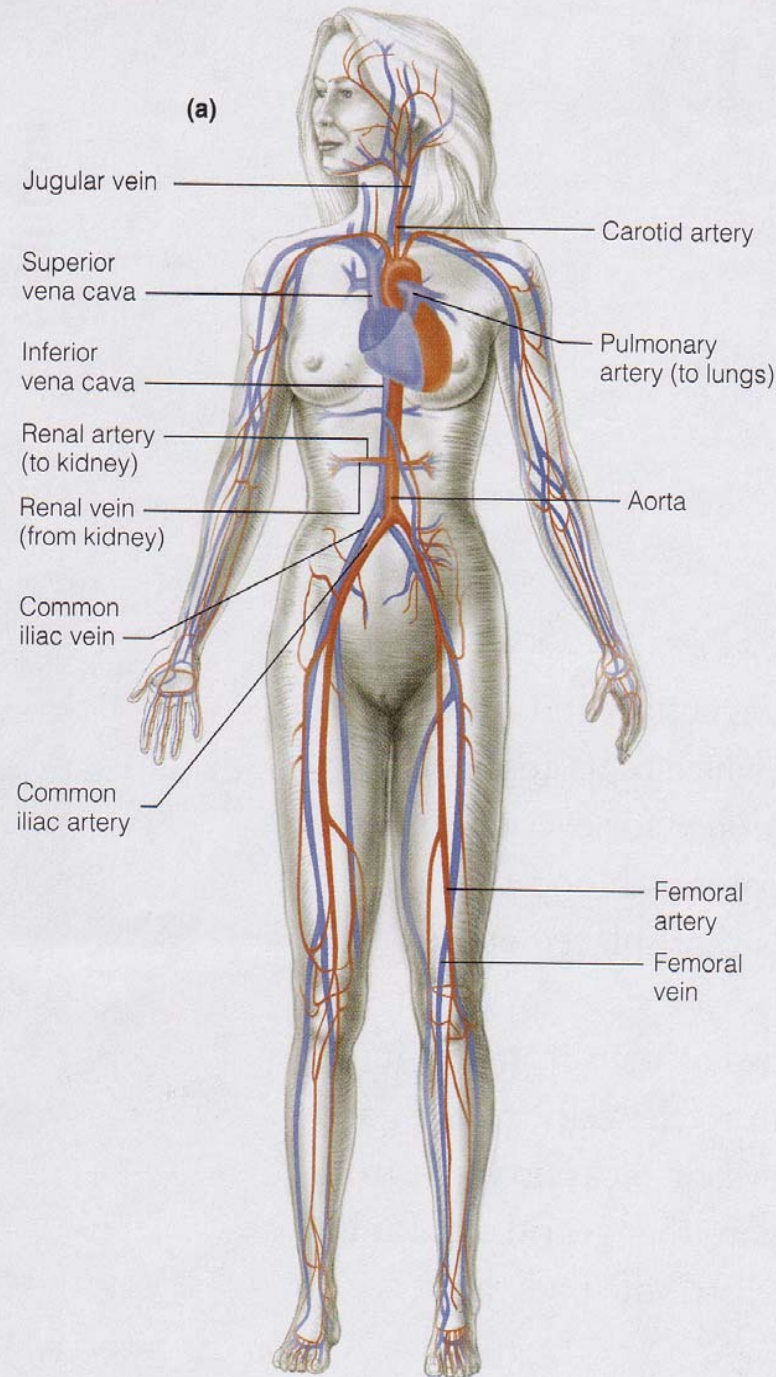
III. Comments on Midterm & Tests Returned

Cardiovascular or CV System

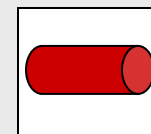
1. Heart

2. Vessels

3. Blood



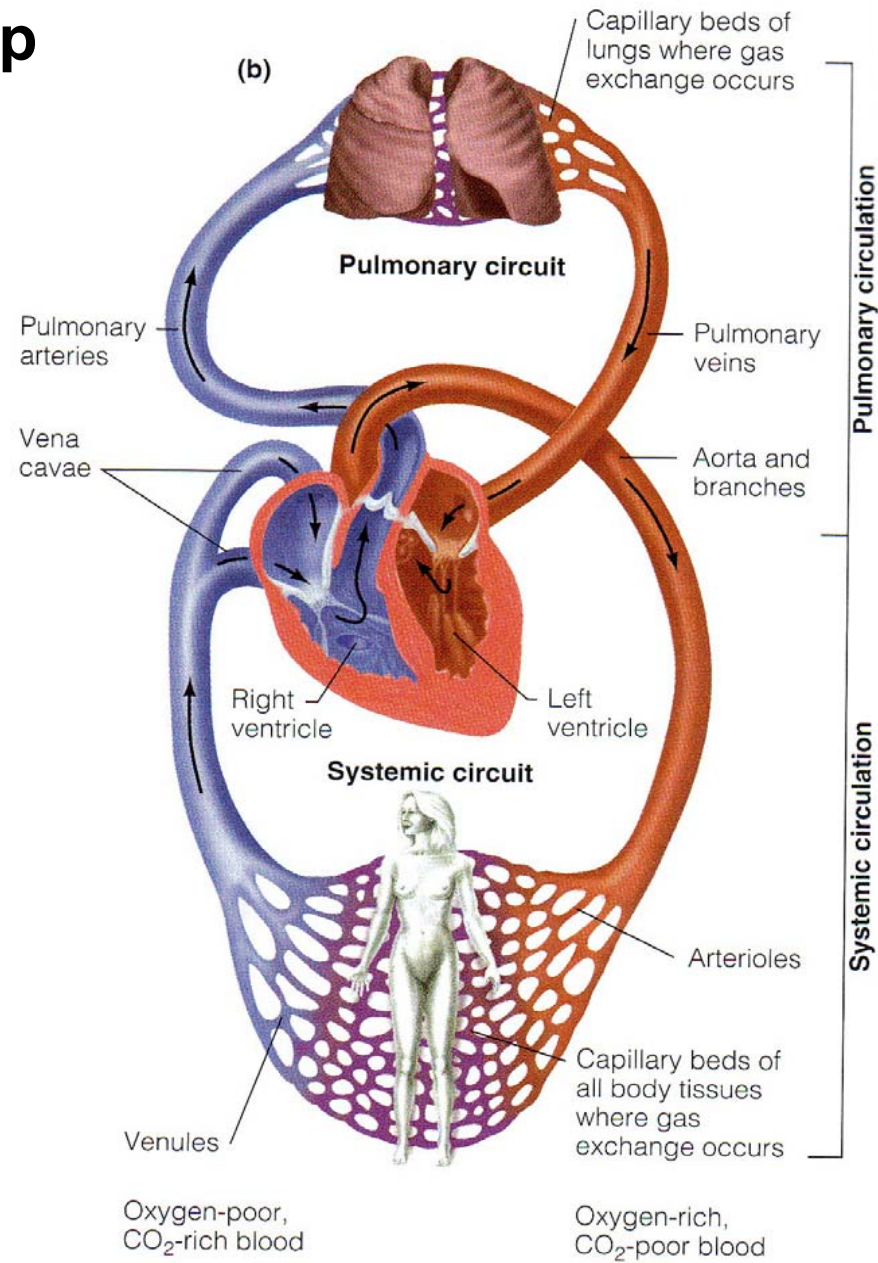
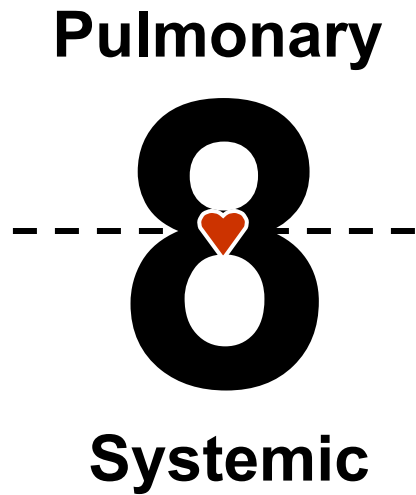
+



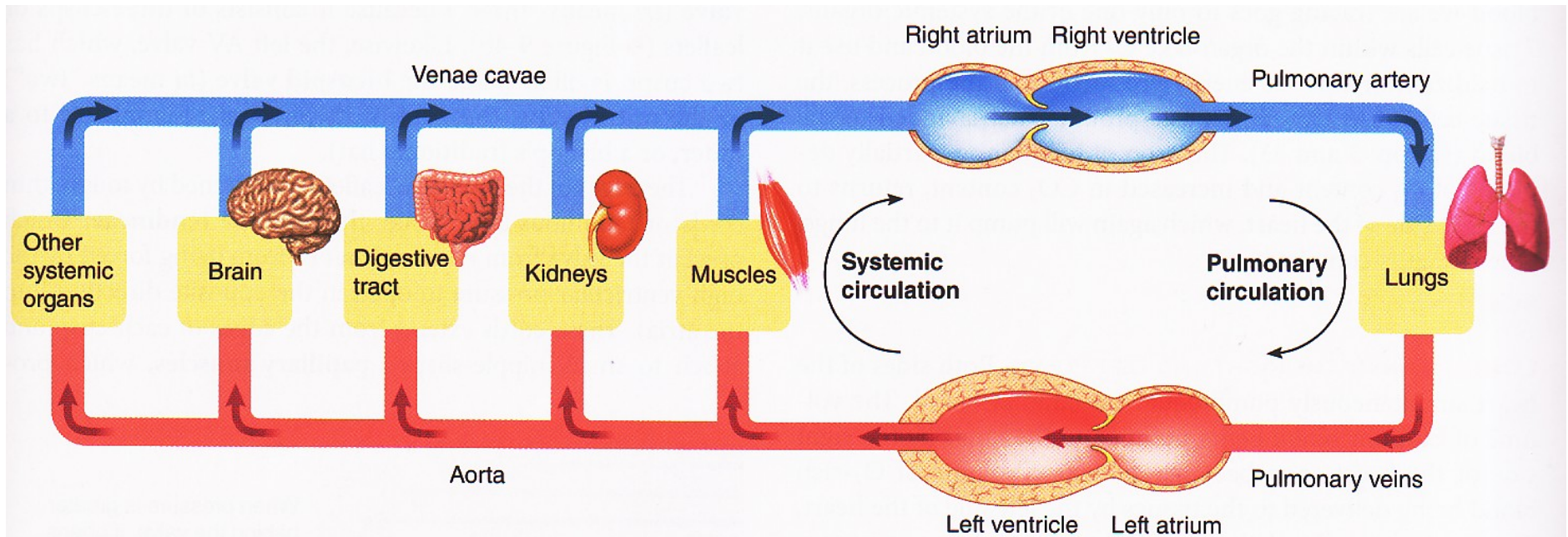
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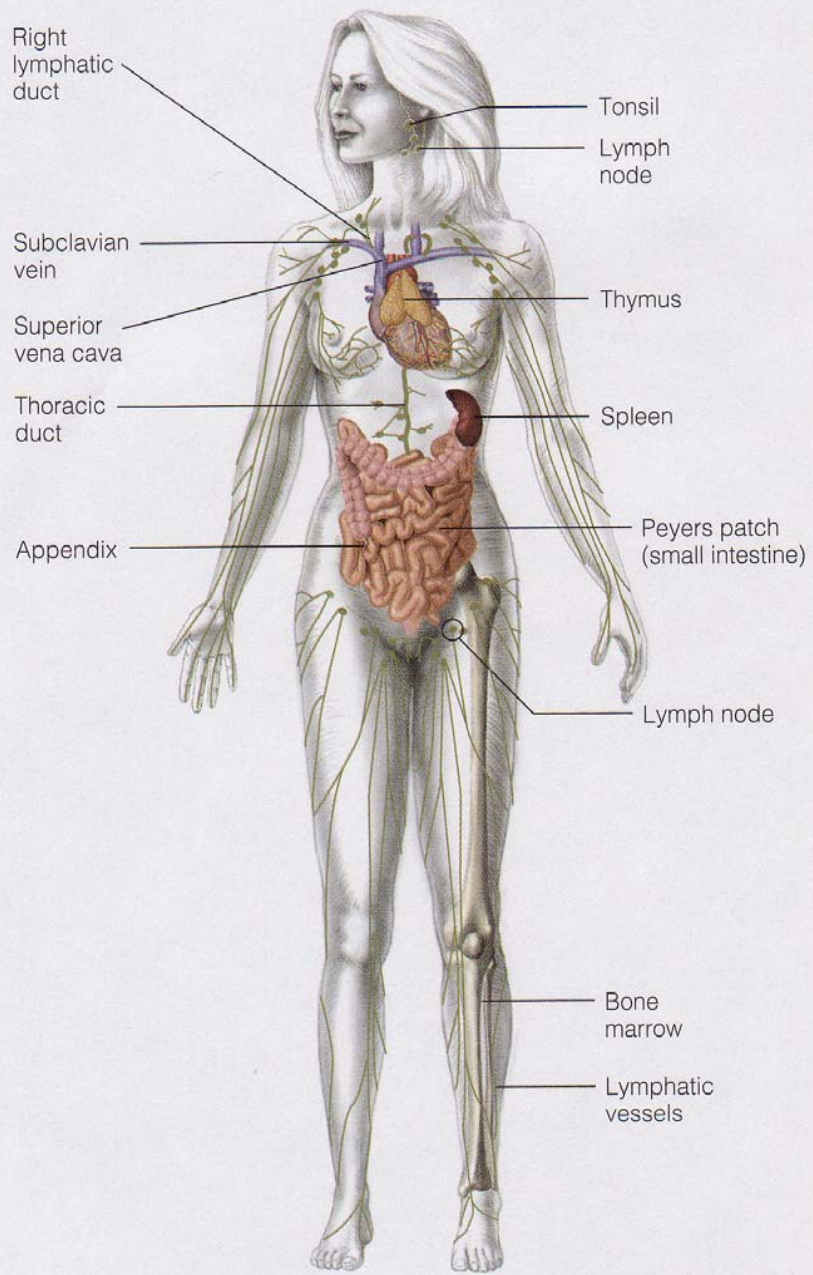


NB: Figure-8 loop



Dual Pump Action & Parallel Circulation



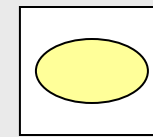


Lymphatic System

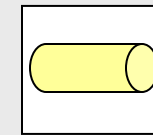
1. Lymph Nodes

2. Vessels

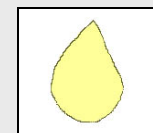
3. Lymph



+



+



No pump!

Lymphatic System

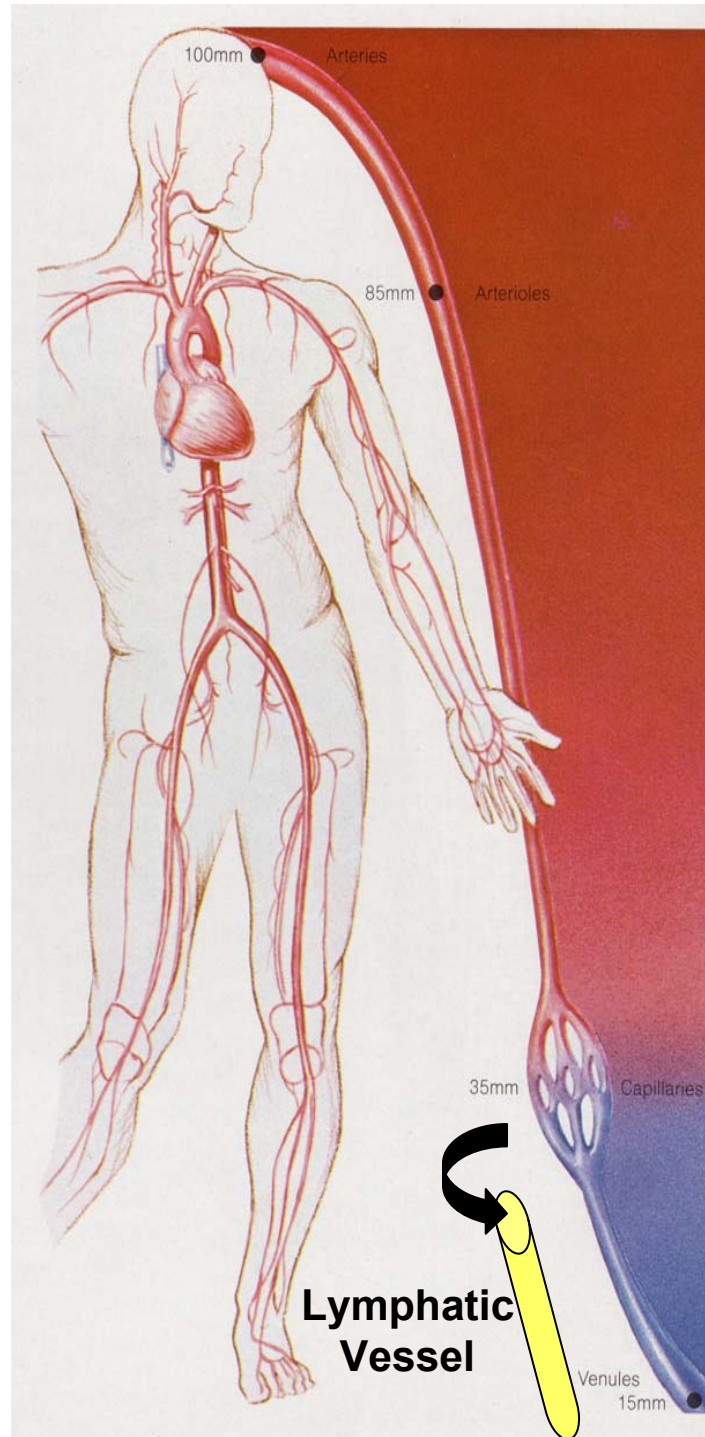
**Alternative System of
Circulation
or
Drainage System**

Lymph Vessels || Veins

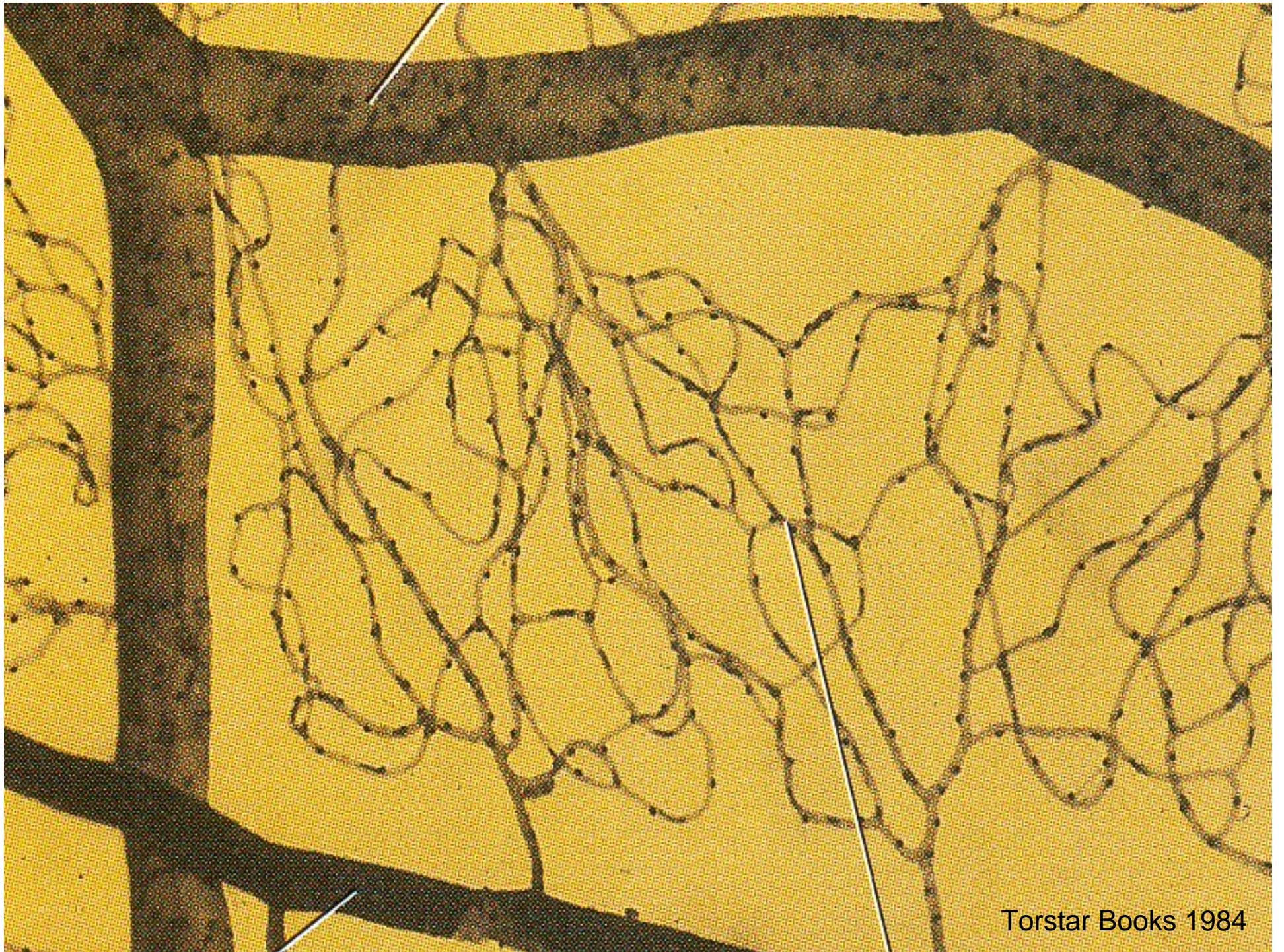
Lymphatic System Blockage in Elephantiasis from Mosquito-borne Parasitic Filaria Worm



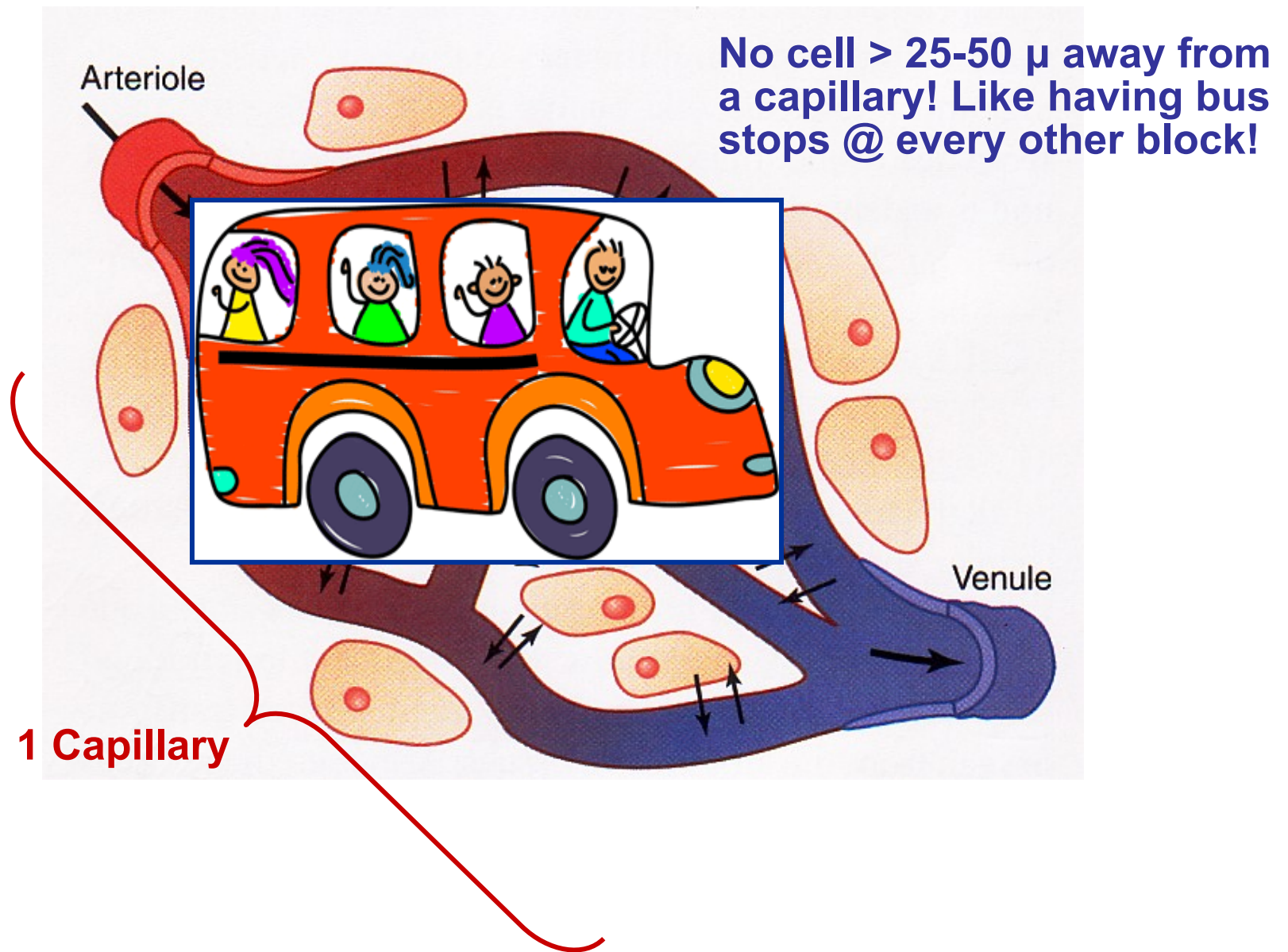
Fred Marsik/Visuals Unlimited

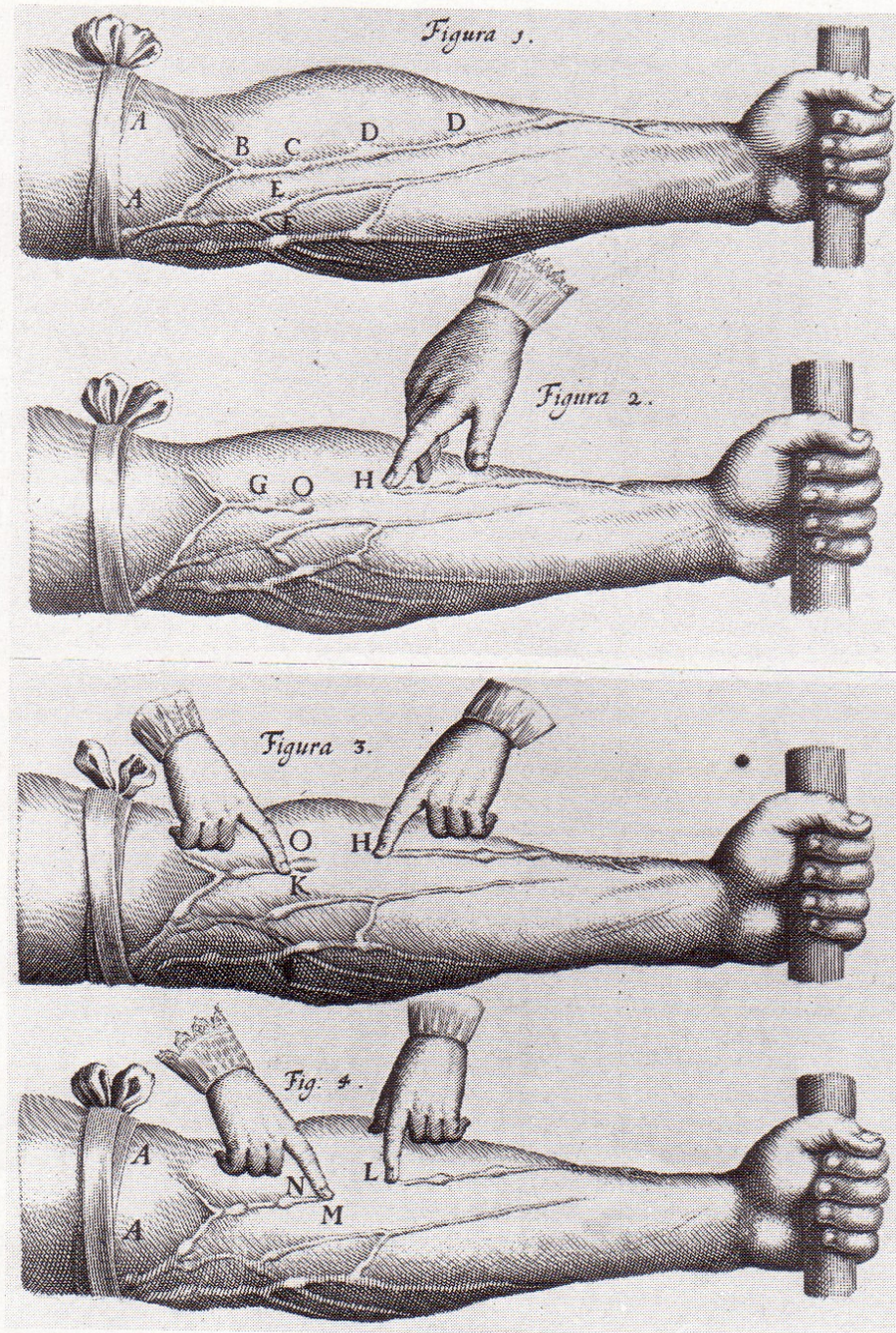


Lymphatics collect run-off & are parallel to venules/small veins!



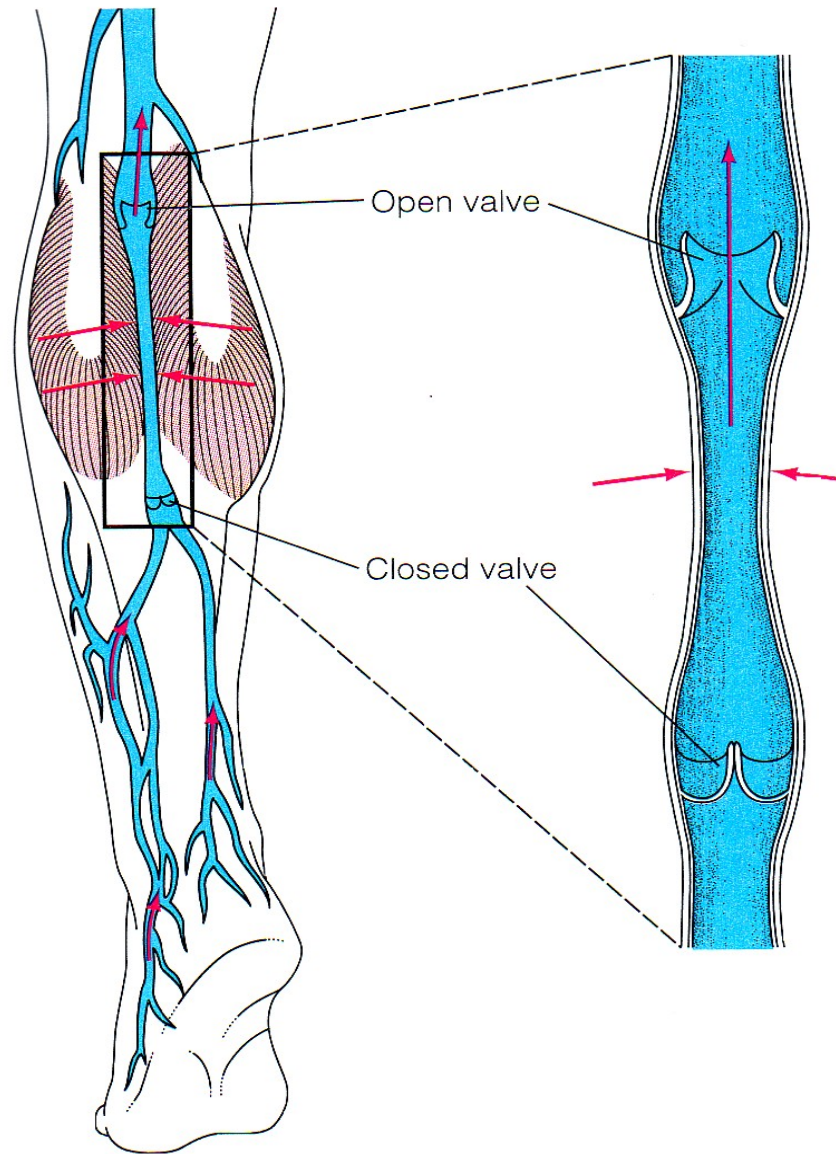
Microcirculation Exchange: 10 Billion Capillaries!





**Harvey
Experiments:
1-way system
of venous
valves!**

Skeletal Muscle Pump

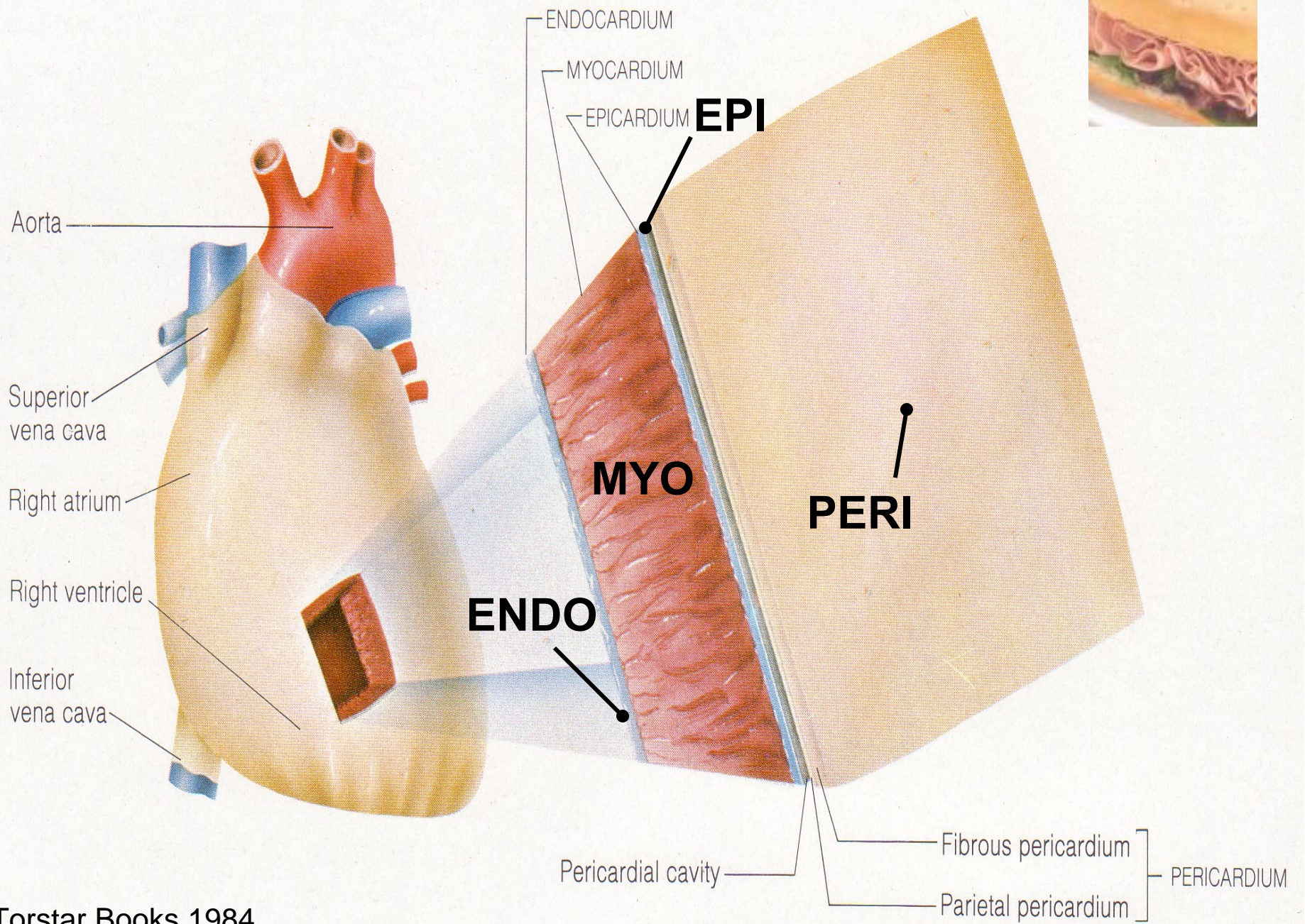




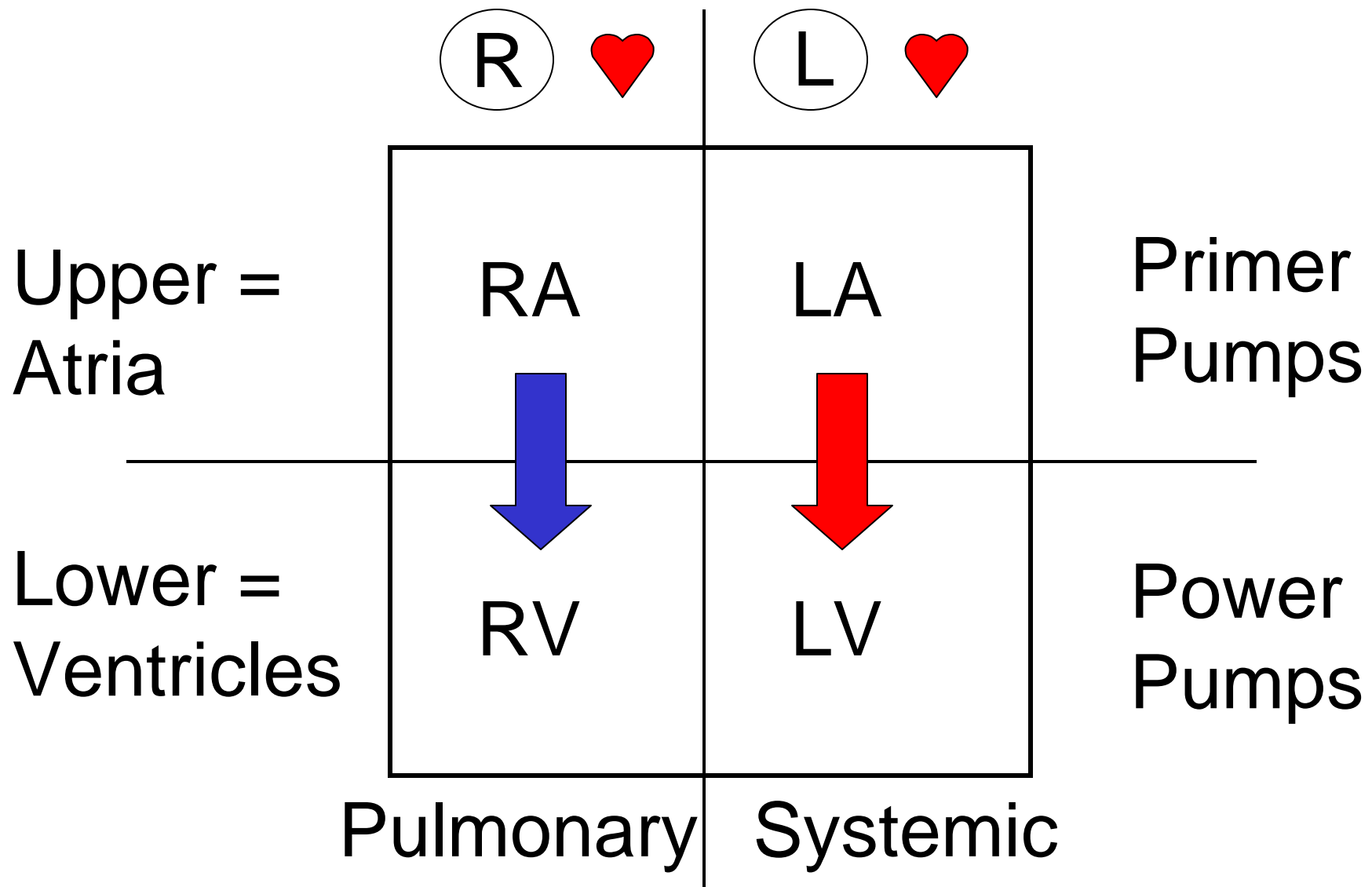
DC 2003

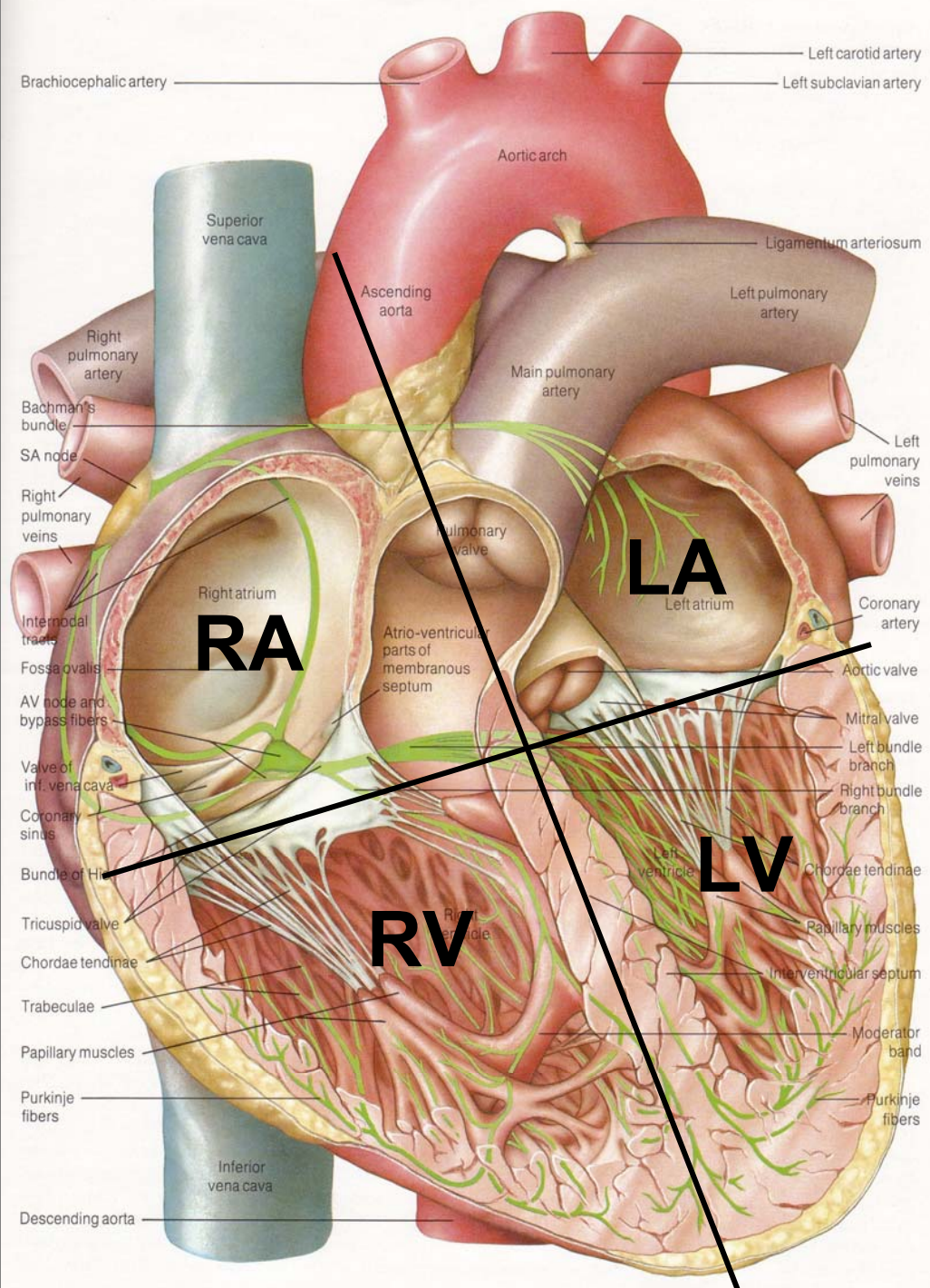
The Heart

The Living Pump

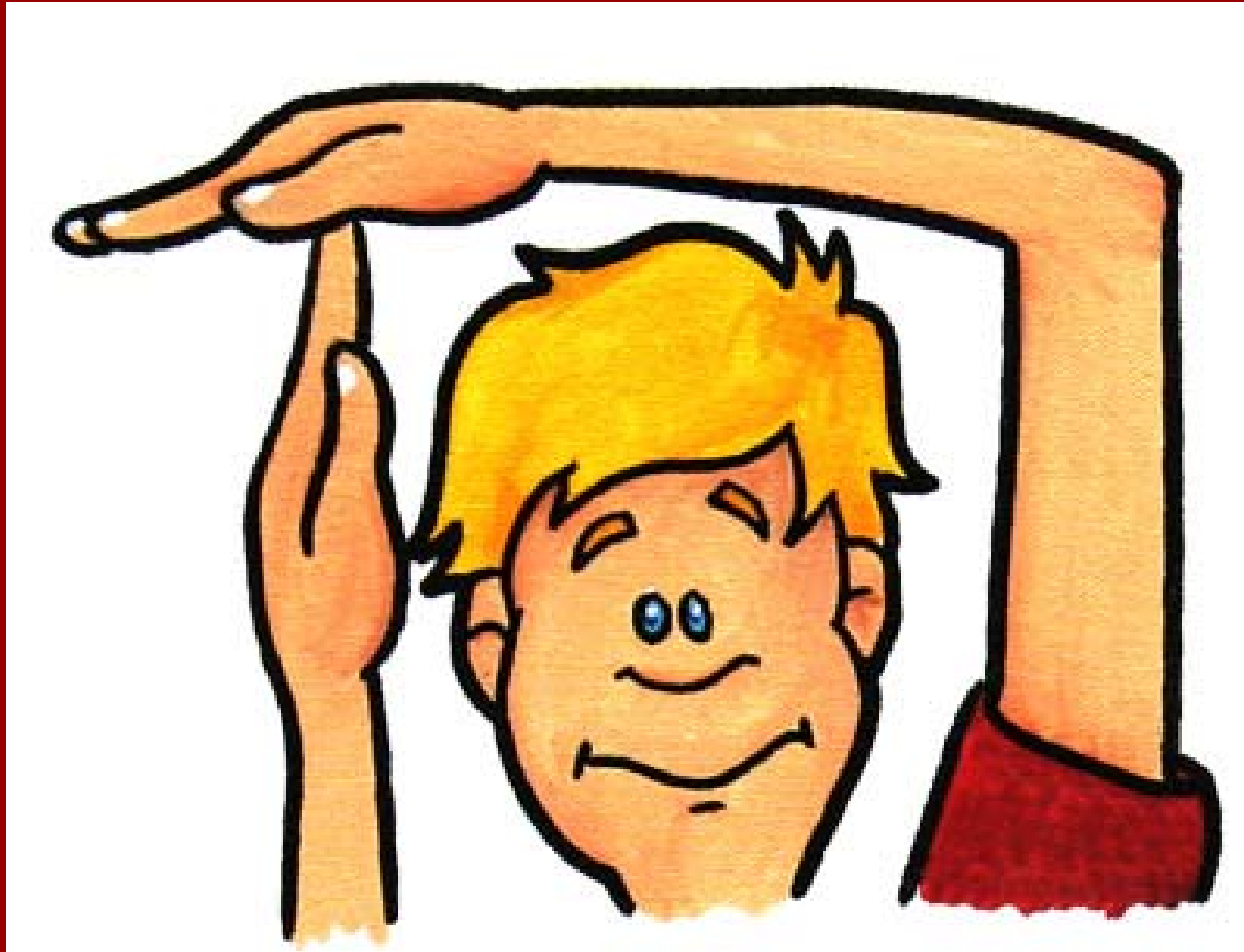


Human  = 4-chambered box?
2 separate pumps?

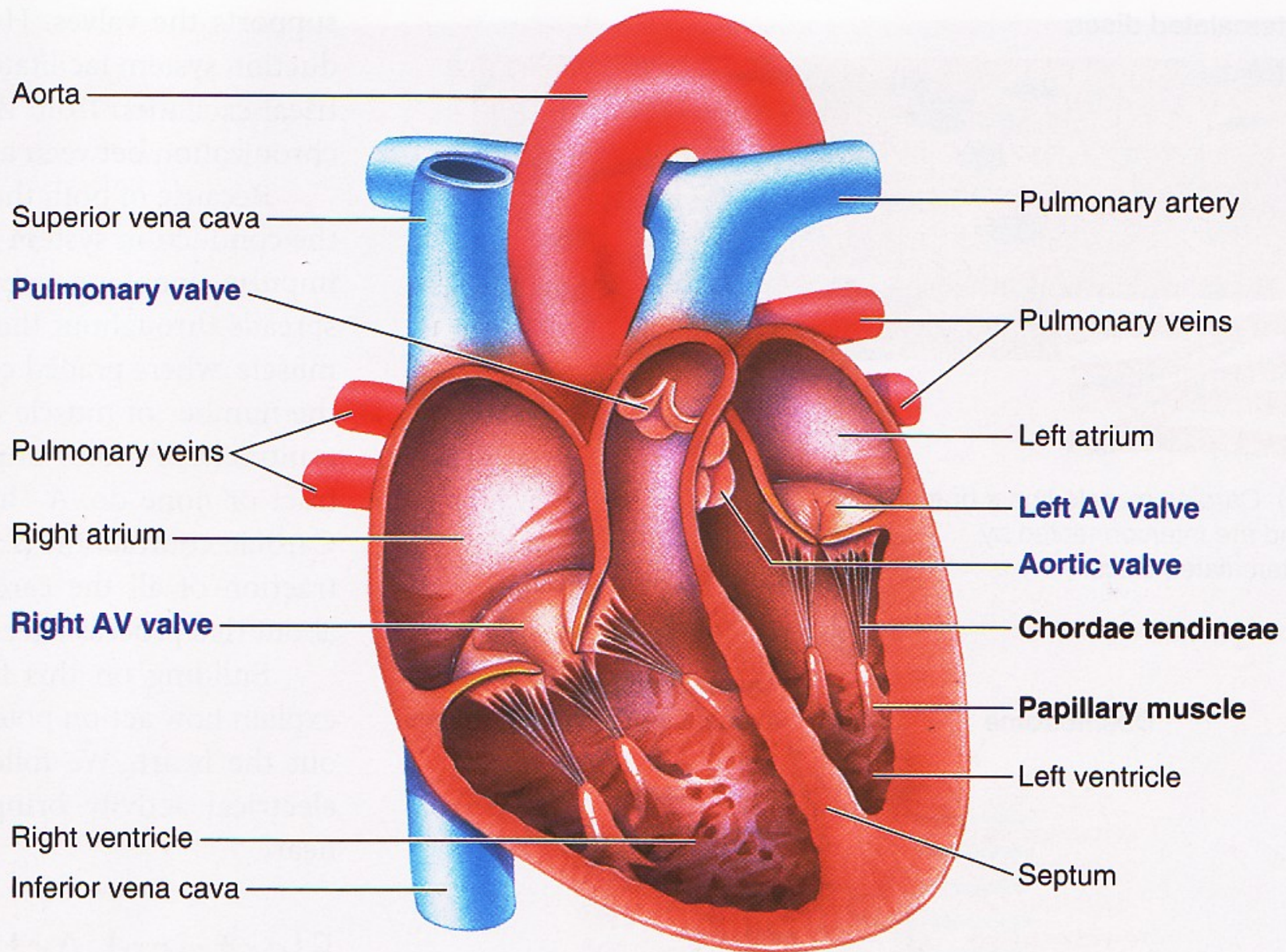




Time-out for Questions!

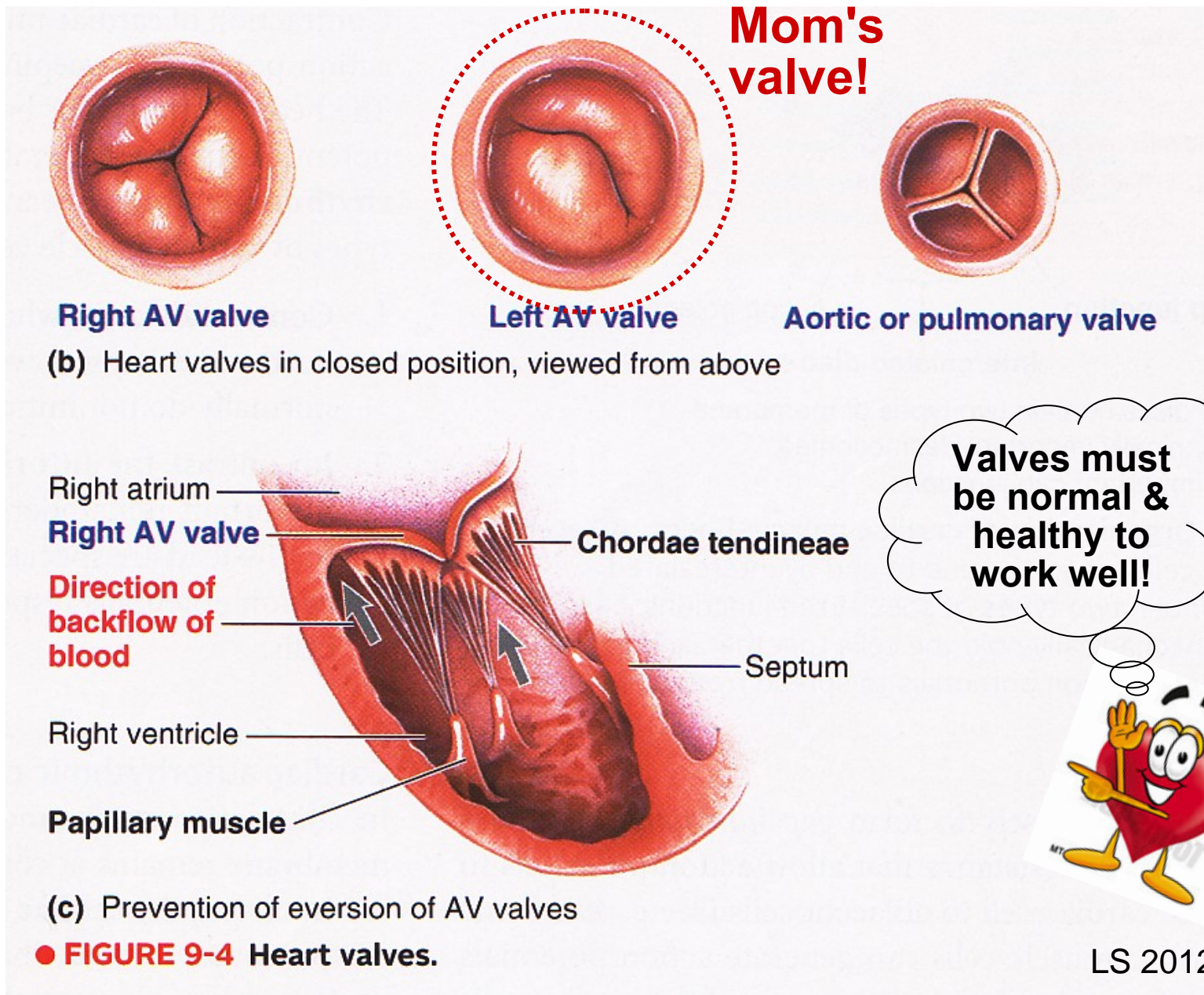


+ Brief Break!



(a) Location of the heart valves in a longitudinal section of the heart

Heart Valves Ensure Unidirectional Blood Flow!



Human ♥ = 4 unique valves?
2 valve sets?

Semilunar = Half-moon shaped

More rigid

1. Pulmonic/Pulmonary
2. Aortic



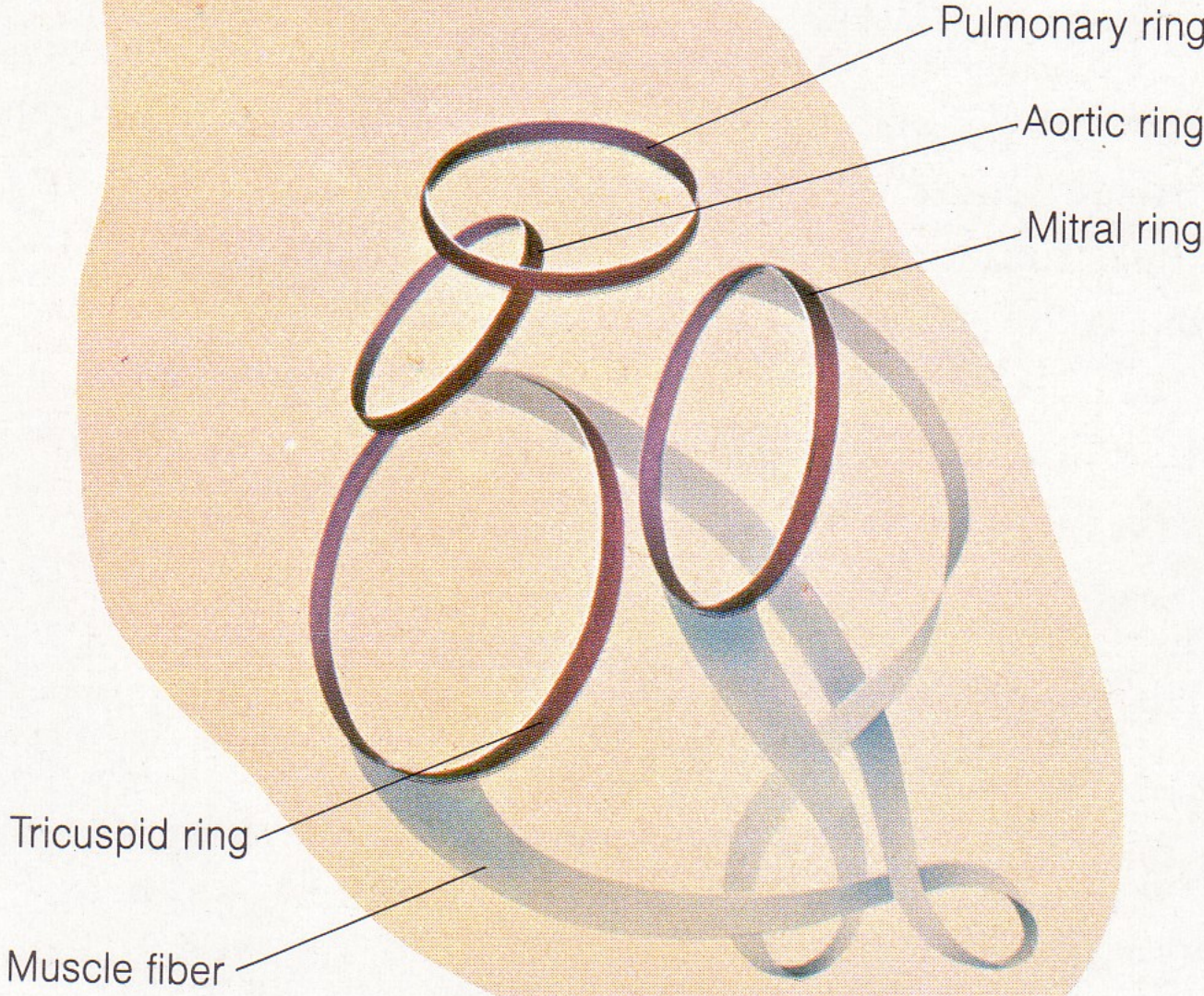
AV = Atrioventricular

More flimsy

3. (R) AV = Tricuspid
4. (L) AV = Mitral/Bicuspid



Heart Valve Orientation & Scaffolding



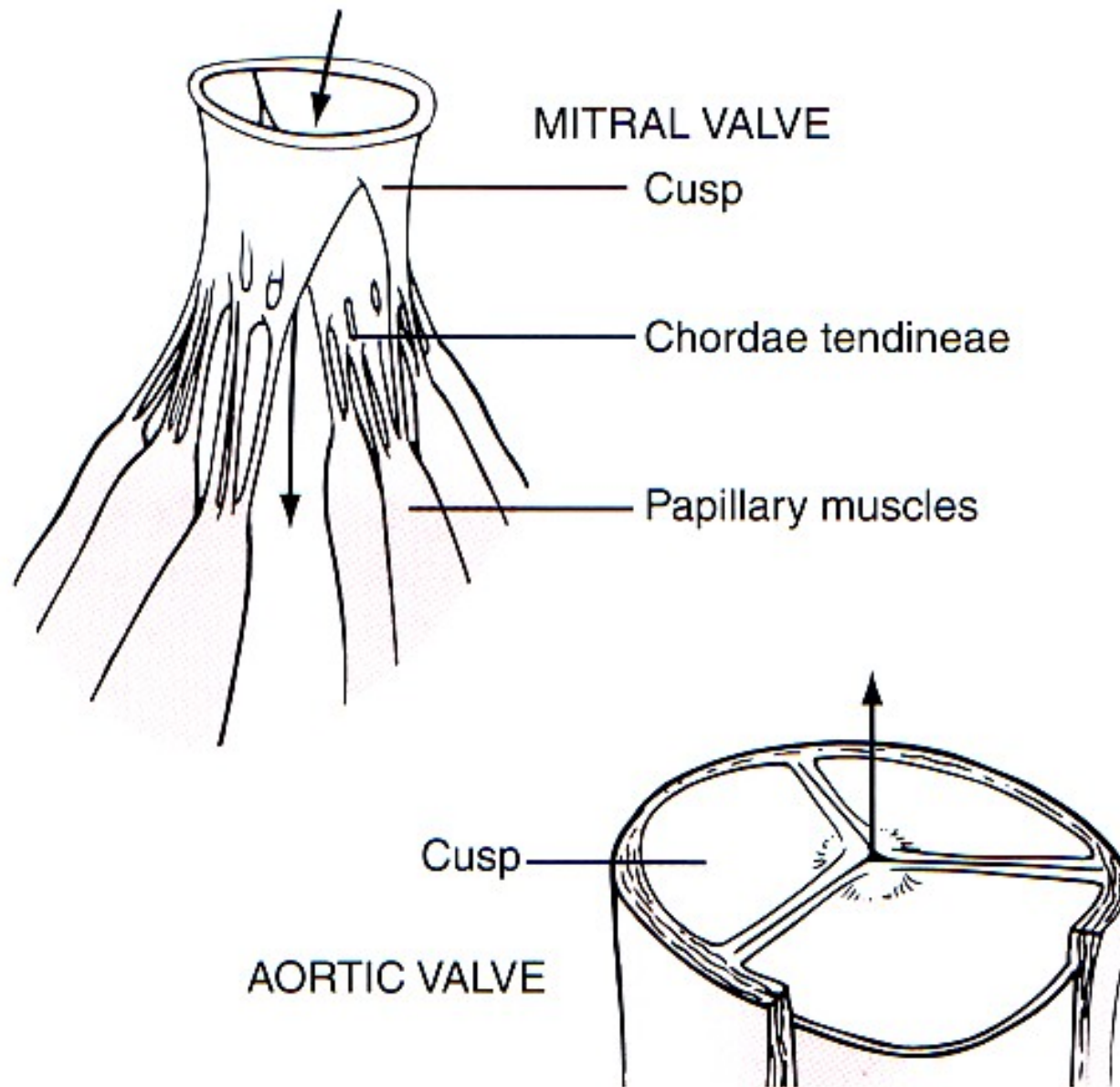
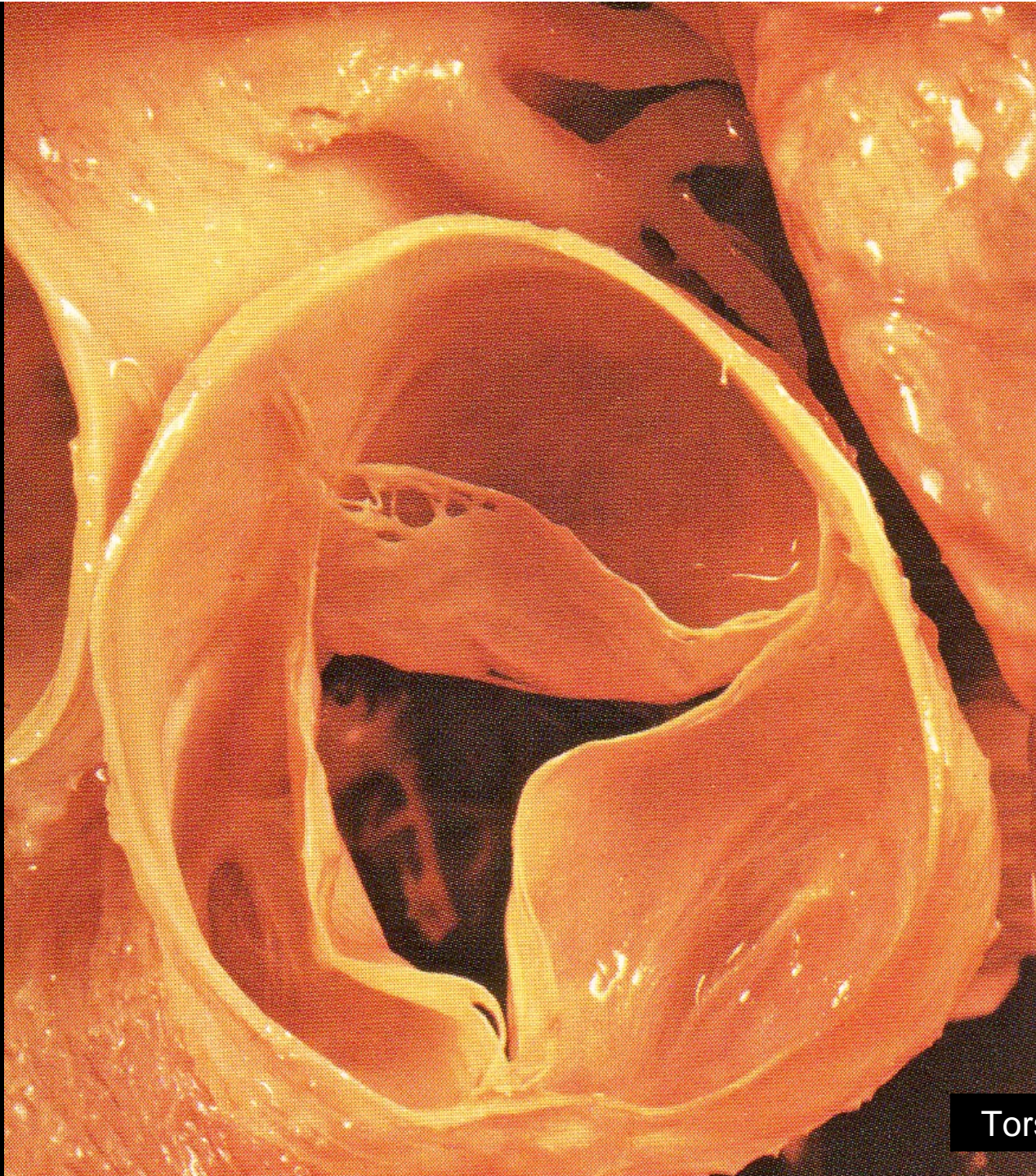
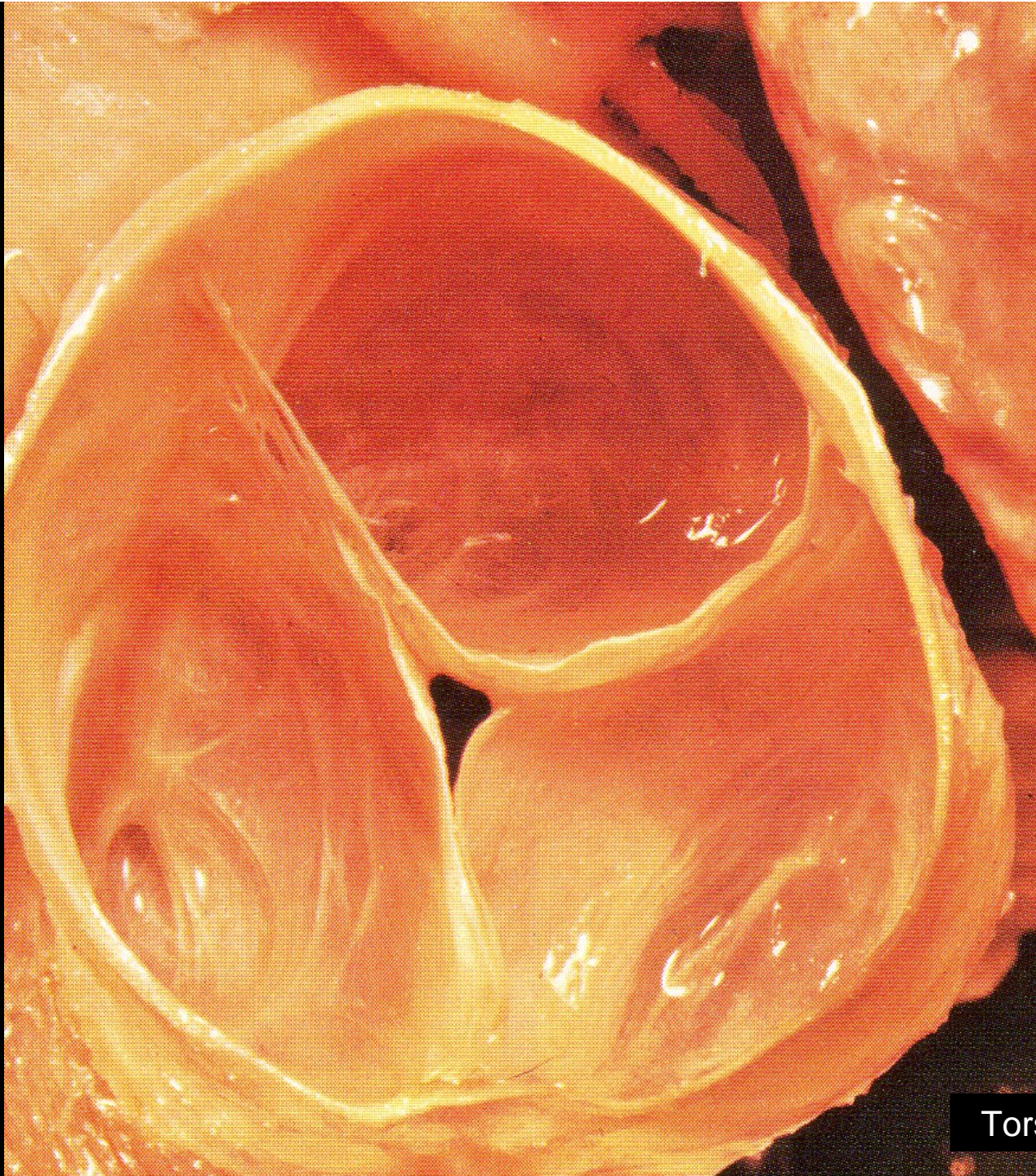


FIGURE 9-6

Mitral and aortic valves.

Guyton & Hall





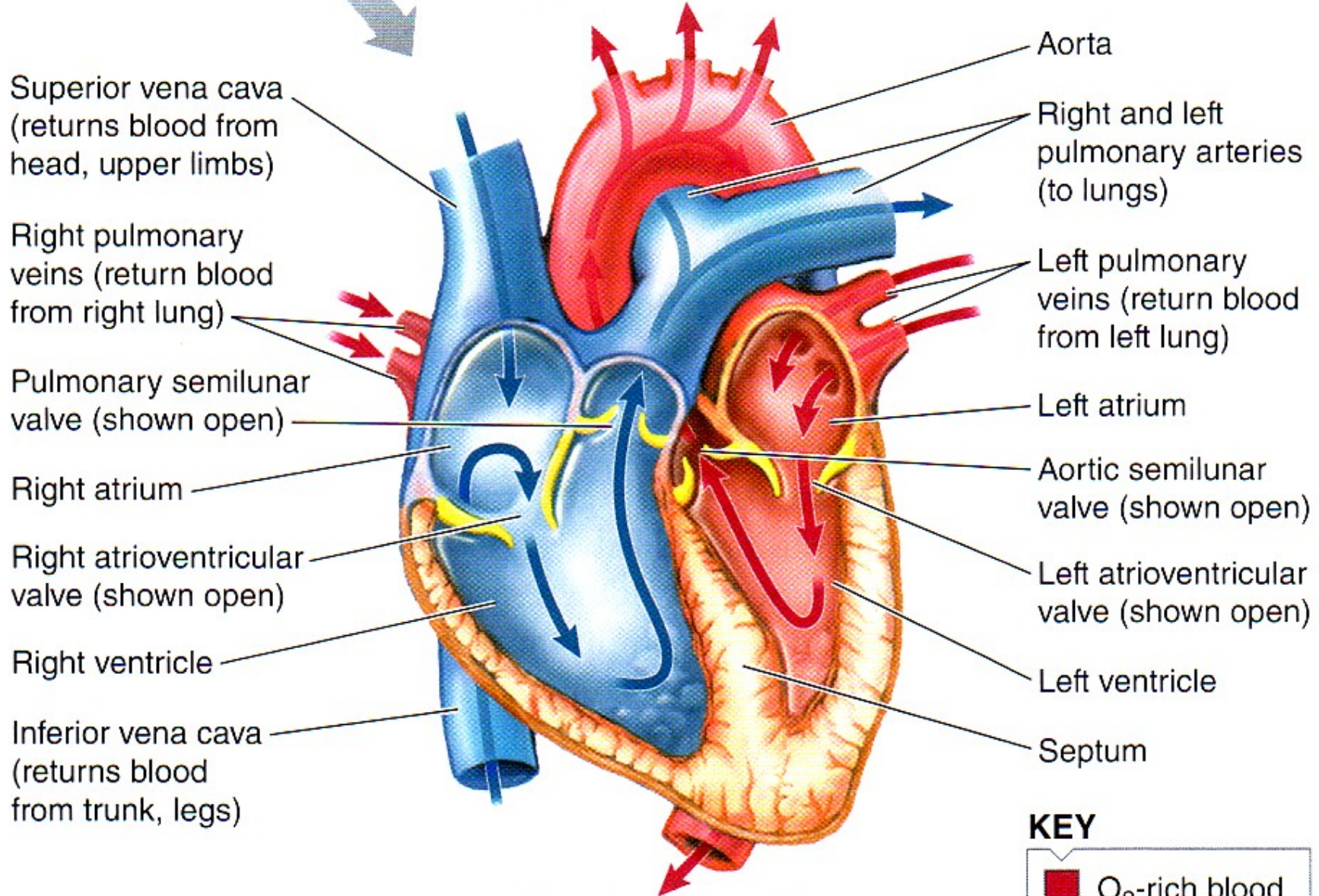


Torstar Books 1984



To systemic circulation
(upper body)

♥ Blood Flow

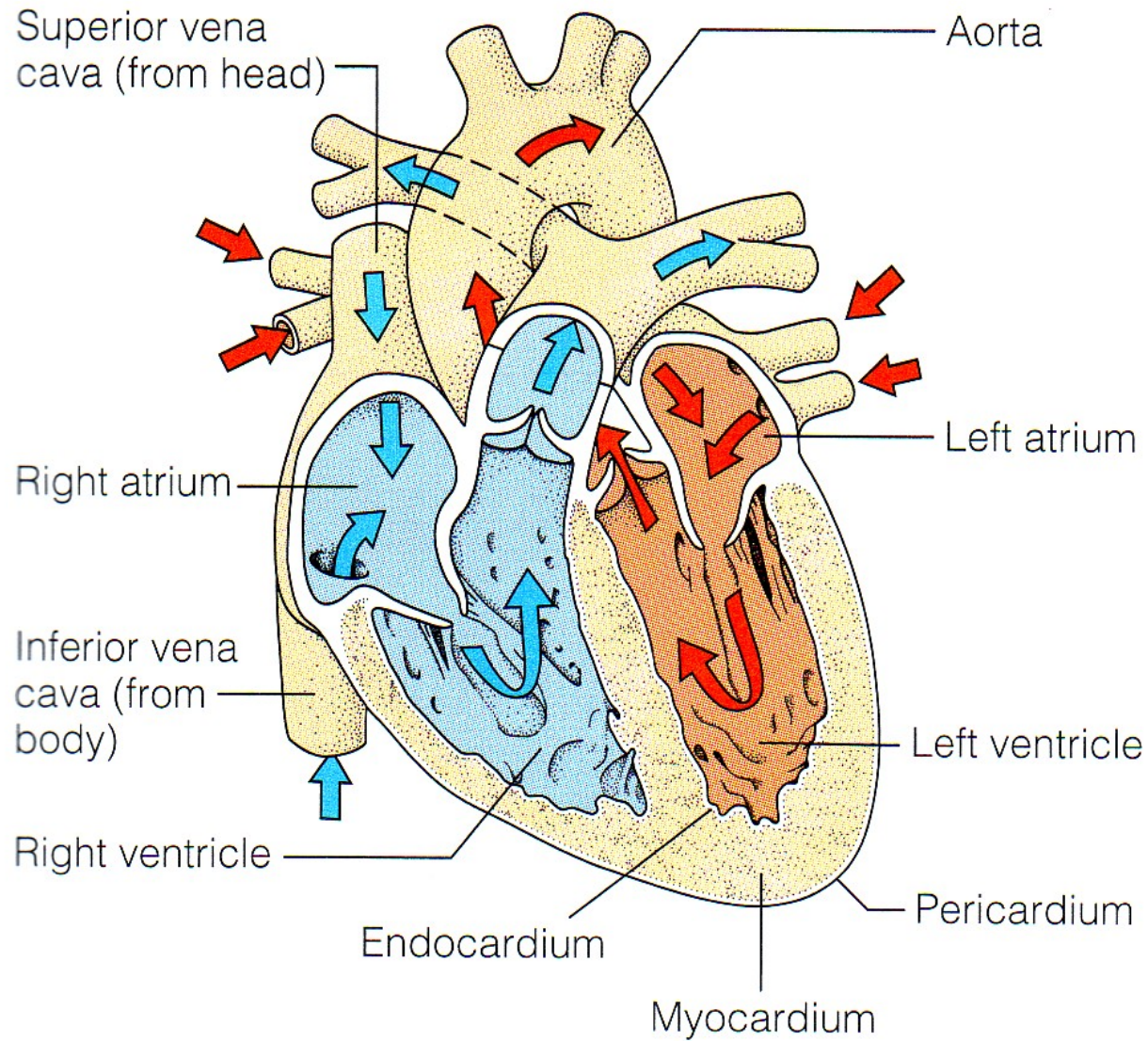


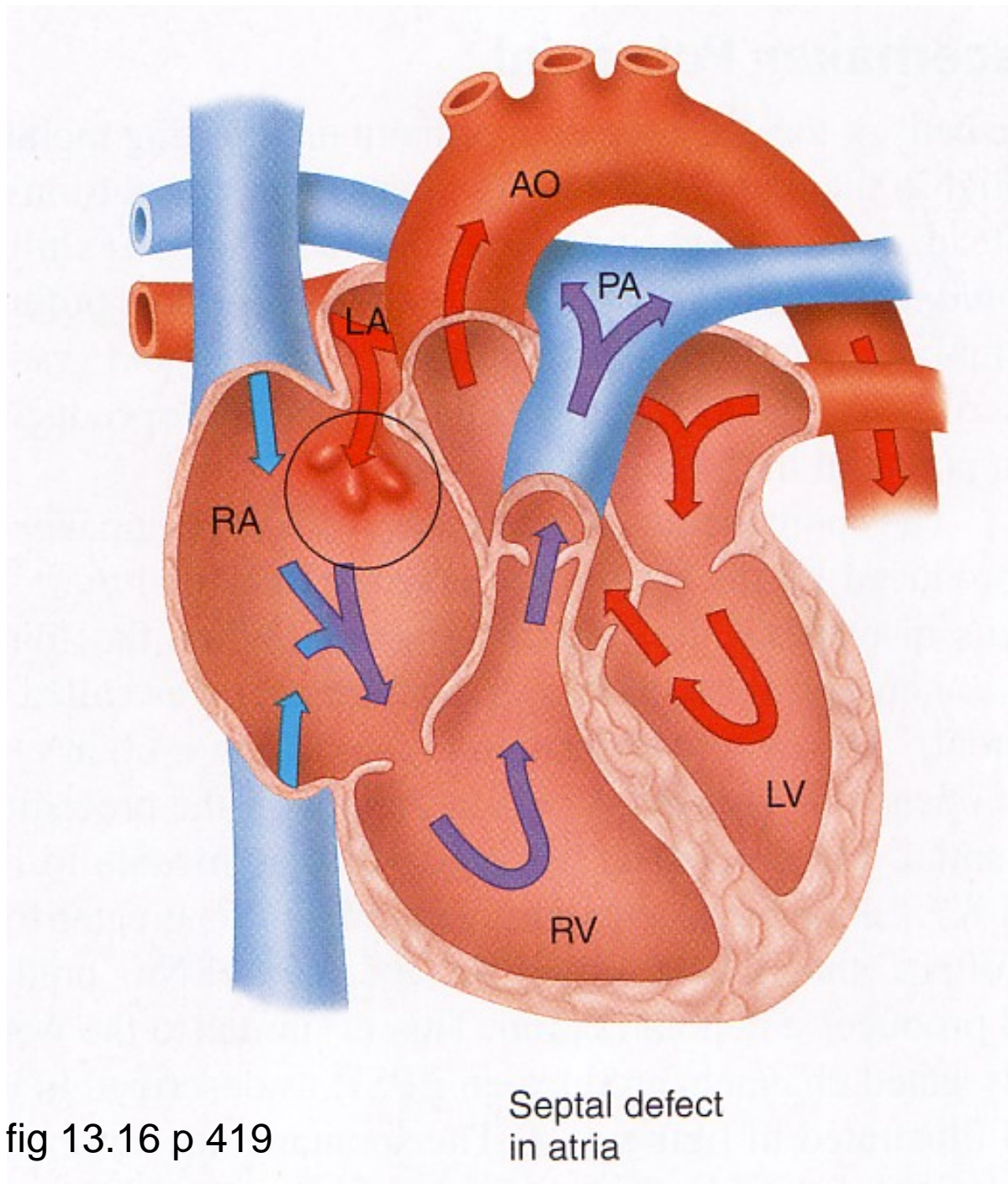
To systemic circulation
(lower body)

KEY

- O₂-rich blood
- O₂-poor blood

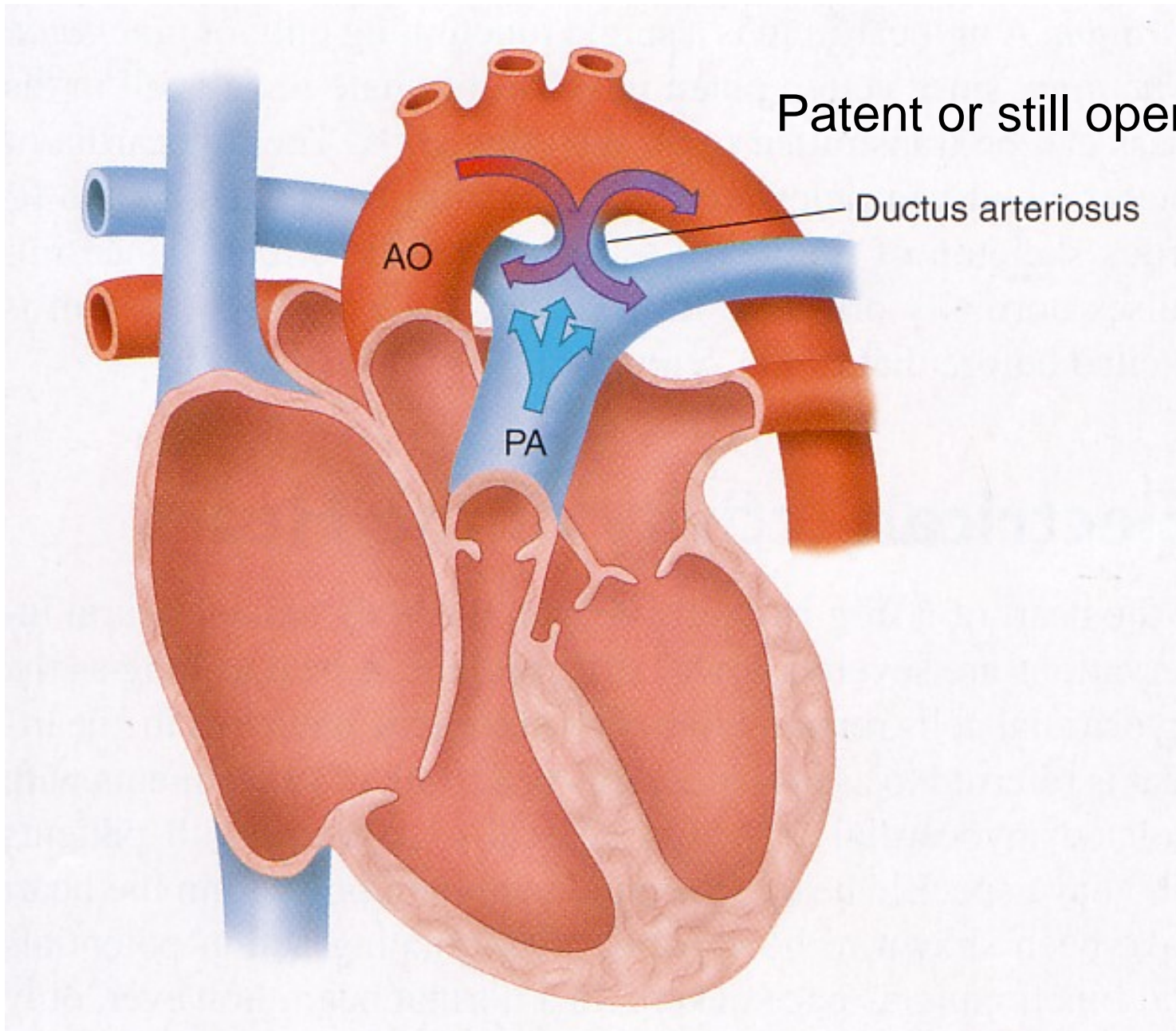
Veins → Atria → Ventricles → Arteries





SI Fox 2009 fig 13.16 p 419

Septal defect
in atria



SI Fox 2009 fig 13.17 p 420

WOW!



SUPER



~ TOP 5-10!

EXCELLENT!!



~ TOP 15!

GREAT EFFORT



~ TOP 20-25!

Class Frequency Distribution Report for BI 121 Midterm U14, Multiple Choice, Part II

Overall

Mean Score: 77.21%



Grade	Percent Score	Raw Score	Frequency	Percent
A	90.00 - 100.00	36.00 - 40.00	7	20.00
B	80.00 - 89.99	32.00 - 35.99	7	20.00
C	70.00 - 79.99	28.00 - 31.99	14	40.00
D	60.00 - 69.99	24.00 - 27.99	5	14.29
F	0.00 - 59.99	0.00 - 23.99	2	5.71

